Knoll

Ollo® with Shell Back

Americas

Environmental Product Declaration

Date of Issue: May 21, 2025

Date of Expiration: May 21, 2030

Product Category Rules

BIFMA PCR for Seating, UNCPC 3811, version 3

Product Sub-Category: Swivel / Task Chair (Single Occupant)

EN 15804+A2

ISO 14025/14040/14044

Functional Unit

1 seat for 1 individual maintained for a 10-year period (2 Ollo with shell back chairs)

This EPD was not written to support comparative assertions. EPDs based on different PCRs or different calculation models may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results due to and not limited to the practitioner's assumptions, the source of the data used in the study, the specifics of the product modeled, and the software tool used to conduct the study.

NSF Certified Environmental Product Declaration www.nsf.org

Environmental Product Declaration

Ollo with Shell Back

Program Operator	NSF Certification LLC 789 N. Dixboro, Ann Arbor, MI 48105 www.nsf.org
Manufacturer Name and Address	Knoll North America 1235 Water St East Greenville, PA 18041
Declaration Number	EPD11079
Declared Product and Functional Unit	Ollo with Shell Back chair (product code 7PFA2SHCBBBPK2026B13) Functional Unit: 1 seat for 1 individual maintained for 10 years
Reference PCR and Version Number	BIFMA PCR for Seating, UNCPC 3811, version 3 EN 15804+A2
Product's intended Application and Use	Swivel / Task Chair (Single Occupant)
Product RSL	5 years
Markets of Applicability	North/South America
Date of Issue	May 21, 2025
Period of Validity	5 years from date of issue
EPD Type	Product Specific
Intended Audience	Business-to-Business, Business-to-Consumer
Range of Dataset Variability	N/A
EPD Scope	Cradle to Grave
Year of reported manufacturer primary data	2021
LCA Software and Version Number	Sphera LCA for Experts (fka GaBi) 10.9
LCI Database and Version Number	Sphera Managed LCA Content (fka GaBi) Database, 2024.1
LCIA Methodology and Version Number	TRACI 2.1, IPCC AR6, EN 15804 EF 3.1
The PCR review was conducted by:	Review Panel Chaired by Dr. Thomas Gloria
This declaration was independently verified in accordance with ISO 14025: 2006, the BIFMA PCR for Seating, and EN 15804+A2 ☐ Internal ☒ External	Jack Geibig - EcoForm jgeibig@ecoform.com
This reference life cycle assessment was conducted in accordance with ISO 14044 and the reference PCRs:	WAP Sustainability
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Jack Geibig - EcoForm jgeibig@ecoform.com
References	BIFMA PCR for Seating: UNCPC 3811, Version 3 (2014) EN 15804+A2 (2019) ISO 14025/40/44 (2006) MillerKnoll Background Report for LCA/EPD Creation Tool v1.0

Limitations:

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of 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.

Environmental Product Declaration

Ollo with Shell Back

Product Description

Designed by Glen Oliver Loew 2018
Ollo with shell back is designed to stay on pace with the spontaneous style of today's work – pivoting between people, locations and tasks without breaking stride.

This document relates to Ollo with Shell Back chairs. Ollo with Shell Back Chair with fixed arm plastic back, plastic 5-star base, standard cylinder, hard casters, and base grade Delite textile is covered in this document.

Company Description

MillerKnoll is a collective of dynamic brands that comes together to design the world we live in. The MillerKnoll brand portfolio includes Herman Miller, Knoll, Colebrook Bosson Saunders, DatesWeiser, Design Within Reach, Edelman, Geiger, HAY, HOLLY HUNT, Knoll Textiles, Maharam, Muuto, NaughtOne, and Spinneybeck|FilzFelt. MillerKnoll is an unparalleled platform that redefines modern for the 21st century by building a more sustainable, equitable, and beautiful future for all.

At the intersection of people and environments, there's Knoll. Founded in 1938, the company's creative collaborations with the most influential architects and designers of the day have yielded an unmatched portfolio of timeless products for the office, hospitality and home. Knoll was built on its belief that when furniture, interiors and architecture are designed harmoniously, we create spaces where people want to be. Knoll is part of MillerKnoll, a collective of the world's most dynamic design brands.

Our Mission

Driven by the mission to design and make the world's best products in the most sustainable way, MillerKnoll's sustainability strategy focuses on three key areas:

- **Carbon**
  Design the lowest carbon footprint products and commit to achieving net-zero carbon emissions by 2050[1].
- **Materials**
  Use sustainable, 100% bio-based or recycled materials by 2050.
- **Circularity**
  Design timeless, durable products with zero waste by 2050.

Supplier Support

At MillerKnoll, we are committed to working closely with our suppliers to reduce our collective impact on the environment. We encourage our suppliers to minimize their operations' environmental impacts and require they assist us in decreasing our facilities' environmental effects.

Manufacturing Locations

- East Greenville, PA, United States

Warranty

Backed by MillerKnoll's 12-year warranty.

Creating Transparency on Materials

We are transparent about our materials because we believe in informed decisions. Our Ecomedes platform provides environmental product information from across our brands, including details about materials used and third-party certifications. This resource helps customers buy or specify environmentally preferable products by supplying product-level data and automating product performance calculations that can help contribute to sustainability goals. Ecomedes is linked here.

Product Environmental Data

	Value*
Recycled Content %	31%
Pre-Consumer	8%
Post-Consumer	23%
Recyclability (max %) **	92%

*The recycled content information shown may vary from ecomedes due to periodic product updates.

**This recyclability rate is the maximum amount of the product that is recyclable, based on availability of recycling facilities and ability of the product to be disassembled. Note that, per the requirements of the PCR, the End-of-Life results presented in this EPD were calculated using the US EPA's recycling rates within the 2018 Municipal Solid Waste Report for parts that can be disassembled.

Additional information, including installation and recycling instructions, can be found at https://www.knoll.com/design-plan/product/ollo?section=design.

[1] MillerKnoll's net-zero commitment is subject to factors that are partly outside its control, including its value chain's ability to reduce their Scope 1 and 2 emissions (and therefore MillerKnoll's Scope 3 emissions) by 2050. In light of this, MillerKnoll is committed to achieving net-zero by 2050 and will continue to engage with stakeholders across its value chain to support them in their efforts to become net-zero by 2050.

Ollo with Shell Back

MATERIAL DECLARATION

Functional Unit

The functional unit is one seat for one individual, maintained over a 10-year period, including packaging materials used for the final assembled product. The assumed RSL is 5 years, so one replacement is required over the 10-year period. To meet the functional unit, 2 units of Ollo with Shell Back Chair are required.

Reference Flow and Product Specifications

One Ollo with Shell Back Chair (product number 7PFA2SHCBBBPK2026B13) with fixed arm plastic back, plastic 5-star base, standard cylinder, hard casters, and base grade Delite textile was modeled for this EPD. This chair is determined to be a representative product based on sales of the variations. The results in this EPD are only representative of this configuration. While the exact configuration purchased may be slightly different, it is expected to have impacts within 10% of this representative configuration. The results presented on the subsequent pages consist of the impacts of Ollo with Shell Back Chair made at East Greenville, PA. The product composition table to the right is relevant for the product made in East Greenville, PA.

System Boundary

Cradle-to-Grave

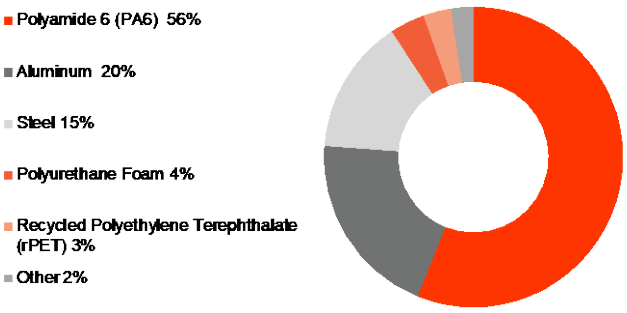
Content Declaration

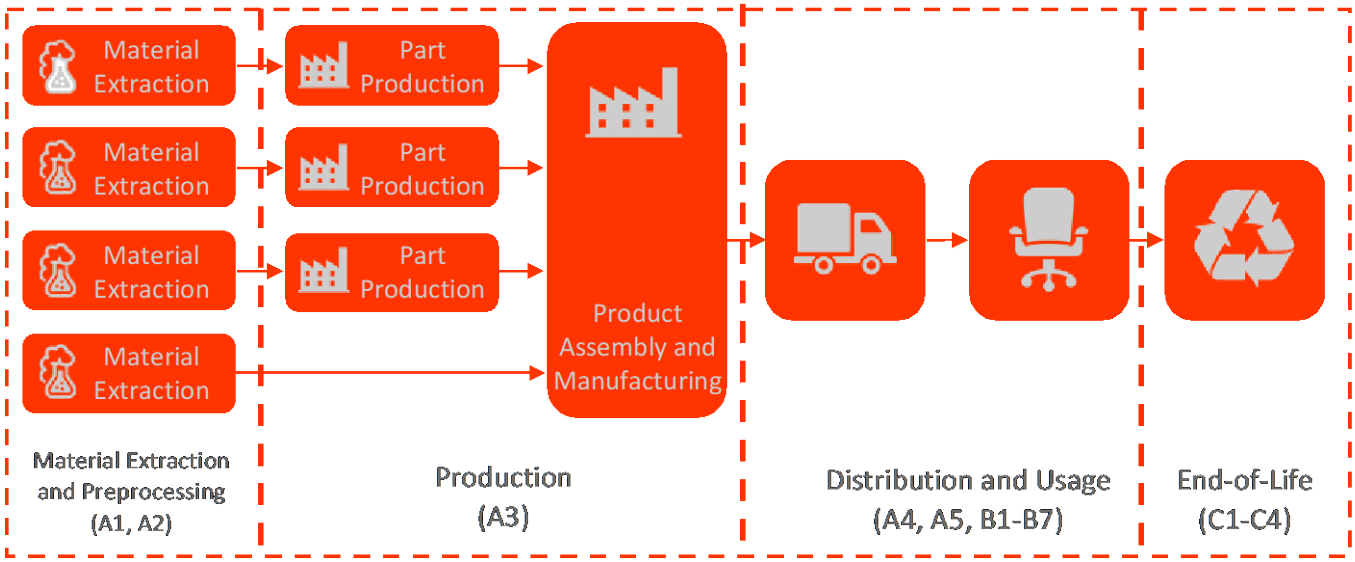
The table to the right details the materials included in a specific SKU for the product made in the United States, summarized in the chart below. In order to achieve the functional unit, 2 products are required.

Material	Mass (kg)	Mass (%)	Resource
Polyamide 6 (PA6)	6.98	56%	Virgin Non-renewable and Recycled Content
Aluminum	2.50	20%	Virgin Non-renewable and Recycled Content
Steel	1.82	15%	Virgin Non-renewable and Recycled Content
Polyurethane Foam	0.47	4%	Virgin Non-renewable
Recycled Polyethylene Terephthalate (rPET)	0.37	3%	Virgin Non-renewable and Recycled Content
Other	0.30	2%	Virgin Non-renewable
Total	**12.44**	**100%**	

Packaging	Mass (kg)	Mass (%)	Resource
Corrugate	1.06	83%	Recycled Content
PE Film	0.18	14%	Virgin Non-Renewable
PE Bag	0.02	2%	Virgin Non-Renewable
PU Foam	0.01	<1%	Virgin Non-Renewable
PP Banding	0.01	<1%	Virgin Non-Renewable
Total	**1.28**	**100%**	

This product contains no substances prohibited by the regulations applicable at the time of EPD publication, and does not contain substances that require registration under REACH. It respects the restrictions on use of hazardous substances as defined in the REACH directive EC 1907/2006.





Overview of Life Cycle Stages

Ollo with Shell Back

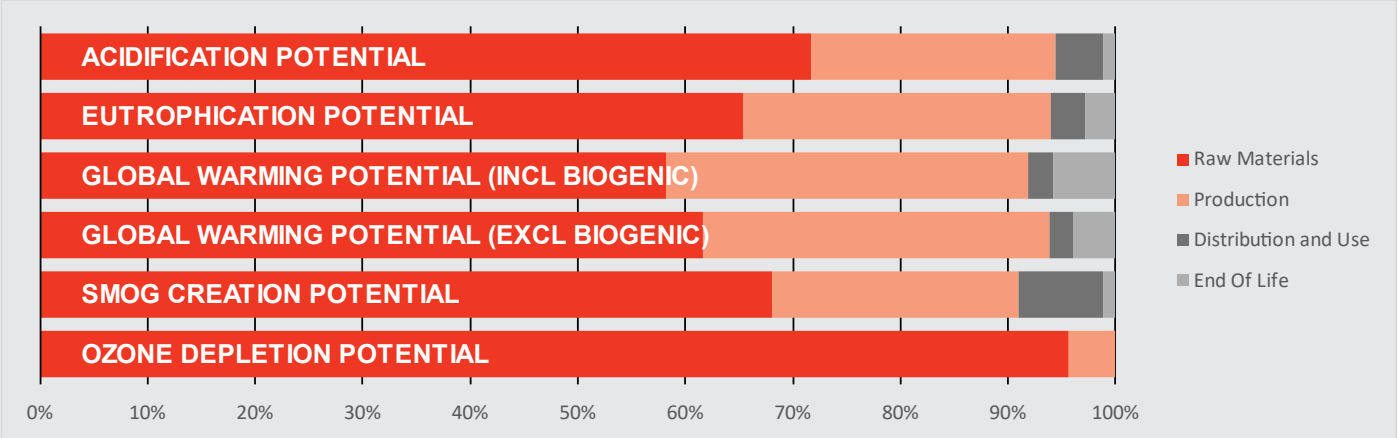
Life Cycle Impact Assessment – BIFMA PCR for Production in North America

Environmental Impacts were calculated using the GaBi software platform. Impact results according to the BIFMA PCR have been calculated using IPCC AR6 GWP_{100} and TRACI 2.1 characterization factors. Additionally, LCI indicators have been calculated for primary energy, water usage, renewable and non-renewable resources used as energy carriers and materials, and recovered energy. Results presented in this report are for 1 seat for 1 individual maintained for 10 years. To fulfill this functional unit, 2 units of product are required.

The results presented here are for Ollo with Shell Back Chair (7PFA2SHCBBBPK2026B13). Additionally, the results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

LCA Impact Category	Unit	Total	Raw Material Production	Product Production	Distribution and Retail	End of Life
Acidification Potential	kg SO_2 eq	5.18E-01	3.71E-01	1.18E-01	2.31E-02	6.08E-03
Eutrophication Potential	kg N eq	6.21E-02	4.06E-02	1.77E-02	2.06E-03	1.72E-03
Global Warming Potential Including Biogenic Carbon	kg CO_2 eq	2.22E+02	1.29E+02	7.48E+01	5.00E+00	1.29E+01
Global Warming Potential Excluding Biogenic Carbon	kg CO_2 eq	2.22E+02	1.37E+02	7.16E+01	5.00E+00	8.61E+00
Photochemical Ozone Creation Potential (Smog)	kg O_3 eq	6.78E+00	4.62E+00	1.56E+00	5.29E-01	8.10E-02
Ozone Depletion Potential	kg CFC-11 eq	3.56E-08	3.41E-08	1.54E-09	1.27E-14	3.75E-14
LCI Impact Category	**Unit**	**Total**	**Raw Material Production**	**Product Production**	**Distribution and Retail**	**End of Life**
Primary Energy Demand (Renewable and Non-Renewable)	MJ (net cal value)	3.42E+03	2.05E+03	1.28E+03	6.89E+01	1.61E+01
Fresh Water Consumption	kg	1.14E+03	8.20E+02	2.95E+02	9.64E+00	1.89E+01
Renewable Primary Resources Used as Energy Carrier	MJ (net cal value)	1.19E+02	7.11E+01	4.79E+01	0.00E+00	0.00E+00
Renewable Primary Resources Used as Materials	MJ (net cal value)	2.53E+02	1.00E+02	1.48E+02	2.86E+00	1.59E+00
Non-renewable Primary Resources Used as Energy Carrier	MJ (net cal value)	5.38E+02	5.12E+02	2.61E+01	0.00E+00	0.00E+00
Non-renewable Primary Resources Used as Materials	MJ (net cal value)	3.16E+03	1.95E+03	1.13E+03	6.60E+01	1.45E+01
Recovered Energy	MJ (net cal value)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Life Cycle Impacts of Ollo with Shell Back Chair



Ollo with Shell Back

APPENDIX: EN 15804+A2

Additionally, results have been calculated using LCIA methodologies for core environmental impact categories specified in EN 15804+A2, as well as LCI indicators required by EN15804+A2 reference package EF 3.1. The results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks. Values in the scenario tables below are reported per functional unit, which is 1 seat for 1 individual maintained for 10 years. To fulfill this functional unit, 2 units of product are required.

LCA Scenario Details

Functional Unit

Parameter	Value
Declared Unit	1 seat
Reference Service Life Required	10 years
Biogenic Carbon in Product	0 kg C
Biogenic Carbon in Packaging	1.17 kg C

Reference Service Life

Parameter	Value per functional unit
Reference Service Life	5 Years
Design Application Parameters	Use as indicated in product brochure and warranty
Declared Product Properties	Properties given in product description on page 4
Indoor environment	Typical office and home environment
Use conditions	Typical office and home use

A4: Transport to the Building Site

Parameter	Value per functional unit
Transportation Type	Diesel Truck
Fuel Consumption	0.621 L/km
Distance	2,253 km
Capacity Utilization	61%
Capacity utilization volume factor	1
Weight of product (kg)	12.5
Volume (m^3)	0.35

A5: Installation in the Building

Parameter	Value per functional unit
Packaging Waste Produced	1.28 kg
Installation Assumptions	No product waste, Installed with hand tools.

B1: Use

Parameter	Value per functional unit
There are no emissions related to the expected use of this product.	

B2: Maintenance

Parameter	Value per functional unit
Maintenance Process	No maintenance is expected for this product
Maintenance cycle	0
Ancillary Materials for maintenance (kg/cycle)	0
Waste materials resulting from maintenance (kg)	0
Net freshwater consumption during maintenance (m^3)	0
Energy input during maintenance (kWh)	0

B3: Repair

Parameter	Value per functional unit
Repair process	No repairs are expected for this product
Inspection process	No repairs are expected for this product
Repair cycle (#/RSL)	0
Ancillary materials (kg)	0
Waste materials from repair (kg)	0
Net freshwater consumption during repair (m3)	0
Energy input during repair (kWh)	0

B4: Replacements

Parameter	Value per functional unit
Replacement cycle (#/RSL)	1
Energy input during replacement (kWh)	0
Exchange of worn parts during the products life cycle (kg)	0

B5: Refurbishment

Parameter	Value per functional unit
Refurbishment process	No refurbishment is expected for this product
Refurbishment cycle (#/RSL)	0
Energy input during refurbishment (kWh)	0
Material input for refurbishment (kg)	0
Waste material resulting from refurbishment (kg)	0

B6 and B7: Use of energy and Use of Water

Parameter	Value per functional unit
Ancillary materials (kg)	0
Net freshwater consumption (m^3)	0
Characteristic performance	n/a

C1-C4: End-of-Life

Parameter	Value per functional unit
Weight of Product Collected (kg)	12.5
Weight to Recycling (kg)	1.25
Weight to Energy Recovery (kg)	2.24
Weight to Landfill (kg)	9.0
Distance to Recycling (km)	50
Distance to Energy Recovery (km)	100
Distance to Landfill (km)	50

D: Benefits and Loads Beyond the System Boundary

Parameter	Value per functional unit
Includes all flows leaving the system not allocated as co-products and	

have passed the end-of-waste state. Includes loads from processing recycled materials. Credits are calculated based on the amount of useable material and energy sent to the next product system. Credits not applied to the portion of flows derived from secondary sources.

Life Cycle Stages

The results are provided according to the following life cycle modules:

Module	Description
A1	Product Stage: Raw Material Supply
A2	Product Stage: Transport
A3	Product Stage: Manufacturing
A4	Construction Process Stage: Transport
A5	Construction Process Stage: Installation
B1	Use Stage: Use
B2	Use Stage: Maintenance
B3	Use Stage: Repair
B4	Use Stage: Replacement
B5	Use Stage: Refurbishment
B6	Operational Energy Use
B7	Operational Water Use
C1	EOL: Deconstruction
C2	EOL: Transport
C3	EOL: Waste Processing
C4	EOL: Disposal
D	Benefits beyond system

Ollo with Shell Back

Life Cycle Impact Assessment – EN 15804+A2 (EF 3.1) for Production in North America

EN 15804+A2 Results – 1 seat for 1 individual maintained for 10 Years

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP_{Total} [kg CO_2 eq]	1.02E+02	2.50E+00	2.28E+00	0.00E+00	0.00E+00	0.00E+00	1.11E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.43E-02	3.76E+00	3.62E-01	-6.88E+00
GWP_{Fossil} [kg CO_2 eq]	1.03E+02	2.50E+00	1.21E-01	0.00E+00	0.00E+00	0.00E+00	1.09E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.42E-02	3.76E+00	2.46E-01	-6.88E+00
$GWP_{Biogenic}$ [kg CO_2 eq]	-6.49E-01	1.04E-03	2.16E+00	0.00E+00	0.00E+00	0.00E+00	1.63E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-05	5.21E-03	1.15E-01	0.00E+00
GWP_{LULUC} [kg CO_2 eq]	1.47E-02	1.41E-03	2.57E-05	0.00E+00	0.00E+00	0.00E+00	1.73E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E-05	2.27E-04	8.51E-04	-1.56E-03
ODP [kg CFC 11 eq]	1.60E-08	3.17E-13	2.25E-14	0.00E+00	0.00E+00	0.00E+00	1.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.18E-15	2.33E-13	6.69E-13	-2.62E-08
AP [Mole H+ eq]	2.67E-01	1.24E-02	6.87E-05	0.00E+00	0.00E+00	0.00E+00	2.82E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-04	8.63E-04	1.46E-03	-1.91E-02
EP, freshwater [kg PO_4 eq]	1.06E-03	1.28E-05	3.02E-06	0.00E+00	0.00E+00	0.00E+00	1.18E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.29E-07	1.50E-07	1.03E-04	-1.92E-04
EP, marine [kg N eq]	6.28E-02	6.17E-03	2.01E-05	0.00E+00	0.00E+00	0.00E+00	6.97E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.41E-05	2.38E-04	4.08E-04	-4.65E-03
EP, terrestrial [Mole N eq]	5.88E-01	6.81E-02	2.61E-04	0.00E+00	0.00E+00	0.00E+00	6.65E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-03	3.95E-03	3.66E-03	-4.20E-02
POCP [kg NMVOC eq]	1.81E-01	1.26E-02	5.12E-05	0.00E+00	0.00E+00	0.00E+00	1.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-04	6.45E-04	1.10E-03	-1.40E-02
Resource Use, mineral and metals* [kg Sb eq]	2.93E-05	3.36E-07	1.54E-09	0.00E+00	0.00E+00	0.00E+00	2.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E-09	5.86E-09	1.65E-08	-9.93E-07
Resource Use, fossil* [MJ]	1.81E+03	3.30E+01	2.28E-01	0.00E+00	0.00E+00	0.00E+00	1.85E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.52E-01	2.28E+00	3.89E+00	-1.06E+02
Water use* [m^3 world eq]	2.09E+01	1.48E-01	9.58E-03	0.00E+00	0.00E+00	0.00E+00	2.14E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-03	3.52E-01	2.95E-02	-1.35E+00

GWP=Global Warming Potential; LULUC=Land Use and Land Use Change; ODP=Ozone Depletion Potential; EP=Eutrophication Potential; AP=Acidification Potential; POCP=Photochemical ozone creation potential

*The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Ollo with Shell Back

Resource Use and Waste – 1 seat for 1 individual maintained for 10 Years

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE [MJ]	1.84E+02	1.43E+00	2.04E-02	0.00E+00	0.00E+00	0.00E+00	1.86E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.69E-02	1.63E-01	5.74E-01	-4.43E+01
PERM [MJ]	1.24E+02	1.43E+00	2.04E-02	0.00E+00	0.00E+00	0.00E+00	1.26E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.69E-02	1.63E-01	5.74E-01	-4.25E+01
PERT [MJ]	3.08E+02	2.86E+00	4.08E-02	0.00E+00	0.00E+00	0.00E+00	3.12E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.38E-02	3.26E-01	1.15E+00	-8.67E+01
PENRE [MJ]	1.81E+03	3.30E+01	2.28E-01	0.00E+00	0.00E+00	0.00E+00	1.85E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.52E-01	2.28E+00	3.89E+00	-1.07E+02
PENRM [MJ]	2.69E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E+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
PENRT [MJ]	2.08E+03	3.30E+01	2.28E-01	0.00E+00	0.00E+00	0.00E+00	2.12E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.52E-01	2.28E+00	3.89E+00	-1.07E+02
SM [kg]	6.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.15E+00	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	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	0.00E+00	0.00E+00	0.00E+00
FW [m^3]	5.57E-01	4.82E-03	2.33E-04	0.00E+00	0.00E+00	0.00E+00	5.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-04	8.19E-03	8.85E-04	-3.63E-02
HWD [kg]	1.92E-06	4.47E-09	4.25E-11	0.00E+00	0.00E+00	0.00E+00	1.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-10	3.88E-10	8.91E-10	-8.61E-09
NHWD [kg]	1.24E+01	3.26E-03	1.86E-01	0.00E+00	0.00E+00	0.00E+00	2.26E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.40E-05	8.16E-01	9.17E+00	-2.41E-01
RWD [kg]	6.94E-02	8.55E-05	2.39E-06	0.00E+00	0.00E+00	0.00E+00	6.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-06	4.31E-05	5.30E-05	-3.12E-03
HLRW [kg]	8.27E-05	1.01E-07	2.49E-09	0.00E+00	0.00E+00	0.00E+00	8.29E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E-09	5.05E-08	4.91E-08	-3.83E-06
ILLRW [kg]	6.93E-02	8.54E-05	2.39E-06	0.00E+00	0.00E+00	0.00E+00	6.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-06	4.31E-05	5.29E-05	-3.12E-03
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	0.00E+00	0.00E+00	0.00E+00
MFR [kg]	2.33E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.45E+00	0.00E+00	0.00E+00	0.00E+00	2.12E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER [kg]	8.36E-01	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	2.35E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ]	4.36E+00	0.00E+00	3.38E-01	0.00E+00	0.00E+00	0.00E+00	1.64E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E+01	5.40E-02	0.00E+00
PM [Disease Incidence]	2.51E-06	1.26E-07	7.43E-10	0.00E+00	0.00E+00	0.00E+00	2.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-09	1.18E-08	1.57E-08	-2.08E-07
IRP**([kBq U235 eq]	5.77E+00	7.25E-03	2.69E-04	0.00E+00	0.00E+00	0.00E+00	5.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E-04	3.77E-03	7.15E-03	-2.47E-01
ETP-fw* [CTUe]	7.50E+02	2.58E+01	3.11E-01	0.00E+00	0.00E+00	0.00E+00	7.86E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.65E-01	2.15E+00	7.23E+00	-4.34E+01
HTP-c* [CTUh]	5.86E-08	6.41E-10	5.53E-12	0.00E+00	0.00E+00	0.00E+00	5.94E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-11	5.98E-11	1.38E-10	-8.33E-09
HTP-nc* [CTUh]	4.44E-07	1.02E-08	2.09E-10	0.00E+00	0.00E+00	0.00E+00	4.66E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-10	5.43E-09	6.04E-09	-2.77E-08
SQP* [no unit]	1.91E+02	6.44E+00	3.67E-02	0.00E+00	0.00E+00	0.00E+00	1.98E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-01	2.77E-01	6.69E-01	-6.06E+01

PERE=Renewable Primary Energy from Non-Materials; PERM=Renewable Primary Energy from Materials; PERT=Total Renewable Primary Energy; PENRE=Non-Renewable Primary Energy from Non-Materials; PENRM=Non-Renewable Primary Energy from Materials; PENRT=Total Non-Renewable Primary Energy; SM=Use of Secondary Materials; RSF=Use of Renewable Secondary Fuels; NRSF=Use of Non-Renewable Secondary Fuels; FW=Net Use of Fresh Water; HWD=Hazardous Waste Disposed; NHWD=Non-Hazardous Waste Disposed; RWD=Radioactive Waste Disposed; HLRW=High Level Radioactive Waste; ILLRW=Intermediate- and Low-Level Radioactive Waste; CRU=Components for Reuse; MFR=Materials for Recycling; MER=Materials for Energy Recovery; EE=Exported Energy; PM=Particulate Matter; IRP=Ionizing Human Radiation; ETP-fw=Eco-toxicity freshwater; HTP-c=Human toxicity - Cancer; HTP-nc=Human toxicity - Noncancer; SQP=Land use related impacts / soil quality

*The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
**This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

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