Flush Door (PC5 – 20PP)

PC5-20PP are particleboard core 20-minutes fire-rated positive pressure doors.

ENVIRONMENTAL PRODUCT DECLARATION

Program Operator	NSF Certification LLC 789 N. Dixboro, Ann Arbor, MI 48105 www.nsf.org
General Program instructions and Version Number	NSF Program Operator Rules, NSF International. February 23, 2015
Manufacturer Name and Address	Construction Specialties Inc. 375-399 S Broad St, Hughesville, PA 17737
Declaration Number	EPD11175
Declared Product and Declared Unit	PC5-20PP Declared Unit: A standard 1.95 m^2 door that is 44mm thick
Reference PCR and Version Number	NSF/ASTM Interior Architectural Wood Door Leaves v6
Product's intended Application and Use	Interior areas where extra protection is needed against constant wear and traffic and aesthetics are important.
Markets of Applicability	North America
Date of Issue	May 6, 2026
Period of Validity	5 years from date of issue
EPD Type	A specific product from a specific factory
Range of Dataset Variability	N/A
EPD Scope	Cradle-to-Gate
Year of reported manufacturer primary data	2023
LCA Software and Version Number	LCA FE 10.7
LCI Database and Version Number	MLC Database 2023.1
LCIA Methodology and Version Number	TRACI 2.1 CML 2001-Jan 2016 IPCC AR5
The sub-category PCR review was conducted by:	Dr. Thomas Gloria, PhD – Industrial Ecology Consultants Dr. Michael Overcash – Environmental Clarity Dr. Bill Stough – Bill Stough, LLC
This declaration was independently verified in accordance with ISO 14025: 2006. (ISO, 2006) **and** PCR **NSF/ASTM Architectural Wood Door Leaves** (NSF International, 2022) ☐ **Internal** ☒ **External**	Joseph Geibig – Ecoform joseph@ecoform.com
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability, LLC
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Joseph Geibig – Ecoform joseph@ecoform.com

Limitations: Environmental declarations from different programs (ISO 14025) may not be comparable.
Comparison: 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 or programs, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the construction works level per ISO 21930:2017 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.
This EPD is intended to primarily be used for business to business (B2B) communication. Further explanatory material can be obtained supporting this EPD by reaching out to CS associates.

Company

Founded in 1948, Construction Specialties (CS) is a family-owned, specialty building products manufacturer. CS provides solutions to challenges that architects, designers, building owners, facility managers, and contractors face every day. Since inventing the first extruded louver, CS has become a global leader in all our product categories: Acrovyn® interior wall protection, impact-resistant doors, entrance flooring, expansion joint solutions, architectural louvers and screens, sunshades, and privacy curtains & tracks. Drawing upon our decades of experience, CS provides extensive services resulting in high-quality products found in some of the world's most significant architecture. For more information about CS products and solutions, please visit c-sgroup.com.

Product Description

Figure 1: Acrovyn Door - PC5-20PP

Acrovyn® Doors are made with a sturdy inner core, clad in durable Acrovyn, and feature rounded, field-replaceable stiles and edges for the ultimate protection against heavy abuse. No other door with similar features compares and provides as many benefits and customizable elements. Found in hundreds of facilities worldwide, Acrovyn Doors are the impact-resistant choice for high-traffic areas. This is a product specific EPD that represents Construction Specialties' PC5-20PP door.

Table 1: Product names and mass per declared unit

Declared Product	Mass Per Declared Unit (kg/m)	Thickness (mm)
PC5-20PP	5.55E+00	4.40E+01

Application

Interior areas where extra protection is needed against constant wear and traffic and aesthetics are important.

Declaration of Methodological Framework

This LCA is a cradle-to-gate study as represented by the flow diagram below. A summary of the life cycle stages can be found in LCA Calculation Rules. ASTM/NSF Interior Architectural Wood Door Leaves serves as the core PCR. The cut-off criteria are described in Cut-off rules and the allocation procedures are described in the Allocation section. No known flows are deliberately excluded from this EPD. Third party verified ISO 14040/44 secondary LCI data sets contribute more than 67% of total impacts in all impact categories required by the PCR.

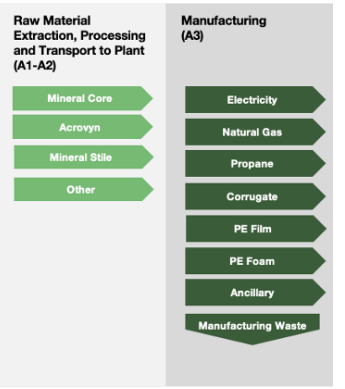

Figure 2: Process Flow Diagram

Technical Requirements

The following technical data describe the product undergoing the life cycle assessment.

Table 2: Technical Details

Specification Characteristic
Cycle Slam: Extra Heavy Duty per WDMA TM-7 (tested to 2,000,000 cycles, double the industry standard
Resistant to certain bacterial & fungal growth (per ASTM G 22-76 & G 21-96)
Chemical resistant (per ASTM D543-06)
Fire test standards: UL-10C, CAN/ULC S104 & NFPA 252 (Fire rated models only)

Material Composition

Table 3: Material Composition

Material	Mass %
Wood	89.1%
Acrovyn	7.97%
Mineral Stile	2.94%
Other	0.02%
* Acrovyn is a formulated material proprietary to Construction Specialties. The LCA model for this EPD accounts for CS's proprietary formulation and includes standard raw materials and optional pigments.	

This product does not contain substances that are required to be disclosed per relevant regulations.

Manufacturing

The raw materials for the product were obtained from various parts of the USA. Some components are supplied prefabricated by the suppliers. The product studied specifically, is manufactured entirely at the Munch, PA facility.

Environment & Health During Manufacturing

During the manufacturing of the products covered in the EPD, all legal regulations regarding emissions to air, wastewater discharge, solid waste disposal and noise emissions are followed.

Packaging
Depending on the quantity and size dimensions, corner guards are delivered in packaging of different sizes. The average packaging utilized in the shipment of the product is provided in Table 4.

Table 4: Packaging

Material Type	Amount (kg)
Corrugate	1.95E+00
Polyethylene Film	1.79E-01
Polyethylene Foam	2.02E-01

Transportation
It is assumed that all the raw materials sourced from the US are distributed by truck. An ingredient-weighted average distance using the locations of suppliers and the manufacturing facilities was calculated and used in the model.

LCA CALCULATION RULES

Declared Unit
The Declared unit of the wall surface protection product is 1 door leaf (nominal dimensions).

System Boundary
The type of EPD is cradle-to-gate. All relevant LCA modules are included and are summarized in Table 5.

Table 5: System Boundary

Module Name	Description	Analysis Period	Summary of Included Elements
A1	Product Stage: Raw Material Supply	2023	Raw material sourcing and processing as defined by secondary data.
A2	Product Stage: Transport	2023	Shipping from supplier to manufacturing site. Fuel use requirements estimated based on product weights and estimated distance.
A3	Product Stage: Manufacturing	2023	Energy, water and material inputs required for manufacturing products from raw materials. Packaging materials and manufacturing waste are included as well.

While modules A5 and C are outside the system boundary, technical scenario information for these modules is disclosed below in accordance with ISO 21930, in order to report the amount of biogenic carbon contained in biobased materials leaving the product system.

Table 6: Biogenic Carbon Leaving the Product System

Module	Parameter	Value	Unit
A5	Total Pulp Packaging Waste	1.95E+00	kg
	Emission of biogenic carbon contained in packaging	3.07E+00	kg CO2
C4	Total bio-based product waste	3.11E+01	kg
	Emission of biogenic carbon (excluding packaging)	1.67E+01	kg CO2

Estimates & 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 consumption information was divided by the production to create an energy and water use-per-kilogram. The manufacturing waste generation quantity was estimated based on the manufacturer's process improvement project.

Cut-off Rules
All inputs in which data were available were included. No known flows are deliberately excluded from this EPD.

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 declared unit.

Data Sources

Primary data were collected by facility personnel and was used for all manufacturing processes. Whenever available, supplier data was used for raw materials used in the production process. When primary data did not exist, secondary data for raw material production was utilized from MLC Database 2023.1.

Data Quality

The geographical scope of the manufacturing portion of the life cycle is Muncy, PA. All primary data were collected from the manufacturer. The geographic coverage of primary data is considered excellent. The primary data provided by the manufacturer represent all information for calendar year 2023. Using this data meets the PCR requirements. Time coverage of this data is considered very good. Primary data provided by the manufacturer is specific to the technology that Construction Specialties uses in manufacturing their products. It is site- specific and considered of good quality. It is worth noting that the energy and water used in manufacturing the products includes overhead energy such as lighting, heating and sanitary use of water. Sub-metering would improve the technological coverage of data quality. Data necessary to model cradle-to-gate unit processes was sourced from MLC LCI datasets. Improved life cycle data from suppliers would improve technological coverage. Overall, the data quality is considered good.

Period Under Review

The period under review is calendar year 2023.

Allocation

General principles of allocation were based on ISO 14040/44. There are no products other than the product under study that are produced as part of the specific manufacturing processes under study. Where possible, allocation was avoided. When allocation was necessary it was done on a physical mass basis. In the study, the annual facility-level electricity, water, and natural gas usages were allocated to products based on the mass of the annual production. Allocation was most prevalent in the secondary GaBi datasets used to represent upstream processes. As a default, GaBi datasets use a physical mass basis for allocation.

Table 7: Description of the system boundary modules included in the LCA

	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**			**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

An X in the table above signifies that a module was included in the life cycle assessment. MND stands for Module Not Declared and signifies that a life cycle stage was not evaluated in the life cycle assessment.

LCA Results

All results are given per declared unit, which is 1 architectural door leaf. Environmental Impacts were calculated using the GaBi software platform. Impact results have been calculated using IPCC AR5, TRACI 2.1 and CML 2001-Jan 2016 characterization factors. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Table 8: Key of Acronyms Used in the Results Tables

LCIA Indicators			
GWPi/e	Global warming potential (including/excluding biogenic carbon)	SFP	Smog Formation Potential
EP	Eutrophication potential	ODP	Depletion of stratospheric ozone layer
AP	Acidification potential of soil and water	ADPf	Abiotic depletion potential for fossil resources
These 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.			
LCI Indicators			
RPR_E	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	HWD	Hazardous waste disposed
RPR_M	Use of renewable primary energy resources used as raw materials	NHWD	Non-hazardous waste disposed
$NRPR_E$	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	HLRW	High-level radioactive waste, conditioned, to final repository
$NRPR_M$	Use of non-renewable primary energy resources used as raw materials	ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository
SM	Use of secondary materials	CRU	Components for reuse
RSF	Use of renewable secondary fuels	MR	Materials for recycling
NRSF	Use of non-renewable secondary fuels	MER	Materials for energy recovery
RE	Use of recovered energy	EE	Exported energy
FW	Net use of fresh water		
Biogenic Carbon Indicators			
BCRP	Biogenic Carbon Removal from Product	BCEW	Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes
BCEP	Biogenic Carbon Emission from Product	CCE	Calcination Carbon Emissions
BCRK	Biogenic Carbon Removal from Packaging	CCR	Carbonation Carbon Removals
BCEK	Biogenic Carbon Emission from Packaging	CWNR	Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes

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-gate waste performance between products should be derived from these reported values.

PC5-20PP Doors

The results are provided based on a declared unit of 1 Door Leaf.

LCIA Results

Table 9: LCIA Results for PC5-20PP (per 1 door leaf)

Impact Category	A1	A2	A3	Total
IPCC AR5				
GWPi [kg CO2 eq]	6.41E+01	8.67E+00	7.09E+01	1.44E+02
GWPe [kg CO2 eq]	8.88E+01	8.66E+00	6.92E+01	1.67E+02
TRACI 2.1				
ODP [kg CFC 11 eq]	8.34E-11	2.46E-12	9.83E-11	1.84E-10
AP [kg SO2 eq]	3.34E-01	1.05E-02	6.50E-02	4.09E-01
EP [kg N eq]	7.34E-02	2.57E-03	2.97E-02	1.06E-01
SFP [kg O3 eq]	1.28E-02	-2.40E-03	1.36E-02	2.40E-02
CML Results				
ADPf [MJ]	1.13E+03	1.11E+02	7.86E+02	2.02E+03
Resource Use Parameters				
RPRE [MJ]	-1.72E+02	4.65E+00	6.35E+01	-1.04E+02
RPRM [MJ]	2.08E+02	0.00E+00	3.22E+01	2.40E+02
NRPRE [MJ]	1.19E+03	1.12E+02	1.03E+03	2.34E+03
NRPRM [MJ]	6.16E+01	0.00E+00	1.20E+01	7.36E+01
SM [kg]	1.50E+01	0.00E+00	0.00E+00	1.50E+01
RSF [MJ]	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
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW [m3]	2.13E-01	5.02E-03	1.63E-01	3.81E-01

Impact Category	A1	A2	A3	Total
Waste Parameters and Output Flows				
HWD [kg]	1.52E-03	0.00E+00	0.00E+00	1.52E-03
NHWD [kg]	3.15E+00	0.00E+00	0.00E+00	3.15E+00
HLRW [kg]	2.66E-05	4.56E-07	1.14E-04	1.41E-04
ILLRW [kg]	2.36E-02	3.83E-04	9.59E-02	1.20E-01
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	0.00E+00	0.00E+00	1.34E+00	1.34E+00
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbon Emissions and Removals				
BCRP [kg CO2]	2.08E+01	0.00E+00	-2.75E-01	2.06E+01
BCEP [kg CO2]	0.00E+00	0.00E+00	3.89E+00	3.89E+00
BCRK [kg CO2]	0.00E+00	0.00E+00	3.07E+00	3.07E+00
BCEK [kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW [kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE [kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR [kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00

LCA Interpretation

Over the PC5-20PP product life cycle, the greatest contributors to GWP excluding biogenic carbon are A1 and A3. For A1, across key impact categories, the A1 phase accounts for 39% to 77% of impacts and the A3 phase accounts for 18% to 57% of impacts. This is illustrated in Figure 3.

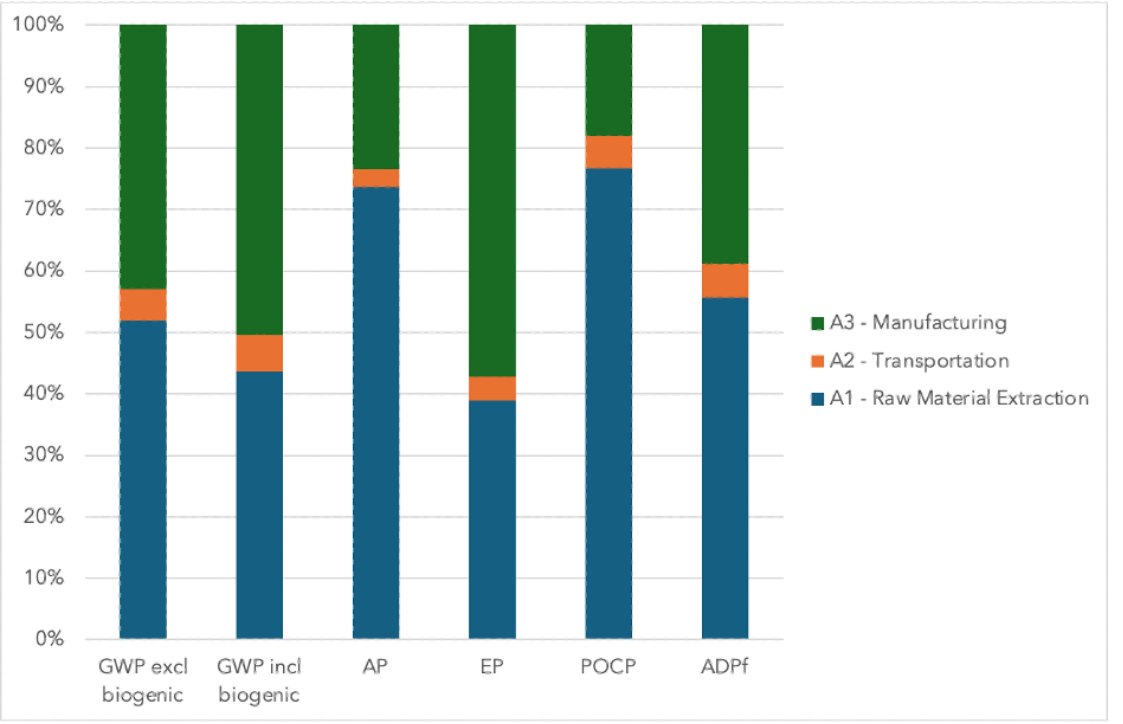

Figure 3: Dominance Analysis for PC5-20PP

Environmental Activities & Certifications

All general information about the environmental certifications of Construction Specialties' products can be found on Construction Specialties' Sustainability website. Product-specific environment certification information can be located at each product detail webpage under the tab "Data Sheets & Sustainability".

Additional Environmental Information

The declared product has been tested for compliance with California Department of Public Health (CDPH) Standard Method v 1.2 for Private Office and School Classroom, with TVOC range no greater than 0.5 mg/m^3.

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