



# Flowfresh Urethane Cement Flooring System



## Environmental Product Declaration

*Operated By*



Certified  
Environmental  
Product Declaration  
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|   |  |  |
|---|--|--|
| Program Operator  | NSF International<br>789 N. Dixboro, Ann Arbor, MI 48105<br><a href="http://www.nsf.org">www.nsf.org</a>                       |  |
| Manufacturer Name and Address   | Key Resin Company<br>4050 Clough Woods Drive<br>Batavia, Ohio 45103  |  |
| Declaration Number  | EPD10998   |  |
| Declared Product and Functional Unit  | FlowResin Flowfresh Urethane Cement Flooring System<br>One square meter of covered and protected flooring surface for 60 years |  |
| Reference PCR and Version Number  | PCR for Resinous Floor Coatings, NSF International, Version 1, December 17, 2018 (Validity extended to 2024)                   |  |
| Product's intended Application and Use  | Commercial and Industrial Applications   |  |
| Product RSL   | Various  |  |
| Markets of Applicability  | North America  |  |
| Date of Issue   | 01/14/2025   |  |
| Period of Validity  | 5 years from date of issue   |  |
| EPD Type  | Product Specific   |  |
| Range of Dataset Variability  | N/A  |  |
| EPD Scope   | Cradle to Grave  |  |
| Year of reported manufacturer primary data  | 2022-2023  |  |
| LCA Software and Version Number   | Sphera LCA for Experts (fka GaBi) 10.7.1.28  |  |
| LCI Database and Version Number   | Sphera Managed LCA Content (fka GaBi) 2023.2   |  |
| LCIA Methodology and Version Number   | TRACI 2.1, IPCC AR5  |  |
| The sub-category PCR review was conducted by:   | Thomas Gloria, PhD<br>Bill Stough<br>Jack Geibig   |  |
| This declaration was independently verified in accordance with ISO 14025: 2006. The PCR chosen conforms to ISO 21930:2017.<br><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External  | Jack Geibig - EcoForm<br><a href="mailto:jgeibig@ecoform.com">jgeibig@ecoform.com</a><br>                                      |  |
| This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:   | WAP Sustainability Consulting  |  |
| This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:  | Jack Geibig - EcoForm<br><a href="mailto:jgeibig@ecoform.com">jgeibig@ecoform.com</a><br>                                      |  |
| <p>Limitations:</p> <p>Environmental declarations from different programs (ISO 14025) may not be comparable. In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.</p> |  |  |

## Product Definition and Information

### 1. Company Description

Key Resin Company is a global leader in the resinous flooring industry. With decades of experience in product development research, manufacturing, marketing, and technical services, our seamless hygienic flooring systems are widely used for commercial, institutional, and industrial facilities, including food and beverage processing facilities. The products include concrete sealers, primers, resurfacers, joint filler, crack isolation membrane and topcoats, based on the polymer chemistries of epoxy, acrylic, polyurethane and polyaspartic. Key Resin produces flooring products at two manufacturing sites in Batavia, Ohio, and Phoenix, Arizona.

### 2. Product Description

FlowResin Flowfresh is a waterborne urethane modified cementitious flooring system, manufactured by Key Resin Company. Flowfresh products are fluid-applied multi-layered flooring systems, consisting of primer (optional), body layers varied at thicknesses from 1/8" to 3/8", optional broadcast layer, and selective topcoat. These systems are for commercial, institutional and industrial use with aesthetic finish and/or more functional features, especially excellent resistant to thermal shock, steam cleaning, chemical resistance and moisture vapor transmission. Flowfresh is a line of HACCP (Hazard Analysis and Critical Control points) International certified, antimicrobial treated seamless resinous flooring, designed predominantly for applications in the food/beverage industry and other hygienic applications. Because of the various performance options for thickness and choices of topcoats, the systems presented within this EPD cover the following product families:

Each product family has a base layer and a top coat or sealer.

A description of each base layer is provided below:

- **Flowfresh MF** – a self-leveling, pigmented, smooth finish and easy-to-clean cementitious urethane floor for medium duty service.
- **Flowfresh SL** – a self-leveling, pigmented, slurry-aggregate broadcast cementitious urethane textured floor system for medium duty service.
- **Flowfresh SR/SRQ** – a slurry-quartz aggregate broadcast cementitious urethane textured floor system for heavy duty service with pigmented or color quartz finish.
- **Flowfresh HF/RT** – a rake or trowel-applied, pigmented, cementitious urethane mortar system for heavy duty service.
- **Flowfresh IF** – a trowel-applied, pigmented, iron filled cementitious urethane mortar for heavy duty service with exceptional impact and abrasion resistance.
- **Flowfresh Ultra Flakes** - a slurry-flake broadcast cementitious urethane floor system for medium duty service with decorative, multi-color flake finish.

The optional sealers are:

- Flowfresh FC
- Flowfresh FCUV
- Flowcoat CR - clear and pigmented
- Flowseal PA - clear and pigmented
- Key 467 - HS – clear
- Flowfresh SR Sealer (this is different from the Flowfresh SR mentioned in the previous section above – hence referred to as “SR Sealer”)

Because of the various performance options for thickness and choices of topcoats, the systems presented within this EPD cover the following product families:

1. **No broadcasting system (Category 1)** - Flowfresh MF, HF, IF & RT
  - a. With or without sealers: Flowfresh FC, Flowfresh FCUV
2. **Broadcasting system (Category 2)** - Solid color quartz / silica sand for Flowfresh SL & SR
  - a. Including sealers: Flowfresh FC, Flowfresh FCUV, Flowcoat CR, Flowseal PA, Flowfresh SR Sealer
3. **Broadcasting decorative system (Category 3)**- Decorative Color Quartz for Flowfresh SRQ
  - a. Including sealers: Flowseal PA, Flowcoat CR, Flowseal PA with Key 467-HS, Flowcoat CR with Key 467-HS
4. **Flowfresh Ultra Flakes (Category 4)**
  - a. Including sealers: Flowseal PA, Flowcoat CR, Flowseal PA with Key 467-HS, Flowcoat CR with Key 467-HS

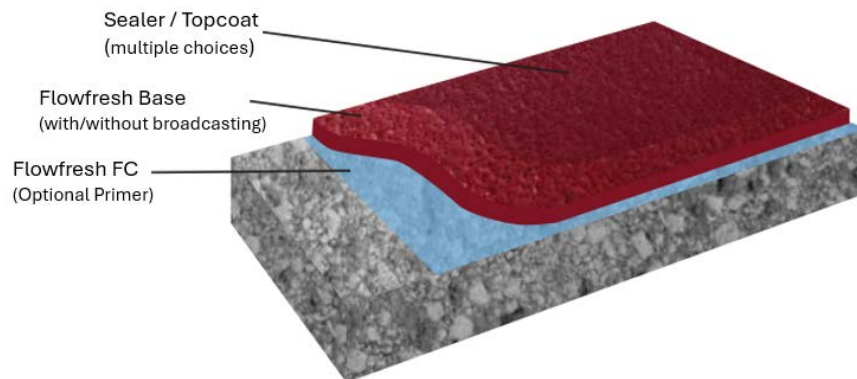


Figure 1: Flowfresh System Structure for Category 1, 2 & 3

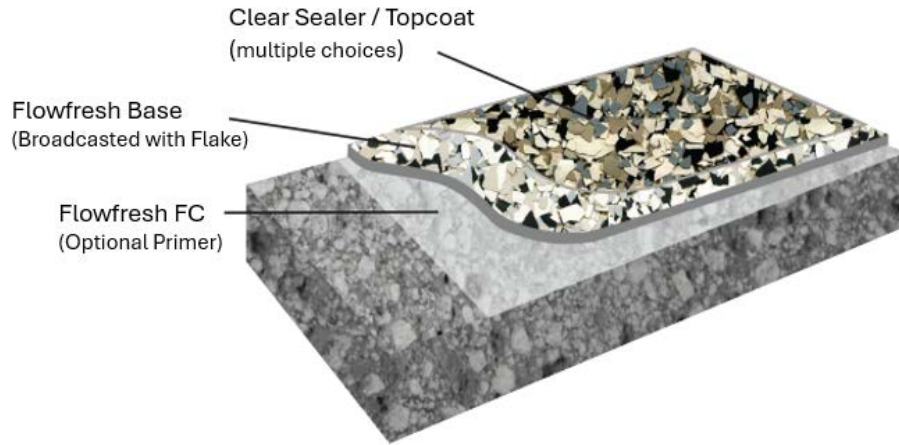


Figure 2: Flowfresh System Structure for Category 4

Table 1: Technical Data – No broadcasting system

|                                  | Flowfresh MF   | Flowfresh HF   | Flowfresh IF   | Flowfresh RT   | Testing Standard                    |
|----------------------------------|--|--|--|--|-------------------------------------|
| Adhesion                         | 400 psi (100% concrete failure)                          | 400 psi (100% concrete failure)                          | 400 psi (100% concrete failure)                          | 400 psi (100% concrete failure)                          | ASTM D4541                          |
| Compressive Strength             | >7,250 psi   | 8,000 psi  | 8,000 psi  | 8,000 psi  | ASTM C579                           |
| Flexural Strength                | 2,900 psi  | 2,900 psi  | 2,900 psi  | 2,900 psi  | ASTM C580                           |
| Tensile Strength                 | 1,740 psi  | 1,450 psi  | 1,450 psi  | 1,450 psi  | ASTM C307                           |
| Coefficient of Friction          | Exceeds ADA recommendations                              | Exceeds ADA recommendations                              | Exceeds ADA recommendations                              | Exceeds ADA recommendations                              | ASTM D2047                          |
| Coefficient of Thermal Expansion | 2.2 x 10 <sup>-5</sup> inches per inch per degree °F     | 1.1 x 10 <sup>-5</sup> inches per inch per degree °F     | 1.1 x 10 <sup>-5</sup> inches per inch per degree °F     | 1.1 x 10 <sup>-5</sup> inches per inch per degree °F     | ASTM C531                           |
| Temperature Resistance           | Continuous Exposure: 180°F<br>Intermittent Spills: 200°F | Continuous Exposure: 220°F<br>Intermittent Spills: 250°F | Continuous Exposure: 220°F<br>Intermittent Spills: 250°F | Continuous Exposure: 220°F<br>Intermittent Spills: 250°F | -                                   |
| Abrasion Resistance              | 0.07g loss   | 0.05g loss   | 0.05g loss   | 0.07g loss   | ASTM D4060, CS17 Wheel, 1000 cycles |
| VOC                              | 7 g/l  | 5 g/l  | 5 g/l  | 6 g/l  | -                                   |

Table 2: Technical Data - Broadcasting system - Solid color quartz / sand

|                                  | Flowfresh SL   | Flowfresh SR   | Testing Standard                    |
|----------------------------------|--|--|-------------------------------------|
| Adhesion                         | 400 psi<br>(100% concrete failure)                       | 400 psi<br>(100% concrete failure)                       | ASTM D4541                          |
| Compressive Strength             | >7,250 psi   | 8,128 psi  | ASTM C579                           |
| Flexural Strength                | 2,900 psi  | 2,900 psi  | ASTM C580                           |
| Tensile Strength                 | 1,740 psi  | 1,450 psi  | ASTM C307                           |
| Coefficient of Friction          | Exceeds ADA recommendations                              | Exceeds ADA recommendations                              | ASTM D2047                          |
| Coefficient of Thermal Expansion | 2.7 x 10 <sup>-5</sup> inches per inch per degree oF     | 1.5 x 10 <sup>-5</sup> inches per inch per degree oF     | ASTM C531                           |
| Temperature Resistance           | Continuous Exposure: 180°F<br>Intermittent Spills: 220°F | Continuous Exposure: 200°F<br>Intermittent Spills: 250°F | -                                   |
| Abrasion Resistance              | 0.05g loss   | 0.05g loss   | ASTM D4060, CS17 Wheel, 1000 cycles |
| VOC                              | 9 g/l  | 7 g/l  | -                                   |

Table 3: Technical Data - Broadcasting system - Decorative Color Quartz

|                                  | Flowfresh SRQ  | Testing Standard                    |
|----------------------------------|--|-------------------------------------|
| Adhesion                         | 400 psi<br>(100% concrete failure)                       | ASTM D4541                          |
| Compressive Strength             | 8,128 psi  | ASTM C579                           |
| Flexural Strength                | 2,900 psi  | ASTM C580                           |
| Tensile Strength                 | 1,450 psi  | ASTM C307                           |
| Coefficient of Friction          | Exceeds ADA recommendations                              | ASTM D2047                          |
| Coefficient of Thermal Expansion | 1.5 x 10 <sup>-5</sup> inches per inch per degree oF     | ASTM C531                           |
| Temperature Resistance           | Continuous Exposure: 180°F<br>Intermittent Spills: 210°F | -                                   |
| Abrasion Resistance              | 0.05g loss   | ASTM D4060, CS17 Wheel, 1000 cycles |
| VOC                              | 7 g/l  | -                                   |

Table 4: Technical Data - Ultra Flakes

|                                  | Flowfresh Ultra Flakes                                   | Testing Standard                             |
|----------------------------------|--|--|
| Adhesion                         | 400 psi<br>(100% concrete failure)                       | ASTM D4541                                   |
| Compressive Strength             | >7,250 psi   | ASTM C579                                    |
| Flexural Strength                | 2,900 psi  | ASTM C580                                    |
| Tensile Strength                 | 1,450 psi  | ASTM C307                                    |
| Coefficient of Friction          | Exceeds ADA recommendations                              | ASTM D2047                                   |
| Coefficient of Thermal Expansion | 2.7 x 10 <sup>-5</sup><br>inches per inch per degree oF  | ASTM C531                                    |
| Temperature Resistance           | Continuous Exposure: 165°F<br>Intermittent Spills: 200°F | -  |
| Abrasion Resistance              | 0.05g loss   | ASTM D4060,<br>CS17<br>Wheel, 1000<br>cycles |
| VOC                              | 6 g/l  | -  |

### 3. Application

Key Resin flooring systems protect and beautify concrete surfaces, covering all the primary market segments from decorative to industrial, institutional to commercial.

### 4. Properties of Declared Product as Delivered

In general, the product systems are built layer by layer by mixing components within pre-measured kits. The components typically include a resin, a hardener, a filler, and a pigment. The layers include:

- Base
- One or more sealers

Products produced at Key Resin facilities are in liquid form (resin, hardener) and are packaged on-site in plastic containers and lined paper bags (filler, pigment).

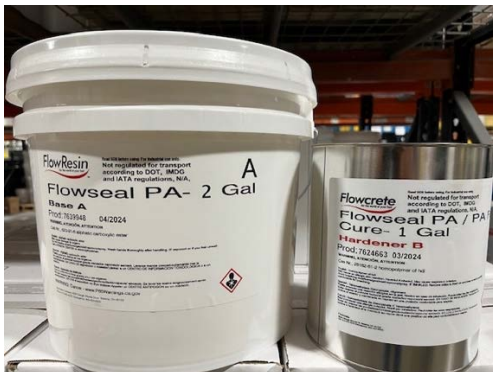
Pictures of packaging of the components are provided below.



(a) Flowfresh Base Liquid (Part A & B)



(b) Flowfresh FCUV (Part A & B)



(c) FlowSeal PA (Part A & B)



(d) Flowcoat CR (Part A & B)



(e) Key 467 HS (Part A & B)



(f) Filler-Flowfresh FC, MF, HF, SL, etc.



(g) Flowfresh SR Sealer

Figure 3: FlowResin Flowfresh component packaging



## 5. Declaration of Methodological Framework

This EPD is considered a Cradle-to-Grave study. A summary of the life cycle stages included in this EPD is presented in System Boundary. The reference service life is outlined in Table 16 and is only applicable if all manufacturing guidelines are followed regarding site-selection and installation, found online. No known flows are deliberately excluded from this EPD.

## 6. Flow Diagram

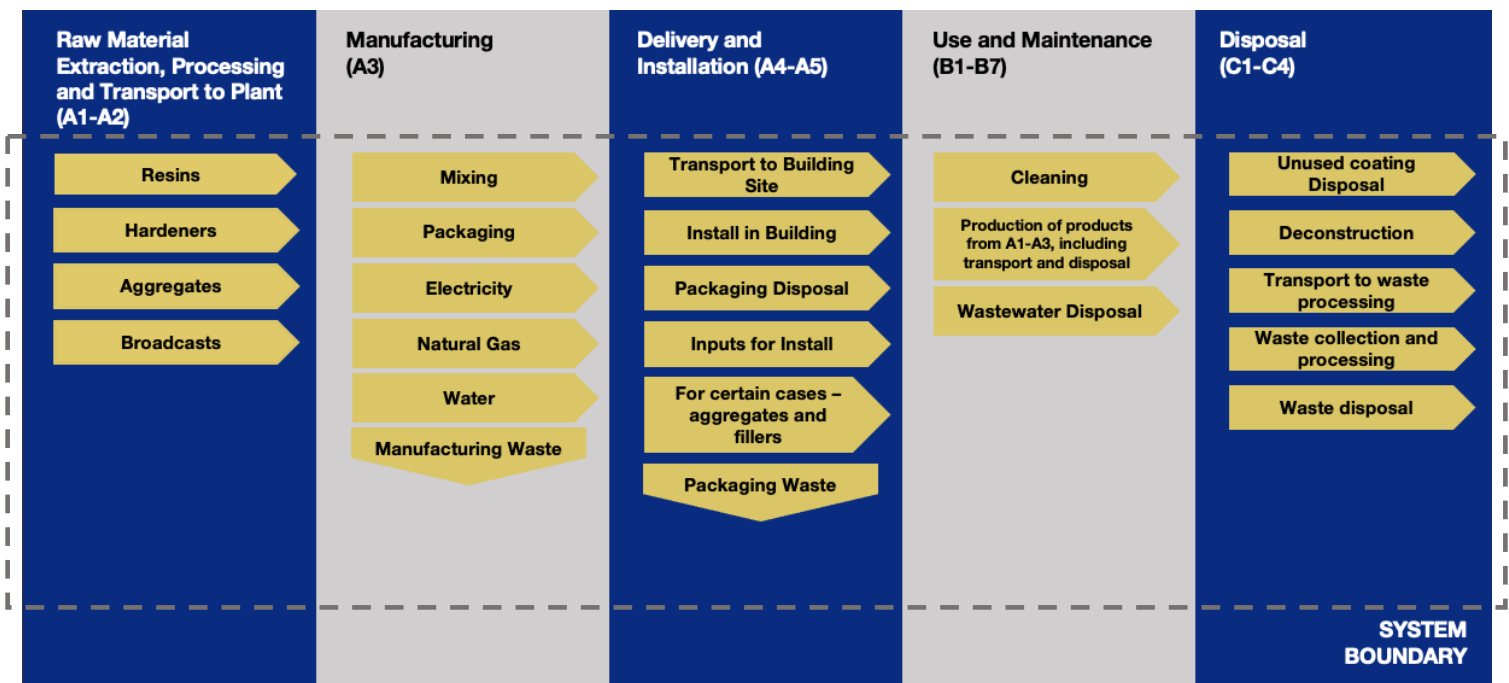


Figure 4: Flow Diagram

## 7. Manufacturing

The FlowResin Flowfresh Urethane Cement flooring system component products are manufactured in at Key Resin’s facility located in Batavia, OH and are packaged on-site in various sizes of plastic containers and paper bags. For the FlowResin Flowfresh product, fillers used in the base are shipped by Key Resin (accounted as part of raw materials). Broadcasting materials used in the broadcasting system are procured by the customer themselves and hence are accounted for in the installation (A5) module as an ancillary material rather than the product (A1-A3) life cycle module. Transport of manufacturing waste to disposal is included in the study. The distance was assumed to be 20 miles per PCR requirements.

## 8. Material Composition

Table 5: Material Composition – No broadcasting system

|                      | MF, HF, IF & RT with Sealer FC | MF, HF, IF & RT with Sealer FCUV |
|----------------------|--------------------------------|----------------------------------|
| Silica Sand / Quartz | 55-70%                         | 55-70%                           |
| Isocyanate           | 8-13%                          | 8-14%                            |
| Water                | 1.5-3.5%                       | 1.5-3.5%                         |
| Portland cement      | 9-14%                          | 9-14%                            |
| Castor oil           | 3-6%                           | 3-6%                             |
| Plasticizer          | 8-13%                          | 8-13%                            |
| Calcium hydroxide    | 2-4%                           | 2-4%                             |
| Polyol               | 1.5-3.5%                       | 1.5-3.5%                         |
| Pigment              | 0.05-0.25%                     | 0.05 - 0.25%                     |
| Other additives      | 0-1%                           | 0-1%                             |
| Polyepoxide resin    | 0.05-0.3%                      | 0.05-0.3%                        |

Table 6: Material Composition - Broadcasting system - Solid color quartz / sand

|                      | SL & SR with Sealer FC | SL & SR with Sealer FCUV | SL & SR with Sealer PA | SL & SR with Sealer CR | SL & SR with Sealer SR |
|----------------------|------------------------|--------------------------|------------------------|------------------------|------------------------|
| Silica Sand / Quartz | 70 - 80%               | 70 - 80%                 | 70 - 80%               | 70 - 80%               | 70 - 80%               |
| Portland cement      | 8 - 12 %               | 7 - 10 %                 | 6 - 10%                | 6 - 10%                | 6 - 10%                |
| Isocyanate           | 6 - 10%                | 6.5- 10.5%               | 6 - 10%                | 6 - 10%                | 6 - 10%                |
| Castor oil           | 2.5 - 5 %              | 2 - 5 %                  | 3 - 4%                 | 3 - 4%                 | 1 - 3%                 |
| Epoxy resin          | -                      | -                        | -                      | 3 - 4%                 | 0 - 1%                 |
| Calcium hydroxide    | 1.5 - 3.5 %            | 1 - 3 %                  | 1 - 3%                 | 1 - 3%                 | 1 - 3%                 |
| Water                | 1.5 - 3.5 %            | 1.5 - 3.5 %              | 1 - 3%                 | 1 - 3%                 | 1 - 3%                 |
| Curing agents        | -                      | -                        | 1 - 3%                 | 1 - 3%                 | 1 - 2%                 |
| Polyol               | 1.0 - 3.0 %            | 0.5 - 2.0 %              | -                      | -                      | 0 - 1%                 |
| Pigment              | 0.05 - 0.25%           | 0.05 - 0.25%             | 1 - 2%                 | 1 - 2%                 | 0 - 1%                 |
| Plasticizer          | -                      | -                        | 1 - 3%                 | 1 - 2%                 | 1 - 2%                 |
| Polyepoxide resin    | 0.05 - 0.3%            | 0.05 - 0.3%              | -                      | -                      | -                      |
| Other additives      | 0 - 1%                 | 0 - 1%                   | 0 - 1%                 | 1 - 2%                 | 0 - 1%                 |

Table 7: Material Composition - Broadcasting system - Decorative Color Quartz

|                      | SRQ with Sealer CR | SRQ with Sealer PA | SRQ with Sealer PA and 467 | SRQ with Sealer CR and 467 |
|----------------------|--------------------|--------------------|----------------------------|----------------------------|
| Silica Sand / Quartz | 80 – 90%           | 80 – 90%           | 80 – 90%                   | 80 – 90%                   |
| Isocyanate           | 5 – 7%             | 5 – 7%             | 4 – 6%                     | 4 – 6%                     |
| Castor oil           | 1 – 3%             | 1 – 3%             | 1 – 3%                     | 1 – 3%                     |
| Resin                | 4 – 6%             | 1 – 3%             | 1 – 3%                     | 3 – 5%                     |
| Water                | 1 – 2%             | 1 – 2%             | 1 – 2%                     | 1 – 2%                     |
| Plasticizer          | 1 – 2%             | 1 – 2%             | 0 – 1%                     | 0 – 1%                     |
| Curing agent         | 1 – 2%             | 1 – 2%             | 1 – 2%                     | -                          |
| Pigment              | 0 – 1%             | 0 – 1%             | 0 – 1%                     | 0 – 1%                     |
| Other additives      | 1 – 2%             | 1 – 2%             | 1 – 2%                     | 2 – 3%                     |

Table 8: Material Composition - Ultra Flakes

|                      | Ultra Flakes with Sealer CR | Ultra Flakes with Sealer PA | Ultra Flakes with Sealer PA and 467 | Ultra Flakes with Sealer CR and 467 |
|----------------------|-----------------------------|-----------------------------|-------------------------------------|-------------------------------------|
| Silica Sand / Quartz | 30 – 40%                    | 30 – 40%                    | 40 – 50%                            | 40 – 50%                            |
| Filler               | 20 – 25%                    | 20 – 25%                    | 15 – 20%                            | 15 – 20%                            |
| Portland cement      | 20 – 25%                    | 20 – 25%                    | 15 – 20%                            | 15 – 20%                            |
| Resin                | 10 – 15%                    | 5 – 10%                     | 5 – 10%                             | 5 – 10%                             |
| Isocyanate           | 5 – 10%                     | 5 – 10%                     | 3 – 5%                              | 3 – 5%                              |
| Castor oil           | 1 – 3%                      | 1 – 3%                      | 1 – 3%                              | 1 – 3%                              |
| Water                | 1 – 2%                      | 1 – 2%                      | 1 – 2%                              | 1 – 2%                              |
| Pigment              | 1 – 3%                      | 1 – 3%                      | 1 – 3%                              | 1 – 3%                              |
| Curing agent         | -                           | 1 – 2%                      | 1 – 2%                              | -                                   |
| Plasticizer          | 1 – 2%                      | 1 – 2%                      | 1 – 2%                              | 1 – 2%                              |
| Other additives      | 1 – 3%                      | 1 – 2%                      | 1 – 2%                              | 1 – 3%                              |

## 9. Packaging

Table 9: Packaging Details per Reference flow

| Input per sq. m | Value   | Unit |
|-----------------|---------|------|
| HDPE bottle     | 0.733   | kg   |
| Paper bag       | 0.00338 | kg   |

## **10. Transportation**

It is assumed that all raw materials are distributed by truck. The distances were modeled by material and were calculated using the supplier location and the location of manufacturing. The product is delivered to the customer via truck. Transportation distances to customer used are based on PCR defaults.

## **11. Product Installation**

The detailed installation instructions are provided by the Key Resin Technical Service department. Installation equipment is required though not included in the study as these are multi-use tools and the impacts per functional unit is considered negligible. Apart from tools, the electricity used to power the tools to grind and polish the cured terrazzo surface is taken into account. It is assumed that a floor grinder with a power of 15 kW is used, and it takes 1 minute on average to grind and polish 1 m<sup>2</sup> of terrazzo surface. None of the products in the system requires a sprayer for application. Therefore, no spraying application efficiency is taken into consideration. The only product loss accounted for is that 2% of wet mass of the coating remains unused and is disposed as solid waste in this stage (A5 module), as required by the reference PCR. For the FlowResin Flowfresh product, fillers used in the base are shipped by Key Resin (accounted as part of raw materials). The materials used in the broadcasting systems are procured by the customer themselves and hence are accounted for in the installation (A5) module as an ancillary material rather than the product (A1-A3) life cycle module.

Packaging waste is generated and disposed of in this stage. Emissions released from the drying of the coating are modeled as individual releases. These emissions were taken from VOC testing reports.

## **12. Use**

In this study, the product system does not require repairing or refurbishment under normal use circumstances. However, regular cleaning is needed and recoating over the whole service life of a building (60 years) is required. The maintenance scenario is per PCR guidelines. The cleaner selected for the study is a pH neutral cleaner with an active ingredient modeled as ethoxylated alcohol.

Additionally, the product is reapplied at the end of its reference service life, and these impacts are found within stage B4. The VOC emissions during the use phase are negligible and pass the requirements of the California Department of Public Health v1.2 (CDPH – CA 01350) indoor emissions testing standard.

## **13. Reference Service Life**

Since resinous flooring products may be replaced before they technically fail, the reference service life of the products, as dictated by the PCR, is reported with both an estimated market service life (MSL) and an estimated technical service life (TSL). According to the PCR, the reference service life (RSL) details vary by coating type and installation type. Since Key Resin's products can be used in both commercial and industrial applications, results for both applications are provided within this EPD. Details on specific scenarios is given in the Life Cycle Assessment Scenarios section.

#### **14. Disposal**

As per the PCR Section 4.4, any coating including the initial applied coating and those recoated-on top of the initial one is treated as incremental mass at end-of-life. Due to the lack of primary data, it is assumed all the coating is sent to landfill. In accordance with the PCR, it is assumed the unused coating travels 32 km to the point of disposal and is landfilled.



Figure 5. Flowfresh HF

## Life Cycle Assessment Background Information

### 15. Functional Unit

The functional unit according to the PCR is one square meter of covered and protected flooring surface for 60 years. Table 10 - Table 13 shows additional details related to the functional unit.

Table 10: Functional Unit Details - No broadcasting system

|  | MF, HF, IF & RT with Sealer FC | MF, HF, IF & RT with Sealer FCUV |
|--|--------------------------------|----------------------------------|
| Applied thickness [inch]   | 0.187 – 0.5                    |                                  |
| Reference Flow [kg/m <sup>2</sup> ]  | 11.195                         | 10.854                           |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – commercial) – 30 years | 22.389                         | 21.709                           |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – commercial) – 60 years | 11.195                         | 10.854                           |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – industrial) – 20 years | 33.584                         | 32.563                           |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – industrial) – 30 years | 22.389                         | 21.709                           |

Table 11: Functional Unit Details - Broadcasting system - Solid color quartz / sand

|  | SL & SR with Sealer FC | SL & SR with Sealer FCUV | SL & SR with Sealer CR | SL & SR with Sealer PA | SL & SR with Sealer SR |
|--|------------------------|--------------------------|------------------------|------------------------|------------------------|
| Applied thickness [inch]   | 0.125 – 0.312          |                          |                        |                        |                        |
| Reference Flow [kg/m <sup>2</sup> ]  | 11.195                 | 10.854                   | 15.826                 | 15.508                 | 15.750                 |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – commercial) – 30 years | 22.389                 | 21.709                   | 31.652                 | 31.017                 | 31.500                 |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – commercial) – 60 years | 11.195                 | 10.854                   | 15.826                 | 15.508                 | 15.750                 |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – industrial) – 20 years | 33.584                 | 32.563                   | 47.478                 | 46.525                 | 47.250                 |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – industrial) – 30 years | 22.389                 | 21.709                   | 31.652                 | 31.017                 | 31.500                 |

Table 12: Functional Unit Details - Broadcasting system - Decorative Color Quartz

|  | SRQ with Sealer CR | SRQ with Sealer PA | SRQ with Sealer PA and 467 | SRQ with Sealer CR and 467 |
|--|--------------------|--------------------|----------------------------|----------------------------|
| Applied thickness [inch]   | 0.25 – 0.312       |                    |                            |                            |
| Reference Flow [kg/m <sup>2</sup> ]  | 15.826             | 15.504             | 20.480                     | 20.802                     |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – commercial) – 30 years | 31.652             | 31.008             | 40.959                     | 41.603                     |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – commercial) – 60 years | 15.826             | 15.504             | 20.480                     | 20.802                     |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – industrial) – 20 years | 47.478             | 46.511             | 61.439                     | 62.405                     |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – industrial) – 30 years | 31.652             | 31.008             | 40.959                     | 41.603                     |

Table 13: Functional Unit Details - Ultra Flakes

|  | Ultra Flakes with Sealer CR | Ultra Flakes with Sealer PA | Ultra Flakes with Sealer PA and 467 | Ultra Flakes with Sealer CR and 467 |
|--|-----------------------------|-----------------------------|-------------------------------------|-------------------------------------|
| Applied thickness [inch]   | 0.187 – 0.25                |                             |                                     |                                     |
| Reference Flow [kg/m <sup>2</sup> ]  | 15.826                      | 15.504                      | 20.480                              | 20.802                              |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – commercial) – 30 years | 31.652                      | 31.008                      | 40.959                              | 41.603                              |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – commercial) – 60 years | 15.826                      | 15.504                      | 20.480                              | 20.802                              |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(MSL – industrial) – 20 years | 47.478                      | 46.511                      | 61.439                              | 62.405                              |
| Mass per functional unit [kg/m <sup>2</sup> ]<br>(TSL – industrial) – 30 years | 31.652                      | 31.008                      | 40.959                              | 41.603                              |

## 16. System Boundary

This EPD is a cradle-to-grave study.

Table 14: Description of system boundary modules (X = Included in study)

|                 | PRODUCT STAGE       |           |               | CONSTRUCTION PROCESS STAGE  |                  | USE STAGE |             |        |             |               |  |   | END OF LIFE STAGE |           |                  |          | BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY |
|-----------------|---------------------|-----------|---------------|-----------------------------|------------------|-----------|-------------|--------|-------------|---------------|--|---|-------------------|-----------|------------------|----------|---|
|                 | A1                  | A2        | A3            | A4                          | A5               | B1        | B2          | B3     | B4          | B5            | B6   | B7  | C1                | C2        | C3               | C4       | D   |
|                 | Raw material supply | Transport | Manufacturing | Transport from gate to site | Assembly/Install | Use       | Maintenance | Repair | Replacement | Refurbishment | Building Operational Energy Use During Product Use | Building Operational Water Use During Product Use | Deconstruction    | Transport | Waste processing | Disposal | Reuse, Recovery, Recycling Potential          |
| Cradle to Grave | X                   |           |               | X                           | X                | X         | X           | X      | X           | X             | X  | X   | X                 | X         | X                | X        | MND   |

## 17. Estimates and Assumptions

All estimates and assumptions are within the requirements of ISO 14040/44. The majority of the estimations are within the primary data. The primary data was collected as annual totals including all utility usage and production information. For the LCA, the usage information was divided by the production to create an energy and water use per unit weight. As there are different products produced at this facility, it is assumed all products are using the same amount of energy. Another assumption is that the installation tools are used enough times that the per square meter impacts are negligible.

## 18. Cut-Off Rules

Material inputs greater than 1% (based on total mass of the final product) were included within the scope of analysis. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impact. Cumulative excluded material inputs and environmental impacts are less than 5% based on total weight of the functional unit. In addition, as per PCR, substances that are characterized as hazardous according to Globally Harmonized System are not cut off.

## 19. Data Sources

Primary data was collected by KRC associates for onsite energy, water and waste during the course of manufacturing. When primary data did not exist, secondary data for raw material production was used from Sphera LCA for Experts (fka GaBi) 10.7.1.28. All calculation procedures adhere to ISO14044.



## **20. Data Quality**

### Geographical Coverage

The geographical scope of the manufacturing portion of the life cycle is Batavia, OH. This EPD uses country specific energy datasets that take into account US eGrid specific energy and transportation mixes. Overall geographic data quality is considered good.

### Time Coverage

Primary data was provided by KRC associates and represent June 2022 to June 2023. Using 2022/2023 data meets the PCR requirement that manufacturer specific data be within the last 5 years. Time coverage of this data is considered very good. Data necessary to model cradle-to-gate unit processes was sourced from Sphera LCI datasets. Time coverage of the MLC datasets varies from approximately 2006 to present. All datasets rely on at least one 1-year average data. While there were a couple of datasets used that are outside of the requirement of the PCR that all data be updated within a 10-year period, these were deemed appropriate as they represent the best technological and geographical coverage available. The specific time coverage of secondary datasets can be referenced in the dataset references table in the background LCA report. Overall temporal data quality is considered good.

### Technological Coverage

Primary data provided by KRC are specific to the technology that the company uses in manufacturing their product. It is site specific and considered of good quality. It is worth noting that the energy and water used in manufacturing the product includes overhead energy such as lighting, heating and sanitary use of water. Sub-metering was not available to extract process only energy and water use from the total energy use. Sub-metering would improve the technological coverage of data quality. Overall, the quality of technological data is considered good.

Data necessary to model cradle-to-grave unit processes was sourced from Sphera LCI datasets (GaBi). Technological coverage of the datasets is considered good relative to the actual supply chain of KRC. While improved life cycle data from suppliers would improve technological coverage, the use of lower quality generic datasets does meet the goal of this EPD.

### Completeness

The data included is considered complete. The LCA model included all known material and energy flows, with the exception of what is listed in Section 18. As pointed out in that section, no known flows above 1% were excluded and the sum of all excluded flows totals less than 5%.

Overall data quality is considered good. Upstream data quality can be increased through the use of supplier-specific secondary datasets.

## **21. Period under Review**

The period under review is June 2022 to June 2023.

## **22. Allocation**

General principles of allocation were based on ISO 14040/44. To derive a per-unit value for manufacturing inputs such as electricity, thermal energy and water, allocation based on total production by mass was adopted. As a default, secondary MLC datasets use a physical basis for allocation.

## **23. Comparability and Benchmarking**

The user of the EPD should take care when comparing EPDs from different companies. Assumptions, data sources, and assessment tools may all impact the uncertainty of the final results and make comparisons misleading. Without understanding the specific variability, the user is therefore, not encouraged to compare EPDs. Even for similar products, differences in use and end-of-life stage assumptions, and data quality may produce incomparable results. Comparison of the environmental performance of flooring products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR.

Full conformance with the PCR for Products allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

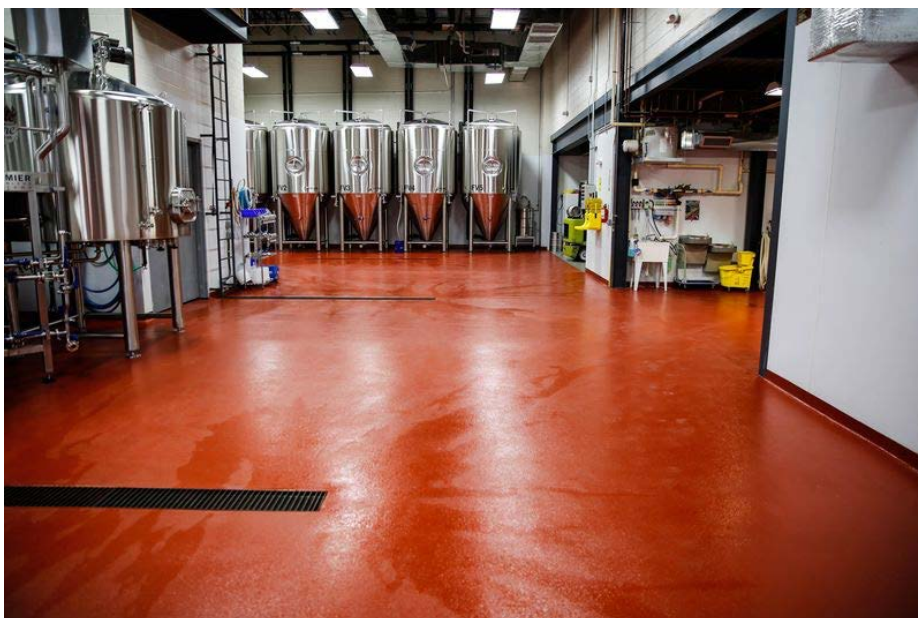


Figure 6. Flowfresh SL/FCUV Sealer

## Life Cycle Assessment Scenarios

Table 15: Transport to building site (A4)

| Name                                | Heavy Truck                                       | Medium Truck                                       |
|-------------------------------------|---|--|
| Vehicle Type                        | Heavy Heavy-duty Diesel Truck / 53,333 lb payload | Medium Heavy-duty Diesel Truck / 13,000 lb payload |
| Fuel Efficiency [L/100km]           | 42  | 10.7   |
| Fuel Type                           | Diesel  | Diesel   |
| Distance [km]                       | 1205.4  | 8.05   |
| Capacity Utilization [%]            | 67%   | 76%  |
| Weight of Products Transported [kg] | 6.65  | 6.65   |
| Capacity utilization volume factor  | 1   | 1  |

Table 16: Reference Service Life (MSL and TSL)

| Product Type  | Estimated Market Service Life | Estimated Technical Service Life |
|---|-------------------------------|----------------------------------|
| Product Designed for <u>Commercial</u> Applications |                               |                                  |
| Mortar/Monolithic Mortar/Terrazzo Floor Coating     | 30 years                      | 60 years                         |
| Product Designed for <u>Industrial</u> Applications |                               |                                  |
| Mortar/Monolithic Mortar/Terrazzo Floor Coating     | 20 years                      | 30 years                         |

Table 17: Installation into the building (A5)

|                                      | FlowResin Flowfresh Base with PA or CR Sealer | FlowResin Flowfresh Base with PA or CR and 467 Sealer | Other options |
|--------------------------------------|---|---|---------------|
| Filler in top coat [kg]              | 4.9   | 9.76  | 0             |
| Net Freshwater Consumption [m3]      | 0   | 0   | 0             |
| Electricity Usage [kWh]              | 0.25  | 0.25  | 0.25          |
| Product wastage [%]                  | 2%  | 2%  | 2%            |
| Packaging Waste to Landfill [kg]     | 0.511   | 0.511   | 0.511         |
| Packaging Waste to Incineration [kg] | 0.124   | 0.124   | 0.124         |
| Packaging Waste to Recycling [kg]    | 0.103   | 0.103   | 0.103         |

Table 18: Maintenance (B2)

| Parameter                    | Input per m <sup>2</sup>         | Unit                               |
|------------------------------|----------------------------------|------------------------------------|
| Cleaning Event over 60 years | 220                              | PCR Section 4.3                    |
| Water Per Cleaning Event     | 3.79 liter                       |                                    |
| Cleaner Per Cleaning Event   | 0.12 liter                       |                                    |
| Cleaner Specification        | C16-18 Alcohol Ethoxylate (2.5%) | <a href="#">SDS of the cleaner</a> |
| Cleaner Density              | 1 kg/liter                       | Assumption                         |

Table 19: Replacement (B4)

| Name                           | Value | Unit        |
|--------------------------------|-------|-------------|
| Commercial - Replacement cycle | 1     | Number/ MSL |
| Commercial - Replacement cycle | 0     | Number/ TSL |
| Industrial - Replacement cycle | 2     | Number/ MSL |
| Industrial - Replacement cycle | 1     | Number/ TSL |

Table 20: End-of-Life Scenario Details (C1-C4) – No broadcasting system

| Name   |  | MF, HF, IF & RT with Sealer FC   | MF, HF, IF & RT with Sealer FCUV | Unit              |
|--|--|--|----------------------------------|-------------------|
| Assumptions for scenario development               |  | Product is either disposed of with the underlying floor or manually removed via scraping |                                  |                   |
| Collection process                                 | Collected separately                     | 0  | 0                                | kg                |
|  | Collected with mixed construction waste  | 10.9   | 10.6                             | kg                |
| Recovery   | Reuse                                    | 0  | 0                                | kg                |
|  | Recycling                                | 0  | 0                                | kg                |
|  | Landfill                                 | 10.9   | 10.6                             | kg                |
|  | Incineration                             | 0  | 0                                | kg                |
|  | Incineration with energy recovery        | 0  | 0                                | kg                |
| Disposal   | Product or material for final deposition | 10.9   | 10.6                             | kg                |
| Emissions of biogenic carbon (excluding packaging) |  | 3.09   | 3.00                             | kgCO <sub>2</sub> |

Table 21: End-of-Life Scenario Details (C1-C4) - Broadcasting system - Solid color quartz / sand

| Name   |  | SL & SR with Sealer FC   | SL & SR with Sealer FCUV | SL & SR with Sealer CR | SL & SR with Sealer PA | SL & SR with Sealer SR | Unit              |
|--|--|--|--------------------------|------------------------|------------------------|------------------------|-------------------|
| Assumptions for scenario development               |  | Product is either disposed of with the underlying floor or manually removed via scraping |                          |                        |                        |                        |                   |
| Collection process                                 | Collected separately                     | 0  | 0                        | 0                      | 0                      | 0                      | kg                |
|  | Collected with mixed construction waste  | 10.9   | 10.6                     | 15.4                   | 15.1                   | 15.8                   | kg                |
| Recovery   | Reuse                                    | 0  | 0                        | 0                      | 0                      | 0                      | kg                |
|  | Recycling                                | 0  | 0                        | 0                      | 0                      | 0                      | kg                |
|  | Landfill                                 | 10.9   | 10.6                     | 15.4                   | 15.1                   | 15.8                   | kg                |
|  | Incineration                             | 0  | 0                        | 0                      | 0                      | 0                      | kg                |
|  | Incineration with energy recovery        | 0  | 0                        | 0                      | 0                      | 0                      | kg                |
| Disposal   | Product or material for final deposition | 10.9   | 10.6                     | 15.4                   | 15.1                   | 15.8                   | kg                |
| Emissions of biogenic carbon (excluding packaging) |  | 4.45   | 4.36                     | 4.38                   | 4.29                   | 4.35                   | kgCO <sub>2</sub> |

Table 22: End-of-Life Scenario Details (C1-C4) - Broadcasting system - Decorative Color Quartz

| Name   |  | SRQ with Sealer CR   | SRQ with Sealer PA | SRQ with Sealer PA and 467 | SRQ with Sealer CR and 467 | Unit              |
|--|--|--|--------------------|----------------------------|----------------------------|-------------------|
| Assumptions for scenario development               |  | Product is either disposed of with the underlying floor or manually removed via scraping |                    |                            |                            |                   |
| Collection process                                 | Collected separately                     | 0  | 0                  | 0                          | 0                          | kg                |
|  | Collected with mixed construction waste  | 15.4   | 15.1               | 19.9                       | 20.2                       | kg                |
| Recovery   | Reuse                                    | 0  | 0                  | 0                          | 0                          | kg                |
|  | Recycling                                | 0  | 0                  | 0                          | 0                          | kg                |
|  | Landfill                                 | 15.4   | 15.1               | 19.9                       | 20.2                       | kg                |
|  | Incineration                             | 0  | 0                  | 0                          | 0                          | kg                |
|  | Incineration with energy recovery        | 0  | 0                  | 0                          | 0                          | kg                |
| Disposal   | Product or material for final deposition | 15.4   | 15.1               | 19.9                       | 20.2                       | kg                |
| Emissions of biogenic carbon (excluding packaging) |  | 4.38   | 4.29               | 5.66                       | 5.75                       | kgCO <sub>2</sub> |

Table 23: End-of-Life Scenario Details (C1-C4) - Ultra Flakes

| Name   |  | Ultra Flakes with Sealer CR  | Ultra Flakes with Sealer PA | Ultra Flakes with Sealer PA and 467 | Ultra Flakes with Sealer CR and 467 | Unit              |
|--|--|--|-----------------------------|-------------------------------------|-------------------------------------|-------------------|
| Assumptions for scenario development               |  | Product is either disposed of with the underlying floor or manually removed via scraping |                             |                                     |                                     |                   |
| Collection process                                 | Collected separately                     | 0  | 0                           | 0                                   | 0                                   | kg                |
|  | Collected with mixed construction waste  | 15.4   | 15.1                        | 19.9                                | 20.2                                | kg                |
| Recovery   | Reuse                                    | 0  | 0                           | 0                                   | 0                                   | kg                |
|  | Recycling                                | 0  | 0                           | 0                                   | 0                                   | kg                |
|  | Landfill                                 | 15.4   | 15.1                        | 19.9                                | 20.2                                | kg                |
|  | Incineration                             | 0  | 0                           | 0                                   | 0                                   | kg                |
|  | Incineration with energy recovery        | 0  | 0                           | 0                                   | 0                                   | kg                |
| Disposal   | Product or material for final deposition | 15.4   | 15.1                        | 19.9                                | 20.2                                | kg                |
| Emissions of biogenic carbon (excluding packaging) |  | 4.38   | 4.29                        | 5.66                                | 5.75                                | kgCO <sub>2</sub> |



Figure 7. Flowfresh SR/SR Sealer

## Life Cycle Assessment Results

All results are given per functional unit, which is one square meter of covered and protected flooring surface for 60 years. Impact results have been calculated using both TRACI 2.1 and IPCC AR5 characterization factors. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. These six impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development, however the EPD users shall not use additional measures for comparative purposes. See Impact Category Key below for definition of acronyms.

Table 24: LCIA Indicators

| Abbreviation     | Parameter  | Unit                  |
|------------------|--|-----------------------|
| <b>IPCC AR5</b>  |  |                       |
| GWP <sub>i</sub> | Global warming potential (100 years, includes biogenic CO <sub>2</sub> ) | kg CO <sub>2</sub> eq |
| GWP <sub>e</sub> | Global warming potential (100 years, excludes biogenic CO <sub>2</sub> ) | kg CO <sub>2</sub> eq |
| <b>TRACI 2.1</b> |  |                       |
| AP               | Acidification potential of soil and water                                | kg SO <sub>2</sub> eq |
| EP               | Eutrophication potential   | kg N eq               |
| ODP              | Depletion of stratospheric ozone layer                                   | kg CFC 11 eq          |
| Resources        | Depletion of non-renewable fossil fuels                                  | MJ, surplus energy    |
| SFP              | Smog formation potential   | kg O <sub>3</sub> eq  |

Table 25: Biogenic Carbon Indicators

| Parameter | Parameter   | Unit                  |
|-----------|---|-----------------------|
| BCRP      | Biogenic Carbon Removal from Product  | [kg CO <sub>2</sub> ] |
| BCEP      | Biogenic Carbon Emission from Product   | [kg CO <sub>2</sub> ] |
| BCRK      | Biogenic Carbon Removal from Packaging  | [kg CO <sub>2</sub> ] |
| BCEK      | Biogenic Carbon Emission from Packaging   | [kg CO <sub>2</sub> ] |
| BCEW      | Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes | [kg CO <sub>2</sub> ] |
| CCE       | Calcination Carbon Emissions  | [kg CO <sub>2</sub> ] |
| CCR       | Carbonation Carbon Removals   | [kg CO <sub>2</sub> ] |
| CWNR      | Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes    | [kg CO <sub>2</sub> ] |

Table 26: Resource Use, Waste, and Output Flow Indicators

| Abbreviation                             | Parameter  | Unit                          |
|--|--|-------------------------------|
| <b>Resource Use Parameters</b>           |  |                               |
| RPR <sub>E</sub>                         | Use of renewable primary energy excluding renewable primary energy resources used as raw materials         | MJ, net calorific value (LHV) |
| RPR <sub>M</sub>                         | Use of renewable primary energy resources used as raw materials  | MJ, net calorific value       |
| NRPR <sub>E</sub>                        | Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | MJ, net calorific value       |
| NRPR <sub>M</sub>                        | Use of non-renewable primary energy resources used as raw materials  | MJ, net calorific value       |
| SM                                       | Use of secondary materials   | kg                            |
| RSF                                      | Use of renewable secondary fuels   | MJ, net calorific value       |
| NRSF                                     | Use of non-renewable secondary fuels   | MJ, net calorific value       |
| RE                                       | Recovered energy   | MJ, net calorific value       |
| FW                                       | Net use of fresh water   | m <sup>3</sup>                |
| -  | Nonrenewable Fossil  | MJ, net calorific value (HHV) |
| -  | Nonrenewable Nuclear   | MJ, net calorific value (HHV) |
| -  | Solar, Wind, Hydro, Geothermal   | MJ, net calorific value (HHV) |
| -  | Renewable - Biomass  | MJ, net calorific value (HHV) |
| -  | Nonrenewable Material Resources  | kg                            |
| -  | Renewable Material Resources   | kg                            |
| <b>Waste Parameters and Output Flows</b> |  |                               |
| HWD                                      | Disposed-of-hazardous waste  | kg                            |
| NHWD                                     | Disposed-of non-hazardous waste  | kg                            |
| HLRW                                     | High-level radioactive waste, conditioned, to final repository   | kg                            |
| ILLRW                                    | Intermediate- and low-level radioactive waste, conditioned, to final repository                            | kg                            |
| CRU                                      | Components for reuse   | kg                            |
| MR                                       | Materials for recycling  | kg                            |
| MER                                      | Materials for energy recovery  | kg                            |



## 24. FlowResin Flowfresh – Category 1 + Sealer FC - Commercial Application – Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FC when used commercially.

Table 27: LCIA results FlowResin Flowfresh Category 1 + FC – Commercial Application, per functional unit – Market Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.00E-01  | 4.00E-02         | 5.31E-03           | 3.57E-04  | 0.00E+00  | 6.40E-03  | 0.00E+00 | 4.70E-02  | 0.00E+00          | 1.48E-04  | 0.00E+00 | 1.21E-03  |
| EP [kg N eq]   | 2.51E-02  | 9.64E-03         | 4.71E-04           | 1.16E-04  | 0.00E+00  | 7.86E-04  | 0.00E+00 | 1.22E-02  | 0.00E+00          | 1.58E-05  | 0.00E+00 | 1.93E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.66E+01  | 1.07E+01         | 1.17E+00           | 4.69E-01  | 0.00E+00  | 1.34E+00  | 0.00E+00 | 1.27E+01  | 0.00E+00          | 5.65E-02  | 0.00E+00 | 2.34E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.02E+01  | 1.23E+01         | 1.17E+00           | 4.71E-01  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 1.42E+01  | 0.00E+00          | 5.65E-02  | 0.00E+00 | 2.35E-01  |
| ODP [kg CFC 11 eq]                                     | 6.44E-07  | 3.00E-07         | 2.99E-15           | 1.34E-14  | 0.00E+00  | 4.48E-08  | 0.00E+00 | 3.00E-07  | 0.00E+00          | 1.45E-16  | 0.00E+00 | 1.12E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.53E+00  | 5.77E-01         | 1.23E-01           | 4.83E-03  | 0.00E+00  | 6.48E-02  | 0.00E+00 | 7.30E-01  | 0.00E+00          | 3.38E-03  | 0.00E+00 | 2.20E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.19E+00  | 1.59E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.59E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.19E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.59E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.59E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | -2.99E+01 | -1.89E+01        | 6.49E-01           | 5.57E-01  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -1.72E+01 | 0.00E+00          | 3.14E-02  | 0.00E+00 | 4.27E-01  |
| RPR <sub>m</sub> [MJ]                                  | 4.59E+01  | 2.29E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.29E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 3.11E+02  | 1.10E+02         | 1.63E+01           | 2.78E+00  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 1.33E+02  | 0.00E+00          | 7.89E-01  | 0.00E+00 | 3.64E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 1.21E+02  | 6.07E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.07E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.14E+00  | 1.30E-01         | 2.23E-03           | 1.61E-03  | 0.00E+00  | 8.69E-01  | 0.00E+00 | 1.34E-01  | 0.00E+00          | 1.08E-04  | 0.00E+00 | 4.52E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01  | 5.69E+00         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 6.39E+00  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 7.70E-05  | 3.55E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 3.70E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -4.72E-08 | -2.25E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.35E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 5.88E+01  | 2.60E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 2.83E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 6.29E+00  | 2.51E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 2.82E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 4.00E-02  | 2.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.20E-01  | 6.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.84E-05  | 8.44E-06         | 5.55E-08           | 2.45E-07  | 0.00E+00  | 8.35E-07  | 0.00E+00 | 8.79E-06  | 0.00E+00          | 2.68E-09  | 0.00E+00 | 4.51E-08  |
| ILLRW [kg]   | 1.41E-02  | 6.43E-03         | 4.67E-05           | 2.05E-04  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 6.72E-03  | 0.00E+00          | 2.26E-06  | 0.00E+00 | 4.03E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-grave waste performance between products should be derived from these reported values.

## 25. FlowResin Flowfresh – Category 1 + Sealer FC - Commercial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FC when used commercially.

Table 28: LCIA results FlowResin Flowfresh Category 1 + FC – Commercial Application, per functional unit – Technical Service Life

| Impact Category  | Production Stage |           |           |           | Construction Stage |           |          |          | Use Stage |           |          |           | End of Life Stage |  |  |  |
|--|------------------|-----------|-----------|-----------|--------------------|-----------|----------|----------|-----------|-----------|----------|-----------|-------------------|--|--|--|
|  | Total            | A1-A3     | A4        | A5        | B1                 | B2        | B3       | B4       | C1        | C2        | C3       | C4        |                   |  |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |                    |           |          |          |           |           |          |           |                   |  |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 5.34E-02         | 4.00E-02  | 5.31E-03  | 3.57E-04  | 0.00E+00           | 6.40E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.48E-04  | 0.00E+00 | 1.21E-03  |                   |  |  |  |
| EP [kg N eq]   | 1.30E-02         | 9.64E-03  | 4.71E-04  | 1.16E-04  | 0.00E+00           | 7.86E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.58E-05  | 0.00E+00 | 1.93E-03  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.40E+01         | 1.07E+01  | 1.17E+00  | 4.69E-01  | 0.00E+00           | 1.34E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 5.65E-02  | 0.00E+00 | 2.34E-01  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 1.60E+01         | 1.23E+01  | 1.17E+00  | 4.71E-01  | 0.00E+00           | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 5.65E-02  | 0.00E+00 | 2.35E-01  |                   |  |  |  |
| ODP [kg CFC 11 eq]                                     | 3.44E-07         | 3.00E-07  | 2.99E-15  | 1.34E-14  | 0.00E+00           | 4.48E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.45E-16  | 0.00E+00 | 1.12E-14  |                   |  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 7.95E-01         | 5.77E-01  | 1.23E-01  | 4.83E-03  | 0.00E+00           | 6.48E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 3.38E-03  | 0.00E+00 | 2.20E-02  |                   |  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |                    |           |          |          |           |           |          |           |                   |  |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 1.59E+00         | 1.59E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.59E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.59E+00  |                   |  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |           |                    |           |          |          |           |           |          |           |                   |  |  |  |
| RPR <sub>E</sub> [MJ]                                  | -1.27E+01        | -1.89E+01 | 6.49E-01  | 5.57E-01  | 0.00E+00           | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 3.14E-02  | 0.00E+00 | 4.27E-01  |                   |  |  |  |
| RPR <sub>M</sub> [MJ]                                  | 2.29E+01         | 2.29E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRPR <sub>E</sub> [MJ]                                 | 1.78E+02         | 1.10E+02  | 1.63E+01  | 2.78E+00  | 0.00E+00           | 4.43E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 7.89E-01  | 0.00E+00 | 3.64E+00  |                   |  |  |  |
| NRPR <sub>M</sub> [MJ]                                 | 6.07E+01         | 6.07E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.00E+00         | 1.30E-01  | 2.23E-03  | 1.61E-03  | 0.00E+00           | 8.69E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.08E-04  | 0.00E+00 | 4.52E-04  |                   |  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 7.47E+00         | 5.69E+00  | 5.11E-01  | 6.78E-02  | 0.00E+00           | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.47E-02  | 0.00E+00 | 9.92E-02  |                   |  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 3.99E-05         | 3.55E-05  | 2.39E-07  | 1.06E-06  | 0.00E+00           | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.16E-08  | 0.00E+00 | 2.08E-07  |                   |  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.37E-08        | -2.25E-08 | -2.03E-10 | -3.42E-10 | 0.00E+00           | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00  | -9.80E-12 | 0.00E+00 | -4.35E-10 |                   |  |  |  |
| Nonrenewable Material Resources [kg]                   | 3.06E+01         | 2.60E+01  | 1.30E-01  | 3.71E-01  | 0.00E+00           | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 6.28E-03  | 0.00E+00 | 1.75E+00  |                   |  |  |  |
| Renewable Material Resources [kg]                      | 3.46E+00         | 2.51E+00  | 1.97E-01  | 1.44E-02  | 0.00E+00           | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 7.40E-02  | 0.00E+00 | 2.50E-02  |                   |  |  |  |
| HWD [kg]   | 2.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NHWD [kg]  | 6.00E-02         | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| HLRW [kg]  | 9.63E-06         | 8.44E-06  | 5.55E-08  | 2.45E-07  | 0.00E+00           | 8.35E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.68E-09  | 0.00E+00 | 4.51E-08  |                   |  |  |  |
| ILLRW [kg]   | 7.37E-03         | 6.43E-03  | 4.67E-05  | 2.05E-04  | 0.00E+00           | 6.44E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.26E-06  | 0.00E+00 | 4.03E-05  |                   |  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 26. FlowResin Flowfresh – Category 1 + Sealer FCUV - Commercial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FCUV when used commercially.

Table 29: LCIA results FlowResin Flowfresh Category 1 + FCUV – Commercial Application, per functional unit – Market Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 9.58E-02  | 3.79E-02         | 5.16E-03           | 3.56E-04  | 0.00E+00  | 6.38E-03  | 0.00E+00 | 4.47E-02  | 0.00E+00          | 1.44E-04  | 0.00E+00 | 1.17E-03  |
| EP [kg N eq]   | 2.36E-02  | 8.93E-03         | 4.58E-04           | 1.16E-04  | 0.00E+00  | 7.84E-04  | 0.00E+00 | 1.14E-02  | 0.00E+00          | 1.54E-05  | 0.00E+00 | 1.88E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.78E+01  | 1.13E+01         | 1.14E+00           | 4.68E-01  | 0.00E+00  | 1.34E+00  | 0.00E+00 | 1.32E+01  | 0.00E+00          | 5.49E-02  | 0.00E+00 | 2.27E-01  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 3.10E+01  | 1.27E+01         | 1.14E+00           | 4.70E-01  | 0.00E+00  | 1.80E+00  | 0.00E+00 | 1.46E+01  | 0.00E+00          | 5.48E-02  | 0.00E+00 | 2.28E-01  |
| ODP [kg CFC 11 eq]                                     | 5.50E-07  | 2.52E-07         | 2.91E-15           | 1.34E-14  | 0.00E+00  | 4.47E-08  | 0.00E+00 | 2.52E-07  | 0.00E+00          | 1.40E-16  | 0.00E+00 | 1.09E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.48E+00  | 5.58E-01         | 1.20E-01           | 4.80E-03  | 0.00E+00  | 6.46E-02  | 0.00E+00 | 7.07E-01  | 0.00E+00          | 3.28E-03  | 0.00E+00 | 2.14E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.86E+00  | 1.43E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.43E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.86E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.43E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.43E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | -2.29E+01 | -1.53E+01        | 6.31E-01           | 5.56E-01  | 0.00E+00  | 4.48E+00  | 0.00E+00 | -1.37E+01 | 0.00E+00          | 3.05E-02  | 0.00E+00 | 4.14E-01  |
| RPR <sub>M</sub> [MJ]                                  | 4.12E+01  | 2.06E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 3.29E+02  | 1.20E+02         | 1.58E+01           | 2.77E+00  | 0.00E+00  | 4.42E+01  | 0.00E+00 | 1.43E+02  | 0.00E+00          | 7.66E-01  | 0.00E+00 | 3.54E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 1.22E+02  | 6.09E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.09E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.13E+00  | 1.25E-01         | 2.17E-03           | 1.60E-03  | 0.00E+00  | 8.67E-01  | 0.00E+00 | 1.29E-01  | 0.00E+00          | 1.05E-04  | 0.00E+00 | 4.38E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.44E+01  | 5.97E+00         | 4.97E-01           | 6.74E-02  | 0.00E+00  | 1.07E+00  | 0.00E+00 | 6.65E+00  | 0.00E+00          | 2.40E-02  | 0.00E+00 | 9.63E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 7.75E-05  | 3.58E-05         | 2.33E-07           | 1.06E-06  | 0.00E+00  | 2.90E-06  | 0.00E+00 | 3.73E-05  | 0.00E+00          | 1.12E-08  | 0.00E+00 | 2.02E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -4.73E-08 | -2.26E-08        | -1.97E-10          | -3.41E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.35E-08 | 0.00E+00          | -9.51E-12 | 0.00E+00 | -4.22E-10 |
| Nonrenewable Material Resources [kg]                   | 6.01E+01  | 2.67E+01         | 1.26E-01           | 3.70E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 2.89E+01  | 0.00E+00          | 6.09E-03  | 0.00E+00 | 1.70E+00  |
| Renewable Material Resources [kg]                      | 5.87E+00  | 2.32E+00         | 1.92E-01           | 1.44E-02  | 0.00E+00  | 6.38E-01  | 0.00E+00 | 2.62E+00  | 0.00E+00          | 7.18E-02  | 0.00E+00 | 2.42E-02  |
| HWD [kg]   | 4.00E-02  | 2.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.20E-01  | 6.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.86E-05  | 8.53E-06         | 5.39E-08           | 2.45E-07  | 0.00E+00  | 8.33E-07  | 0.00E+00 | 8.87E-06  | 0.00E+00          | 2.60E-09  | 0.00E+00 | 4.37E-08  |
| ILLRW [kg]   | 1.44E-02  | 6.61E-03         | 4.54E-05           | 2.05E-04  | 0.00E+00  | 6.42E-04  | 0.00E+00 | 6.90E-03  | 0.00E+00          | 2.19E-06  | 0.00E+00 | 3.91E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 27. FlowResin Flowfresh – Category 1 + Sealer FCUV - Commercial Application - Technical Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FCUV when used commercially.

Table 30: LCIA results FlowResin Flowfresh Category 1 + FCUV – Commercial Application, per functional unit – **Technical Service Life**

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 5.11E-02  | 3.79E-02         | 5.16E-03           | 3.56E-04  | 0.00E+00  | 6.38E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.44E-04  | 0.00E+00 | 1.17E-03  |
| EP [kg N eq]   | 1.22E-02  | 8.93E-03         | 4.58E-04           | 1.16E-04  | 0.00E+00  | 7.84E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.54E-05  | 0.00E+00 | 1.88E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.46E+01  | 1.13E+01         | 1.14E+00           | 4.68E-01  | 0.00E+00  | 1.34E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 5.49E-02  | 0.00E+00 | 2.27E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 1.64E+01  | 1.27E+01         | 1.14E+00           | 4.70E-01  | 0.00E+00  | 1.80E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 5.48E-02  | 0.00E+00 | 2.28E-01  |
| ODP [kg CFC 11 eq]                                     | 2.97E-07  | 2.52E-07         | 2.91E-15           | 1.34E-14  | 0.00E+00  | 4.47E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.40E-16  | 0.00E+00 | 1.09E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 7.72E-01  | 5.58E-01         | 1.20E-01           | 4.80E-03  | 0.00E+00  | 6.46E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.28E-03  | 0.00E+00 | 2.14E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.43E+00  | 1.43E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.43E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.43E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | -9.24E+00 | -1.53E+01        | 6.31E-01           | 5.56E-01  | 0.00E+00  | 4.48E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.05E-02  | 0.00E+00 | 4.14E-01  |
| RPR <sub>M</sub> [MJ]                                  | 2.06E+01  | 2.06E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 1.87E+02  | 1.20E+02         | 1.58E+01           | 2.77E+00  | 0.00E+00  | 4.42E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.66E-01  | 0.00E+00 | 3.54E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 6.09E+01  | 6.09E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 9.96E-01  | 1.25E-01         | 2.17E-03           | 1.60E-03  | 0.00E+00  | 8.67E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.05E-04  | 0.00E+00 | 4.38E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 7.73E+00  | 5.97E+00         | 4.97E-01           | 6.74E-02  | 0.00E+00  | 1.07E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.40E-02  | 0.00E+00 | 9.63E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 4.02E-05  | 3.58E-05         | 2.33E-07           | 1.06E-06  | 0.00E+00  | 2.90E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.12E-08  | 0.00E+00 | 2.02E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.37E-08 | -2.26E-08        | -1.97E-10          | -3.41E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -9.51E-12 | 0.00E+00 | -4.22E-10 |
| Nonrenewable Material Resources [kg]                   | 3.12E+01  | 2.67E+01         | 1.26E-01           | 3.70E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.09E-03  | 0.00E+00 | 1.70E+00  |
| Renewable Material Resources [kg]                      | 3.26E+00  | 2.32E+00         | 1.92E-01           | 1.44E-02  | 0.00E+00  | 6.38E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.18E-02  | 0.00E+00 | 2.42E-02  |
| HWD [kg]   | 2.00E-02  | 2.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 6.00E-02  | 6.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 9.70E-06  | 8.53E-06         | 5.39E-08           | 2.45E-07  | 0.00E+00  | 8.33E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.60E-09  | 0.00E+00 | 4.37E-08  |
| ILLRW [kg]   | 7.54E-03  | 6.61E-03         | 4.54E-05           | 2.05E-04  | 0.00E+00  | 6.42E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.19E-06  | 0.00E+00 | 3.91E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 28. FlowResin Flowfresh – Category 2 + Sealer FC - Commercial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FC when used commercially.

Table 31: LCIA results FlowResin Flowfresh Category 2 + Sealer FC – Commercial Application, per functional unit

### Market Service Life

| Impact Category  | Production Stage |           |           |           |          |           |          |           |          |           |          |           |
|--|------------------|-----------|-----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4        | A5        | B1       | B2        | B3       | B4        | C1       | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |          |           |          |           |          |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.11E-01         | 4.25E-02  | 7.50E-03  | 3.74E-04  | 0.00E+00 | 6.39E-03  | 0.00E+00 | 5.23E-02  | 0.00E+00 | 2.13E-04  | 0.00E+00 | 1.74E-03  |
| EP [kg N eq]   | 2.77E-02         | 9.85E-03  | 6.65E-04  | 1.20E-04  | 0.00E+00 | 7.86E-04  | 0.00E+00 | 1.34E-02  | 0.00E+00 | 2.28E-05  | 0.00E+00 | 2.78E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.06E+01         | 1.21E+01  | 1.65E+00  | 4.83E-01  | 0.00E+00 | 1.34E+00  | 0.00E+00 | 1.46E+01  | 0.00E+00 | 8.14E-02  | 0.00E+00 | 3.37E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.41E+01         | 1.36E+01  | 1.65E+00  | 4.86E-01  | 0.00E+00 | 1.81E+00  | 0.00E+00 | 1.62E+01  | 0.00E+00 | 8.14E-02  | 0.00E+00 | 3.38E-01  |
| ODP [kg CFC 11 eq]                                     | 6.44E-07         | 3.00E-07  | 4.22E-15  | 1.35E-14  | 0.00E+00 | 4.48E-08  | 0.00E+00 | 3.00E-07  | 0.00E+00 | 2.08E-16  | 0.00E+00 | 1.61E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.74E+00         | 6.24E-01  | 1.74E-01  | 5.20E-03  | 0.00E+00 | 6.47E-02  | 0.00E+00 | 8.40E-01  | 0.00E+00 | 4.87E-03  | 0.00E+00 | 3.17E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |          |           |          |           |          |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.20E+00         | 1.60E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.60E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.19E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.59E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.59E+00  |
| BCRC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |           |          |           |          |           |          |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | -2.21E+01        | -1.54E+01 | 9.17E-01  | 5.77E-01  | 0.00E+00 | 4.48E+00  | 0.00E+00 | -1.33E+01 | 0.00E+00 | 4.53E-02  | 0.00E+00 | 6.14E-01  |
| RPR <sub>M</sub> [MJ]                                  | 4.60E+01         | 2.30E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.30E+01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 3.72E+02         | 1.32E+02  | 2.30E+01  | 2.96E+00  | 0.00E+00 | 4.42E+01  | 0.00E+00 | 1.64E+02  | 0.00E+00 | 1.14E+00  | 0.00E+00 | 5.24E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 1.21E+02         | 6.06E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.06E+01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.15E+00         | 1.36E-01  | 3.14E-03  | 1.70E-03  | 0.00E+00 | 8.68E-01  | 0.00E+00 | 1.42E-01  | 0.00E+00 | 1.55E-04  | 0.00E+00 | 6.50E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.54E+01         | 6.20E+00  | 7.21E-01  | 7.33E-02  | 0.00E+00 | 1.08E+00  | 0.00E+00 | 7.18E+00  | 0.00E+00 | 3.56E-02  | 0.00E+00 | 1.43E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 9.18E-05         | 4.27E-05  | 3.38E-07  | 1.06E-06  | 0.00E+00 | 2.91E-06  | 0.00E+00 | 4.44E-05  | 0.00E+00 | 1.67E-08  | 0.00E+00 | 3.00E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.46E-08        | -2.59E-08 | -2.86E-10 | -3.48E-10 | 0.00E+00 | -1.86E-10 | 0.00E+00 | -2.72E-08 | 0.00E+00 | -1.41E-11 | 0.00E+00 | -6.27E-10 |
| Nonrenewable Material Resources [kg]                   | 7.71E+01         | 3.43E+01  | 1.83E-01  | 3.89E-01  | 0.00E+00 | 2.28E+00  | 0.00E+00 | 3.74E+01  | 0.00E+00 | 9.04E-03  | 0.00E+00 | 2.52E+00  |
| Renewable Material Resources [kg]                      | 6.71E+00         | 2.60E+00  | 2.79E-01  | 1.54E-02  | 0.00E+00 | 6.39E-01  | 0.00E+00 | 3.03E+00  | 0.00E+00 | 1.06E-01  | 0.00E+00 | 3.59E-02  |
| HWD [kg]   | 4.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.00E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.20E-01         | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.19E-05         | 1.01E-05  | 7.83E-08  | 2.46E-07  | 0.00E+00 | 8.35E-07  | 0.00E+00 | 1.05E-05  | 0.00E+00 | 3.86E-09  | 0.00E+00 | 6.49E-08  |
| ILLRW [kg]   | 1.70E-02         | 7.83E-03  | 6.59E-05  | 2.06E-04  | 0.00E+00 | 6.43E-04  | 0.00E+00 | 8.16E-03  | 0.00E+00 | 3.25E-06  | 0.00E+00 | 5.80E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 29. FlowResin Flowfresh – Category 2 + Sealer FC - Commercial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FC when used commercially.

Table 32: LCIA results FlowResin Flowfresh Category 2 + Sealer FC – Commercial Application, per functional unit

### Technical Service Life

| Impact Category  | Life Cycle Stages |                  |           |                    |          |           |          |          |          |                   |          |           |
|--|-------------------|------------------|-----------|--------------------|----------|-----------|----------|----------|----------|-------------------|----------|-----------|
|  | Total             | Production Stage |           | Construction Stage |          | Use Stage |          |          |          | End of Life Stage |          |           |
|  |                   | A1-A3            | A4        | A5                 | B1       | B2        | B3       | B4       | C1       | C2                | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                   |                  |           |                    |          |           |          |          |          |                   |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 5.87E-02          | 4.25E-02         | 7.50E-03  | 3.74E-04           | 0.00E+00 | 6.39E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.13E-04          | 0.00E+00 | 1.74E-03  |
| EP [kg N eq]   | 1.42E-02          | 9.85E-03         | 6.65E-04  | 1.20E-04           | 0.00E+00 | 7.86E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.28E-05          | 0.00E+00 | 2.78E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.60E+01          | 1.21E+01         | 1.65E+00  | 4.83E-01           | 0.00E+00 | 1.34E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.14E-02          | 0.00E+00 | 3.37E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.80E+01          | 1.36E+01         | 1.65E+00  | 4.86E-01           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.14E-02          | 0.00E+00 | 3.38E-01  |
| ODP [kg CFC 11 eq]                                     | 3.44E-07          | 3.00E-07         | 4.22E-15  | 1.35E-14           | 0.00E+00 | 4.48E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.08E-16          | 0.00E+00 | 1.61E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 9.04E-01          | 6.24E-01         | 1.74E-01  | 5.20E-03           | 0.00E+00 | 6.47E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.87E-03          | 0.00E+00 | 3.17E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                   |                  |           |                    |          |           |          |          |          |                   |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.59E+00          | 1.59E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.59E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.59E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03          | 5.33E-03         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03          | 0.00E+00         | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                   |                  |           |                    |          |           |          |          |          |                   |          |           |
| RPR <sub>E</sub> [MJ]                                  | -8.81E+00         | -1.54E+01        | 9.17E-01  | 5.77E-01           | 0.00E+00 | 4.48E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.53E-02          | 0.00E+00 | 6.14E-01  |
| RPR <sub>M</sub> [MJ]                                  | 2.30E+01          | 2.30E+01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 2.08E+02          | 1.32E+02         | 2.30E+01  | 2.96E+00           | 0.00E+00 | 4.42E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.14E+00          | 0.00E+00 | 5.24E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 6.06E+01          | 6.06E+01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.01E+00          | 1.36E-01         | 3.14E-03  | 1.70E-03           | 0.00E+00 | 8.68E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.55E-04          | 0.00E+00 | 6.50E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 8.25E+00          | 6.20E+00         | 7.21E-01  | 7.33E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.56E-02          | 0.00E+00 | 1.43E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 4.74E-05          | 4.27E-05         | 3.38E-07  | 1.06E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.67E-08          | 0.00E+00 | 3.00E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.74E-08         | -2.59E-08        | -2.86E-10 | -3.48E-10          | 0.00E+00 | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.41E-11         | 0.00E+00 | -6.27E-10 |
| Nonrenewable Material Resources [kg]                   | 3.97E+01          | 3.43E+01         | 1.83E-01  | 3.89E-01           | 0.00E+00 | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.04E-03          | 0.00E+00 | 2.52E+00  |
| Renewable Material Resources [kg]                      | 3.67E+00          | 2.60E+00         | 2.79E-01  | 1.54E-02           | 0.00E+00 | 6.39E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.06E-01          | 0.00E+00 | 3.59E-02  |
| HWD [kg]   | 2.00E-02          | 2.00E-02         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 6.00E-02          | 6.00E-02         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.13E-05          | 1.01E-05         | 7.83E-08  | 2.46E-07           | 0.00E+00 | 8.35E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.86E-09          | 0.00E+00 | 6.49E-08  |
| ILLRW [kg]   | 8.81E-03          | 7.83E-03         | 6.59E-05  | 2.06E-04           | 0.00E+00 | 6.43E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.25E-06          | 0.00E+00 | 5.80E-05  |
| CRU [kg]   | 0.00E+00          | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01          | 0.00E+00         | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01          | 0.00E+00         | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 30. FlowResin Flowfresh – Category 2 + Sealer FCUV - Commercial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FCUV when used commercially.

Table 33: LCIA results FlowResin Flowfresh Category 2 + Sealer FCUV – Commercial Application, per functional unit

#### Market Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|-----------|------------------|--------------------|-----------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  |           | A1-A3            | A4                 | A5        | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.06E-01  | 4.03E-02         | 7.35E-03           | 3.73E-04  | 0.00E+00 | 6.43E-03  | 0.00E+00 | 4.99E-02  | 0.00E+00 | 2.09E-04          | 0.00E+00 | 1.70E-03  |  |
| EP [kg N eq]   | 2.61E-02  | 9.14E-03         | 6.52E-04           | 1.20E-04  | 0.00E+00 | 7.89E-04  | 0.00E+00 | 1.27E-02  | 0.00E+00 | 2.23E-05          | 0.00E+00 | 2.73E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.17E+01  | 1.27E+01         | 1.62E+00           | 4.82E-01  | 0.00E+00 | 1.35E+00  | 0.00E+00 | 1.52E+01  | 0.00E+00 | 7.97E-02          | 0.00E+00 | 3.30E-01  |  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 3.49E+01  | 1.41E+01         | 1.62E+00           | 4.85E-01  | 0.00E+00 | 1.82E+00  | 0.00E+00 | 1.66E+01  | 0.00E+00 | 7.97E-02          | 0.00E+00 | 3.31E-01  |  |
| ODP [kg CFC 11 eq]                                     | 5.50E-07  | 2.53E-07         | 4.14E-15           | 1.35E-14  | 0.00E+00 | 4.50E-08  | 0.00E+00 | 2.53E-07  | 0.00E+00 | 2.04E-16          | 0.00E+00 | 1.58E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.70E+00  | 6.05E-01         | 1.70E-01           | 5.17E-03  | 0.00E+00 | 6.51E-02  | 0.00E+00 | 8.16E-01  | 0.00E+00 | 4.77E-03          | 0.00E+00 | 3.10E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.87E+00  | 1.44E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.44E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.86E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.43E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.43E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |          |           |          |           |          |                   |          |           |  |
| RPR <sub>e</sub> [MJ]                                  | -1.51E+01 | -1.19E+01        | 8.99E-01           | 5.75E-01  | 0.00E+00 | 4.50E+00  | 0.00E+00 | -9.83E+00 | 0.00E+00 | 4.43E-02          | 0.00E+00 | 6.02E-01  |  |
| RPR <sub>m</sub> [MJ]                                  | 4.13E+01  | 2.07E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.07E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRPR <sub>e</sub> [MJ]                                 | 3.91E+02  | 1.41E+02         | 2.26E+01           | 2.95E+00  | 0.00E+00 | 4.45E+01  | 0.00E+00 | 1.73E+02  | 0.00E+00 | 1.11E+00          | 0.00E+00 | 5.14E+00  |  |
| NRPR <sub>m</sub> [MJ]                                 | 1.22E+02  | 6.08E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.08E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.15E+00  | 1.31E-01         | 3.08E-03           | 1.69E-03  | 0.00E+00 | 8.73E-01  | 0.00E+00 | 1.37E-01  | 0.00E+00 | 1.52E-04          | 0.00E+00 | 6.37E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.60E+01  | 6.49E+00         | 7.07E-01           | 7.30E-02  | 0.00E+00 | 1.08E+00  | 0.00E+00 | 7.44E+00  | 0.00E+00 | 3.49E-02          | 0.00E+00 | 1.40E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 9.23E-05  | 4.30E-05         | 3.31E-07           | 1.06E-06  | 0.00E+00 | 2.92E-06  | 0.00E+00 | 4.47E-05  | 0.00E+00 | 1.63E-08          | 0.00E+00 | 2.94E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.46E-08 | -2.60E-08        | -2.80E-10          | -3.47E-10 | 0.00E+00 | -1.87E-10 | 0.00E+00 | -2.72E-08 | 0.00E+00 | -1.38E-11         | 0.00E+00 | -6.14E-10 |  |
| Nonrenewable Material Resources [kg]                   | 7.84E+01  | 3.50E+01         | 1.80E-01           | 3.88E-01  | 0.00E+00 | 2.29E+00  | 0.00E+00 | 3.81E+01  | 0.00E+00 | 8.85E-03          | 0.00E+00 | 2.47E+00  |  |
| Renewable Material Resources [kg]                      | 6.30E+00  | 2.40E+00         | 2.73E-01           | 1.54E-02  | 0.00E+00 | 6.42E-01  | 0.00E+00 | 2.83E+00  | 0.00E+00 | 1.04E-01          | 0.00E+00 | 3.52E-02  |  |
| HWD [kg]   | 4.00E-02  | 2.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 1.20E-01  | 6.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.20E-05  | 1.02E-05         | 7.68E-08           | 2.46E-07  | 0.00E+00 | 8.39E-07  | 0.00E+00 | 1.06E-05  | 0.00E+00 | 3.78E-09          | 0.00E+00 | 6.35E-08  |  |
| ILLRW [kg]   | 1.73E-02  | 8.01E-03         | 6.46E-05           | 2.06E-04  | 0.00E+00 | 6.46E-04  | 0.00E+00 | 8.34E-03  | 0.00E+00 | 3.19E-06          | 0.00E+00 | 5.68E-05  |  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 31. FlowResin Flowfresh – Category 2 + Sealer FCUV - Commercial Application - Technical Service

#### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FCUV when used commercially.

Table 34: LCIA results FlowResin Flowfresh Category 2 + Sealer FCUV – Commercial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |          |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4       | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |          |          |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 5.64E-02         | 4.03E-02  | 7.35E-03  | 3.73E-04           | 0.00E+00 | 6.43E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.09E-04          | 0.00E+00 | 1.70E-03  |  |
| EP [kg N eq]   | 1.35E-02         | 9.14E-03  | 6.52E-04  | 1.20E-04           | 0.00E+00 | 7.89E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.23E-05          | 0.00E+00 | 2.73E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.65E+01         | 1.27E+01  | 1.62E+00  | 4.82E-01           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.97E-02          | 0.00E+00 | 3.30E-01  |  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 1.84E+01         | 1.41E+01  | 1.62E+00  | 4.85E-01           | 0.00E+00 | 1.82E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.97E-02          | 0.00E+00 | 3.31E-01  |  |
| ODP [kg CFC 11 eq]                                     | 2.98E-07         | 2.53E-07  | 4.14E-15  | 1.35E-14           | 0.00E+00 | 4.50E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.04E-16          | 0.00E+00 | 1.58E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 8.81E-01         | 6.05E-01  | 1.70E-01  | 5.17E-03           | 0.00E+00 | 6.51E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.77E-03          | 0.00E+00 | 3.10E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |          |          |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 1.44E+00         | 1.44E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.44E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.44E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |                    |          |           |          |          |          |                   |          |           |  |
| RPR <sub>e</sub> [MJ]                                  | -5.32E+00        | -1.19E+01 | 8.99E-01  | 5.75E-01           | 0.00E+00 | 4.50E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.43E-02          | 0.00E+00 | 6.02E-01  |  |
| RPR <sub>m</sub> [MJ]                                  | 2.07E+01         | 2.07E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRPRe [MJ]   | 2.18E+02         | 1.41E+02  | 2.26E+01  | 2.95E+00           | 0.00E+00 | 4.45E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.11E+00          | 0.00E+00 | 5.14E+00  |  |
| NRP <sub>m</sub> [MJ]                                  | 6.08E+01         | 6.08E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.01E+00         | 1.31E-01  | 3.08E-03  | 1.69E-03           | 0.00E+00 | 8.73E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.52E-04          | 0.00E+00 | 6.37E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 8.52E+00         | 6.49E+00  | 7.07E-01  | 7.30E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.49E-02          | 0.00E+00 | 1.40E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 4.76E-05         | 4.30E-05  | 3.31E-07  | 1.06E-06           | 0.00E+00 | 2.92E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.63E-08          | 0.00E+00 | 2.94E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.74E-08        | -2.60E-08 | -2.80E-10 | -3.47E-10          | 0.00E+00 | -1.87E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.38E-11         | 0.00E+00 | -6.14E-10 |  |
| Nonrenewable Material Resources [kg]                   | 4.03E+01         | 3.50E+01  | 1.80E-01  | 3.88E-01           | 0.00E+00 | 2.29E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.85E-03          | 0.00E+00 | 2.47E+00  |  |
| Renewable Material Resources [kg]                      | 3.47E+00         | 2.40E+00  | 2.73E-01  | 1.54E-02           | 0.00E+00 | 6.42E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.04E-01          | 0.00E+00 | 3.52E-02  |  |
| HWD [kg]   | 2.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 6.00E-02         | 6.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 1.14E-05         | 1.02E-05  | 7.68E-08  | 2.46E-07           | 0.00E+00 | 8.39E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.78E-09          | 0.00E+00 | 6.35E-08  |  |
| ILLRW [kg]   | 8.98E-03         | 8.01E-03  | 6.46E-05  | 2.06E-04           | 0.00E+00 | 6.46E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.19E-06          | 0.00E+00 | 5.68E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.



### 32. FlowResin Flowfresh – Category 2 + Sealer CR (Pigment) - Commercial Application - Market

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + CR (Pigment) when used commercially.

Table 35: LCIA results FlowResin Flowfresh Category 2 + CR (Pigment) – Commercial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.11E-01         | 4.13E-02  | 5.19E-03  | 3.88E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 5.23E-02  | 0.00E+00 | 2.10E-04          | 0.00E+00 | 1.71E-03  |  |
| EP [kg N eq]   | 2.54E-02         | 8.60E-03  | 4.60E-04  | 4.67E-04           | 0.00E+00 | 7.88E-04  | 0.00E+00 | 1.23E-02  | 0.00E+00 | 2.24E-05          | 0.00E+00 | 2.74E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.68E+01         | 1.36E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 1.77E+01  | 0.00E+00 | 8.01E-02          | 0.00E+00 | 3.31E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.96E+01         | 1.48E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 1.89E+01  | 0.00E+00 | 8.00E-02          | 0.00E+00 | 3.33E-01  |  |
| ODP [kg CFC 11 eq]                                     | 5.21E-07         | 2.38E-07  | 2.92E-15  | 1.03E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 2.38E-07  | 0.00E+00 | 2.05E-16          | 0.00E+00 | 1.59E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.81E+00         | 6.43E-01  | 1.20E-01  | 7.56E-02           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 8.75E-01  | 0.00E+00 | 4.79E-03          | 0.00E+00 | 3.12E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]                                  | 5.44E+00         | -5.35E+00 | 6.34E-01  | 4.54E+00           | 0.00E+00 | 4.50E+00  | 0.00E+00 | 4.74E-01  | 0.00E+00 | 4.45E-02          | 0.00E+00 | 6.04E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 3.60E+01         | 1.80E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>E</sub> [MJ]                                 | 4.60E+02         | 1.51E+02  | 1.59E+01  | 3.49E+01           | 0.00E+00 | 4.44E+01  | 0.00E+00 | 2.08E+02  | 0.00E+00 | 1.12E+00          | 0.00E+00 | 5.16E+00  |  |
| NRRP <sub>M</sub> [MJ]                                 | 1.36E+02         | 6.78E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.78E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.14E+00         | 1.21E-01  | 2.17E-03  | 9.35E-03           | 0.00E+00 | 8.71E-01  | 0.00E+00 | 1.33E-01  | 0.00E+00 | 1.53E-04          | 0.00E+00 | 6.40E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.86E+01         | 7.16E+00  | 4.99E-01  | 9.14E-01           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 8.75E+00  | 0.00E+00 | 3.50E-02          | 0.00E+00 | 1.41E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.02E-04         | 4.06E-05  | 2.34E-07  | 8.46E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 4.96E-05  | 0.00E+00 | 1.64E-08          | 0.00E+00 | 2.95E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -6.73E-08        | -2.89E-08 | -1.98E-10 | -3.81E-09          | 0.00E+00 | -1.87E-10 | 0.00E+00 | -3.36E-08 | 0.00E+00 | -1.39E-11         | 0.00E+00 | -6.17E-10 |  |
| Nonrenewable Material Resources [kg]                   | 8.83E+01         | 3.16E+01  | 1.27E-01  | 8.81E+00           | 0.00E+00 | 2.29E+00  | 0.00E+00 | 4.30E+01  | 0.00E+00 | 8.90E-03          | 0.00E+00 | 2.48E+00  |  |
| Renewable Material Resources [kg]                      | 6.10E+00         | 2.24E+00  | 1.93E-01  | 1.56E-01           | 0.00E+00 | 6.41E-01  | 0.00E+00 | 2.73E+00  | 0.00E+00 | 1.05E-01          | 0.00E+00 | 3.53E-02  |  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 1.80E-01         | 9.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 9.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.39E-05         | 9.46E-06  | 5.42E-08  | 1.96E-06           | 0.00E+00 | 8.37E-07  | 0.00E+00 | 1.15E-05  | 0.00E+00 | 3.80E-09          | 0.00E+00 | 6.38E-08  |  |
| ILLRW [kg]   | 1.92E-02         | 7.51E-03  | 4.56E-05  | 1.64E-03           | 0.00E+00 | 6.45E-04  | 0.00E+00 | 9.26E-03  | 0.00E+00 | 3.20E-06          | 0.00E+00 | 5.71E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 33. FlowResin Flowfresh – Category 2 + Sealer CR (Pigment) - Commercial Application - Technical

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + CR (Pigment) when used commercially.

Table 36: LCIA results FlowResin Flowfresh Category 2 + CR (Pigment) – Commercial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 5.87E-02         | 4.13E-02  | 5.19E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]   | 1.31E-02         | 8.60E-03  | 4.60E-04           | 4.67E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.91E+01         | 1.36E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.01E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 2.07E+01         | 1.48E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.33E-01  |
| ODP [kg CFC 11 eq]                                     | 2.83E-07         | 2.38E-07  | 2.92E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.05E-16  | 0.00E+00 | 1.59E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 9.40E-01         | 6.43E-01  | 1.20E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRC [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 4.97E+00         | -5.35E+00 | 6.34E-01           | 4.54E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>m</sub> [MJ]                                  | 1.80E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 2.52E+02         | 1.51E+02  | 1.59E+01           | 3.49E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 6.78E+01         | 6.78E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.00E+00         | 1.21E-01  | 2.17E-03           | 9.35E-03  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.53E-04  | 0.00E+00 | 6.40E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 9.83E+00         | 7.16E+00  | 4.99E-01           | 9.14E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.50E-02  | 0.00E+00 | 1.41E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.25E-05         | 4.06E-05  | 2.34E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.64E-08  | 0.00E+00 | 2.95E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -3.37E-08        | -2.89E-08 | -1.98E-10          | -3.81E-09 | 0.00E+00  | -1.87E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -1.39E-11 | 0.00E+00 | -6.17E-10 |
| Nonrenewable Material Resources [kg]                   | 4.53E+01         | 3.16E+01  | 1.27E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.90E-03  | 0.00E+00 | 2.48E+00  |
| Renewable Material Resources [kg]                      | 3.37E+00         | 2.24E+00  | 1.93E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.05E-01  | 0.00E+00 | 3.53E-02  |
| HWD [kg]   | 3.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 9.00E-02         | 9.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.24E-05         | 9.46E-06  | 5.42E-08           | 1.96E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]   | 9.90E-03         | 7.51E-03  | 4.56E-05           | 1.64E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 34. FlowResin Flowfresh – Category 2 + Sealer PA (pigment) - Commercial Application - Market

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer PA (pigment) when used commercially.

Table 37: LCIA results FlowResin Flowfresh Category 2 + Sealer PA (pigment) – Commercial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           |                    |           |           |           |          |           |                   |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|  |                  |           | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.03E-01         | 3.75E-02  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 4.83E-02  | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 2.38E-02         | 7.91E-03  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 1.15E-02  | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.18E+01         | 1.11E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 1.52E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.46E+01         | 1.23E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 1.64E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 5.09E-07         | 2.32E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.32E-07  | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.60E+00         | 5.38E-01  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 7.65E-01  | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | -4.48E+00        | -1.03E+01 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -4.49E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.55E+01         | 1.78E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.78E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]                                 | 3.82E+02         | 1.12E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 1.69E+02  | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.06E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 1.28E+02         | 6.42E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.42E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.13E+00         | 1.17E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 1.29E-01  | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.27E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.62E+01         | 5.97E+00  | 4.85E-01           | 9.13E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 7.54E+00  | 0.00E+00          | 3.43E-02  | 0.00E+00 | 1.38E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 9.52E-05         | 3.72E-05  | 2.27E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 4.62E-05  | 0.00E+00          | 1.61E-08  | 0.00E+00 | 2.89E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -6.21E-08        | -2.64E-08 | -1.92E-10          | -3.81E-09 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -3.10E-08 | 0.00E+00          | -1.36E-11 | 0.00E+00 | -6.04E-10 |
| Nonrenewable Material Resources [kg]                   | 7.86E+01         | 2.68E+01  | 1.23E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 3.82E+01  | 0.00E+00          | 8.71E-03  | 0.00E+00 | 2.43E+00  |
| Renewable Material Resources [kg]                      | 5.70E+00         | 2.05E+00  | 1.87E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 2.53E+00  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 3.46E-02  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.60E-01         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.25E-05         | 8.74E-06  | 5.27E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 1.08E-05  | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 1.78E-02         | 6.84E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 8.59E-03  | 0.00E+00          | 3.14E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 35. FlowResin Flowfresh – Category 2 + Sealer PA (pigment) - Commercial Application - Technical

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer PA (pigment) when used commercially.

Table 38: LCIA results FlowResin Flowfresh Category 2 + Sealer PA (pigment) – Commercial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           |                    |           |           |           |          |          |                   |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|  |                  |           | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 5.47E-02         | 3.75E-02  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 1.23E-02         | 7.91E-03  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.66E+01         | 1.11E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 1.82E+01         | 1.23E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 2.77E-07         | 2.32E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 8.30E-01         | 5.38E-01  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 4.79E-03         | -1.03E+01 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>m</sub> [MJ]                                  | 1.78E+01         | 1.78E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 2.13E+02         | 1.12E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.06E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 6.42E+01         | 6.42E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 9.99E-01         | 1.17E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.27E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 8.62E+00         | 5.97E+00  | 4.85E-01           | 9.13E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.43E-02  | 0.00E+00 | 1.38E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 4.91E-05         | 3.72E-05  | 2.27E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.61E-08  | 0.00E+00 | 2.89E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -3.12E-08        | -2.64E-08 | -1.92E-10          | -3.81E-09 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -1.36E-11 | 0.00E+00 | -6.04E-10 |
| Nonrenewable Material Resources [kg]                   | 4.05E+01         | 2.68E+01  | 1.23E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.71E-03  | 0.00E+00 | 2.43E+00  |
| Renewable Material Resources [kg]                      | 3.17E+00         | 2.05E+00  | 1.87E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.03E-01  | 0.00E+00 | 3.46E-02  |
| HWD [kg]   | 3.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 8.00E-02         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.17E-05         | 8.74E-06  | 5.27E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 9.23E-03         | 6.84E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.14E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 36. FlowResin Flowfresh – Category 2 + Sealer SR - Commercial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer SR when used commercially.

Table 39: LCIA results FlowResin Flowfresh Category 2 + Sealer SR – Commercial Application, per functional unit – Market Service Life

| Impact Category  | Production Stage |           |          | Construction Stage |          |          | Use Stage |           |          |          | End of Life Stage |          |  |  |
|--|------------------|-----------|----------|--------------------|----------|----------|-----------|-----------|----------|----------|-------------------|----------|--|--|
|  | Total            | A1-A3     | A4       | A5                 | B1       | B2       | B3        | B4        | C1       | C2       | C3                | C4       |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |          |                    |          |          |           |           |          |          |                   |          |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.04E-01         | 3.80E-02  | 5.15E-03 | 3.86E-03           | 0.00E+00 | 6.23E-03 | 0.00E+00  | 4.90E-02  | 0.00E+00 | 2.09E-04 | 0.00E+00          | 1.70E-03 |  |  |
| EP [kg N eq]   | 3.15E-02         | 1.17E-02  | 4.57E-04 | 4.66E-04           | 0.00E+00 | 7.66E-04 | 0.00E+00  | 1.53E-02  | 0.00E+00 | 2.23E-05 | 0.00E+00          | 2.72E-03 |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.90E+01         | 9.76E+00  | 1.14E+00 | 2.56E+00           | 0.00E+00 | 1.31E+00 | 0.00E+00  | 1.39E+01  | 0.00E+00 | 7.96E-02 | 0.00E+00          | 3.29E-01 |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 3.34E+01         | 1.17E+01  | 1.13E+00 | 2.56E+00           | 0.00E+00 | 1.76E+00 | 0.00E+00  | 1.58E+01  | 0.00E+00 | 7.95E-02 | 0.00E+00          | 3.31E-01 |  |  |
| ODP [kg CFC 11 eq]                                     | 6.61E-07         | 3.09E-07  | 2.90E-15 | 1.03E-13           | 0.00E+00 | 4.37E-08 | 0.00E+00  | 3.09E-07  | 0.00E+00 | 2.04E-16 | 0.00E+00          | 1.58E-14 |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.62E+00         | 5.49E-01  | 1.19E-01 | 7.53E-02           | 0.00E+00 | 6.31E-02 | 0.00E+00  | 7.80E-01  | 0.00E+00 | 4.76E-03 | 0.00E+00          | 3.10E-02 |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |          |                    |          |          |           |           |          |          |                   |          |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 4.03E+00         | 2.02E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.02E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 4.03E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.02E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.02E+00 |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 5.33E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00 | 5.33E-03           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 5.33E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |          |                    |          |          |           |           |          |          |                   |          |  |  |
| RPR <sub>E</sub> [MJ]                                  | -3.63E+01        | -2.62E+01 | 6.30E-01 | 4.52E+00           | 0.00E+00 | 4.37E+00 | 0.00E+00  | -2.04E+01 | 0.00E+00 | 4.42E-02 | 0.00E+00          | 6.01E-01 |  |  |
| RPR <sub>M</sub> [MJ]                                  | 5.79E+01         | 2.90E+01  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.90E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| NRPR <sub>E</sub> [MJ]                                 | 3.75E+02         | 1.09E+02  | 1.58E+01 | 3.47E+01           | 0.00E+00 | 4.31E+01 | 0.00E+00  | 1.66E+02  | 0.00E+00 | 1.11E+00 | 0.00E+00          | 5.13E+00 |  |  |
| NRPR <sub>M</sub> [MJ]                                 | 1.19E+02         | 5.93E+01  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 5.93E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| FW [m <sup>3</sup> ]                                   | 1.19E+00         | 1.57E-01  | 2.16E-03 | 9.31E-03           | 0.00E+00 | 8.46E-01 | 0.00E+00  | 1.69E-01  | 0.00E+00 | 1.52E-04 | 0.00E+00          | 6.36E-04 |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.15E+02         | 3.86E+01  | 4.52E+00 | 1.02E+01           | 0.00E+00 | 5.10E+00 | 0.00E+00  | 5.49E+01  | 0.00E+00 | 3.17E-01 | 0.00E+00          | 1.31E+00 |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 2.64E+01         | 8.79E+00  | 1.09E+00 | 2.45E+00           | 0.00E+00 | 1.02E+00 | 0.00E+00  | 1.27E+01  | 0.00E+00 | 7.68E-02 | 0.00E+00          | 3.07E-01 |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 3.83E+01         | 2.74E+00  | 1.38E-03 | 1.06E+00           | 0.00E+00 | 2.66E-01 | 0.00E+00  | 1.90E+01  | 0.00E+00 | 9.66E-05 | 0.00E+00          | 1.52E+01 |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| Nonrenewable Material Resources [kg]                   | 6.05E+01         | 2.07E+01  | 2.24E+00 | 5.03E+00           | 0.00E+00 | 2.84E+00 | 0.00E+00  | 2.88E+01  | 0.00E+00 | 1.57E-01 | 0.00E+00          | 6.41E-01 |  |  |
| Renewable Material Resources [kg]                      | 1.09E-02         | 3.78E-03  | 2.09E-04 | 3.39E-04           | 0.00E+00 | 1.98E-03 | 0.00E+00  | 4.47E-03  | 0.00E+00 | 1.00E-05 | 0.00E+00          | 1.31E-04 |  |  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 3.00E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| NHWD [kg]  | 1.80E-01         | 9.00E-02  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 9.00E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| HLRW [kg]  | 2.28E-05         | 8.89E-06  | 5.38E-08 | 1.96E-06           | 0.00E+00 | 8.13E-07 | 0.00E+00  | 1.10E-05  | 0.00E+00 | 3.78E-09 | 0.00E+00          | 6.34E-08 |  |  |
| ILLRW [kg]   | 1.79E-02         | 6.88E-03  | 4.53E-05 | 1.64E-03           | 0.00E+00 | 6.27E-04 | 0.00E+00  | 8.62E-03  | 0.00E+00 | 3.18E-06 | 0.00E+00          | 5.67E-05 |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00 | 1.03E-01           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.03E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00 | 1.24E-01           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.24E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 37. FlowResin Flowfresh – Category 2 + Sealer SR - Commercial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer SR when used commercially.

Table 40: LCIA results FlowResin Flowfresh Category 2 + Sealer SR – Commercial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           |          | Construction Stage |          | Use Stage |          |          |          | End of Life Stage |          |          |  |
|--|------------------|-----------|----------|--------------------|----------|-----------|----------|----------|----------|-------------------|----------|----------|--|
|  | Total            | A1-A3     | A4       | A5                 | B1       | B2        | B3       | B4       | C1       | C2                | C3       | C4       |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |          |                    |          |           |          |          |          |                   |          |          |  |
| AP [kg SO <sub>2</sub> eq]                             | 5.52E-02         | 3.80E-02  | 5.15E-03 | 3.86E-03           | 0.00E+00 | 6.23E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.09E-04          | 0.00E+00 | 1.70E-03 |  |
| EP [kg N eq]   | 1.61E-02         | 1.17E-02  | 4.57E-04 | 4.66E-04           | 0.00E+00 | 7.66E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.23E-05          | 0.00E+00 | 2.72E-03 |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.52E+01         | 9.76E+00  | 1.14E+00 | 2.56E+00           | 0.00E+00 | 1.31E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.96E-02          | 0.00E+00 | 3.29E-01 |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.76E+01         | 1.17E+01  | 1.13E+00 | 2.56E+00           | 0.00E+00 | 1.76E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.95E-02          | 0.00E+00 | 3.31E-01 |  |
| ODP [kg CFC 11 eq]                                     | 3.52E-07         | 3.09E-07  | 2.90E-15 | 1.03E-13           | 0.00E+00 | 4.37E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.04E-16          | 0.00E+00 | 1.58E-14 |  |
| POCP [kg O <sub>3</sub> eq]                            | 8.43E-01         | 5.49E-01  | 1.19E-01 | 7.53E-02           | 0.00E+00 | 6.31E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.76E-03          | 0.00E+00 | 3.10E-02 |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |          |                    |          |           |          |          |          |                   |          |          |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.02E+00         | 2.02E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.02E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 2.02E+00 |  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00 | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |          |                    |          |           |          |          |          |                   |          |          |  |
| RPR <sub>E</sub> [MJ]                                  | -1.60E+01        | -2.62E+01 | 6.30E-01 | 4.52E+00           | 0.00E+00 | 4.37E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.42E-02          | 0.00E+00 | 6.01E-01 |  |
| RPR <sub>M</sub> [MJ]                                  | 2.90E+01         | 2.90E+01  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| NRPR <sub>E</sub> [MJ]                                 | 2.09E+02         | 1.09E+02  | 1.58E+01 | 3.47E+01           | 0.00E+00 | 4.31E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.11E+00          | 0.00E+00 | 5.13E+00 |  |
| NRPR <sub>M</sub> [MJ]                                 | 5.93E+01         | 5.93E+01  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| FW [m <sup>3</sup> ]                                   | 1.02E+00         | 1.57E-01  | 2.16E-03 | 9.31E-03           | 0.00E+00 | 8.46E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.52E-04          | 0.00E+00 | 6.36E-04 |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 6.00E+01         | 3.86E+01  | 4.52E+00 | 1.02E+01           | 0.00E+00 | 5.10E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.17E-01          | 0.00E+00 | 1.31E+00 |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.37E+01         | 8.79E+00  | 1.09E+00 | 2.45E+00           | 0.00E+00 | 1.02E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.68E-02          | 0.00E+00 | 3.07E-01 |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 1.93E+01         | 2.74E+00  | 1.38E-03 | 1.06E+00           | 0.00E+00 | 2.66E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.66E-05          | 0.00E+00 | 1.52E+01 |  |
| Renewable (Biomass) [MJ (HHV)]                         | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| Nonrenewable Material Resources [kg]                   | 3.17E+01         | 2.07E+01  | 2.24E+00 | 5.03E+00           | 0.00E+00 | 2.84E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.57E-01          | 0.00E+00 | 6.41E-01 |  |
| Renewable Material Resources [kg]                      | 6.45E-03         | 3.78E-03  | 2.09E-04 | 3.39E-04           | 0.00E+00 | 1.98E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.00E-05          | 0.00E+00 | 1.31E-04 |  |
| HWD [kg]   | 3.00E-02         | 3.00E-02  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| NHWD [kg]  | 9.00E-02         | 9.00E-02  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| HLRW [kg]  | 1.18E-05         | 8.89E-06  | 5.38E-08 | 1.96E-06           | 0.00E+00 | 8.13E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.78E-09          | 0.00E+00 | 6.34E-08 |  |
| ILLRW [kg]   | 9.25E-03         | 6.88E-03  | 4.53E-05 | 1.64E-03           | 0.00E+00 | 6.27E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.18E-06          | 0.00E+00 | 5.67E-05 |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00 | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00 | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00 |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 38. FlowResin Flowfresh – Category 3 + Sealer CR (clear) - Commercial Application - Market Service

#### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) when used commercially.

Table 41: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) – Commercial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.37E-01         | 5.42E-02  | 5.18E-03  | 3.88E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 6.51E-02  | 0.00E+00 | 2.10E-04          | 0.00E+00 | 1.71E-03  |  |
| EP [kg N eq]   | 2.88E-02         | 1.03E-02  | 4.60E-04  | 4.67E-04           | 0.00E+00 | 7.87E-04  | 0.00E+00 | 1.40E-02  | 0.00E+00 | 2.24E-05          | 0.00E+00 | 2.74E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.17E+01         | 1.60E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 2.02E+01  | 0.00E+00 | 8.00E-02          | 0.00E+00 | 3.31E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.45E+01         | 1.72E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 2.13E+01  | 0.00E+00 | 8.00E-02          | 0.00E+00 | 3.32E-01  |  |
| ODP [kg CFC 11 eq]                                     | 5.10E-07         | 2.32E-07  | 2.92E-15  | 1.03E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 2.32E-07  | 0.00E+00 | 2.05E-16          | 0.00E+00 | 1.58E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.84E+00         | 6.54E-01  | 1.20E-01  | 7.56E-02           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 8.86E-01  | 0.00E+00 | 4.79E-03          | 0.00E+00 | 3.12E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]                                  | 8.51E+00         | -3.81E+00 | 6.34E-01  | 4.54E+00           | 0.00E+00 | 4.49E+00  | 0.00E+00 | 2.01E+00  | 0.00E+00 | 4.45E-02          | 0.00E+00 | 6.04E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 3.60E+01         | 1.80E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>E</sub> [MJ]                                 | 5.31E+02         | 1.87E+02  | 1.59E+01  | 3.49E+01           | 0.00E+00 | 4.43E+01  | 0.00E+00 | 2.44E+02  | 0.00E+00 | 1.12E+00          | 0.00E+00 | 5.16E+00  |  |
| NRRP <sub>M</sub> [MJ]                                 | 1.52E+02         | 7.59E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 7.59E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.42E+00         | 2.65E-01  | 2.17E-03  | 9.35E-03           | 0.00E+00 | 8.70E-01  | 0.00E+00 | 2.77E-01  | 0.00E+00 | 1.53E-04          | 0.00E+00 | 6.39E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.08E+01         | 8.25E+00  | 4.98E-01  | 9.14E-01           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 9.84E+00  | 0.00E+00 | 3.50E-02          | 0.00E+00 | 1.40E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.16E-04         | 4.77E-05  | 2.34E-07  | 8.46E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 5.67E-05  | 0.00E+00 | 1.64E-08          | 0.00E+00 | 2.95E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -7.00E-08        | -3.02E-08 | -1.98E-10 | -3.81E-09          | 0.00E+00 | -1.86E-10 | 0.00E+00 | -3.49E-08 | 0.00E+00 | -1.39E-11         | 0.00E+00 | -6.16E-10 |  |
| Nonrenewable Material Resources [kg]                   | 9.51E+01         | 3.50E+01  | 1.27E-01  | 8.81E+00           | 0.00E+00 | 2.29E+00  | 0.00E+00 | 4.64E+01  | 0.00E+00 | 8.89E-03          | 0.00E+00 | 2.48E+00  |  |
| Renewable Material Resources [kg]                      | 6.29E+00         | 2.34E+00  | 1.93E-01  | 1.56E-01           | 0.00E+00 | 6.41E-01  | 0.00E+00 | 2.83E+00  | 0.00E+00 | 1.05E-01          | 0.00E+00 | 3.53E-02  |  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 1.80E-01         | 9.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 9.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.49E-05         | 9.95E-06  | 5.41E-08  | 1.96E-06           | 0.00E+00 | 8.37E-07  | 0.00E+00 | 1.20E-05  | 0.00E+00 | 3.80E-09          | 0.00E+00 | 6.38E-08  |  |
| ILLRW [kg]   | 2.00E-02         | 7.92E-03  | 4.56E-05  | 1.64E-03           | 0.00E+00 | 6.45E-04  | 0.00E+00 | 9.67E-03  | 0.00E+00 | 3.20E-06          | 0.00E+00 | 5.71E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 39. FlowResin Flowfresh – Category 3 + Sealer CR (clear) - Commercial Application - Technical

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) when used commercially.

Table 42: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) – Commercial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 7.16E-02         | 5.42E-02  | 5.18E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]   | 1.48E-02         | 1.03E-02  | 4.60E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.15E+01         | 1.60E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 2.31E+01         | 1.72E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.32E-01  |
| ODP [kg CFC 11 eq]                                     | 2.77E-07         | 2.32E-07  | 2.92E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.05E-16  | 0.00E+00 | 1.58E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 9.51E-01         | 6.54E-01  | 1.20E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 6.50E+00         | -3.81E+00 | 6.34E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>M</sub> [MJ]                                  | 1.80E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 2.88E+02         | 1.87E+02  | 1.59E+01           | 3.49E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 7.59E+01         | 7.59E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.15E+00         | 2.65E-01  | 2.17E-03           | 9.35E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.53E-04  | 0.00E+00 | 6.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.09E+01         | 8.25E+00  | 4.98E-01           | 9.14E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.50E-02  | 0.00E+00 | 1.40E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.96E-05         | 4.77E-05  | 2.34E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.64E-08  | 0.00E+00 | 2.95E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -3.51E-08        | -3.02E-08 | -1.98E-10          | -3.81E-09 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -1.39E-11 | 0.00E+00 | -6.16E-10 |
| Nonrenewable Material Resources [kg]                   | 4.87E+01         | 3.50E+01  | 1.27E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.89E-03  | 0.00E+00 | 2.48E+00  |
| Renewable Material Resources [kg]                      | 3.47E+00         | 2.34E+00  | 1.93E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.05E-01  | 0.00E+00 | 3.53E-02  |
| HWD [kg]   | 3.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 9.00E-02         | 9.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.29E-05         | 9.95E-06  | 5.41E-08           | 1.96E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]   | 1.03E-02         | 7.92E-03  | 4.56E-05           | 1.64E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.



## 40. FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 - Commercial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 when used commercially.

Table 43: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) + 467 – Commercial Application, per functional unit

### Market Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.48E-01         | 5.56E-02  | 5.21E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 7.07E-02  | 0.00E+00          | 2.75E-04  | 0.00E+00 | 2.24E-03  |
| EP [kg N eq]   | 3.15E-02         | 1.05E-02  | 4.62E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 1.54E-02  | 0.00E+00          | 2.94E-05  | 0.00E+00 | 3.59E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.76E+01         | 1.68E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 2.31E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.35E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 5.03E+01         | 1.79E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 2.43E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.36E-01  |
| ODP [kg CFC 11 eq]                                     | 5.10E-07         | 2.32E-07  | 2.93E-15           | 1.92E-13  | 0.00E+00  | 4.50E-08  | 0.00E+00 | 2.32E-07  | 0.00E+00          | 2.69E-16  | 0.00E+00 | 2.08E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.04E+00         | 6.73E-01  | 1.21E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 9.86E-01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 4.09E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 1.99E+01         | -2.27E+00 | 6.37E-01           | 8.49E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 7.71E+00  | 0.00E+00          | 5.84E-02  | 0.00E+00 | 7.93E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.60E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]                                 | 6.18E+02         | 1.96E+02  | 1.60E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 2.87E+02  | 0.00E+00          | 1.47E+00  | 0.00E+00 | 6.77E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 1.57E+02         | 7.84E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 7.84E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.45E+00         | 2.71E-01  | 2.18E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 2.91E-01  | 0.00E+00          | 2.00E-04  | 0.00E+00 | 8.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 8.00E-02         | 4.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.20E-01         | 1.10E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.03E-05         | 1.09E-05  | 5.44E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.47E-05  | 0.00E+00          | 4.99E-09  | 0.00E+00 | 8.37E-08  |
| ILLRW [kg]   | 2.45E-02         | 8.73E-03  | 4.58E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 1.19E-02  | 0.00E+00          | 4.20E-06  | 0.00E+00 | 7.49E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 41. FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 - Commercial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 when used commercially.

Table 44: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) + 467 – Commercial Application, per functional unit  
**Technical Service Life**

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 7.71E-02  | 5.56E-02         | 5.21E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.75E-04  | 0.00E+00 | 2.24E-03  |
| EP [kg N eq]   | 1.62E-02  | 1.05E-02         | 4.62E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.94E-05  | 0.00E+00 | 3.59E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.45E+01  | 1.68E+01         | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.35E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 2.61E+01  | 1.79E+01         | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.36E-01  |
| ODP [kg CFC 11 eq]                                     | 2.77E-07  | 2.32E-07         | 2.93E-15           | 1.92E-13  | 0.00E+00  | 4.50E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.69E-16  | 0.00E+00 | 2.08E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.05E+00  | 6.73E-01         | 1.21E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.28E-03  | 0.00E+00 | 4.09E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00  | 1.23E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 1.22E+01  | -2.27E+00        | 6.37E-01           | 8.49E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 5.84E-02  | 0.00E+00 | 7.93E-01  |
| RPR <sub>m</sub> [MJ]                                  | 1.80E+01  | 1.80E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 3.31E+02  | 1.96E+02         | 1.60E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.47E+00  | 0.00E+00 | 6.77E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 7.84E+01  | 7.84E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.16E+00  | 2.71E-01         | 2.18E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.00E-04  | 0.00E+00 | 8.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01  | 1.21E+01         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.88E-05  | 5.44E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.72E-08 | -2.60E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 3.49E+01  | 3.04E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 9.48E+00  | 8.53E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 4.00E-02  | 4.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.10E-01  | 1.10E-01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.56E-05  | 1.09E-05         | 5.44E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.99E-09  | 0.00E+00 | 8.37E-08  |
| ILLRW [kg]   | 1.26E-02  | 8.73E-03         | 4.58E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.20E-06  | 0.00E+00 | 7.49E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 42. FlowResin Flowfresh – Category 3 + Sealer PA (clear) - Commercial Application - Market Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) when used commercially.

Table 45: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) – Commercial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.29E-01         | 5.05E-02  | 5.04E-03  | 3.88E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 6.13E-02  | 0.00E+00 | 2.06E-04          | 0.00E+00 | 1.68E-03  |  |
| EP [kg N eq]   | 2.72E-02         | 9.60E-03  | 4.47E-04  | 4.67E-04           | 0.00E+00 | 7.87E-04  | 0.00E+00 | 1.32E-02  | 0.00E+00 | 2.20E-05          | 0.00E+00 | 2.68E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.67E+01         | 1.36E+01  | 1.11E+00  | 2.57E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 1.77E+01  | 0.00E+00 | 7.84E-02          | 0.00E+00 | 3.25E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.95E+01         | 1.48E+01  | 1.11E+00  | 2.57E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 1.89E+01  | 0.00E+00 | 7.84E-02          | 0.00E+00 | 3.26E-01  |  |
| ODP [kg CFC 11 eq]                                     | 4.97E-07         | 2.26E-07  | 2.84E-15  | 1.03E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 2.26E-07  | 0.00E+00 | 2.01E-16          | 0.00E+00 | 1.55E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.62E+00         | 5.49E-01  | 1.17E-01  | 7.56E-02           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 7.77E-01  | 0.00E+00 | 4.69E-03          | 0.00E+00 | 3.06E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]                                  | -1.02E+00        | -8.54E+00 | 6.17E-01  | 4.54E+00           | 0.00E+00 | 4.49E+00  | 0.00E+00 | -2.75E+00 | 0.00E+00 | 4.36E-02          | 0.00E+00 | 5.92E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 3.53E+01         | 1.76E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>E</sub> [MJ]                                 | 4.54E+02         | 1.48E+02  | 1.55E+01  | 3.48E+01           | 0.00E+00 | 4.43E+01  | 0.00E+00 | 2.05E+02  | 0.00E+00 | 1.09E+00          | 0.00E+00 | 5.05E+00  |  |
| NRRP <sub>M</sub> [MJ]                                 | 1.45E+02         | 7.25E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 7.25E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.42E+00         | 2.61E-01  | 2.11E-03  | 9.34E-03           | 0.00E+00 | 8.70E-01  | 0.00E+00 | 2.73E-01  | 0.00E+00 | 1.50E-04          | 0.00E+00 | 6.26E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.84E+01         | 7.08E+00  | 4.85E-01  | 9.13E-01           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 8.65E+00  | 0.00E+00 | 3.43E-02          | 0.00E+00 | 1.38E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.10E-04         | 4.43E-05  | 2.27E-07  | 8.46E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 5.33E-05  | 0.00E+00 | 1.61E-08          | 0.00E+00 | 2.89E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -6.51E-08        | -2.78E-08 | -1.92E-10 | -3.81E-09          | 0.00E+00 | -1.86E-10 | 0.00E+00 | -3.24E-08 | 0.00E+00 | -1.36E-11         | 0.00E+00 | -6.04E-10 |  |
| Nonrenewable Material Resources [kg]                   | 8.56E+01         | 3.03E+01  | 1.23E-01  | 8.81E+00           | 0.00E+00 | 2.29E+00  | 0.00E+00 | 4.17E+01  | 0.00E+00 | 8.71E-03          | 0.00E+00 | 2.43E+00  |  |
| Renewable Material Resources [kg]                      | 5.88E+00         | 2.14E+00  | 1.87E-01  | 1.56E-01           | 0.00E+00 | 6.40E-01  | 0.00E+00 | 2.62E+00  | 0.00E+00 | 1.03E-01          | 0.00E+00 | 3.46E-02  |  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 1.60E-01         | 8.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.35E-05         | 9.24E-06  | 5.26E-08  | 1.96E-06           | 0.00E+00 | 8.36E-07  | 0.00E+00 | 1.13E-05  | 0.00E+00 | 3.72E-09          | 0.00E+00 | 6.25E-08  |  |
| ILLRW [kg]   | 1.87E-02         | 7.26E-03  | 4.43E-05  | 1.64E-03           | 0.00E+00 | 6.44E-04  | 0.00E+00 | 9.00E-03  | 0.00E+00 | 3.13E-06          | 0.00E+00 | 5.59E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 43. FlowResin Flowfresh – Category 3 + Sealer PA (clear) - Commercial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) when used commercially.

Table 46: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) – Commercial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 6.77E-02         | 5.05E-02  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 1.40E-02         | 9.60E-03  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.90E+01         | 1.36E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 2.07E+01         | 1.48E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 2.71E-07         | 2.26E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 8.42E-01         | 5.49E-01  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 1.74E+00         | -8.54E+00 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>m</sub> [MJ]                                  | 1.76E+01         | 1.76E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 2.49E+02         | 1.48E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.05E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 7.25E+01         | 7.25E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.14E+00         | 2.61E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 9.73E+00         | 7.08E+00  | 4.85E-01           | 9.13E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.43E-02  | 0.00E+00 | 1.38E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.62E-05         | 4.43E-05  | 2.27E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.61E-08  | 0.00E+00 | 2.89E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -3.26E-08        | -2.78E-08 | -1.92E-10          | -3.81E-09 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -1.36E-11 | 0.00E+00 | -6.04E-10 |
| Nonrenewable Material Resources [kg]                   | 4.39E+01         | 3.03E+01  | 1.23E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 8.71E-03  | 0.00E+00 | 2.43E+00  |
| Renewable Material Resources [kg]                      | 3.26E+00         | 2.14E+00  | 1.87E-01           | 1.56E-01  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.03E-01  | 0.00E+00 | 3.46E-02  |
| HWD [kg]   | 3.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 8.00E-02         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.22E-05         | 9.24E-06  | 5.26E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 9.65E-03         | 7.26E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.13E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 44. FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 - Commercial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 when used commercially.

Table 47: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) + 467 – Commercial Application, per functional unit

### Market Service Life

| Impact Category  | Life Cycle Stages |                           |                              |           |                             |           |          |           |                                     |           |          |           |
|--|-------------------|---------------------------|------------------------------|-----------|-----------------------------|-----------|----------|-----------|-------------------------------------|-----------|----------|-----------|
|  | Total             | Production Stage<br>A1-A3 | Construction Stage<br>A4, A5 |           | Use Stage<br>B1, B2, B3, B4 |           |          |           | End of Life Stage<br>C1, C2, C3, C4 |           |          |           |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                   |                           |                              |           |                             |           |          |           |                                     |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.40E-01          | 5.19E-02                  | 5.06E-03                     | 7.37E-03  | 0.00E+00                    | 6.41E-03  | 0.00E+00 | 6.68E-02  | 0.00E+00                            | 2.71E-04  | 0.00E+00 | 2.21E-03  |
| EP [kg N eq]   | 3.00E-02          | 9.75E-03                  | 4.49E-04                     | 8.16E-04  | 0.00E+00                    | 7.88E-04  | 0.00E+00 | 1.46E-02  | 0.00E+00                            | 2.90E-05  | 0.00E+00 | 3.54E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.26E+01          | 1.43E+01                  | 1.12E+00                     | 4.66E+00  | 0.00E+00                    | 1.35E+00  | 0.00E+00 | 2.06E+01  | 0.00E+00                            | 1.03E-01  | 0.00E+00 | 4.28E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.54E+01          | 1.55E+01                  | 1.12E+00                     | 4.66E+00  | 0.00E+00                    | 1.81E+00  | 0.00E+00 | 2.18E+01  | 0.00E+00                            | 1.03E-01  | 0.00E+00 | 4.30E-01  |
| ODP [kg CFC 11 eq]                                     | 4.97E-07          | 2.26E-07                  | 2.85E-15                     | 1.92E-13  | 0.00E+00                    | 4.49E-08  | 0.00E+00 | 2.26E-07  | 0.00E+00                            | 2.65E-16  | 0.00E+00 | 2.05E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.82E+00          | 5.68E-01                  | 1.17E-01                     | 1.46E-01  | 0.00E+00                    | 6.49E-02  | 0.00E+00 | 8.77E-01  | 0.00E+00                            | 6.19E-03  | 0.00E+00 | 4.03E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                   |                           |                              |           |                             |           |          |           |                                     |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00          | 1.23E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02          | 5.33E-03                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02          | 0.00E+00                  | 0.00E+00                     | 5.33E-03  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                   |                           |                              |           |                             |           |          |           |                                     |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 1.04E+01          | -6.99E+00                 | 6.19E-01                     | 8.49E+00  | 0.00E+00                    | 4.49E+00  | 0.00E+00 | 2.95E+00  | 0.00E+00                            | 5.75E-02  | 0.00E+00 | 7.81E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.53E+01          | 1.76E+01                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 5.40E+02          | 1.58E+02                  | 1.55E+01                     | 6.67E+01  | 0.00E+00                    | 4.44E+01  | 0.00E+00 | 2.48E+02  | 0.00E+00                            | 1.44E+00  | 0.00E+00 | 6.67E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 1.50E+02          | 7.50E+01                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 7.50E+01  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.44E+00          | 2.67E-01                  | 2.12E-03                     | 1.70E-02  | 0.00E+00                    | 8.71E-01  | 0.00E+00 | 2.87E-01  | 0.00E+00                            | 1.97E-04  | 0.00E+00 | 8.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01          | 1.21E+01                  | 5.11E-01                     | 6.78E-02  | 0.00E+00                    | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00                            | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04          | 5.44E-05                  | 2.39E-07                     | 1.06E-06  | 0.00E+00                    | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00                            | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08         | -2.60E-08                 | -2.03E-10                    | -3.42E-10 | 0.00E+00                    | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00                            | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01          | 3.04E+01                  | 1.30E-01                     | 3.71E-01  | 0.00E+00                    | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00                            | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01          | 8.53E+00                  | 1.97E-01                     | 1.44E-02  | 0.00E+00                    | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00                            | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 8.00E-02          | 4.00E-02                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.20E-01          | 1.10E-01                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.88E-05          | 1.02E-05                  | 5.29E-08                     | 3.67E-06  | 0.00E+00                    | 8.37E-07  | 0.00E+00 | 1.40E-05  | 0.00E+00                            | 4.91E-09  | 0.00E+00 | 8.24E-08  |
| ILLRW [kg]   | 2.32E-02          | 8.07E-03                  | 4.45E-05                     | 3.07E-03  | 0.00E+00                    | 6.45E-04  | 0.00E+00 | 1.13E-02  | 0.00E+00                            | 4.13E-06  | 0.00E+00 | 7.37E-05  |
| CRU [kg]   | 0.00E+00          | 0.00E+00                  | 0.00E+00                     | 0.00E+00  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01          | 0.00E+00                  | 0.00E+00                     | 1.03E-01  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01          | 0.00E+00                  | 0.00E+00                     | 1.24E-01  | 0.00E+00                    | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00                            | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 45. FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 - Commercial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 when used commercially.

Table 48: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) + 467 – Commercial Application, per functional unit  
**Technical Service Life**

| Impact Category  | Production Stage |           |           |           | Construction Stage |           |          |          | Use Stage |           |          |           | End of Life Stage |  |  |  |
|--|------------------|-----------|-----------|-----------|--------------------|-----------|----------|----------|-----------|-----------|----------|-----------|-------------------|--|--|--|
|  | Total            | A1-A3     | A4        | A5        | B1                 | B2        | B3       | B4       | C1        | C2        | C3       | C4        |                   |  |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |                    |           |          |          |           |           |          |           |                   |  |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 7.33E-02         | 5.19E-02  | 5.06E-03  | 7.37E-03  | 0.00E+00           | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.71E-04  | 0.00E+00 | 2.21E-03  |                   |  |  |  |
| EP [kg N eq]   | 1.54E-02         | 9.75E-03  | 4.49E-04  | 8.16E-04  | 0.00E+00           | 7.88E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.90E-05  | 0.00E+00 | 3.54E-03  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.20E+01         | 1.43E+01  | 1.12E+00  | 4.66E+00  | 0.00E+00           | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.03E-01  | 0.00E+00 | 4.28E-01  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.36E+01         | 1.55E+01  | 1.12E+00  | 4.66E+00  | 0.00E+00           | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.03E-01  | 0.00E+00 | 4.30E-01  |                   |  |  |  |
| ODP [kg CFC 11 eq]                                     | 2.71E-07         | 2.26E-07  | 2.85E-15  | 1.92E-13  | 0.00E+00           | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.65E-16  | 0.00E+00 | 2.05E-14  |                   |  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 9.42E-01         | 5.68E-01  | 1.17E-01  | 1.46E-01  | 0.00E+00           | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 6.19E-03  | 0.00E+00 | 4.03E-02  |                   |  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |                    |           |          |          |           |           |          |           |                   |  |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  |                   |  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |           |                    |           |          |          |           |           |          |           |                   |  |  |  |
| RPR <sub>e</sub> [MJ]                                  | 7.45E+00         | -6.99E+00 | 6.19E-01  | 8.49E+00  | 0.00E+00           | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 5.75E-02  | 0.00E+00 | 7.81E-01  |                   |  |  |  |
| RPR <sub>m</sub> [MJ]                                  | 1.76E+01         | 1.76E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRPR <sub>e</sub> [MJ]                                 | 2.92E+02         | 1.58E+02  | 1.55E+01  | 6.67E+01  | 0.00E+00           | 4.44E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.44E+00  | 0.00E+00 | 6.67E+00  |                   |  |  |  |
| NRPR <sub>m</sub> [MJ]                                 | 7.50E+01         | 7.50E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.16E+00         | 2.67E-01  | 2.12E-03  | 1.70E-02  | 0.00E+00           | 8.71E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.97E-04  | 0.00E+00 | 8.26E-04  |                   |  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01         | 1.21E+01  | 5.11E-01  | 6.78E-02  | 0.00E+00           | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 2.47E-02  | 0.00E+00 | 9.92E-02  |                   |  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.88E-05         | 5.44E-05  | 2.39E-07  | 1.06E-06  | 0.00E+00           | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 1.16E-08  | 0.00E+00 | 2.08E-07  |                   |  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.72E-08        | -2.60E-08 | -2.03E-10 | -3.42E-10 | 0.00E+00           | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00  | -9.80E-12 | 0.00E+00 | -4.35E-10 |                   |  |  |  |
| Nonrenewable Material Resources [kg]                   | 3.49E+01         | 3.04E+01  | 1.30E-01  | 3.71E-01  | 0.00E+00           | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 6.28E-03  | 0.00E+00 | 1.75E+00  |                   |  |  |  |
| Renewable Material Resources [kg]                      | 9.48E+00         | 8.53E+00  | 1.97E-01  | 1.44E-02  | 0.00E+00           | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 7.40E-02  | 0.00E+00 | 2.50E-02  |                   |  |  |  |
| HWD [kg]   | 4.00E-02         | 4.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NHWD [kg]  | 1.10E-01         | 1.10E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| HLRW [kg]  | 1.48E-05         | 1.02E-05  | 5.29E-08  | 3.67E-06  | 0.00E+00           | 8.37E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 4.91E-09  | 0.00E+00 | 8.24E-08  |                   |  |  |  |
| ILLRW [kg]   | 1.19E-02         | 8.07E-03  | 4.45E-05  | 3.07E-03  | 0.00E+00           | 6.45E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 4.13E-06  | 0.00E+00 | 7.37E-05  |                   |  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 46. FlowResin Flowfresh – Category 4 + Sealer CR (clear) - Commercial Application - Market Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) when used commercially.

Table 49: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) – Commercial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 3.23E-01         | 1.47E-01  | 5.18E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.58E-01  | 0.00E+00          | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]   | 3.75E-02         | 1.47E-02  | 4.60E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 1.84E-02  | 0.00E+00          | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.11E+01         | 3.07E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.49E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.39E+01         | 3.19E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.60E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.32E-01  |
| ODP [kg CFC 11 eq]                                     | 5.43E-07         | 2.49E-07  | 2.92E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.49E-07  | 0.00E+00          | 2.05E-16  | 0.00E+00 | 1.58E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.89E+00         | 1.18E+00  | 1.20E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.41E+00  | 0.00E+00          | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 7.66E+00         | -4.23E+00 | 6.34E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 1.59E+00  | 0.00E+00          | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.60E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 7.23E+02         | 2.82E+02  | 1.59E+01           | 3.49E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 3.39E+02  | 0.00E+00          | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 1.84E+02         | 9.22E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.22E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.01E+00         | 5.58E-01  | 2.17E-03           | 9.35E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 5.70E-01  | 0.00E+00          | 1.53E-04  | 0.00E+00 | 6.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.80E-01         | 9.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.17E-05         | 8.35E-06  | 5.41E-08           | 1.96E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.04E-05  | 0.00E+00          | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]   | 1.74E-02         | 6.61E-03  | 4.56E-05           | 1.64E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 8.36E-03  | 0.00E+00          | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 47. FlowResin Flowfresh – Category 4 + Sealer CR (clear) - Commercial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) when used commercially.

Table 50: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) – Commercial Application, per functional unit

### Technical Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |          |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4       | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |          |          |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.65E-01         | 1.47E-01  | 5.18E-03  | 3.88E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.10E-04          | 0.00E+00 | 1.71E-03  |  |
| EP [kg N eq]   | 1.92E-02         | 1.47E-02  | 4.60E-04  | 4.67E-04           | 0.00E+00 | 7.87E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.24E-05          | 0.00E+00 | 2.74E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.62E+01         | 3.07E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-02          | 0.00E+00 | 3.31E-01  |  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 3.78E+01         | 3.19E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.00E-02          | 0.00E+00 | 3.32E-01  |  |
| ODP [kg CFC 11 eq]                                     | 2.94E-07         | 2.49E-07  | 2.92E-15  | 1.03E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.05E-16          | 0.00E+00 | 1.58E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.48E+00         | 1.18E+00  | 1.20E-01  | 7.56E-02           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.79E-03          | 0.00E+00 | 3.12E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |          |          |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |                    |          |           |          |          |          |                   |          |           |  |
| RPR <sub>e</sub> [MJ]                                  | 6.08E+00         | -4.23E+00 | 6.34E-01  | 4.54E+00           | 0.00E+00 | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.45E-02          | 0.00E+00 | 6.04E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 1.80E+01         | 1.80E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>e</sub> [MJ]                                 | 3.84E+02         | 2.82E+02  | 1.59E+01  | 3.49E+01           | 0.00E+00 | 4.43E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.12E+00          | 0.00E+00 | 5.16E+00  |  |
| NRRP <sub>M</sub> [MJ]                                 | 9.22E+01         | 9.22E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.44E+00         | 5.58E-01  | 2.17E-03  | 9.35E-03           | 0.00E+00 | 8.70E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.53E-04          | 0.00E+00 | 6.39E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01         | 1.21E+01  | 5.11E-01  | 6.78E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.47E-02          | 0.00E+00 | 9.92E-02  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.88E-05         | 5.44E-05  | 2.39E-07  | 1.06E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.16E-08          | 0.00E+00 | 2.08E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.72E-08        | -2.60E-08 | -2.03E-10 | -3.42E-10          | 0.00E+00 | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -9.80E-12         | 0.00E+00 | -4.35E-10 |  |
| Nonrenewable Material Resources [kg]                   | 3.49E+01         | 3.04E+01  | 1.30E-01  | 3.71E-01           | 0.00E+00 | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.28E-03          | 0.00E+00 | 1.75E+00  |  |
| Renewable Material Resources [kg]                      | 9.48E+00         | 8.53E+00  | 1.97E-01  | 1.44E-02           | 0.00E+00 | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.40E-02          | 0.00E+00 | 2.50E-02  |  |
| HWD [kg]   | 3.00E-02         | 3.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 9.00E-02         | 9.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 1.13E-05         | 8.35E-06  | 5.41E-08  | 1.96E-06           | 0.00E+00 | 8.37E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.80E-09          | 0.00E+00 | 6.38E-08  |  |
| ILLRW [kg]   | 9.00E-03         | 6.61E-03  | 4.56E-05  | 1.64E-03           | 0.00E+00 | 6.45E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.20E-06          | 0.00E+00 | 5.71E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.



## 48. FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 - Commercial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 when used commercially.

Table 51: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) + 467 – Commercial Application, per functional unit

### Market Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 3.34E-01         | 1.49E-01  | 5.21E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.64E-01  | 0.00E+00          | 2.75E-04  | 0.00E+00 | 1.24E-03  |
| EP [kg N eq]   | 4.02E-02         | 1.48E-02  | 4.62E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 1.97E-02  | 0.00E+00          | 2.94E-05  | 0.00E+00 | 3.59E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.70E+01         | 3.15E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.78E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.35E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.98E+01         | 3.26E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.90E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.36E-01  |
| ODP [kg CFC 11 eq]                                     | 5.42E-07         | 2.48E-07  | 2.93E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.48E-07  | 0.00E+00          | 2.69E-16  | 0.00E+00 | 2.08E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 3.09E+00         | 1.20E+00  | 1.21E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.51E+00  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 4.09E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 1.95E+01         | -2.50E+00 | 6.37E-01           | 8.49E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 7.48E+00  | 0.00E+00          | 5.84E-02  | 0.00E+00 | 7.93E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.58E+01         | 1.79E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.79E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 8.09E+02         | 2.92E+02  | 1.60E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 3.82E+02  | 0.00E+00          | 1.47E+00  | 0.00E+00 | 6.77E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 1.90E+02         | 9.48E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.48E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.04E+00         | 5.64E-01  | 2.18E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 5.84E-01  | 0.00E+00          | 2.00E-04  | 0.00E+00 | 8.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 8.00E-02         | 4.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.20E-01         | 1.10E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.71E-05         | 9.31E-06  | 5.44E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.31E-05  | 0.00E+00          | 4.99E-09  | 0.00E+00 | 8.37E-08  |
| ILLRW [kg]   | 2.19E-02         | 7.42E-03  | 4.58E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 1.06E-02  | 0.00E+00          | 4.20E-06  | 0.00E+00 | 7.49E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 49. FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 - Commercial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 when used commercially.

Table 52: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) + 467 – Commercial Application, per functional unit  
Technical Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.70E-01  | 1.49E-01         | 5.21E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.75E-04  | 0.00E+00 | 2.24E-03  |
| EP [kg N eq]   | 2.05E-02  | 1.48E-02         | 4.62E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.94E-05  | 0.00E+00 | 3.59E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.92E+01  | 3.15E+01         | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.35E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 4.08E+01  | 3.26E+01         | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.36E-01  |
| ODP [kg CFC 11 eq]                                     | 2.93E-07  | 2.48E-07         | 2.93E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.69E-16  | 0.00E+00 | 2.08E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.58E+00  | 1.20E+00         | 1.21E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.28E-03  | 0.00E+00 | 4.09E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00  | 1.23E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 1.20E+01  | -2.50E+00        | 6.37E-01           | 8.49E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 5.84E-02  | 0.00E+00 | 7.93E-01  |
| RPR <sub>m</sub> [MJ]                                  | 1.79E+01  | 1.79E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 4.27E+02  | 2.92E+02         | 1.60E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.47E+00  | 0.00E+00 | 6.77E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 9.48E+01  | 9.48E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.46E+00  | 5.64E-01         | 2.18E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.00E-04  | 0.00E+00 | 8.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01  | 1.21E+01         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.88E-05  | 5.44E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.72E-08 | -2.60E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 3.49E+01  | 3.04E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 9.48E+00  | 8.53E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 4.00E-02  | 4.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.10E-01  | 1.10E-01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.40E-05  | 9.31E-06         | 5.44E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.99E-09  | 0.00E+00 | 8.37E-08  |
| ILLRW [kg]   | 1.13E-02  | 7.42E-03         | 4.58E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.20E-06  | 0.00E+00 | 7.49E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 50. FlowResin Flowfresh – Category 4 + Sealer PA (clear) - Commercial Application - Market Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) when used commercially.

Table 53: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) – Commercial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 3.15E-01         | 1.44E-01  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.54E-01  | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 3.60E-02         | 1.40E-02  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 1.76E-02  | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.61E+01         | 2.83E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.24E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.90E+01         | 2.95E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.36E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 5.30E-07         | 2.43E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.43E-07  | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.68E+00         | 1.08E+00  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.31E+00  | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | -1.87E+00        | -8.97E+00 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -3.18E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.53E+01         | 1.76E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]                                 | 6.46E+02         | 2.44E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 3.01E+02  | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.05E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 1.78E+02         | 8.88E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.88E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.00E+00         | 5.53E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 5.66E-01  | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.60E-01         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.03E-05         | 7.65E-06  | 5.26E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 9.73E-06  | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 1.60E-02         | 5.95E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 7.69E-03  | 0.00E+00          | 3.13E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 51. FlowResin Flowfresh – Category 4 + Sealer PA (clear) - Commercial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) when used commercially.

Table 54: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) – Commercial Application, per functional unit

### Technical Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.61E-01         | 1.44E-01  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 1.84E-02         | 1.40E-02  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.37E+01         | 2.83E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.54E+01         | 2.95E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 2.87E-07         | 2.43E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.37E+00         | 1.08E+00  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRC [kg CO <sub>2</sub> ]                             | 5.33E-03         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 1.31E+00         | -8.97E+00 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>m</sub> [MJ]                                  | 1.76E+01         | 1.76E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 3.45E+02         | 2.44E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.05E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 8.88E+01         | 8.88E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.44E+00         | 5.53E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.88E-05         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.72E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 3.49E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 9.48E+00         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 3.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 8.00E-02         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.06E-05         | 7.65E-06  | 5.26E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 8.34E-03         | 5.95E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 3.13E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 52. FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 - Commercial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 when used commercially.

Table 55: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) + 467 – Commercial Application, per functional unit

### Market Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 3.26E-01         | 1.45E-01  | 5.06E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.60E-01  | 0.00E+00          | 2.71E-04  | 0.00E+00 | 2.21E-03  |
| EP [kg N eq]   | 3.87E-02         | 1.41E-02  | 4.49E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 1.90E-02  | 0.00E+00          | 2.90E-05  | 0.00E+00 | 3.54E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.20E+01         | 2.90E+01  | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.53E+01  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.28E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.48E+01         | 3.02E+01  | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.65E+01  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.30E-01  |
| ODP [kg CFC 11 eq]                                     | 5.30E-07         | 2.42E-07  | 2.85E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.42E-07  | 0.00E+00          | 2.65E-16  | 0.00E+00 | 2.05E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.87E+00         | 1.10E+00  | 1.17E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.41E+00  | 0.00E+00          | 6.19E-03  | 0.00E+00 | 4.03E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 9.55E+00         | -7.42E+00 | 6.19E-01           | 8.49E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 2.53E+00  | 0.00E+00          | 5.75E-02  | 0.00E+00 | 7.81E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.53E+01         | 1.76E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]                                 | 7.32E+02         | 2.53E+02  | 1.55E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 3.44E+02  | 0.00E+00          | 1.44E+00  | 0.00E+00 | 6.67E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 1.83E+02         | 9.13E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.13E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.03E+00         | 5.59E-01  | 2.12E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 5.80E-01  | 0.00E+00          | 1.97E-04  | 0.00E+00 | 8.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 8.00E-02         | 4.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.20E-01         | 1.10E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.57E-05         | 8.60E-06  | 5.29E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.24E-05  | 0.00E+00          | 4.91E-09  | 0.00E+00 | 8.24E-08  |
| ILLRW [kg]   | 2.05E-02         | 6.75E-03  | 4.45E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 9.94E-03  | 0.00E+00          | 4.13E-06  | 0.00E+00 | 7.37E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 53. FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 - Commercial Application - Technical

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 when used commercially.

Table 56: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) + 467 – Commercial Application, per functional unit Technical Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |          | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4       | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.66E-01  | 1.45E-01         | 5.06E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.71E-04  | 0.00E+00 | 2.21E-03  |
| EP [kg N eq]   | 1.97E-02  | 1.41E-02         | 4.49E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.90E-05  | 0.00E+00 | 3.54E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.67E+01  | 2.90E+01         | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.28E-01  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 3.83E+01  | 3.02E+01         | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.30E-01  |
| ODP [kg CFC 11 eq]                                     | 2.87E-07  | 2.42E-07         | 2.85E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.65E-16  | 0.00E+00 | 2.05E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.47E+00  | 1.10E+00         | 1.17E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.19E-03  | 0.00E+00 | 4.03E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 1.23E+00  | 1.23E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 1.23E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 5.33E-03  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |          |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 7.02E+00  | -7.42E+00        | 6.19E-01           | 8.49E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 5.75E-02  | 0.00E+00 | 7.81E-01  |
| RPR <sub>m</sub> [MJ]                                  | 1.76E+01  | 1.76E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 3.88E+02  | 2.53E+02         | 1.55E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.44E+00  | 0.00E+00 | 6.67E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 9.13E+01  | 9.13E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.45E+00  | 5.59E-01         | 2.12E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.97E-04  | 0.00E+00 | 8.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01  | 1.21E+01         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 5.88E-05  | 5.44E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -2.72E-08 | -2.60E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 3.49E+01  | 3.04E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 9.48E+00  | 8.53E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 4.00E-02  | 4.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.10E-01  | 1.10E-01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 1.32E-05  | 8.60E-06         | 5.29E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.91E-09  | 0.00E+00 | 8.24E-08  |
| ILLRW [kg]   | 1.06E-02  | 6.75E-03         | 4.45E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 4.13E-06  | 0.00E+00 | 7.37E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 1.03E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 1.24E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 54. FlowResin Flowfresh – Category 1 + Sealer FC - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FC when used industrially.

Table 57: LCIA results FlowResin Flowfresh Category 1 + FC – Industrial Application, per functional unit – Market Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.48E-01  | 4.00E-02         | 5.31E-03           | 3.57E-04  | 0.00E+00  | 6.40E-03  | 0.00E+00 | 9.41E-02  | 0.00E+00          | 1.48E-04  | 0.00E+00 | 1.21E-03  |
| EP [kg N eq]   | 3.73E-02  | 9.64E-03         | 4.71E-04           | 1.16E-04  | 0.00E+00  | 7.86E-04  | 0.00E+00 | 2.44E-02  | 0.00E+00          | 1.58E-05  | 0.00E+00 | 1.93E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.93E+01  | 1.07E+01         | 1.17E+00           | 4.69E-01  | 0.00E+00  | 1.34E+00  | 0.00E+00 | 2.53E+01  | 0.00E+00          | 5.65E-02  | 0.00E+00 | 2.34E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.44E+01  | 1.23E+01         | 1.17E+00           | 4.71E-01  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 2.84E+01  | 0.00E+00          | 5.65E-02  | 0.00E+00 | 2.35E-01  |
| ODP [kg CFC 11 eq]                                     | 9.43E-07  | 3.00E-07         | 2.99E-15           | 1.34E-14  | 0.00E+00  | 4.48E-08  | 0.00E+00 | 5.99E-07  | 0.00E+00          | 1.45E-16  | 0.00E+00 | 1.12E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.26E+00  | 5.77E-01         | 1.23E-01           | 4.83E-03  | 0.00E+00  | 6.48E-02  | 0.00E+00 | 1.46E+00  | 0.00E+00          | 3.38E-03  | 0.00E+00 | 2.20E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 4.78E+00  | 1.59E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.19E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 4.78E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.19E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.59E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and Waste</b>         |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | -4.71E+01 | -1.89E+01        | 6.49E-01           | 5.57E-01  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -3.44E+01 | 0.00E+00          | 3.14E-02  | 0.00E+00 | 4.27E-01  |
| RPR <sub>m</sub> [MJ]                                  | 6.88E+01  | 2.29E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.59E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 4.44E+02  | 1.10E+02         | 1.63E+01           | 2.78E+00  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 2.67E+02  | 0.00E+00          | 7.89E-01  | 0.00E+00 | 3.64E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 1.82E+02  | 6.07E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.21E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.27E+00  | 1.30E-01         | 2.23E-03           | 1.61E-03  | 0.00E+00  | 8.69E-01  | 0.00E+00 | 2.68E-01  | 0.00E+00          | 1.08E-04  | 0.00E+00 | 4.52E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.03E+01  | 5.69E+00         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.14E-04  | 3.55E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 7.41E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -7.07E-08 | -2.25E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -4.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 8.71E+01  | 2.60E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 5.65E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 9.11E+00  | 2.51E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 5.65E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 6.00E-02  | 2.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.80E-01  | 6.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.20E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.72E-05  | 8.44E-06         | 5.55E-08           | 2.45E-07  | 0.00E+00  | 8.35E-07  | 0.00E+00 | 1.76E-05  | 0.00E+00          | 2.68E-09  | 0.00E+00 | 4.51E-08  |
| ILLRW [kg]   | 2.08E-02  | 6.43E-03         | 4.67E-05           | 2.05E-04  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 1.34E-02  | 0.00E+00          | 2.26E-06  | 0.00E+00 | 4.03E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 55. FlowResin Flowfresh – Category 1 + Sealer FC - Industrial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FC when used industrially.

Table 58: LCIA results FlowResin Flowfresh Category 1 + FC – Industrial Application, per functional unit – **Technical Service Life**

| Impact Category  | Production Stage |           |           | Construction Stage |          |           | Use Stage |           |          |           | End of Life Stage |           |  |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|--|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3        | B4        | C1       | C2        | C3                | C4        |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |           |           |          |           |                   |           |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.00E-01         | 4.00E-02  | 5.31E-03  | 3.57E-04           | 0.00E+00 | 6.40E-03  | 0.00E+00  | 4.70E-02  | 0.00E+00 | 1.48E-04  | 0.00E+00          | 1.21E-03  |  |  |
| EP [kg N eq]   | 2.51E-02         | 9.64E-03  | 4.71E-04  | 1.16E-04           | 0.00E+00 | 7.86E-04  | 0.00E+00  | 1.22E-02  | 0.00E+00 | 1.58E-05  | 0.00E+00          | 1.93E-03  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.66E+01         | 1.07E+01  | 1.17E+00  | 4.69E-01           | 0.00E+00 | 1.34E+00  | 0.00E+00  | 1.27E+01  | 0.00E+00 | 5.65E-02  | 0.00E+00          | 2.34E-01  |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 3.02E+01         | 1.23E+01  | 1.17E+00  | 4.71E-01           | 0.00E+00 | 1.81E+00  | 0.00E+00  | 1.42E+01  | 0.00E+00 | 5.65E-02  | 0.00E+00          | 2.35E-01  |  |  |
| ODP [kg CFC 11 eq]                                     | 6.44E-07         | 3.00E-07  | 2.99E-15  | 1.34E-14           | 0.00E+00 | 4.48E-08  | 0.00E+00  | 3.00E-07  | 0.00E+00 | 1.45E-16  | 0.00E+00          | 1.12E-14  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.53E+00         | 5.77E-01  | 1.23E-01  | 4.83E-03           | 0.00E+00 | 6.48E-02  | 0.00E+00  | 7.30E-01  | 0.00E+00 | 3.38E-03  | 0.00E+00          | 2.20E-02  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |           |           |          |           |                   |           |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 3.19E+00         | 1.59E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.59E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.19E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.59E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 1.59E+00  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |                    |          |           |           |           |          |           |                   |           |  |  |
| RPR <sub>E</sub> [MJ]                                  | -2.99E+01        | -1.89E+01 | 6.49E-01  | 5.57E-01           | 0.00E+00 | 4.49E+00  | 0.00E+00  | -1.72E+01 | 0.00E+00 | 3.14E-02  | 0.00E+00          | 4.27E-01  |  |  |
| RPR <sub>M</sub> [MJ]                                  | 4.59E+01         | 2.29E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 2.29E+01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| NRPR <sub>E</sub> [MJ]                                 | 3.11E+02         | 1.10E+02  | 1.63E+01  | 2.78E+00           | 0.00E+00 | 4.43E+01  | 0.00E+00  | 1.33E+02  | 0.00E+00 | 7.89E-01  | 0.00E+00          | 3.64E+00  |  |  |
| NRPR <sub>M</sub> [MJ]                                 | 1.21E+02         | 6.07E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 6.07E+01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.14E+00         | 1.30E-01  | 2.23E-03  | 1.61E-03           | 0.00E+00 | 8.69E-01  | 0.00E+00  | 1.34E-01  | 0.00E+00 | 1.08E-04  | 0.00E+00          | 4.52E-04  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.39E+01         | 5.69E+00  | 5.11E-01  | 6.78E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00  | 6.39E+00  | 0.00E+00 | 2.47E-02  | 0.00E+00          | 9.92E-02  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 7.70E-05         | 3.55E-05  | 2.39E-07  | 1.06E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00  | 3.70E-05  | 0.00E+00 | 1.16E-08  | 0.00E+00          | 2.08E-07  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -4.72E-08        | -2.25E-08 | -2.03E-10 | -3.42E-10          | 0.00E+00 | -1.86E-10 | 0.00E+00  | -2.35E-08 | 0.00E+00 | -9.80E-12 | 0.00E+00          | -4.35E-10 |  |  |
| Nonrenewable Material Resources [kg]                   | 5.88E+01         | 2.60E+01  | 1.30E-01  | 3.71E-01           | 0.00E+00 | 2.28E+00  | 0.00E+00  | 2.83E+01  | 0.00E+00 | 6.28E-03  | 0.00E+00          | 1.75E+00  |  |  |
| Renewable Material Resources [kg]                      | 6.29E+00         | 2.51E+00  | 1.97E-01  | 1.44E-02           | 0.00E+00 | 6.40E-01  | 0.00E+00  | 2.82E+00  | 0.00E+00 | 7.40E-02  | 0.00E+00          | 2.50E-02  |  |  |
| HWD [kg]   | 4.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 2.00E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| NHWD [kg]  | 1.20E-01         | 6.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 6.00E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| HLRW [kg]  | 1.84E-05         | 8.44E-06  | 5.55E-08  | 2.45E-07           | 0.00E+00 | 8.35E-07  | 0.00E+00  | 8.79E-06  | 0.00E+00 | 2.68E-09  | 0.00E+00          | 4.51E-08  |  |  |
| ILLRW [kg]   | 1.41E-02         | 6.43E-03  | 4.67E-05  | 2.05E-04           | 0.00E+00 | 6.44E-04  | 0.00E+00  | 6.72E-03  | 0.00E+00 | 2.26E-06  | 0.00E+00          | 4.03E-05  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.



## 56. FlowResin Flowfresh – Category 1 + Sealer FCUV - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FCUV when used industrially.

Table 59: LCIA results FlowResin Flowfresh Category 1 + FCUV – Industrial Application, per functional unit – Market Service Life

| Impact Category  | Production Stage |           |           |           | Use Stage |           |          |           | End of Life Stage |          |          |          |
|--|------------------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-------------------|----------|----------|----------|
|  | Total            | A1-A3     | A4        | A5        | B1        | B2        | B3       | B4        | C1                | C2       | C3       | C4       |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |           |           |          |           |                   |          |          |          |
| AP [kg SO <sub>2</sub> eq]                             | 1.40E-01         | 3.79E-02  | 5.16E-03  | 3.56E-04  | 0.00E+00  | 6.38E-03  | 0.00E+00 | 8.94E-02  | 0.00E+00          | 1.44E-04 | 0.00E+00 | 1.17E-03 |
| EP [kg N eq]   | 3.50E-02         | 8.93E-03  | 4.58E-04  | 1.16E-04  | 0.00E+00  | 7.84E-04  | 0.00E+00 | 2.28E-02  | 0.00E+00          | 1.54E-05 | 0.00E+00 | 1.88E-03 |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.10E+01         | 1.13E+01  | 1.14E+00  | 4.68E-01  | 0.00E+00  | 1.34E+00  | 0.00E+00 | 2.64E+01  | 0.00E+00          | 5.49E-02 | 0.00E+00 | 2.27E-01 |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 4.55E+01         | 1.27E+01  | 1.14E+00  | 4.70E-01  | 0.00E+00  | 1.80E+00  | 0.00E+00 | 2.92E+01  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 2.28E-01 |
| ODP [kg CFC 11 eq]                                     | 8.02E-07         | 2.52E-07  | 2.91E-15  | 1.34E-14  | 0.00E+00  | 4.47E-08  | 0.00E+00 | 5.05E-07  | 0.00E+00          | 1.40E-16 | 0.00E+00 | 1.09E-14 |
| POCP [kg O <sub>3</sub> eq]                            | 2.19E+00         | 5.58E-01  | 1.20E-01  | 4.80E-03  | 0.00E+00  | 6.46E-02  | 0.00E+00 | 1.41E+00  | 0.00E+00          | 3.28E-03 | 0.00E+00 | 2.14E-02 |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |           |           |          |           |                   |          |          |          |
| BCRP [kg CO <sub>2</sub> ]                             | 4.29E+00         | 1.43E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.86E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| BCEP [kg CO <sub>2</sub> ]                             | 4.29E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.86E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 1.43E+00 |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |           |           |           |          |           |                   |          |          |          |
| RPR <sub>e</sub> [MJ]                                  | -3.67E+01        | -1.53E+01 | 6.31E-01  | 5.56E-01  | 0.00E+00  | 4.48E+00  | 0.00E+00 | -2.74E+01 | 0.00E+00          | 3.05E-02 | 0.00E+00 | 4.14E-01 |
| RPR <sub>m</sub> [MJ]                                  | 6.17E+01         | 2.06E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.12E+01  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRPR <sub>e</sub> [MJ]                                 | 4.72E+02         | 1.20E+02  | 1.58E+01  | 2.77E+00  | 0.00E+00  | 4.42E+01  | 0.00E+00 | 2.85E+02  | 0.00E+00          | 7.66E-01 | 0.00E+00 | 3.54E+00 |
| NRPR <sub>m</sub> [MJ]                                 | 1.83E+02         | 6.09E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.22E+02  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW [m <sup>3</sup> ]                                   | 1.25E+00         | 1.25E-01  | 2.17E-03  | 1.60E-03  | 0.00E+00  | 8.67E-01  | 0.00E+00 | 2.58E-01  | 0.00E+00          | 1.05E-04 | 0.00E+00 | 4.38E-04 |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.09E+01         | 5.97E+00  | 4.97E-01  | 6.74E-02  | 0.00E+00  | 1.07E+00  | 0.00E+00 | 1.33E+01  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 3.58E-05  | 2.33E-07  | 1.06E-06  | 0.00E+00  | 2.90E-06  | 0.00E+00 | 7.46E-05  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Renewable (Biomass) [MJ (HHV)]                         | -7.04E-08        | -2.26E-08 | -1.97E-10 | -3.41E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -4.71E-08 | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nonrenewable Material Resources [kg]                   | 8.73E+01         | 2.67E+01  | 1.26E-01  | 3.70E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 5.78E+01  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Renewable Material Resources [kg]                      | 8.39E+00         | 2.32E+00  | 1.92E-01  | 1.44E-02  | 0.00E+00  | 6.38E-01  | 0.00E+00 | 5.23E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| HWD [kg]   | 6.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NHWD [kg]  | 1.80E-01         | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.20E-01  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| HLRW [kg]  | 2.74E-05         | 8.53E-06  | 5.39E-08  | 2.45E-07  | 0.00E+00  | 8.33E-07  | 0.00E+00 | 1.77E-05  | 0.00E+00          | 2.60E-09 | 0.00E+00 | 4.37E-08 |
| ILLRW [kg]   | 2.13E-02         | 6.61E-03  | 4.54E-05  | 2.05E-04  | 0.00E+00  | 6.42E-04  | 0.00E+00 | 1.38E-02  | 0.00E+00          | 2.19E-06 | 0.00E+00 | 3.91E-05 |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00 | 0.00E+00 | 0.00E+00 |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 57. FlowResin Flowfresh – Category 1 + Sealer FCUV - Industrial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 1 + FCUV when used industrially.

Table 60: LCIA results FlowResin Flowfresh Category 1 + FCUV – Industrial Application, per functional unit – Technical Service Life

| Impact Category  | Production Stage |           |           |           | Construction Stage |           |          |           | Use Stage |           |          |           | End of Life Stage |  |  |  |
|--|------------------|-----------|-----------|-----------|--------------------|-----------|----------|-----------|-----------|-----------|----------|-----------|-------------------|--|--|--|
|  | Total            | A1-A3     | A4        | A5        | B1                 | B2        | B3       | B4        | C1        | C2        | C3       | C4        |                   |  |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 9.58E-02         | 3.79E-02  | 5.16E-03  | 3.56E-04  | 0.00E+00           | 6.38E-03  | 0.00E+00 | 4.47E-02  | 0.00E+00  | 1.44E-04  | 0.00E+00 | 1.17E-03  |                   |  |  |  |
| EP [kg N eq]   | 2.36E-02         | 8.93E-03  | 4.58E-04  | 1.16E-04  | 0.00E+00           | 7.84E-04  | 0.00E+00 | 1.14E-02  | 0.00E+00  | 1.54E-05  | 0.00E+00 | 1.88E-03  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.78E+01         | 1.13E+01  | 1.14E+00  | 4.68E-01  | 0.00E+00           | 1.34E+00  | 0.00E+00 | 1.32E+01  | 0.00E+00  | 5.49E-02  | 0.00E+00 | 2.27E-01  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 3.10E+01         | 1.27E+01  | 1.14E+00  | 4.70E-01  | 0.00E+00           | 1.80E+00  | 0.00E+00 | 1.46E+01  | 0.00E+00  | 5.48E-02  | 0.00E+00 | 2.28E-01  |                   |  |  |  |
| ODP [kg CFC 11 eq]                                     | 5.50E-07         | 2.52E-07  | 2.91E-15  | 1.34E-14  | 0.00E+00           | 4.47E-08  | 0.00E+00 | 2.52E-07  | 0.00E+00  | 1.40E-16  | 0.00E+00 | 1.09E-14  |                   |  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.48E+00         | 5.58E-01  | 1.20E-01  | 4.80E-03  | 0.00E+00           | 6.46E-02  | 0.00E+00 | 7.07E-01  | 0.00E+00  | 3.28E-03  | 0.00E+00 | 2.14E-02  |                   |  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.86E+00         | 1.43E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.43E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.86E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.43E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.43E+00  |                   |  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| RPR <sub>E</sub> [MJ]                                  | -2.29E+01        | -1.53E+01 | 6.31E-01  | 5.56E-01  | 0.00E+00           | 4.48E+00  | 0.00E+00 | -1.37E+01 | 0.00E+00  | 3.05E-02  | 0.00E+00 | 4.14E-01  |                   |  |  |  |
| RPR <sub>M</sub> [MJ]                                  | 4.12E+01         | 2.06E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 2.06E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRPR <sub>E</sub> [MJ]                                 | 3.29E+02         | 1.20E+02  | 1.58E+01  | 2.77E+00  | 0.00E+00           | 4.42E+01  | 0.00E+00 | 1.43E+02  | 0.00E+00  | 7.66E-01  | 0.00E+00 | 3.54E+00  |                   |  |  |  |
| NRPR <sub>M</sub> [MJ]                                 | 1.22E+02         | 6.09E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 6.09E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.13E+00         | 1.25E-01  | 2.17E-03  | 1.60E-03  | 0.00E+00           | 8.67E-01  | 0.00E+00 | 1.29E-01  | 0.00E+00  | 1.05E-04  | 0.00E+00 | 4.38E-04  |                   |  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.44E+01         | 5.97E+00  | 4.97E-01  | 6.74E-02  | 0.00E+00           | 1.07E+00  | 0.00E+00 | 6.65E+00  | 0.00E+00  | 2.40E-02  | 0.00E+00 | 9.63E-02  |                   |  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 7.75E-05         | 3.58E-05  | 2.33E-07  | 1.06E-06  | 0.00E+00           | 2.90E-06  | 0.00E+00 | 3.73E-05  | 0.00E+00  | 1.12E-08  | 0.00E+00 | 2.02E-07  |                   |  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -4.73E-08        | -2.26E-08 | -1.97E-10 | -3.41E-10 | 0.00E+00           | -1.86E-10 | 0.00E+00 | -2.35E-08 | 0.00E+00  | -9.51E-12 | 0.00E+00 | -4.22E-10 |                   |  |  |  |
| Nonrenewable Material Resources [kg]                   | 6.01E+01         | 2.67E+01  | 1.26E-01  | 3.70E-01  | 0.00E+00           | 2.28E+00  | 0.00E+00 | 2.89E+01  | 0.00E+00  | 6.09E-03  | 0.00E+00 | 1.70E+00  |                   |  |  |  |
| Renewable Material Resources [kg]                      | 5.87E+00         | 2.32E+00  | 1.92E-01  | 1.44E-02  | 0.00E+00           | 6.38E-01  | 0.00E+00 | 2.62E+00  | 0.00E+00  | 7.18E-02  | 0.00E+00 | 2.42E-02  |                   |  |  |  |
| HWD [kg]   | 4.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NHWD [kg]  | 1.20E-01         | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| HLRW [kg]  | 1.86E-05         | 8.53E-06  | 5.39E-08  | 2.45E-07  | 0.00E+00           | 8.33E-07  | 0.00E+00 | 8.87E-06  | 0.00E+00  | 2.60E-09  | 0.00E+00 | 4.37E-08  |                   |  |  |  |
| ILLRW [kg]   | 1.44E-02         | 6.61E-03  | 4.54E-05  | 2.05E-04  | 0.00E+00           | 6.42E-04  | 0.00E+00 | 6.90E-03  | 0.00E+00  | 2.19E-06  | 0.00E+00 | 3.91E-05  |                   |  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 58. FlowResin Flowfresh – Category 2 + Sealer FC - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FC when used industrially.

Table 61: LCIA results FlowResin Flowfresh Category 2 + Sealer FC – Industrial Application, per functional unit – Market Service Life

| Impact Category  | Production Stage |           |           |           | Construction Stage |           |          |           | Use Stage |           |          |           | End of Life Stage |  |  |  |
|--|------------------|-----------|-----------|-----------|--------------------|-----------|----------|-----------|-----------|-----------|----------|-----------|-------------------|--|--|--|
|  | Total            | A1-A3     | A4        | A5        | B1                 | B2        | B3       | B4        | C1        | C2        | C3       | C4        |                   |  |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.63E-01         | 4.25E-02  | 7.50E-03  | 3.74E-04  | 0.00E+00           | 6.39E-03  | 0.00E+00 | 1.05E-01  | 0.00E+00  | 2.13E-04  | 0.00E+00 | 1.74E-03  |                   |  |  |  |
| EP [kg N eq]   | 4.11E-02         | 9.85E-03  | 6.65E-04  | 1.20E-04  | 0.00E+00           | 7.86E-04  | 0.00E+00 | 2.69E-02  | 0.00E+00  | 2.28E-05  | 0.00E+00 | 2.78E-03  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.52E+01         | 1.21E+01  | 1.65E+00  | 4.83E-01  | 0.00E+00           | 1.34E+00  | 0.00E+00 | 2.93E+01  | 0.00E+00  | 8.14E-02  | 0.00E+00 | 3.37E-01  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 5.03E+01         | 1.36E+01  | 1.65E+00  | 4.86E-01  | 0.00E+00           | 1.81E+00  | 0.00E+00 | 3.23E+01  | 0.00E+00  | 8.14E-02  | 0.00E+00 | 3.38E-01  |                   |  |  |  |
| ODP [kg CFC 11 eq]                                     | 9.44E-07         | 3.00E-07  | 4.22E-15  | 1.35E-14  | 0.00E+00           | 4.48E-08  | 0.00E+00 | 5.99E-07  | 0.00E+00  | 2.08E-16  | 0.00E+00 | 1.61E-14  |                   |  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 2.58E+00         | 6.24E-01  | 1.74E-01  | 5.20E-03  | 0.00E+00           | 6.47E-02  | 0.00E+00 | 1.68E+00  | 0.00E+00  | 4.87E-03  | 0.00E+00 | 3.17E-02  |                   |  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 4.80E+00         | 1.60E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 3.20E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 4.78E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 3.19E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.59E+00  |                   |  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| RPR <sub>E</sub> [MJ]                                  | -3.54E+01        | -1.54E+01 | 9.17E-01  | 5.77E-01  | 0.00E+00           | 4.48E+00  | 0.00E+00 | -2.66E+01 | 0.00E+00  | 4.53E-02  | 0.00E+00 | 6.14E-01  |                   |  |  |  |
| RPR <sub>M</sub> [MJ]                                  | 6.90E+01         | 2.30E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 4.60E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRPR <sub>E</sub> [MJ]                                 | 5.36E+02         | 1.32E+02  | 2.30E+01  | 2.96E+00  | 0.00E+00           | 4.42E+01  | 0.00E+00 | 3.28E+02  | 0.00E+00  | 1.14E+00  | 0.00E+00 | 5.24E+00  |                   |  |  |  |
| NRPR <sub>M</sub> [MJ]                                 | 1.82E+02         | 6.06E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.21E+02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.29E+00         | 1.36E-01  | 3.14E-03  | 1.70E-03  | 0.00E+00           | 8.68E-01  | 0.00E+00 | 2.83E-01  | 0.00E+00  | 1.55E-04  | 0.00E+00 | 6.50E-04  |                   |  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.26E+01         | 6.20E+00  | 7.21E-01  | 7.33E-02  | 0.00E+00           | 1.08E+00  | 0.00E+00 | 1.44E+01  | 0.00E+00  | 3.56E-02  | 0.00E+00 | 1.43E-01  |                   |  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.36E-04         | 4.27E-05  | 3.38E-07  | 1.06E-06  | 0.00E+00           | 2.91E-06  | 0.00E+00 | 8.89E-05  | 0.00E+00  | 1.67E-08  | 0.00E+00 | 3.00E-07  |                   |  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.18E-08        | -2.59E-08 | -2.86E-10 | -3.48E-10 | 0.00E+00           | -1.86E-10 | 0.00E+00 | -5.44E-08 | 0.00E+00  | -1.41E-11 | 0.00E+00 | -6.27E-10 |                   |  |  |  |
| Nonrenewable Material Resources [kg]                   | 1.15E+02         | 3.43E+01  | 1.83E-01  | 3.89E-01  | 0.00E+00           | 2.28E+00  | 0.00E+00 | 7.48E+01  | 0.00E+00  | 9.04E-03  | 0.00E+00 | 2.52E+00  |                   |  |  |  |
| Renewable Material Resources [kg]                      | 9.74E+00         | 2.60E+00  | 2.79E-01  | 1.54E-02  | 0.00E+00           | 6.39E-01  | 0.00E+00 | 6.07E+00  | 0.00E+00  | 1.06E-01  | 0.00E+00 | 3.59E-02  |                   |  |  |  |
| HWD [kg]   | 6.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NHWD [kg]  | 1.80E-01         | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.20E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| HLRW [kg]  | 3.24E-05         | 1.01E-05  | 7.83E-08  | 2.46E-07  | 0.00E+00           | 8.35E-07  | 0.00E+00 | 2.10E-05  | 0.00E+00  | 3.86E-09  | 0.00E+00 | 6.49E-08  |                   |  |  |  |
| ILLRW [kg]   | 2.51E-02         | 7.83E-03  | 6.59E-05  | 2.06E-04  | 0.00E+00           | 6.43E-04  | 0.00E+00 | 1.63E-02  | 0.00E+00  | 3.25E-06  | 0.00E+00 | 5.80E-05  |                   |  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 59. FlowResin Flowfresh – Category 2 + Sealer FC - Industrial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FC when used industrially.

Table 62: LCIA results FlowResin Flowfresh Category 2 + Sealer FC – Industrial Application, per functional unit – Technical Service Life

| Impact Category  | Production Stage |           |           |           | Construction Stage |           |          |           | Use Stage |           |          |           | End of Life Stage |  |  |  |
|--|------------------|-----------|-----------|-----------|--------------------|-----------|----------|-----------|-----------|-----------|----------|-----------|-------------------|--|--|--|
|  | Total            | A1-A3     | A4        | A5        | B1                 | B2        | B3       | B4        | C1        | C2        | C3       | C4        |                   |  |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.11E-01         | 4.25E-02  | 7.50E-03  | 3.74E-04  | 0.00E+00           | 6.39E-03  | 0.00E+00 | 5.23E-02  | 0.00E+00  | 2.13E-04  | 0.00E+00 | 1.74E-03  |                   |  |  |  |
| EP [kg N eq]   | 2.77E-02         | 9.85E-03  | 6.65E-04  | 1.20E-04  | 0.00E+00           | 7.86E-04  | 0.00E+00 | 1.34E-02  | 0.00E+00  | 2.28E-05  | 0.00E+00 | 2.78E-03  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.06E+01         | 1.21E+01  | 1.65E+00  | 4.83E-01  | 0.00E+00           | 1.34E+00  | 0.00E+00 | 1.46E+01  | 0.00E+00  | 8.14E-02  | 0.00E+00 | 3.37E-01  |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.41E+01         | 1.36E+01  | 1.65E+00  | 4.86E-01  | 0.00E+00           | 1.81E+00  | 0.00E+00 | 1.62E+01  | 0.00E+00  | 8.14E-02  | 0.00E+00 | 3.38E-01  |                   |  |  |  |
| ODP [kg CFC 11 eq]                                     | 6.44E-07         | 3.00E-07  | 4.22E-15  | 1.35E-14  | 0.00E+00           | 4.48E-08  | 0.00E+00 | 3.00E-07  | 0.00E+00  | 2.08E-16  | 0.00E+00 | 1.61E-14  |                   |  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.74E+00         | 6.24E-01  | 1.74E-01  | 5.20E-03  | 0.00E+00           | 6.47E-02  | 0.00E+00 | 8.40E-01  | 0.00E+00  | 4.87E-03  | 0.00E+00 | 3.17E-02  |                   |  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 3.20E+00         | 1.60E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.60E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.20E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.60E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.60E+00  |                   |  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |           |                    |           |          |           |           |           |          |           |                   |  |  |  |
| RPR <sub>E</sub> [MJ]                                  | -2.21E+01        | -1.54E+01 | 9.17E-01  | 5.77E-01  | 0.00E+00           | 4.48E+00  | 0.00E+00 | -1.33E+01 | 0.00E+00  | 4.53E-02  | 0.00E+00 | 6.14E-01  |                   |  |  |  |
| RPR <sub>M</sub> [MJ]                                  | 4.60E+01         | 2.30E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 2.30E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRPR <sub>E</sub> [MJ]                                 | 3.72E+02         | 1.32E+02  | 2.30E+01  | 2.96E+00  | 0.00E+00           | 4.42E+01  | 0.00E+00 | 1.64E+02  | 0.00E+00  | 1.14E+00  | 0.00E+00 | 5.24E+00  |                   |  |  |  |
| NRPR <sub>M</sub> [MJ]                                 | 1.21E+02         | 6.06E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 6.06E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.15E+00         | 1.36E-01  | 3.14E-03  | 1.70E-03  | 0.00E+00           | 8.68E-01  | 0.00E+00 | 1.42E-01  | 0.00E+00  | 1.55E-04  | 0.00E+00 | 6.50E-04  |                   |  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.54E+01         | 6.20E+00  | 7.21E-01  | 7.33E-02  | 0.00E+00           | 1.08E+00  | 0.00E+00 | 7.18E+00  | 0.00E+00  | 3.56E-02  | 0.00E+00 | 1.43E-01  |                   |  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 9.18E-05         | 4.27E-05  | 3.38E-07  | 1.06E-06  | 0.00E+00           | 2.91E-06  | 0.00E+00 | 4.44E-05  | 0.00E+00  | 1.67E-08  | 0.00E+00 | 3.00E-07  |                   |  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.46E-08        | -2.59E-08 | -2.86E-10 | -3.48E-10 | 0.00E+00           | -1.86E-10 | 0.00E+00 | -2.72E-08 | 0.00E+00  | -1.41E-11 | 0.00E+00 | -6.27E-10 |                   |  |  |  |
| Nonrenewable Material Resources [kg]                   | 7.71E+01         | 3.43E+01  | 1.83E-01  | 3.89E-01  | 0.00E+00           | 2.28E+00  | 0.00E+00 | 3.74E+01  | 0.00E+00  | 9.04E-03  | 0.00E+00 | 2.52E+00  |                   |  |  |  |
| Renewable Material Resources [kg]                      | 6.71E+00         | 2.60E+00  | 2.79E-01  | 1.54E-02  | 0.00E+00           | 6.39E-01  | 0.00E+00 | 3.03E+00  | 0.00E+00  | 1.06E-01  | 0.00E+00 | 3.59E-02  |                   |  |  |  |
| HWD [kg]   | 4.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 2.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| NHWD [kg]  | 1.20E-01         | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| HLRW [kg]  | 2.19E-05         | 1.01E-05  | 7.83E-08  | 2.46E-07  | 0.00E+00           | 8.35E-07  | 0.00E+00 | 1.05E-05  | 0.00E+00  | 3.86E-09  | 0.00E+00 | 6.49E-08  |                   |  |  |  |
| ILLRW [kg]   | 1.70E-02         | 7.83E-03  | 6.59E-05  | 2.06E-04  | 0.00E+00           | 6.43E-04  | 0.00E+00 | 8.16E-03  | 0.00E+00  | 3.25E-06  | 0.00E+00 | 5.80E-05  |                   |  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  |                   |  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 60. FlowResin Flowfresh – Category 2 + Sealer FCUV - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FCUV when used industrially.

Table 63: LCIA results FlowResin Flowfresh Category 2 + Sealer FCUV – Industrial Application, per functional unit – Market Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          |           | Use Stage |           |          |           | End of Life Stage |           |  |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|--|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3        | B4        | C1       | C2        | C3                | C4        |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |           |           |          |           |                   |           |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.56E-01         | 4.03E-02  | 7.35E-03  | 3.73E-04           | 0.00E+00 | 6.43E-03  | 0.00E+00  | 9.99E-02  | 0.00E+00 | 2.09E-04  | 0.00E+00          | 1.70E-03  |  |  |
| EP [kg N eq]   | 3.88E-02         | 9.14E-03  | 6.52E-04  | 1.20E-04           | 0.00E+00 | 7.89E-04  | 0.00E+00  | 2.53E-02  | 0.00E+00 | 2.23E-05  | 0.00E+00          | 2.73E-03  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.69E+01         | 1.27E+01  | 1.62E+00  | 4.82E-01           | 0.00E+00 | 1.35E+00  | 0.00E+00  | 3.04E+01  | 0.00E+00 | 7.97E-02  | 0.00E+00          | 3.30E-01  |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 5.15E+01         | 1.41E+01  | 1.62E+00  | 4.85E-01           | 0.00E+00 | 1.82E+00  | 0.00E+00  | 3.31E+01  | 0.00E+00 | 7.97E-02  | 0.00E+00          | 3.31E-01  |  |  |
| ODP [kg CFC 11 eq]                                     | 8.03E-07         | 2.53E-07  | 4.14E-15  | 1.35E-14           | 0.00E+00 | 4.50E-08  | 0.00E+00  | 5.05E-07  | 0.00E+00 | 2.04E-16  | 0.00E+00          | 1.58E-14  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 2.51E+00         | 6.05E-01  | 1.70E-01  | 5.17E-03           | 0.00E+00 | 6.51E-02  | 0.00E+00  | 1.63E+00  | 0.00E+00 | 4.77E-03  | 0.00E+00          | 3.10E-02  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |           |           |          |           |                   |           |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 4.31E+00         | 1.44E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 2.87E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 4.29E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 2.86E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 1.43E+00  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.07E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.07E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |           |                    |          |           |           |           |          |           |                   |           |  |  |
| RPR <sub>e</sub> [MJ]                                  | -2.50E+01        | -1.19E+01 | 8.99E-01  | 5.75E-01           | 0.00E+00 | 4.50E+00  | 0.00E+00  | -1.97E+01 | 0.00E+00 | 4.43E-02  | 0.00E+00          | 6.02E-01  |  |  |
| RPR <sub>m</sub> [MJ]                                  | 6.20E+01         | 2.07E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 4.13E+01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| NRPR <sub>e</sub> [MJ]                                 | 5.64E+02         | 1.41E+02  | 2.26E+01  | 2.95E+00           | 0.00E+00 | 4.45E+01  | 0.00E+00  | 3.46E+02  | 0.00E+00 | 1.11E+00  | 0.00E+00          | 5.14E+00  |  |  |
| NRPR <sub>m</sub> [MJ]                                 | 1.82E+02         | 6.08E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.22E+02  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.28E+00         | 1.31E-01  | 3.08E-03  | 1.69E-03           | 0.00E+00 | 8.73E-01  | 0.00E+00  | 2.74E-01  | 0.00E+00 | 1.52E-04  | 0.00E+00          | 6.37E-04  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.34E+01         | 6.49E+00  | 7.07E-01  | 7.30E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00  | 1.49E+01  | 0.00E+00 | 3.49E-02  | 0.00E+00          | 1.40E-01  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.37E-04         | 4.30E-05  | 3.31E-07  | 1.06E-06           | 0.00E+00 | 2.92E-06  | 0.00E+00  | 8.94E-05  | 0.00E+00 | 1.63E-08  | 0.00E+00          | 2.94E-07  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.19E-08        | -2.60E-08 | -2.80E-10 | -3.47E-10          | 0.00E+00 | -1.87E-10 | 0.00E+00  | -5.45E-08 | 0.00E+00 | -1.38E-11 | 0.00E+00          | -6.14E-10 |  |  |
| Nonrenewable Material Resources [kg]                   | 1.16E+02         | 3.50E+01  | 1.80E-01  | 3.88E-01           | 0.00E+00 | 2.29E+00  | 0.00E+00  | 7.61E+01  | 0.00E+00 | 8.85E-03  | 0.00E+00          | 2.47E+00  |  |  |
| Renewable Material Resources [kg]                      | 9.13E+00         | 2.40E+00  | 2.73E-01  | 1.54E-02           | 0.00E+00 | 6.42E-01  | 0.00E+00  | 5.66E+00  | 0.00E+00 | 1.04E-01  | 0.00E+00          | 3.52E-02  |  |  |
| HWD [kg]   | 6.00E-02         | 2.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 4.00E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| NHWD [kg]  | 1.80E-01         | 6.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 1.20E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| HLRW [kg]  | 3.26E-05         | 1.02E-05  | 7.68E-08  | 2.46E-07           | 0.00E+00 | 8.39E-07  | 0.00E+00  | 2.12E-05  | 0.00E+00 | 3.78E-09  | 0.00E+00          | 6.35E-08  |  |  |
| ILLRW [kg]   | 2.57E-02         | 8.01E-03  | 6.46E-05  | 2.06E-04           | 0.00E+00 | 6.46E-04  | 0.00E+00  | 1.67E-02  | 0.00E+00 | 3.19E-06  | 0.00E+00          | 5.68E-05  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 2.06E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00  | 2.48E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 61. FlowResin Flowfresh – Category 2 + Sealer FCUV - Industrial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer FCUV when used industrially.

Table 64: LCIA results FlowResin Flowfresh Category 2 + Sealer FCUV – Industrial Application, per functional unit

### Technical Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|-----------|------------------|--------------------|-----------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  |           | A1-A3            | A4                 | A5        | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.06E-01  | 4.03E-02         | 7.35E-03           | 3.73E-04  | 0.00E+00 | 6.43E-03  | 0.00E+00 | 4.99E-02  | 0.00E+00 | 2.09E-04          | 0.00E+00 | 1.70E-03  |  |
| EP [kg N eq]   | 2.61E-02  | 9.14E-03         | 6.52E-04           | 1.20E-04  | 0.00E+00 | 7.89E-04  | 0.00E+00 | 1.27E-02  | 0.00E+00 | 2.23E-05          | 0.00E+00 | 2.73E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.17E+01  | 1.27E+01         | 1.62E+00           | 4.82E-01  | 0.00E+00 | 1.35E+00  | 0.00E+00 | 1.52E+01  | 0.00E+00 | 7.97E-02          | 0.00E+00 | 3.30E-01  |  |
| IPCC AR5 GWP <sub>e</sub> [kg CO <sub>2</sub> eq]      | 3.49E+01  | 1.41E+01         | 1.62E+00           | 4.85E-01  | 0.00E+00 | 1.82E+00  | 0.00E+00 | 1.66E+01  | 0.00E+00 | 7.97E-02          | 0.00E+00 | 3.31E-01  |  |
| ODP [kg CFC 11 eq]                                     | 5.50E-07  | 2.53E-07         | 4.14E-15           | 1.35E-14  | 0.00E+00 | 4.50E-08  | 0.00E+00 | 2.53E-07  | 0.00E+00 | 2.04E-16          | 0.00E+00 | 1.58E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.70E+00  | 6.05E-01         | 1.70E-01           | 5.17E-03  | 0.00E+00 | 6.51E-02  | 0.00E+00 | 8.16E-01  | 0.00E+00 | 4.77E-03          | 0.00E+00 | 3.10E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.87E+00  | 1.44E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.44E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.87E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.44E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.44E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |          |           |          |           |          |                   |          |           |  |
| RPR <sub>e</sub> [MJ]                                  | -1.51E+01 | -1.19E+01        | 8.99E-01           | 5.75E-01  | 0.00E+00 | 4.50E+00  | 0.00E+00 | -9.83E+00 | 0.00E+00 | 4.43E-02          | 0.00E+00 | 6.02E-01  |  |
| RPR <sub>m</sub> [MJ]                                  | 4.13E+01  | 2.07E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.07E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRPR <sub>e</sub> [MJ]                                 | 3.91E+02  | 1.41E+02         | 2.26E+01           | 2.95E+00  | 0.00E+00 | 4.45E+01  | 0.00E+00 | 1.73E+02  | 0.00E+00 | 1.11E+00          | 0.00E+00 | 5.14E+00  |  |
| NRPR <sub>m</sub> [MJ]                                 | 1.22E+02  | 6.08E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.08E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.15E+00  | 1.31E-01         | 3.08E-03           | 1.69E-03  | 0.00E+00 | 8.73E-01  | 0.00E+00 | 1.37E-01  | 0.00E+00 | 1.52E-04          | 0.00E+00 | 6.37E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.60E+01  | 6.49E+00         | 7.07E-01           | 7.30E-02  | 0.00E+00 | 1.08E+00  | 0.00E+00 | 7.44E+00  | 0.00E+00 | 3.49E-02          | 0.00E+00 | 1.40E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 9.23E-05  | 4.30E-05         | 3.31E-07           | 1.06E-06  | 0.00E+00 | 2.92E-06  | 0.00E+00 | 4.47E-05  | 0.00E+00 | 1.63E-08          | 0.00E+00 | 2.94E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.46E-08 | -2.60E-08        | -2.80E-10          | -3.47E-10 | 0.00E+00 | -1.87E-10 | 0.00E+00 | -2.72E-08 | 0.00E+00 | -1.38E-11         | 0.00E+00 | -6.14E-10 |  |
| Nonrenewable Material Resources [kg]                   | 7.84E+01  | 3.50E+01         | 1.80E-01           | 3.88E-01  | 0.00E+00 | 2.29E+00  | 0.00E+00 | 3.81E+01  | 0.00E+00 | 8.85E-03          | 0.00E+00 | 2.47E+00  |  |
| Renewable Material Resources [kg]                      | 6.30E+00  | 2.40E+00         | 2.73E-01           | 1.54E-02  | 0.00E+00 | 6.42E-01  | 0.00E+00 | 2.83E+00  | 0.00E+00 | 1.04E-01          | 0.00E+00 | 3.52E-02  |  |
| HWD [kg]   | 4.00E-02  | 2.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 1.20E-01  | 6.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.20E-05  | 1.02E-05         | 7.68E-08           | 2.46E-07  | 0.00E+00 | 8.39E-07  | 0.00E+00 | 1.06E-05  | 0.00E+00 | 3.78E-09          | 0.00E+00 | 6.35E-08  |  |
| ILLRW [kg]   | 1.73E-02  | 8.01E-03         | 6.46E-05           | 2.06E-04  | 0.00E+00 | 6.46E-04  | 0.00E+00 | 8.34E-03  | 0.00E+00 | 3.19E-06          | 0.00E+00 | 5.68E-05  |  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 62. FlowResin Flowfresh – Category 2 + Sealer CR (Pigment) - Industrial Application - Market Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + CR (Pigment) when used industrially.

Table 65: LCIA results FlowResin Flowfresh Category 2 + CR (Pigment) – Industrial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           |                    |           |           |           |          |           |                   |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|  |                  |           | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.63E-01         | 4.13E-02  | 5.19E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.05E-01  | 0.00E+00          | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]   | 3.77E-02         | 8.60E-03  | 4.60E-04           | 4.67E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 2.46E-02  | 0.00E+00          | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 5.45E+01         | 1.36E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.55E+01  | 0.00E+00          | 8.01E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 5.85E+01         | 1.48E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.78E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.33E-01  |
| ODP [kg CFC 11 eq]                                     | 7.60E-07         | 2.38E-07  | 2.92E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 4.77E-07  | 0.00E+00          | 2.05E-16  | 0.00E+00 | 1.59E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.69E+00         | 6.43E-01  | 1.20E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.75E+00  | 0.00E+00          | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 5.92E+00         | -5.35E+00 | 6.34E-01           | 4.54E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 9.47E-01  | 0.00E+00          | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>M</sub> [MJ]                                  | 5.41E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.60E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]                                 | 6.67E+02         | 1.51E+02  | 1.59E+01           | 3.49E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 4.15E+02  | 0.00E+00          | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 2.03E+02         | 6.78E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.36E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.27E+00         | 1.21E-01  | 2.17E-03           | 9.35E-03  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 2.67E-01  | 0.00E+00          | 1.53E-04  | 0.00E+00 | 6.40E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.73E+01         | 7.16E+00  | 4.99E-01           | 9.14E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.75E+01  | 0.00E+00          | 3.50E-02  | 0.00E+00 | 1.41E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.52E-04         | 4.06E-05  | 2.34E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 9.92E-05  | 0.00E+00          | 1.64E-08  | 0.00E+00 | 2.95E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -1.01E-07        | -2.89E-08 | -1.98E-10          | -3.81E-09 | 0.00E+00  | -1.87E-10 | 0.00E+00 | -6.71E-08 | 0.00E+00          | -1.39E-11 | 0.00E+00 | -6.17E-10 |
| Nonrenewable Material Resources [kg]                   | 1.31E+02         | 3.16E+01  | 1.27E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 8.60E+01  | 0.00E+00          | 8.90E-03  | 0.00E+00 | 2.48E+00  |
| Renewable Material Resources [kg]                      | 8.83E+00         | 2.24E+00  | 1.93E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 5.46E+00  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 3.53E-02  |
| HWD [kg]   | 9.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.70E-01         | 9.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.80E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.55E-05         | 9.46E-06  | 5.42E-08           | 1.96E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 2.31E-05  | 0.00E+00          | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]   | 2.84E-02         | 7.51E-03  | 4.56E-05           | 1.64E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 1.85E-02  | 0.00E+00          | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 63. FlowResin Flowfresh – Category 2 + Sealer CR (Pigment) - Industrial Application - Technical

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + CR (Pigment) when used industrially.

Table 66: LCIA results FlowResin Flowfresh Category 2 + CR (Pigment) – Industrial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           |                    |           |           |           |          |           |                   |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|  |                  |           | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.11E-01         | 4.13E-02  | 5.19E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 5.23E-02  | 0.00E+00          | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]   | 2.54E-02         | 8.60E-03  | 4.60E-04           | 4.67E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 1.23E-02  | 0.00E+00          | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.68E+01         | 1.36E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 1.77E+01  | 0.00E+00          | 8.01E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.96E+01         | 1.48E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 1.89E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.33E-01  |
| ODP [kg CFC 11 eq]                                     | 5.21E-07         | 2.38E-07  | 2.92E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.38E-07  | 0.00E+00          | 2.05E-16  | 0.00E+00 | 1.59E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.81E+00         | 6.43E-01  | 1.20E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 8.75E-01  | 0.00E+00          | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 5.44E+00         | -5.35E+00 | 6.34E-01           | 4.54E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 4.74E-01  | 0.00E+00          | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.60E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]                                 | 4.60E+02         | 1.51E+02  | 1.59E+01           | 3.49E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 2.08E+02  | 0.00E+00          | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 1.36E+02         | 6.78E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.78E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.14E+00         | 1.21E-01  | 2.17E-03           | 9.35E-03  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 1.33E-01  | 0.00E+00          | 1.53E-04  | 0.00E+00 | 6.40E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.86E+01         | 7.16E+00  | 4.99E-01           | 9.14E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 8.75E+00  | 0.00E+00          | 3.50E-02  | 0.00E+00 | 1.41E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.02E-04         | 4.06E-05  | 2.34E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 4.96E-05  | 0.00E+00          | 1.64E-08  | 0.00E+00 | 2.95E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -6.73E-08        | -2.89E-08 | -1.98E-10          | -3.81E-09 | 0.00E+00  | -1.87E-10 | 0.00E+00 | -3.36E-08 | 0.00E+00          | -1.39E-11 | 0.00E+00 | -6.17E-10 |
| Nonrenewable Material Resources [kg]                   | 8.83E+01         | 3.16E+01  | 1.27E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 4.30E+01  | 0.00E+00          | 8.90E-03  | 0.00E+00 | 2.48E+00  |
| Renewable Material Resources [kg]                      | 6.10E+00         | 2.24E+00  | 1.93E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 2.73E+00  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 3.53E-02  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.80E-01         | 9.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.39E-05         | 9.46E-06  | 5.42E-08           | 1.96E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.15E-05  | 0.00E+00          | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]   | 1.92E-02         | 7.51E-03  | 4.56E-05           | 1.64E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 9.26E-03  | 0.00E+00          | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.



## 64. FlowResin Flowfresh – Category 2 + Sealer PA (pigment) - Industrial Application - Market Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer PA (pigment) when used industrially.

Table 67: LCIA results FlowResin Flowfresh Category 2 + Sealer PA (pigment) – Industrial Application, per functional unit

### Market Service Life

| Impact Category  | Production Stage |           |                    |           |           |           |          |           |                   |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|  |                  |           | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.51E-01         | 3.75E-02  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 9.66E-02  | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 3.54E-02         | 7.91E-03  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 2.31E-02  | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.70E+01         | 1.11E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.04E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 5.10E+01         | 1.23E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.28E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 7.42E-07         | 2.32E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 4.65E-07  | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.36E+00         | 5.38E-01  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.53E+00  | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | -8.97E+00        | -1.03E+01 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -8.97E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>M</sub> [MJ]                                  | 5.33E+01         | 1.78E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.55E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]                                 | 5.51E+02         | 1.12E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 3.38E+02  | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.06E+00  |
| NRRP <sub>M</sub> [MJ]                                 | 1.93E+02         | 6.42E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.28E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.26E+00         | 1.17E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 2.58E-01  | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.27E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.37E+01         | 5.97E+00  | 4.85E-01           | 9.13E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.51E+01  | 0.00E+00          | 3.43E-02  | 0.00E+00 | 1.38E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.41E-04         | 3.72E-05  | 2.27E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 9.23E-05  | 0.00E+00          | 1.61E-08  | 0.00E+00 | 2.89E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -9.31E-08        | -2.64E-08 | -1.92E-10          | -3.81E-09 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -6.20E-08 | 0.00E+00          | -1.36E-11 | 0.00E+00 | -6.04E-10 |
| Nonrenewable Material Resources [kg]                   | 1.17E+02         | 2.68E+01  | 1.23E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 7.63E+01  | 0.00E+00          | 8.71E-03  | 0.00E+00 | 2.43E+00  |
| Renewable Material Resources [kg]                      | 8.23E+00         | 2.05E+00  | 1.87E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 5.06E+00  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 3.46E-02  |
| HWD [kg]   | 9.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.40E-01         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.60E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.33E-05         | 8.74E-06  | 5.27E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 2.17E-05  | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 2.64E-02         | 6.84E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 1.72E-02  | 0.00E+00          | 3.14E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 65. FlowResin Flowfresh – Category 2 + Sealer PA (pigment) - Industrial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer PA (pigment) when used industrially.

Table 68: LCIA results FlowResin Flowfresh Category 2 + Sealer PA (pigment) – Industrial Application, per functional unit

### Technical Service Life

| Impact Category  | Production Stage |           |                    |           |           |           |          |           |                   |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|  |                  |           | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.03E-01         | 3.75E-02  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 4.83E-02  | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 2.38E-02         | 7.91E-03  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 1.15E-02  | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.18E+01         | 1.11E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 1.52E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 3.46E+01         | 1.23E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 1.64E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 5.09E-07         | 2.32E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.32E-07  | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.60E+00         | 5.38E-01  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 7.65E-01  | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | -4.48E+00        | -1.03E+01 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -4.49E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.55E+01         | 1.78E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.78E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 3.82E+02         | 1.12E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 1.69E+02  | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.06E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 1.28E+02         | 6.42E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.42E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.13E+00         | 1.17E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 1.29E-01  | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.27E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.62E+01         | 5.97E+00  | 4.85E-01           | 9.13E-01  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 7.54E+00  | 0.00E+00          | 3.43E-02  | 0.00E+00 | 1.38E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 9.52E-05         | 3.72E-05  | 2.27E-07           | 8.46E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 4.62E-05  | 0.00E+00          | 1.61E-08  | 0.00E+00 | 2.89E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -6.21E-08        | -2.64E-08 | -1.92E-10          | -3.81E-09 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -3.10E-08 | 0.00E+00          | -1.36E-11 | 0.00E+00 | -6.04E-10 |
| Nonrenewable Material Resources [kg]                   | 7.86E+01         | 2.68E+01  | 1.23E-01           | 8.81E+00  | 0.00E+00  | 2.29E+00  | 0.00E+00 | 3.82E+01  | 0.00E+00          | 8.71E-03  | 0.00E+00 | 2.43E+00  |
| Renewable Material Resources [kg]                      | 5.70E+00         | 2.05E+00  | 1.87E-01           | 1.56E-01  | 0.00E+00  | 6.41E-01  | 0.00E+00 | 2.53E+00  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 3.46E-02  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.60E-01         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.25E-05         | 8.74E-06  | 5.27E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 1.08E-05  | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 1.78E-02         | 6.84E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 8.59E-03  | 0.00E+00          | 3.14E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 66. FlowResin Flowfresh – Category 2 + Sealer SR - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer SR when used industrially.

Table 69: LCIA results FlowResin Flowfresh Category 2 + Sealer SR – Industrial Application, per functional unit – Market Service Life

| Impact Category  | Production Stage |           |          |          | Construction Stage |          |          |           | Use Stage |          |          |          | End of Life Stage |  |  |  |
|--|------------------|-----------|----------|----------|--------------------|----------|----------|-----------|-----------|----------|----------|----------|-------------------|--|--|--|
|  | Total            | A1-A3     | A4       | A5       | B1                 | B2       | B3       | B4        | C1        | C2       | C3       | C4       |                   |  |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |          |          |                    |          |          |           |           |          |          |          |                   |  |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.53E-01         | 3.80E-02  | 5.15E-03 | 3.86E-03 | 0.00E+00           | 6.23E-03 | 0.00E+00 | 9.79E-02  | 0.00E+00  | 2.09E-04 | 0.00E+00 | 1.70E-03 |                   |  |  |  |
| EP [kg N eq]   | 4.68E-02         | 1.17E-02  | 4.57E-04 | 4.66E-04 | 0.00E+00           | 7.66E-04 | 0.00E+00 | 3.07E-02  | 0.00E+00  | 2.23E-05 | 0.00E+00 | 2.72E-03 |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.29E+01         | 9.76E+00  | 1.14E+00 | 2.56E+00 | 0.00E+00           | 1.31E+00 | 0.00E+00 | 2.77E+01  | 0.00E+00  | 7.96E-02 | 0.00E+00 | 3.29E-01 |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 4.92E+01         | 1.17E+01  | 1.13E+00 | 2.56E+00 | 0.00E+00           | 1.76E+00 | 0.00E+00 | 3.16E+01  | 0.00E+00  | 7.95E-02 | 0.00E+00 | 3.31E-01 |                   |  |  |  |
| ODP [kg CFC 11 eq]                                     | 9.70E-07         | 3.09E-07  | 2.90E-15 | 1.03E-13 | 0.00E+00           | 4.37E-08 | 0.00E+00 | 6.17E-07  | 0.00E+00  | 2.04E-16 | 0.00E+00 | 1.58E-14 |                   |  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 2.40E+00         | 5.49E-01  | 1.19E-01 | 7.53E-02 | 0.00E+00           | 6.31E-02 | 0.00E+00 | 1.56E+00  | 0.00E+00  | 4.76E-03 | 0.00E+00 | 3.10E-02 |                   |  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |          |          |                    |          |          |           |           |          |          |          |                   |  |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 6.05E+00         | 2.02E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 4.03E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 6.05E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 4.03E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 2.02E+00 |                   |  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 1.07E-02  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00 | 5.33E-03 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 1.07E-02  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |          |          |                    |          |          |           |           |          |          |          |                   |  |  |  |
| RPR <sub>E</sub> [MJ]                                  | -5.67E+01        | -2.62E+01 | 6.30E-01 | 4.52E+00 | 0.00E+00           | 4.37E+00 | 0.00E+00 | -4.07E+01 | 0.00E+00  | 4.42E-02 | 0.00E+00 | 6.01E-01 |                   |  |  |  |
| RPR <sub>M</sub> [MJ]                                  | 8.69E+01         | 2.90E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 5.79E+01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| NRPR <sub>E</sub> [MJ]                                 | 5.40E+02         | 1.09E+02  | 1.58E+01 | 3.47E+01 | 0.00E+00           | 4.31E+01 | 0.00E+00 | 3.31E+02  | 0.00E+00  | 1.11E+00 | 0.00E+00 | 5.13E+00 |                   |  |  |  |
| NRPR <sub>M</sub> [MJ]                                 | 1.78E+02         | 5.93E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 1.19E+02  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.35E+00         | 1.57E-01  | 2.16E-03 | 9.31E-03 | 0.00E+00           | 8.46E-01 | 0.00E+00 | 3.39E-01  | 0.00E+00  | 1.52E-04 | 0.00E+00 | 6.36E-04 |                   |  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.70E+02         | 3.86E+01  | 4.52E+00 | 1.02E+01 | 0.00E+00           | 5.10E+00 | 0.00E+00 | 1.10E+02  | 0.00E+00  | 3.17E-01 | 0.00E+00 | 1.31E+00 |                   |  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 3.92E+01         | 8.79E+00  | 1.09E+00 | 2.45E+00 | 0.00E+00           | 1.02E+00 | 0.00E+00 | 2.54E+01  | 0.00E+00  | 7.68E-02 | 0.00E+00 | 3.07E-01 |                   |  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 5.74E+01         | 2.74E+00  | 1.38E-03 | 1.06E+00 | 0.00E+00           | 2.66E-01 | 0.00E+00 | 3.81E+01  | 0.00E+00  | 9.66E-05 | 0.00E+00 | 1.52E+01 |                   |  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| Nonrenewable Material Resources [kg]                   | 8.93E+01         | 2.07E+01  | 2.24E+00 | 5.03E+00 | 0.00E+00           | 2.84E+00 | 0.00E+00 | 5.76E+01  | 0.00E+00  | 1.57E-01 | 0.00E+00 | 6.41E-01 |                   |  |  |  |
| Renewable Material Resources [kg]                      | 1.54E-02         | 3.78E-03  | 2.09E-04 | 3.39E-04 | 0.00E+00           | 1.98E-03 | 0.00E+00 | 8.93E-03  | 0.00E+00  | 1.00E-05 | 0.00E+00 | 1.31E-04 |                   |  |  |  |
| HWD [kg]   | 9.00E-02         | 3.00E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 6.00E-02  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| NHWD [kg]  | 2.70E-01         | 9.00E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 1.80E-01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| HLRW [kg]  | 3.37E-05         | 8.89E-06  | 5.38E-08 | 1.96E-06 | 0.00E+00           | 8.13E-07 | 0.00E+00 | 2.19E-05  | 0.00E+00  | 3.78E-09 | 0.00E+00 | 6.34E-08 |                   |  |  |  |
| ILLRW [kg]   | 2.65E-02         | 6.88E-03  | 4.53E-05 | 1.64E-03 | 0.00E+00           | 6.27E-04 | 0.00E+00 | 1.72E-02  | 0.00E+00  | 3.18E-06 | 0.00E+00 | 5.67E-05 |                   |  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00 | 1.03E-01 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 2.06E-01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00 | 1.24E-01 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 2.48E-01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 67. FlowResin Flowfresh – Category 2 + Sealer SR - Industrial Application - Technical Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 2 + Sealer SR when used industrially.

Table 70: LCIA results FlowResin Flowfresh Category 2 + Sealer SR – Industrial Application, per functional unit – Technical Service Life

| Impact Category  | Production Stage |           |          |          | Construction Stage |          |          |           | Use Stage |          |          |          | End of Life Stage |  |  |  |
|--|------------------|-----------|----------|----------|--------------------|----------|----------|-----------|-----------|----------|----------|----------|-------------------|--|--|--|
|  | Total            | A1-A3     | A4       | A5       | B1                 | B2       | B3       | B4        | C1        | C2       | C3       | C4       |                   |  |  |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |          |          |                    |          |          |           |           |          |          |          |                   |  |  |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.04E-01         | 3.80E-02  | 5.15E-03 | 3.86E-03 | 0.00E+00           | 6.23E-03 | 0.00E+00 | 4.90E-02  | 0.00E+00  | 2.09E-04 | 0.00E+00 | 1.70E-03 |                   |  |  |  |
| EP [kg N eq]   | 3.15E-02         | 1.17E-02  | 4.57E-04 | 4.66E-04 | 0.00E+00           | 7.66E-04 | 0.00E+00 | 1.53E-02  | 0.00E+00  | 2.23E-05 | 0.00E+00 | 2.72E-03 |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 2.90E+01         | 9.76E+00  | 1.14E+00 | 2.56E+00 | 0.00E+00           | 1.31E+00 | 0.00E+00 | 1.39E+01  | 0.00E+00  | 7.96E-02 | 0.00E+00 | 3.29E-01 |                   |  |  |  |
| IPCC AR5 GWP <sub>100</sub> e [kg CO <sub>2</sub> eq]  | 3.34E+01         | 1.17E+01  | 1.13E+00 | 2.56E+00 | 0.00E+00           | 1.76E+00 | 0.00E+00 | 1.58E+01  | 0.00E+00  | 7.95E-02 | 0.00E+00 | 3.31E-01 |                   |  |  |  |
| ODP [kg CFC 11 eq]                                     | 6.61E-07         | 3.09E-07  | 2.90E-15 | 1.03E-13 | 0.00E+00           | 4.37E-08 | 0.00E+00 | 3.09E-07  | 0.00E+00  | 2.04E-16 | 0.00E+00 | 1.58E-14 |                   |  |  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.62E+00         | 5.49E-01  | 1.19E-01 | 7.53E-02 | 0.00E+00           | 6.31E-02 | 0.00E+00 | 7.80E-01  | 0.00E+00  | 4.76E-03 | 0.00E+00 | 3.10E-02 |                   |  |  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |          |          |                    |          |          |           |           |          |          |          |                   |  |  |  |
| BCRP [kg CO <sub>2</sub> ]                             | 4.03E+00         | 2.02E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 2.02E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 4.03E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 2.02E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 2.02E+00 |                   |  |  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 5.33E-03  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00 | 5.33E-03 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 5.33E-03  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| <b>Material and Energy Resources and Waste</b>         |                  |           |          |          |                    |          |          |           |           |          |          |          |                   |  |  |  |
| RPR <sub>e</sub> [MJ]                                  | -3.63E+01        | -2.62E+01 | 6.30E-01 | 4.52E+00 | 0.00E+00           | 4.37E+00 | 0.00E+00 | -2.04E+01 | 0.00E+00  | 4.42E-02 | 0.00E+00 | 6.01E-01 |                   |  |  |  |
| RPR <sub>m</sub> [MJ]                                  | 5.79E+01         | 2.90E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 2.90E+01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| NRPR <sub>e</sub> [MJ]                                 | 3.75E+02         | 1.09E+02  | 1.58E+01 | 3.47E+01 | 0.00E+00           | 4.31E+01 | 0.00E+00 | 1.66E+02  | 0.00E+00  | 1.11E+00 | 0.00E+00 | 5.13E+00 |                   |  |  |  |
| NRPR <sub>m</sub> [MJ]                                 | 1.19E+02         | 5.93E+01  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 5.93E+01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| FW [m <sup>3</sup> ]                                   | 1.19E+00         | 1.57E-01  | 2.16E-03 | 9.31E-03 | 0.00E+00           | 8.46E-01 | 0.00E+00 | 1.69E-01  | 0.00E+00  | 1.52E-04 | 0.00E+00 | 6.36E-04 |                   |  |  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 1.15E+02         | 3.86E+01  | 4.52E+00 | 1.02E+01 | 0.00E+00           | 5.10E+00 | 0.00E+00 | 5.49E+01  | 0.00E+00  | 3.17E-01 | 0.00E+00 | 1.31E+00 |                   |  |  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 2.64E+01         | 8.79E+00  | 1.09E+00 | 2.45E+00 | 0.00E+00           | 1.02E+00 | 0.00E+00 | 1.27E+01  | 0.00E+00  | 7.68E-02 | 0.00E+00 | 3.07E-01 |                   |  |  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 3.83E+01         | 2.74E+00  | 1.38E-03 | 1.06E+00 | 0.00E+00           | 2.66E-01 | 0.00E+00 | 1.90E+01  | 0.00E+00  | 9.66E-05 | 0.00E+00 | 1.52E+01 |                   |  |  |  |
| Renewable (Biomass) [MJ (HHV)]                         | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| Nonrenewable Material Resources [kg]                   | 6.05E+01         | 2.07E+01  | 2.24E+00 | 5.03E+00 | 0.00E+00           | 2.84E+00 | 0.00E+00 | 2.88E+01  | 0.00E+00  | 1.57E-01 | 0.00E+00 | 6.41E-01 |                   |  |  |  |
| Renewable Material Resources [kg]                      | 1.09E-02         | 3.78E-03  | 2.09E-04 | 3.39E-04 | 0.00E+00           | 1.98E-03 | 0.00E+00 | 4.47E-03  | 0.00E+00  | 1.00E-05 | 0.00E+00 | 1.31E-04 |                   |  |  |  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 3.00E-02  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| NHWD [kg]  | 1.80E-01         | 9.00E-02  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 9.00E-02  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| HLRW [kg]  | 2.28E-05         | 8.89E-06  | 5.38E-08 | 1.96E-06 | 0.00E+00           | 8.13E-07 | 0.00E+00 | 1.10E-05  | 0.00E+00  | 3.78E-09 | 0.00E+00 | 6.34E-08 |                   |  |  |  |
| ILLRW [kg]   | 1.79E-02         | 6.88E-03  | 4.53E-05 | 1.64E-03 | 0.00E+00           | 6.27E-04 | 0.00E+00 | 8.62E-03  | 0.00E+00  | 3.18E-06 | 0.00E+00 | 5.67E-05 |                   |  |  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00 | 1.03E-01 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 1.03E-01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00 | 1.24E-01 | 0.00E+00           | 0.00E+00 | 0.00E+00 | 1.24E-01  | 0.00E+00  | 0.00E+00 | 0.00E+00 | 0.00E+00 |                   |  |  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 68. FlowResin Flowfresh – Category 3 + Sealer CR (clear) - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) when used industrially.

Table 71: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) – Industrial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           |           |           |          |           |          |           |          |           |          |           |
|--|------------------|-----------|-----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4        | A5        | B1       | B2        | B3       | B4        | C1       | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |           |          |           |          |           |          |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 2.02E-01         | 5.42E-02  | 5.18E-03  | 3.88E-03  | 0.00E+00 | 6.41E-03  | 0.00E+00 | 1.30E-01  | 0.00E+00 | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]   | 4.28E-02         | 1.03E-02  | 4.60E-04  | 4.67E-04  | 0.00E+00 | 7.87E-04  | 0.00E+00 | 2.80E-02  | 0.00E+00 | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.18E+01         | 1.60E+01  | 1.14E+00  | 2.57E+00  | 0.00E+00 | 1.35E+00  | 0.00E+00 | 4.03E+01  | 0.00E+00 | 8.00E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.58E+01         | 1.72E+01  | 1.14E+00  | 2.57E+00  | 0.00E+00 | 1.81E+00  | 0.00E+00 | 4.27E+01  | 0.00E+00 | 8.00E-02  | 0.00E+00 | 3.32E-01  |
| ODP [kg CFC 11 eq]                                     | 7.42E-07         | 2.32E-07  | 2.92E-15  | 1.03E-13  | 0.00E+00 | 4.49E-08  | 0.00E+00 | 4.65E-07  | 0.00E+00 | 2.05E-16  | 0.00E+00 | 1.58E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.72E+00         | 6.54E-01  | 1.20E-01  | 7.56E-02  | 0.00E+00 | 6.49E-02  | 0.00E+00 | 1.77E+00  | 0.00E+00 | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |           |          |           |          |           |          |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |           |          |           |          |           |          |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 1.05E+01         | -3.81E+00 | 6.34E-01  | 4.54E+00  | 0.00E+00 | 4.49E+00  | 0.00E+00 | 4.02E+00  | 0.00E+00 | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>M</sub> [MJ]                                  | 5.41E+01         | 1.80E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 3.60E+01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 7.75E+02         | 1.87E+02  | 1.59E+01  | 3.49E+01  | 0.00E+00 | 4.43E+01  | 0.00E+00 | 4.87E+02  | 0.00E+00 | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 2.28E+02         | 7.59E+01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.52E+02  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.70E+00         | 2.65E-01  | 2.17E-03  | 9.35E-03  | 0.00E+00 | 8.70E-01  | 0.00E+00 | 5.54E-01  | 0.00E+00 | 1.53E-04  | 0.00E+00 | 6.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 3.06E+01         | 8.25E+00  | 4.98E-01  | 9.14E-01  | 0.00E+00 | 1.08E+00  | 0.00E+00 | 1.97E+01  | 0.00E+00 | 3.50E-02  | 0.00E+00 | 1.40E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.73E-04         | 4.77E-05  | 2.34E-07  | 8.46E-06  | 0.00E+00 | 2.91E-06  | 0.00E+00 | 1.13E-04  | 0.00E+00 | 1.64E-08  | 0.00E+00 | 2.95E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -1.05E-07        | -3.02E-08 | -1.98E-10 | -3.81E-09 | 0.00E+00 | -1.86E-10 | 0.00E+00 | -6.98E-08 | 0.00E+00 | -1.39E-11 | 0.00E+00 | -6.16E-10 |
| Nonrenewable Material Resources [kg]                   | 1.42E+02         | 3.50E+01  | 1.27E-01  | 8.81E+00  | 0.00E+00 | 2.29E+00  | 0.00E+00 | 9.28E+01  | 0.00E+00 | 8.89E-03  | 0.00E+00 | 2.48E+00  |
| Renewable Material Resources [kg]                      | 9.12E+00         | 2.34E+00  | 1.93E-01  | 1.56E-01  | 0.00E+00 | 6.41E-01  | 0.00E+00 | 5.65E+00  | 0.00E+00 | 1.05E-01  | 0.00E+00 | 3.53E-02  |
| HWD [kg]   | 9.00E-02         | 3.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.70E-01         | 9.00E-02  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.80E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.69E-05         | 9.95E-06  | 5.41E-08  | 1.96E-06  | 0.00E+00 | 8.37E-07  | 0.00E+00 | 2.41E-05  | 0.00E+00 | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]   | 2.96E-02         | 7.92E-03  | 4.56E-05  | 1.64E-03  | 0.00E+00 | 6.45E-04  | 0.00E+00 | 1.93E-02  | 0.00E+00 | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 69. FlowResin Flowfresh – Category 3 + Sealer CR (clear) - Industrial Application - Technical Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) when used industrially.

Table 72: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) – Industrial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.37E-01         | 5.42E-02  | 5.18E-03  | 3.88E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 6.51E-02  | 0.00E+00 | 2.10E-04          | 0.00E+00 | 1.71E-03  |  |
| EP [kg N eq]   | 2.88E-02         | 1.03E-02  | 4.60E-04  | 4.67E-04           | 0.00E+00 | 7.87E-04  | 0.00E+00 | 1.40E-02  | 0.00E+00 | 2.24E-05          | 0.00E+00 | 2.74E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.17E+01         | 1.60E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 2.02E+01  | 0.00E+00 | 8.00E-02          | 0.00E+00 | 3.31E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.45E+01         | 1.72E+01  | 1.14E+00  | 2.57E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 2.13E+01  | 0.00E+00 | 8.00E-02          | 0.00E+00 | 3.32E-01  |  |
| ODP [kg CFC 11 eq]                                     | 5.10E-07         | 2.32E-07  | 2.92E-15  | 1.03E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 2.32E-07  | 0.00E+00 | 2.05E-16          | 0.00E+00 | 1.58E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 1.84E+00         | 6.54E-01  | 1.20E-01  | 7.56E-02           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 8.86E-01  | 0.00E+00 | 4.79E-03          | 0.00E+00 | 3.12E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]                                  | 8.51E+00         | -3.81E+00 | 6.34E-01  | 4.54E+00           | 0.00E+00 | 4.49E+00  | 0.00E+00 | 2.01E+00  | 0.00E+00 | 4.45E-02          | 0.00E+00 | 6.04E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 3.60E+01         | 1.80E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>E</sub> [MJ]                                 | 5.31E+02         | 1.87E+02  | 1.59E+01  | 3.49E+01           | 0.00E+00 | 4.43E+01  | 0.00E+00 | 2.44E+02  | 0.00E+00 | 1.12E+00          | 0.00E+00 | 5.16E+00  |  |
| NRRP <sub>M</sub> [MJ]                                 | 1.52E+02         | 7.59E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 7.59E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.42E+00         | 2.65E-01  | 2.17E-03  | 9.35E-03           | 0.00E+00 | 8.70E-01  | 0.00E+00 | 2.77E-01  | 0.00E+00 | 1.53E-04          | 0.00E+00 | 6.39E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.08E+01         | 8.25E+00  | 4.98E-01  | 9.14E-01           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 9.84E+00  | 0.00E+00 | 3.50E-02          | 0.00E+00 | 1.40E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.16E-04         | 4.77E-05  | 2.34E-07  | 8.46E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 5.67E-05  | 0.00E+00 | 1.64E-08          | 0.00E+00 | 2.95E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -7.00E-08        | -3.02E-08 | -1.98E-10 | -3.81E-09          | 0.00E+00 | -1.86E-10 | 0.00E+00 | -3.49E-08 | 0.00E+00 | -1.39E-11         | 0.00E+00 | -6.16E-10 |  |
| Nonrenewable Material Resources [kg]                   | 9.51E+01         | 3.50E+01  | 1.27E-01  | 8.81E+00           | 0.00E+00 | 2.29E+00  | 0.00E+00 | 4.64E+01  | 0.00E+00 | 8.89E-03          | 0.00E+00 | 2.48E+00  |  |
| Renewable Material Resources [kg]                      | 6.29E+00         | 2.34E+00  | 1.93E-01  | 1.56E-01           | 0.00E+00 | 6.41E-01  | 0.00E+00 | 2.83E+00  | 0.00E+00 | 1.05E-01          | 0.00E+00 | 3.53E-02  |  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 1.80E-01         | 9.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 9.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.49E-05         | 9.95E-06  | 5.41E-08  | 1.96E-06           | 0.00E+00 | 8.37E-07  | 0.00E+00 | 1.20E-05  | 0.00E+00 | 3.80E-09          | 0.00E+00 | 6.38E-08  |  |
| ILLRW [kg]   | 2.00E-02         | 7.92E-03  | 4.56E-05  | 1.64E-03           | 0.00E+00 | 6.45E-04  | 0.00E+00 | 9.67E-03  | 0.00E+00 | 3.20E-06          | 0.00E+00 | 5.71E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 70. FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 - Industrial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 when used industrially.

Table 73: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) + 467 – Industrial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 2.18E-01         | 5.56E-02  | 5.21E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.41E-01  | 0.00E+00          | 2.75E-04  | 0.00E+00 | 2.24E-03  |
| EP [kg N eq]   | 4.69E-02         | 1.05E-02  | 4.62E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 3.07E-02  | 0.00E+00          | 2.94E-05  | 0.00E+00 | 3.59E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.07E+01         | 1.68E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 4.62E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.35E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.46E+01         | 1.79E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 4.85E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.36E-01  |
| ODP [kg CFC 11 eq]                                     | 7.42E-07         | 2.32E-07  | 2.93E-15           | 1.92E-13  | 0.00E+00  | 4.50E-08  | 0.00E+00 | 4.65E-07  | 0.00E+00          | 2.69E-16  | 0.00E+00 | 2.08E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 3.02E+00         | 6.73E-01  | 1.21E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.97E+00  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 4.09E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.70E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRC [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEC [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 2.76E+01         | -2.27E+00 | 6.37E-01           | 8.49E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 1.54E+01  | 0.00E+00          | 5.84E-02  | 0.00E+00 | 7.93E-01  |
| RPR <sub>m</sub> [MJ]                                  | 5.41E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.60E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 9.05E+02         | 1.96E+02  | 1.60E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 5.73E+02  | 0.00E+00          | 1.47E+00  | 0.00E+00 | 6.77E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 2.35E+02         | 7.84E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.57E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.74E+00         | 2.71E-01  | 2.18E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 5.83E-01  | 0.00E+00          | 2.00E-04  | 0.00E+00 | 8.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 3.95E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 2.56E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.71E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 1.12E-04  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.12E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -5.40E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 1.00E+02         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 6.53E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 2.72E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 1.77E+01  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 1.20E-01         | 4.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 3.30E-01         | 1.10E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.20E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 4.50E-05         | 1.09E-05  | 5.44E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 2.94E-05  | 0.00E+00          | 4.99E-09  | 0.00E+00 | 8.37E-08  |
| ILLRW [kg]   | 3.64E-02         | 8.73E-03  | 4.58E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 2.38E-02  | 0.00E+00          | 4.20E-06  | 0.00E+00 | 7.49E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 71. FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 - Industrial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer CR (clear) + 467 when used industrially.

Table 74: LCIA results FlowResin Flowfresh Category 3 + Sealer CR (clear) + 467 – Industrial Application, per functional unit

### Technical Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 1.48E-01         | 5.56E-02  | 5.21E-03  | 7.37E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 7.07E-02  | 0.00E+00 | 2.75E-04          | 0.00E+00 | 2.24E-03  |  |
| EP [kg N eq]   | 3.15E-02         | 1.05E-02  | 4.62E-04  | 8.16E-04           | 0.00E+00 | 7.88E-04  | 0.00E+00 | 1.54E-02  | 0.00E+00 | 2.94E-05          | 0.00E+00 | 3.59E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.76E+01         | 1.68E+01  | 1.15E+00  | 4.66E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 2.31E+01  | 0.00E+00 | 1.05E-01          | 0.00E+00 | 4.35E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 5.03E+01         | 1.79E+01  | 1.15E+00  | 4.66E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 2.43E+01  | 0.00E+00 | 1.05E-01          | 0.00E+00 | 4.36E-01  |  |
| ODP [kg CFC 11 eq]                                     | 5.10E-07         | 2.32E-07  | 2.93E-15  | 1.92E-13           | 0.00E+00 | 4.50E-08  | 0.00E+00 | 2.32E-07  | 0.00E+00 | 2.69E-16          | 0.00E+00 | 2.08E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 2.04E+00         | 6.73E-01  | 1.21E-01  | 1.46E-01           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 9.86E-01  | 0.00E+00 | 6.28E-03          | 0.00E+00 | 4.09E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.47E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]                                  | 1.99E+01         | -2.27E+00 | 6.37E-01  | 8.49E+00           | 0.00E+00 | 4.50E+00  | 0.00E+00 | 7.71E+00  | 0.00E+00 | 5.84E-02          | 0.00E+00 | 7.93E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 3.60E+01         | 1.80E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRPR <sub>E</sub> [MJ]                                 | 6.18E+02         | 1.96E+02  | 1.60E+01  | 6.67E+01           | 0.00E+00 | 4.44E+01  | 0.00E+00 | 2.87E+02  | 0.00E+00 | 1.47E+00          | 0.00E+00 | 6.77E+00  |  |
| NRPR <sub>M</sub> [MJ]                                 | 1.57E+02         | 7.84E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 7.84E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.45E+00         | 2.71E-01  | 2.18E-03  | 1.70E-02           | 0.00E+00 | 8.71E-01  | 0.00E+00 | 2.91E-01  | 0.00E+00 | 2.00E-04          | 0.00E+00 | 8.39E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01  | 6.78E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00 | 2.47E-02          | 0.00E+00 | 9.92E-02  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07  | 1.06E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00 | 1.16E-08          | 0.00E+00 | 2.08E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10 | -3.42E-10          | 0.00E+00 | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00 | -9.80E-12         | 0.00E+00 | -4.35E-10 |  |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01  | 3.71E-01           | 0.00E+00 | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00 | 6.28E-03          | 0.00E+00 | 1.75E+00  |  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01  | 1.44E-02           | 0.00E+00 | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00 | 7.40E-02          | 0.00E+00 | 2.50E-02  |  |
| HWD [kg]   | 8.00E-02         | 4.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 2.20E-01         | 1.10E-01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 3.03E-05         | 1.09E-05  | 5.44E-08  | 3.67E-06           | 0.00E+00 | 8.37E-07  | 0.00E+00 | 1.47E-05  | 0.00E+00 | 4.99E-09          | 0.00E+00 | 8.37E-08  |  |
| ILLRW [kg]   | 2.45E-02         | 8.73E-03  | 4.58E-05  | 3.07E-03           | 0.00E+00 | 6.45E-04  | 0.00E+00 | 1.19E-02  | 0.00E+00 | 4.20E-06          | 0.00E+00 | 7.49E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.



## 72. FlowResin Flowfresh – Category 3 + Sealer PA (clear) - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) when used industrially.

Table 75: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) – Industrial Application, per functional unit

### Market Service Life

| Impact Category  | Market Service Life |                           |                             |           |                          |           |          |           |                                  |           |          |           |
|--|---------------------|---------------------------|-----------------------------|-----------|--------------------------|-----------|----------|-----------|----------------------------------|-----------|----------|-----------|
|  | Total               | Production Stage<br>A1-A3 | Construction Stage<br>A4 A5 |           | Use Stage<br>B1 B2 B3 B4 |           |          |           | End of Life Stage<br>C1 C2 C3 C4 |           |          |           |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                     |                           |                             |           |                          |           |          |           |                                  |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.90E-01            | 5.05E-02                  | 5.04E-03                    | 3.88E-03  | 0.00E+00                 | 6.41E-03  | 0.00E+00 | 1.23E-01  | 0.00E+00                         | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 4.05E-02            | 9.60E-03                  | 4.47E-04                    | 4.67E-04  | 0.00E+00                 | 7.87E-04  | 0.00E+00 | 2.64E-02  | 0.00E+00                         | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 5.44E+01            | 1.36E+01                  | 1.11E+00                    | 2.57E+00  | 0.00E+00                 | 1.35E+00  | 0.00E+00 | 3.54E+01  | 0.00E+00                         | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 5.84E+01            | 1.48E+01                  | 1.11E+00                    | 2.57E+00  | 0.00E+00                 | 1.81E+00  | 0.00E+00 | 3.77E+01  | 0.00E+00                         | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 7.23E-07            | 2.26E-07                  | 2.84E-15                    | 1.03E-13  | 0.00E+00                 | 4.49E-08  | 0.00E+00 | 4.52E-07  | 0.00E+00                         | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.40E+00            | 5.49E-01                  | 1.17E-01                    | 7.56E-02  | 0.00E+00                 | 6.49E-02  | 0.00E+00 | 1.55E+00  | 0.00E+00                         | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                     |                           |                             |           |                          |           |          |           |                                  |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.68E+00            | 1.23E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.68E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02            | 5.33E-03                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02            | 0.00E+00                  | 0.00E+00                    | 5.33E-03  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                     |                           |                             |           |                          |           |          |           |                                  |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | -3.77E+00           | -8.54E+00                 | 6.17E-01                    | 4.54E+00  | 0.00E+00                 | 4.49E+00  | 0.00E+00 | -5.51E+00 | 0.00E+00                         | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>m</sub> [MJ]                                  | 5.29E+01            | 1.76E+01                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 3.53E+01  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 6.59E+02            | 1.48E+02                  | 1.55E+01                    | 3.48E+01  | 0.00E+00                 | 4.43E+01  | 0.00E+00 | 4.10E+02  | 0.00E+00                         | 1.09E+00  | 0.00E+00 | 5.05E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 2.18E+02            | 7.25E+01                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 1.45E+02  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.69E+00            | 2.61E-01                  | 2.11E-03                    | 9.34E-03  | 0.00E+00                 | 8.70E-01  | 0.00E+00 | 5.46E-01  | 0.00E+00                         | 1.50E-04  | 0.00E+00 | 6.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.70E+01            | 7.08E+00                  | 4.85E-01                    | 9.13E-01  | 0.00E+00                 | 1.08E+00  | 0.00E+00 | 1.73E+01  | 0.00E+00                         | 3.43E-02  | 0.00E+00 | 1.38E-01  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.63E-04            | 4.43E-05                  | 2.27E-07                    | 8.46E-06  | 0.00E+00                 | 2.91E-06  | 0.00E+00 | 1.07E-04  | 0.00E+00                         | 1.61E-08  | 0.00E+00 | 2.89E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -9.75E-08           | -2.78E-08                 | -1.92E-10                   | -3.81E-09 | 0.00E+00                 | -1.86E-10 | 0.00E+00 | -6.49E-08 | 0.00E+00                         | -1.36E-11 | 0.00E+00 | -6.04E-10 |
| Nonrenewable Material Resources [kg]                   | 1.27E+02            | 3.03E+01                  | 1.23E-01                    | 8.81E+00  | 0.00E+00                 | 2.29E+00  | 0.00E+00 | 8.33E+01  | 0.00E+00                         | 8.71E-03  | 0.00E+00 | 2.43E+00  |
| Renewable Material Resources [kg]                      | 8.50E+00            | 2.14E+00                  | 1.87E-01                    | 1.56E-01  | 0.00E+00                 | 6.40E-01  | 0.00E+00 | 5.24E+00  | 0.00E+00                         | 1.03E-01  | 0.00E+00 | 3.46E-02  |
| HWD [kg]   | 9.00E-02            | 3.00E-02                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.40E-01            | 8.00E-02                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 1.60E-01  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.48E-05            | 9.24E-06                  | 5.26E-08                    | 1.96E-06  | 0.00E+00                 | 8.36E-07  | 0.00E+00 | 2.27E-05  | 0.00E+00                         | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 2.77E-02            | 7.26E-03                  | 4.43E-05                    | 1.64E-03  | 0.00E+00                 | 6.44E-04  | 0.00E+00 | 1.80E-02  | 0.00E+00                         | 3.13E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00            | 0.00E+00                  | 0.00E+00                    | 0.00E+00  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01            | 0.00E+00                  | 0.00E+00                    | 1.03E-01  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01            | 0.00E+00                  | 0.00E+00                    | 1.24E-01  | 0.00E+00                 | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00                         | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 73. FlowResin Flowfresh – Category 3 + Sealer PA (clear) - Industrial Application - Technical Service

#### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) when used industrially.

Table 76: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) – Industrial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|------------------|-----------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  | Total            | A1-A3     | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b>   |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]   | 1.29E-01         | 5.05E-02  | 5.04E-03  | 3.88E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 6.13E-02  | 0.00E+00 | 2.06E-04          | 0.00E+00 | 1.68E-03  |  |
| EP [kg N eq]   | 2.72E-02         | 9.60E-03  | 4.47E-04  | 4.67E-04           | 0.00E+00 | 7.87E-04  | 0.00E+00 | 1.32E-02  | 0.00E+00 | 2.20E-05          | 0.00E+00 | 2.68E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]  | 3.67E+01         | 1.36E+01  | 1.11E+00  | 2.57E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 1.77E+01  | 0.00E+00 | 7.84E-02          | 0.00E+00 | 3.25E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]  | 3.95E+01         | 1.48E+01  | 1.11E+00  | 2.57E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 1.89E+01  | 0.00E+00 | 7.84E-02          | 0.00E+00 | 3.26E-01  |  |
| ODP [kg CFC 11 eq]   | 4.97E-07         | 2.26E-07  | 2.84E-15  | 1.03E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 2.26E-07  | 0.00E+00 | 2.01E-16          | 0.00E+00 | 1.55E-14  |  |
| POCP [kg O <sub>3</sub> eq]  | 1.62E+00         | 5.49E-01  | 1.17E-01  | 7.56E-02           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 7.77E-01  | 0.00E+00 | 4.69E-03          | 0.00E+00 | 3.06E-02  |  |
| <b>Biogenic Carbon Indicators</b>  |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]   | 2.45E+00         | 1.23E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]   | 2.45E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRK [kg CO <sub>2</sub> ]   | 1.07E-02         | 5.33E-03  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]   | 1.07E-02         | 0.00E+00  | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>  |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]  | -1.02E+00        | -8.54E+00 | 6.17E-01  | 4.54E+00           | 0.00E+00 | 4.49E+00  | 0.00E+00 | -2.75E+00 | 0.00E+00 | 4.36E-02          | 0.00E+00 | 5.92E-01  |  |
| RPR <sub>M</sub> [MJ]  | 3.53E+01         | 1.76E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>E</sub> [MJ]   | 4.54E+02         | 1.48E+02  | 1.55E+01  | 3.48E+01           | 0.00E+00 | 4.43E+01  | 0.00E+00 | 2.05E+02  | 0.00E+00 | 1.09E+00          | 0.00E+00 | 5.05E+00  |  |
| NRRP <sub>M</sub> [MJ]   | 1.45E+02         | 7.25E+01  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 7.25E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]   | 1.42E+00         | 2.61E-01  | 2.11E-03  | 9.34E-03           | 0.00E+00 | 8.70E-01  | 0.00E+00 | 2.73E-01  | 0.00E+00 | 1.50E-04          | 0.00E+00 | 6.26E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]   | 1.84E+01         | 7.08E+00  | 4.85E-01  | 9.13E-01           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 8.65E+00  | 0.00E+00 | 3.43E-02          | 0.00E+00 | 1.38E-01  |  |
| Nonrenewable Nuclear [MJ (HHV)]  | 1.10E-04         | 4.43E-05  | 2.27E-07  | 8.46E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 5.33E-05  | 0.00E+00 | 1.61E-08          | 0.00E+00 | 2.89E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]   | -6.51E-08        | -2.78E-08 | -1.92E-10 | -3.81E-09          | 0.00E+00 | -1.86E-10 | 0.00E+00 | -3.24E-08 | 0.00E+00 | -1.36E-11         | 0.00E+00 | -6.04E-10 |  |
| Nonrenewable Material Resources [kg]   | 8.56E+01         | 3.03E+01  | 1.23E-01  | 8.81E+00           | 0.00E+00 | 2.29E+00  | 0.00E+00 | 4.17E+01  | 0.00E+00 | 8.71E-03          | 0.00E+00 | 2.43E+00  |  |
| Renewable Material Resources [kg]  | 5.88E+00         | 2.14E+00  | 1.87E-01  | 1.56E-01           | 0.00E+00 | 6.40E-01  | 0.00E+00 | 2.62E+00  | 0.00E+00 | 1.03E-01          | 0.00E+00 | 3.46E-02  |  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 1.60E-01         | 8.00E-02  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.35E-05         | 9.24E-06  | 5.26E-08  | 1.96E-06           | 0.00E+00 | 8.36E-07  | 0.00E+00 | 1.13E-05  | 0.00E+00 | 3.72E-09          | 0.00E+00 | 6.25E-08  |  |
| ILLRW [kg]   | 1.87E-02         | 7.26E-03  | 4.43E-05  | 1.64E-03           | 0.00E+00 | 6.44E-04  | 0.00E+00 | 9.00E-03  | 0.00E+00 | 3.13E-06          | 0.00E+00 | 5.59E-05  |  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <small>*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.</small> |                  |           |           |                    |          |           |          |           |          |                   |          |           |  |

## 74. FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 - Industrial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 when used industrially.

Table 77: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) + 467 – Industrial Application, per functional unit

#### Market Service Life

| Impact Category  | Total     | Production Stage |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|-----------|------------------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  |           | A1-A3            | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 2.07E-01  | 5.19E-02         | 5.06E-03  | 7.37E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 1.34E-01  | 0.00E+00 | 2.71E-04          | 0.00E+00 | 2.21E-03  |  |
| EP [kg N eq]   | 4.45E-02  | 9.75E-03         | 4.49E-04  | 8.16E-04           | 0.00E+00 | 7.88E-04  | 0.00E+00 | 2.92E-02  | 0.00E+00 | 2.90E-05          | 0.00E+00 | 3.54E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.32E+01  | 1.43E+01         | 1.12E+00  | 4.66E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 4.12E+01  | 0.00E+00 | 1.03E-01          | 0.00E+00 | 4.28E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.72E+01  | 1.55E+01         | 1.12E+00  | 4.66E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 4.36E+01  | 0.00E+00 | 1.03E-01          | 0.00E+00 | 4.30E-01  |  |
| ODP [kg CFC 11 eq]                                     | 7.23E-07  | 2.26E-07         | 2.85E-15  | 1.92E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 4.52E-07  | 0.00E+00 | 2.65E-16          | 0.00E+00 | 2.05E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 2.70E+00  | 5.68E-01         | 1.17E-01  | 1.46E-01           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 1.75E+00  | 0.00E+00 | 6.19E-03          | 0.00E+00 | 4.03E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 3.68E+00  | 1.23E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.68E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRC [kg CO <sub>2</sub> ]                             | 1.60E-02  | 5.33E-03         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEC [kg CO <sub>2</sub> ]                             | 1.60E-02  | 0.00E+00         | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]                                  | 1.33E+01  | -6.99E+00        | 6.19E-01  | 8.49E+00           | 0.00E+00 | 4.49E+00  | 0.00E+00 | 5.90E+00  | 0.00E+00 | 5.75E-02          | 0.00E+00 | 7.81E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 5.29E+01  | 1.76E+01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 3.53E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>E</sub> [MJ]                                 | 7.88E+02  | 1.58E+02         | 1.55E+01  | 6.67E+01           | 0.00E+00 | 4.44E+01  | 0.00E+00 | 4.96E+02  | 0.00E+00 | 1.44E+00          | 0.00E+00 | 6.67E+00  |  |
| NRRP <sub>M</sub> [MJ]                                 | 2.25E+02  | 7.50E+01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.50E+02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 1.73E+00  | 2.67E-01         | 2.12E-03  | 1.70E-02           | 0.00E+00 | 8.71E-01  | 0.00E+00 | 5.74E-01  | 0.00E+00 | 1.97E-04          | 0.00E+00 | 8.26E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 3.95E+01  | 1.21E+01         | 5.11E-01  | 6.78E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 2.56E+01  | 0.00E+00 | 2.47E-02          | 0.00E+00 | 9.92E-02  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.71E-04  | 5.44E-05         | 2.39E-07  | 1.06E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 1.12E-04  | 0.00E+00 | 1.16E-08          | 0.00E+00 | 2.08E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.12E-08 | -2.60E-08        | -2.03E-10 | -3.42E-10          | 0.00E+00 | -1.86E-10 | 0.00E+00 | -5.40E-08 | 0.00E+00 | -9.80E-12         | 0.00E+00 | -4.35E-10 |  |
| Nonrenewable Material Resources [kg]                   | 1.00E+02  | 3.04E+01         | 1.30E-01  | 3.71E-01           | 0.00E+00 | 2.28E+00  | 0.00E+00 | 6.53E+01  | 0.00E+00 | 6.28E-03          | 0.00E+00 | 1.75E+00  |  |
| Renewable Material Resources [kg]                      | 2.72E+01  | 8.53E+00         | 1.97E-01  | 1.44E-02           | 0.00E+00 | 6.40E-01  | 0.00E+00 | 1.77E+01  | 0.00E+00 | 7.40E-02          | 0.00E+00 | 2.50E-02  |  |
| HWD [kg]   | 1.20E-01  | 4.00E-02         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 3.30E-01  | 1.10E-01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.20E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 4.28E-05  | 1.02E-05         | 5.29E-08  | 3.67E-06           | 0.00E+00 | 8.37E-07  | 0.00E+00 | 2.80E-05  | 0.00E+00 | 4.91E-09          | 0.00E+00 | 8.24E-08  |  |
| ILLRW [kg]   | 3.44E-02  | 8.07E-03         | 4.45E-05  | 3.07E-03           | 0.00E+00 | 6.45E-04  | 0.00E+00 | 2.25E-02  | 0.00E+00 | 4.13E-06          | 0.00E+00 | 7.37E-05  |  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 3.09E-01  | 0.00E+00         | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 3.72E-01  | 0.00E+00         | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 75. FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 - Industrial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 3 + Sealer PA (clear) + 467 when used industrially.

Table 78: LCIA results FlowResin Flowfresh Category 3 + Sealer PA (clear) + 467 – Industrial Application, per functional unit

#### Technical Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 1.40E-01  | 5.19E-02         | 5.06E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 6.68E-02  | 0.00E+00          | 2.71E-04  | 0.00E+00 | 2.21E-03  |
| EP [kg N eq]   | 3.00E-02  | 9.75E-03         | 4.49E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 1.46E-02  | 0.00E+00          | 2.90E-05  | 0.00E+00 | 3.54E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.26E+01  | 1.43E+01         | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 2.06E+01  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.28E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 4.54E+01  | 1.55E+01         | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 2.18E+01  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.30E-01  |
| ODP [kg CFC 11 eq]                                     | 4.97E-07  | 2.26E-07         | 2.85E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.26E-07  | 0.00E+00          | 2.65E-16  | 0.00E+00 | 2.05E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 1.82E+00  | 5.68E-01         | 1.17E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 8.77E-01  | 0.00E+00          | 6.19E-03  | 0.00E+00 | 4.03E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00  | 1.23E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and Waste</b>         |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 1.04E+01  | -6.99E+00        | 6.19E-01           | 8.49E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 2.95E+00  | 0.00E+00          | 5.75E-02  | 0.00E+00 | 7.81E-01  |
| RPR <sub>M</sub> [MJ]                                  | 3.53E+01  | 1.76E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPRe [MJ]   | 5.40E+02  | 1.58E+02         | 1.55E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 2.48E+02  | 0.00E+00          | 1.44E+00  | 0.00E+00 | 6.67E+00  |
| NRPRe <sub>M</sub> [MJ]                                | 1.50E+02  | 7.50E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 7.50E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 1.44E+00  | 2.67E-01         | 2.12E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 2.87E-01  | 0.00E+00          | 1.97E-04  | 0.00E+00 | 8.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01  | 1.21E+01         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04  | 5.44E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08 | -2.60E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01  | 3.04E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01  | 8.53E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 8.00E-02  | 4.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.20E-01  | 1.10E-01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.88E-05  | 1.02E-05         | 5.29E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.40E-05  | 0.00E+00          | 4.91E-09  | 0.00E+00 | 8.24E-08  |
| ILLRW [kg]   | 2.32E-02  | 8.07E-03         | 4.45E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 1.13E-02  | 0.00E+00          | 4.13E-06  | 0.00E+00 | 7.37E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 76. FlowResin Flowfresh – Category 4 + Sealer CR (clear) - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) when used industrially.

Table 79: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) – Industrial Application, per functional unit

### Market Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 4.81E-01  | 1.47E-01         | 5.18E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 3.16E-01  | 0.00E+00          | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]   | 5.59E-02  | 1.47E-02         | 4.60E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 3.68E-02  | 0.00E+00          | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.06E+02  | 3.07E+01         | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 6.97E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.10E+02  | 3.19E+01         | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 7.21E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.32E-01  |
| ODP [kg CFC 11 eq]                                     | 7.91E-07  | 2.49E-07         | 2.92E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 4.98E-07  | 0.00E+00          | 2.05E-16  | 0.00E+00 | 1.58E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 4.31E+00  | 1.18E+00         | 1.20E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 2.83E+00  | 0.00E+00          | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.70E+00  | 1.23E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.70E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.47E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 9.25E+00  | -4.23E+00        | 6.34E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 3.17E+00  | 0.00E+00          | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>m</sub> [MJ]                                  | 5.41E+01  | 1.80E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.60E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 1.06E+03  | 2.82E+02         | 1.59E+01           | 3.49E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 6.79E+02  | 0.00E+00          | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 2.77E+02  | 9.22E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.84E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.58E+00  | 5.58E-01         | 2.17E-03           | 9.35E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 1.14E+00  | 0.00E+00          | 1.53E-04  | 0.00E+00 | 6.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 3.95E+01  | 1.21E+01         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 2.56E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.71E-04  | 5.44E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 1.12E-04  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.12E-08 | -2.60E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -5.40E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 1.00E+02  | 3.04E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 6.53E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 2.72E+01  | 8.53E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 1.77E+01  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 9.00E-02  | 3.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.70E-01  | 9.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.80E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.21E-05  | 8.35E-06         | 5.41E-08           | 1.96E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 2.09E-05  | 0.00E+00          | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]   | 2.57E-02  | 6.61E-03         | 4.56E-05           | 1.64E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 1.67E-02  | 0.00E+00          | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 77. FlowResin Flowfresh – Category 4 + Sealer CR (clear) - Industrial Application - Technical Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) when used industrially.

Table 80: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) – Industrial Application, per functional unit

### Technical Service Life

| Impact Category   | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|---|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|   | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b>  |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]  | 3.23E-01         | 1.47E-01  | 5.18E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.58E-01  | 0.00E+00          | 2.10E-04  | 0.00E+00 | 1.71E-03  |
| EP [kg N eq]  | 3.75E-02         | 1.47E-02  | 4.60E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 1.84E-02  | 0.00E+00          | 2.24E-05  | 0.00E+00 | 2.74E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]   | 7.11E+01         | 3.07E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.49E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.31E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]   | 7.39E+01         | 3.19E+01  | 1.14E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.60E+01  | 0.00E+00          | 8.00E-02  | 0.00E+00 | 3.32E-01  |
| ODP [kg CFC 11 eq]  | 5.43E-07         | 2.49E-07  | 2.92E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.49E-07  | 0.00E+00          | 2.05E-16  | 0.00E+00 | 1.58E-14  |
| POCP [kg O <sub>3</sub> eq]   | 2.89E+00         | 1.18E+00  | 1.20E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.41E+00  | 0.00E+00          | 4.79E-03  | 0.00E+00 | 3.12E-02  |
| <b>Biogenic Carbon Indicators</b>   |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]  | 2.47E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]  | 2.47E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]  | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]  | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>   |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]   | 7.66E+00         | -4.23E+00 | 6.34E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 1.59E+00  | 0.00E+00          | 4.45E-02  | 0.00E+00 | 6.04E-01  |
| RPR <sub>M</sub> [MJ]   | 3.60E+01         | 1.80E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.80E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>E</sub> [MJ]  | 7.23E+02         | 2.82E+02  | 1.59E+01           | 3.49E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 3.39E+02  | 0.00E+00          | 1.12E+00  | 0.00E+00 | 5.16E+00  |
| NRRP <sub>M</sub> [MJ]  | 1.84E+02         | 9.22E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.22E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]  | 2.01E+00         | 5.58E-01  | 2.17E-03           | 9.35E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 5.70E-01  | 0.00E+00          | 1.53E-04  | 0.00E+00 | 6.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]  | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]   | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]  | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]  | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]   | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]  | 6.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]   | 1.80E-01         | 9.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]   | 2.17E-05         | 8.35E-06  | 5.41E-08           | 1.96E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.04E-05  | 0.00E+00          | 3.80E-09  | 0.00E+00 | 6.38E-08  |
| ILLRW [kg]  | 1.74E-02         | 6.61E-03  | 4.56E-05           | 1.64E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 8.36E-03  | 0.00E+00          | 3.20E-06  | 0.00E+00 | 5.71E-05  |
| CRU [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]  | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]  | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| *Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values. |                  |           |                    |           |           |           |          |           |                   |           |          |           |

## 78. FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 - Industrial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 when used industrially.

Table 81: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) + 467 – Industrial Application, per functional unit

#### Market Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 4.97E-01         | 1.49E-01  | 5.21E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 3.27E-01  | 0.00E+00          | 2.75E-04  | 0.00E+00 | 2.24E-03  |
| EP [kg N eq]   | 5.99E-02         | 1.48E-02  | 4.62E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 3.94E-02  | 0.00E+00          | 2.94E-05  | 0.00E+00 | 3.59E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.15E+02         | 3.15E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 7.56E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.35E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.19E+02         | 3.26E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 7.79E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.36E-01  |
| ODP [kg CFC 11 eq]                                     | 7.90E-07         | 2.48E-07  | 2.93E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 4.97E-07  | 0.00E+00          | 2.69E-16  | 0.00E+00 | 2.08E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 4.61E+00         | 1.20E+00  | 1.21E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 3.03E+00  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 4.09E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.68E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.68E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 2.69E+01         | -2.50E+00 | 6.37E-01           | 8.49E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 1.50E+01  | 0.00E+00          | 5.84E-02  | 0.00E+00 | 7.93E-01  |
| RPR <sub>m</sub> [MJ]                                  | 5.37E+01         | 1.79E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.58E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 1.19E+03         | 2.92E+02  | 1.60E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 7.65E+02  | 0.00E+00          | 1.47E+00  | 0.00E+00 | 6.77E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 2.85E+02         | 9.48E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.90E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.62E+00         | 5.64E-01  | 2.18E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 1.17E+00  | 0.00E+00          | 2.00E-04  | 0.00E+00 | 8.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 3.95E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 2.56E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.71E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 1.12E-04  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.12E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -5.40E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 1.00E+02         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 6.53E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 2.72E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 1.77E+01  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 1.20E-01         | 4.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 3.30E-01         | 1.10E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.20E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 4.02E-05         | 9.31E-06  | 5.44E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 2.62E-05  | 0.00E+00          | 4.99E-09  | 0.00E+00 | 8.37E-08  |
| ILLRW [kg]   | 3.25E-02         | 7.42E-03  | 4.58E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 2.12E-02  | 0.00E+00          | 4.20E-06  | 0.00E+00 | 7.49E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 79. FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 - Industrial Application - Technical

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer CR (clear) + 467 when used industrially.

Table 82: LCIA results FlowResin Flowfresh Category 4 + Sealer CR (clear) + 467 – Industrial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 3.34E-01         | 1.49E-01  | 5.21E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.64E-01  | 0.00E+00          | 2.75E-04  | 0.00E+00 | 2.24E-03  |
| EP [kg N eq]   | 4.02E-02         | 1.48E-02  | 4.62E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 1.97E-02  | 0.00E+00          | 2.94E-05  | 0.00E+00 | 3.59E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.70E+01         | 3.15E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.78E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.35E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.98E+01         | 3.26E+01  | 1.15E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.90E+01  | 0.00E+00          | 1.05E-01  | 0.00E+00 | 4.36E-01  |
| ODP [kg CFC 11 eq]                                     | 5.42E-07         | 2.48E-07  | 2.93E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.48E-07  | 0.00E+00          | 2.69E-16  | 0.00E+00 | 2.08E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 3.09E+00         | 1.20E+00  | 1.21E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.51E+00  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 4.09E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEC [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | 1.95E+01         | -2.50E+00 | 6.37E-01           | 8.49E+00  | 0.00E+00  | 4.50E+00  | 0.00E+00 | 7.48E+00  | 0.00E+00          | 5.84E-02  | 0.00E+00 | 7.93E-01  |
| RPR <sub>m</sub> [MJ]                                  | 3.58E+01         | 1.79E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.79E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 8.09E+02         | 2.92E+02  | 1.60E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 3.82E+02  | 0.00E+00          | 1.47E+00  | 0.00E+00 | 6.77E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 1.90E+02         | 9.48E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 9.48E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.04E+00         | 5.64E-01  | 2.18E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 5.84E-01  | 0.00E+00          | 2.00E-04  | 0.00E+00 | 8.39E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 8.00E-02         | 4.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.20E-01         | 1.10E-01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.71E-05         | 9.31E-06  | 5.44E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 1.31E-05  | 0.00E+00          | 4.99E-09  | 0.00E+00 | 8.37E-08  |
| ILLRW [kg]   | 2.19E-02         | 7.42E-03  | 4.58E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 1.06E-02  | 0.00E+00          | 4.20E-06  | 0.00E+00 | 7.49E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.



### 80. FlowResin Flowfresh – Category 4 + Sealer PA (clear) - Industrial Application - Market Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) when used industrially.

Table 83: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) – Industrial Application, per functional unit

#### Market Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 4.69E-01  | 1.44E-01         | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 3.09E-01  | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 5.36E-02  | 1.40E-02         | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 3.52E-02  | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 9.85E+01  | 2.83E+01         | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 6.48E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.03E+02  | 2.95E+01         | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 6.71E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 7.73E-07  | 2.43E-07         | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 4.85E-07  | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 3.98E+00  | 1.08E+00         | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 2.61E+00  | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.68E+00  | 1.23E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.68E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | -5.05E+00 | -8.97E+00        | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -6.36E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>m</sub> [MJ]                                  | 5.29E+01  | 1.76E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.53E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>e</sub> [MJ]                                 | 9.46E+02  | 2.44E+02         | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 6.01E+02  | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.05E+00  |
| NRPR <sub>m</sub> [MJ]                                 | 2.66E+02  | 8.88E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.78E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.57E+00  | 5.53E-01         | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 1.13E+00  | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 3.95E+01  | 1.21E+01         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 2.56E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.71E-04  | 5.44E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 1.12E-04  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.12E-08 | -2.60E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -5.40E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 1.00E+02  | 3.04E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 6.53E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 2.72E+01  | 8.53E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 1.77E+01  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 9.00E-02  | 3.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 6.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 2.40E-01  | 8.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.60E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.00E-05  | 7.65E-06         | 5.26E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 1.95E-05  | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 2.37E-02  | 5.95E-03         | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 1.54E-02  | 0.00E+00          | 3.13E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 81. FlowResin Flowfresh – Category 4 + Sealer PA (clear) - Industrial Application - Technical Service

### Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) when used industrially.

Table 84: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) – Industrial Application, per functional unit

#### Technical Service Life

| Impact Category  | Production Stage |           |                    |           |           |           |          |           |                   |           |          |           |
|--|------------------|-----------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  | Total            | A1-A3     | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|  |                  |           | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 3.15E-01         | 1.44E-01  | 5.04E-03           | 3.88E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 1.54E-01  | 0.00E+00          | 2.06E-04  | 0.00E+00 | 1.68E-03  |
| EP [kg N eq]   | 3.60E-02         | 1.40E-02  | 4.47E-04           | 4.67E-04  | 0.00E+00  | 7.87E-04  | 0.00E+00 | 1.76E-02  | 0.00E+00          | 2.20E-05  | 0.00E+00 | 2.68E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.61E+01         | 2.83E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 3.24E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.25E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 6.90E+01         | 2.95E+01  | 1.11E+00           | 2.57E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 3.36E+01  | 0.00E+00          | 7.84E-02  | 0.00E+00 | 3.26E-01  |
| ODP [kg CFC 11 eq]                                     | 5.30E-07         | 2.43E-07  | 2.84E-15           | 1.03E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 2.43E-07  | 0.00E+00          | 2.01E-16  | 0.00E+00 | 1.55E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 2.68E+00         | 1.08E+00  | 1.17E-01           | 7.56E-02  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 1.31E+00  | 0.00E+00          | 4.69E-03  | 0.00E+00 | 3.06E-02  |
| <b>Biogenic Carbon Indicators</b>                      |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 1.23E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 5.33E-03  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02         | 0.00E+00  | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and, Waste</b>        |                  |           |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>e</sub> [MJ]                                  | -1.87E+00        | -8.97E+00 | 6.17E-01           | 4.54E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | -3.18E+00 | 0.00E+00          | 4.36E-02  | 0.00E+00 | 5.92E-01  |
| RPR <sub>m</sub> [MJ]                                  | 3.53E+01         | 1.76E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRRP <sub>e</sub> [MJ]                                 | 6.46E+02         | 2.44E+02  | 1.55E+01           | 3.48E+01  | 0.00E+00  | 4.43E+01  | 0.00E+00 | 3.01E+02  | 0.00E+00          | 1.09E+00  | 0.00E+00 | 5.05E+00  |
| NRRP <sub>m</sub> [MJ]                                 | 1.78E+02         | 8.88E+01  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.88E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.00E+00         | 5.53E-01  | 2.11E-03           | 9.34E-03  | 0.00E+00  | 8.70E-01  | 0.00E+00 | 5.66E-01  | 0.00E+00          | 1.50E-04  | 0.00E+00 | 6.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01         | 1.21E+01  | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04         | 5.44E-05  | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08        | -2.60E-08 | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 6.76E+01         | 3.04E+01  | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 1.83E+01         | 8.53E+00  | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 6.00E-02         | 3.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 1.60E-01         | 8.00E-02  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 2.03E-05         | 7.65E-06  | 5.26E-08           | 1.96E-06  | 0.00E+00  | 8.36E-07  | 0.00E+00 | 9.73E-06  | 0.00E+00          | 3.72E-09  | 0.00E+00 | 6.25E-08  |
| ILLRW [kg]   | 1.60E-02         | 5.95E-03  | 4.43E-05           | 1.64E-03  | 0.00E+00  | 6.44E-04  | 0.00E+00 | 7.69E-03  | 0.00E+00          | 3.13E-06  | 0.00E+00 | 5.59E-05  |
| CRU [kg]   | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 2.06E-01         | 0.00E+00  | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 2.48E-01         | 0.00E+00  | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## 82. FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 - Industrial Application - Market

### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 when used industrially.

Table 85: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) + 467 – Industrial Application, per functional unit

#### Market Service Life

| Impact Category  | Total     | Production Stage | Construction Stage |           | Use Stage |           |          |           | End of Life Stage |           |          |           |
|--|-----------|------------------|--------------------|-----------|-----------|-----------|----------|-----------|-------------------|-----------|----------|-----------|
|  |           | A1-A3            | A4                 | A5        | B1        | B2        | B3       | B4        | C1                | C2        | C3       | C4        |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| AP [kg SO <sub>2</sub> eq]                             | 4.86E-01  | 1.45E-01         | 5.06E-03           | 7.37E-03  | 0.00E+00  | 6.41E-03  | 0.00E+00 | 3.20E-01  | 0.00E+00          | 2.71E-04  | 0.00E+00 | 2.21E-03  |
| EP [kg N eq]   | 5.77E-02  | 1.41E-02         | 4.49E-04           | 8.16E-04  | 0.00E+00  | 7.88E-04  | 0.00E+00 | 3.79E-02  | 0.00E+00          | 2.90E-05  | 0.00E+00 | 3.54E-03  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.07E+02  | 2.90E+01         | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.35E+00  | 0.00E+00 | 7.07E+01  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.28E-01  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 1.11E+02  | 3.02E+01         | 1.12E+00           | 4.66E+00  | 0.00E+00  | 1.81E+00  | 0.00E+00 | 7.30E+01  | 0.00E+00          | 1.03E-01  | 0.00E+00 | 4.30E-01  |
| ODP [kg CFC 11 eq]                                     | 7.72E-07  | 2.42E-07         | 2.85E-15           | 1.92E-13  | 0.00E+00  | 4.49E-08  | 0.00E+00 | 4.85E-07  | 0.00E+00          | 2.65E-16  | 0.00E+00 | 2.05E-14  |
| POCP [kg O <sub>3</sub> eq]                            | 4.28E+00  | 1.10E+00         | 1.17E-01           | 1.46E-01  | 0.00E+00  | 6.49E-02  | 0.00E+00 | 2.81E+00  | 0.00E+00          | 6.19E-03  | 0.00E+00 | 4.03E-02  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| BCRP [kg CO <sub>2</sub> ]                             | 3.68E+00  | 1.23E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEP [kg CO <sub>2</sub> ]                             | 3.68E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.45E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 1.23E+00  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 5.33E-03         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.60E-02  | 0.00E+00         | 0.00E+00           | 5.33E-03  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.07E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| <b>Material and Energy Resources and Waste</b>         |           |                  |                    |           |           |           |          |           |                   |           |          |           |
| RPR <sub>E</sub> [MJ]                                  | 1.21E+01  | -7.42E+00        | 6.19E-01           | 8.49E+00  | 0.00E+00  | 4.49E+00  | 0.00E+00 | 5.06E+00  | 0.00E+00          | 5.75E-02  | 0.00E+00 | 7.81E-01  |
| RPR <sub>M</sub> [MJ]                                  | 5.29E+01  | 1.76E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 3.53E+01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRPR <sub>E</sub> [MJ]                                 | 1.08E+03  | 2.53E+02         | 1.55E+01           | 6.67E+01  | 0.00E+00  | 4.44E+01  | 0.00E+00 | 6.87E+02  | 0.00E+00          | 1.44E+00  | 0.00E+00 | 6.67E+00  |
| NRPR <sub>M</sub> [MJ]                                 | 2.74E+02  | 9.13E+01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 1.83E+02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| FW [m <sup>3</sup> ]                                   | 2.61E+00  | 5.59E-01         | 2.12E-03           | 1.70E-02  | 0.00E+00  | 8.71E-01  | 0.00E+00 | 1.16E+00  | 0.00E+00          | 1.97E-04  | 0.00E+00 | 8.26E-04  |
| Nonrenewable Fossil [MJ (HHV)]                         | 3.95E+01  | 1.21E+01         | 5.11E-01           | 6.78E-02  | 0.00E+00  | 1.08E+00  | 0.00E+00 | 2.56E+01  | 0.00E+00          | 2.47E-02  | 0.00E+00 | 9.92E-02  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.71E-04  | 5.44E-05         | 2.39E-07           | 1.06E-06  | 0.00E+00  | 2.91E-06  | 0.00E+00 | 1.12E-04  | 0.00E+00          | 1.16E-08  | 0.00E+00 | 2.08E-07  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| Renewable (Biomass) [MJ (HHV)]                         | -8.12E-08 | -2.60E-08        | -2.03E-10          | -3.42E-10 | 0.00E+00  | -1.86E-10 | 0.00E+00 | -5.40E-08 | 0.00E+00          | -9.80E-12 | 0.00E+00 | -4.35E-10 |
| Nonrenewable Material Resources [kg]                   | 1.00E+02  | 3.04E+01         | 1.30E-01           | 3.71E-01  | 0.00E+00  | 2.28E+00  | 0.00E+00 | 6.53E+01  | 0.00E+00          | 6.28E-03  | 0.00E+00 | 1.75E+00  |
| Renewable Material Resources [kg]                      | 2.72E+01  | 8.53E+00         | 1.97E-01           | 1.44E-02  | 0.00E+00  | 6.40E-01  | 0.00E+00 | 1.77E+01  | 0.00E+00          | 7.40E-02  | 0.00E+00 | 2.50E-02  |
| HWD [kg]   | 1.20E-01  | 4.00E-02         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 8.00E-02  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| NHWD [kg]  | 3.30E-01  | 1.10E-01         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.20E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| HLRW [kg]  | 3.81E-05  | 8.60E-06         | 5.29E-08           | 3.67E-06  | 0.00E+00  | 8.37E-07  | 0.00E+00 | 2.48E-05  | 0.00E+00          | 4.91E-09  | 0.00E+00 | 8.24E-08  |
| ILLRW [kg]   | 3.05E-02  | 6.75E-03         | 4.45E-05           | 3.07E-03  | 0.00E+00  | 6.45E-04  | 0.00E+00 | 1.99E-02  | 0.00E+00          | 4.13E-06  | 0.00E+00 | 7.37E-05  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00           | 0.00E+00  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MFR [kg]   | 3.09E-01  | 0.00E+00         | 0.00E+00           | 1.03E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.06E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |
| MER [kg]   | 3.72E-01  | 0.00E+00         | 0.00E+00           | 1.24E-01  | 0.00E+00  | 0.00E+00  | 0.00E+00 | 2.48E-01  | 0.00E+00          | 0.00E+00  | 0.00E+00 | 0.00E+00  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

### 83. FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 - Industrial Application - Technical

#### Service Life

The LCIA results presented below are for 1 m<sup>2</sup> of FlowResin Flowfresh – Category 4 + Sealer PA (clear) + 467 when used industrially.

Table 86: LCIA results FlowResin Flowfresh Category 4 + Sealer PA (clear) + 467 – Industrial Application, per functional unit

#### Technical Service Life

| Impact Category  | Total     | Production Stage |           | Construction Stage |          | Use Stage |          |           |          | End of Life Stage |          |           |  |
|--|-----------|------------------|-----------|--------------------|----------|-----------|----------|-----------|----------|-------------------|----------|-----------|--|
|  |           | A1-A3            | A4        | A5                 | B1       | B2        | B3       | B4        | C1       | C2                | C3       | C4        |  |
| <b>LCIA Impact Indicators – TRACI 2.1 and IPCC AR5</b> |           |                  |           |                    |          |           |          |           |          |                   |          |           |  |
| AP [kg SO <sub>2</sub> eq]                             | 3.26E-01  | 1.45E-01         | 5.06E-03  | 7.37E-03           | 0.00E+00 | 6.41E-03  | 0.00E+00 | 1.60E-01  | 0.00E+00 | 2.71E-04          | 0.00E+00 | 2.21E-03  |  |
| EP [kg N eq]   | 3.87E-02  | 1.41E-02         | 4.49E-04  | 8.16E-04           | 0.00E+00 | 7.88E-04  | 0.00E+00 | 1.90E-02  | 0.00E+00 | 2.90E-05          | 0.00E+00 | 3.54E-03  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.20E+01  | 2.90E+01         | 1.12E+00  | 4.66E+00           | 0.00E+00 | 1.35E+00  | 0.00E+00 | 3.53E+01  | 0.00E+00 | 1.03E-01          | 0.00E+00 | 4.28E-01  |  |
| IPCC AR5 GWP <sub>100</sub> [kg CO <sub>2</sub> eq]    | 7.48E+01  | 3.02E+01         | 1.12E+00  | 4.66E+00           | 0.00E+00 | 1.81E+00  | 0.00E+00 | 3.65E+01  | 0.00E+00 | 1.03E-01          | 0.00E+00 | 4.30E-01  |  |
| ODP [kg CFC 11 eq]                                     | 5.30E-07  | 2.42E-07         | 2.85E-15  | 1.92E-13           | 0.00E+00 | 4.49E-08  | 0.00E+00 | 2.42E-07  | 0.00E+00 | 2.65E-16          | 0.00E+00 | 2.05E-14  |  |
| POCP [kg O <sub>3</sub> eq]                            | 2.87E+00  | 1.10E+00         | 1.17E-01  | 1.46E-01           | 0.00E+00 | 6.49E-02  | 0.00E+00 | 1.41E+00  | 0.00E+00 | 6.19E-03          | 0.00E+00 | 4.03E-02  |  |
| <b>Biogenic Carbon Indicators</b>                      |           |                  |           |                    |          |           |          |           |          |                   |          |           |  |
| BCRP [kg CO <sub>2</sub> ]                             | 2.45E+00  | 1.23E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEP [kg CO <sub>2</sub> ]                             | 2.45E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.23E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 1.23E+00  |  |
| BCRK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 5.33E-03         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEK [kg CO <sub>2</sub> ]                             | 1.07E-02  | 0.00E+00         | 0.00E+00  | 5.33E-03           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 5.33E-03  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| BCEW [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCE [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CCR [kg CO <sub>2</sub> ]                              | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| CWNR [kg CO <sub>2</sub> ]                             | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| <b>Material and Energy Resources and Waste</b>         |           |                  |           |                    |          |           |          |           |          |                   |          |           |  |
| RPR <sub>E</sub> [MJ]                                  | 9.55E+00  | -7.42E+00        | 6.19E-01  | 8.49E+00           | 0.00E+00 | 4.49E+00  | 0.00E+00 | 2.53E+00  | 0.00E+00 | 5.75E-02          | 0.00E+00 | 7.81E-01  |  |
| RPR <sub>M</sub> [MJ]                                  | 3.53E+01  | 1.76E+01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.76E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRRP <sub>E</sub> [MJ]                                 | 7.32E+02  | 2.53E+02         | 1.55E+01  | 6.67E+01           | 0.00E+00 | 4.44E+01  | 0.00E+00 | 3.44E+02  | 0.00E+00 | 1.44E+00          | 0.00E+00 | 6.67E+00  |  |
| NRRP <sub>M</sub> [MJ]                                 | 1.83E+02  | 9.13E+01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 9.13E+01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RE [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| SM [kg]  | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| RSF [MJ]   | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NRSF [MJ]  | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| FW [m <sup>3</sup> ]                                   | 2.03E+00  | 5.59E-01         | 2.12E-03  | 1.70E-02           | 0.00E+00 | 8.71E-01  | 0.00E+00 | 5.80E-01  | 0.00E+00 | 1.97E-04          | 0.00E+00 | 8.26E-04  |  |
| Nonrenewable Fossil [MJ (HHV)]                         | 2.67E+01  | 1.21E+01         | 5.11E-01  | 6.78E-02           | 0.00E+00 | 1.08E+00  | 0.00E+00 | 1.28E+01  | 0.00E+00 | 2.47E-02          | 0.00E+00 | 9.92E-02  |  |
| Nonrenewable Nuclear [MJ (HHV)]                        | 1.15E-04  | 5.44E-05         | 2.39E-07  | 1.06E-06           | 0.00E+00 | 2.91E-06  | 0.00E+00 | 5.59E-05  | 0.00E+00 | 1.16E-08          | 0.00E+00 | 2.08E-07  |  |
| Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]         | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| Renewable (Biomass) [MJ (HHV)]                         | -5.42E-08 | -2.60E-08        | -2.03E-10 | -3.42E-10          | 0.00E+00 | -1.86E-10 | 0.00E+00 | -2.70E-08 | 0.00E+00 | -9.80E-12         | 0.00E+00 | -4.35E-10 |  |
| Nonrenewable Material Resources [kg]                   | 6.76E+01  | 3.04E+01         | 1.30E-01  | 3.71E-01           | 0.00E+00 | 2.28E+00  | 0.00E+00 | 3.27E+01  | 0.00E+00 | 6.28E-03          | 0.00E+00 | 1.75E+00  |  |
| Renewable Material Resources [kg]                      | 1.83E+01  | 8.53E+00         | 1.97E-01  | 1.44E-02           | 0.00E+00 | 6.40E-01  | 0.00E+00 | 8.84E+00  | 0.00E+00 | 7.40E-02          | 0.00E+00 | 2.50E-02  |  |
| HWD [kg]   | 8.00E-02  | 4.00E-02         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 4.00E-02  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| NHWD [kg]  | 2.20E-01  | 1.10E-01         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.10E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| HLRW [kg]  | 2.57E-05  | 8.60E-06         | 5.29E-08  | 3.67E-06           | 0.00E+00 | 8.37E-07  | 0.00E+00 | 1.24E-05  | 0.00E+00 | 4.91E-09          | 0.00E+00 | 8.24E-08  |  |
| ILLRW [kg]   | 2.05E-02  | 6.75E-03         | 4.45E-05  | 3.07E-03           | 0.00E+00 | 6.45E-04  | 0.00E+00 | 9.94E-03  | 0.00E+00 | 4.13E-06          | 0.00E+00 | 7.37E-05  |  |
| CRU [kg]   | 0.00E+00  | 0.00E+00         | 0.00E+00  | 0.00E+00           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MFR [kg]   | 2.06E-01  | 0.00E+00         | 0.00E+00  | 1.03E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.03E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |
| MER [kg]   | 2.48E-01  | 0.00E+00         | 0.00E+00  | 1.24E-01           | 0.00E+00 | 0.00E+00  | 0.00E+00 | 1.24E-01  | 0.00E+00 | 0.00E+00          | 0.00E+00 | 0.00E+00  |  |

\*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

## Life Cycle Assessment Interpretation

For all impact categories the vast majority of impacts are aggregated in the B4 Replacement phase of the life cycle of the product. The second largest life cycle stage is A1-A3, which is raw material sourcing, transportation and manufacturing.

For FlowResin Flowfresh, in the sourcing and extraction stage, the largest contributors to the impacts in terms of raw materials are the base (38-70%) followed by the sealer (0.9-27%) used. Within manufacturing, plastic packaging contributes to 5.1-12.2% of A1-A3 GWP impacts while manufacturing electricity contributes to 2.1-5.3%.

### 84. Additional Environmental Information

Key Resin Company has published a Health Product Declaration (HPD) for this product that can be found in the HPD Repository [here](#).

Please contact [Key Resin](#) for further information on their CDPH Section 01350 V1.2 emissions testing.



Figure 8. Flowfresh MF/FC Sealer

## References

1. ISO 14044: 2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.
2. ISO 14044: 2006/ Amd 1:2017 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 1.
3. ISO 14044: 2006/ Amd 2:2020 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 2.
4. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
5. ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.
6. TRACI: The Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts. Version 2.1 – User Guide – <https://nepis.epa.gov/Adobe/PDF/P100HN53.pdf>.
7. NSF Product Category Rule for Environmental Product Declarations: PCR for Resinous Floor Coatings. December 17, 2018.



Figure 9. Flowfresh SRQ/Flowseal PA Sealer