

Von Duprin 98/99 Series Exit Devices



ALLEGION – LCA Optimization Action Plan

Product Category Rules

UL PCR Part A V3.2, 2018



UL PCR Part B: Builders Hardware EPD Requirements, V1, 2019

Declared Unit

One average 98/99 Series exit device

Creation Date: July 13, 2023

Expiration Date: July 1, 2026

Manufacturer Name and Address	Allegion Plc 2720 Tobey Dr Indianapolis, IN 46219	
Declared Product	Von Duprin 98/99 Series Exit Devices	
Product Name	Door Hardware	
Product Description	Door Exit Device	
Action Plan ID Number	AGIN02	
Declared Unit as Defined by PCR	One average 98/99 Series exit device	
LCA/EPD Action Plan is Based On	EPD – Von Duprin 98/99 Series Exit Devices https://spot.ul.com/main-app/products/detail/614a39dea8782c3a09640abb?page_type=Products%20Catalog# EPD Number: 4789828313.112.11	
LCA/EPD Type	<input type="checkbox"/> Publicly available, critically reviewed LCA <input type="checkbox"/> Internally verified LCA with a product specific EPD <input checked="" type="checkbox"/> Externally verified Product specific Type III EPD	
LCA/EPD Reviewer	Original LCA was reviewed by Thomas P. Gloria, Industrial Ecology Consultants. Original EPD was certified by UL Environment.	
Program Operator	UL Environment, 333 Pfingsten Road, Northbrook, IL, 60611 https://www.ul.com	
Reference PCR(s) for LCA/EPD	UL PCR Part A V3.2, 2018 UL PCR Part B: Builders Hardware EPD Requirements, V1, 2019	
LCA/EPD Scope	Cradle-to-Building-with EOL	
Date of LCA/EPD Issue	July 1, 2021	
Date of LCA/EPD Expiration	July 1, 2026	
Markets of Applicability	North America	
LCA Software and Version Number	GaBi 10.0.0.71	
LCI Database and Version Number	GaBi Database Version 2020.2	
LCIA Methodology and Version Number	TRACI 2.1	
Action Plan Creation Date	July 13, 2023	
Action Plan Expiration Date	July 1, 2026	
Action Plan Type	Product Specific	
Is the action plan applicable to all products listed in the corresponding LCA/EPD or only a subset?	All products specified in the EPD	
This Action Plan was prepared by an expert in product specific LCAs/EPDs:	Matt Van Duinen, LCACP Sustainability Director WAP Sustainability	
This Action Plan was confirmed by an executive of the manufacturer:	Tim Weller Manager of Codes, Standards and Sustainability Allegion Plc	

Product Description

The 98/99 Series devices are wide stile heavy-duty push pads. Products within the 98/99 series are ANSI 156.3 Grade 1 exit devices designed for commercial use. The 98 Series device has a smooth mechanism case, while the 99 Series has a grooved mechanism case. The 98/99 Series have all been certified to the highest industry standards and are used in schools, hospitals and government buildings. The CSI code for this product is 08 71 00.19.

LCA Description

The cradle-to-building with EOL, product-specific life cycle assessment, and subsequent EPD were created according to the following standards: Builder's Hardware Manufacturing Association (BHMA) Hardware PCR (UL9004), and ISO 14025/40/44. The assessment was performed using the GaBi LCA software. Both the LCA report and EPD were externally reviewed and verified against the previous standards by UL Environment. Allegion associates collected the bill of materials data for the product which was utilized in the model. Additionally, facility level utility data was collected and allocated to each product to generate manufacturing impacts. Finally, transportation data was collected via supplier locations and utilized to generate these impacts.

LCA Results

The cradle-to-building with EOL results for the product are shown below using TRACI v2.1 indicators. The vast majority of the impacts come from the raw material sourcing and manufacturing stage (A1-A3), which contributes 92-100% of impacts across all impacts categories. The largest contributor to impacts within A1-A3 is aluminum and steel which are the primary materials chosen for use in the product. This is followed by global warming impacts from transportation to customer (A4), contributing about 2% of GWP impacts, due to fuel usage in this process.

LCA Results from EPD – 98/99 Series							
Impact Category	A1-A3	A4	A5	B1	B2	B3	B4
AP [kg SO2 eq]	1.33E-01	1.79E-03	3.30E-04	MND	MND	MND	MND
EP [kg N eq]	5.74E-03	2.63E-04	6.46E-05	MND	MND	MND	MND
GWP [kg CO2 eq]	3.22E+01	9.50E-01	1.35E-01	MND	MND	MND	MND
ODP [kg CFC 11 eq]	4.70E-09	1.22E-16	2.07E-17	MND	MND	MND	MND
Resources [MJ]	3.10E+01	1.80E+00	2.53E-02	MND	MND	MND	MND
POCP [kg O3 eq]	1.57E+00	3.94E-02	1.90E-03	MND	MND	MND	MND

Impact Category	B5	B6	B7	C1	C2	C3	C4	D
AP [kg SO2 eq]	MND	MND	MND	0.00E+00	1.91E-04	0.00E+00	1.92E-04	MND
EP [kg N eq]	MND	MND	MND	0.00E+00	2.23E-05	0.00E+00	2.68E-05	MND
GWP [kg CO2 eq]	MND	MND	MND	0.00E+00	6.46E-02	0.00E+00	3.22E-02	MND
ODP [kg CFC 11 eq]	MND	MND	MND	0.00E+00	8.31E-18	0.00E+00	1.10E-16	MND
Resources [MJ]	MND	MND	MND	0.00E+00	1.22E-01	0.00E+00	6.68E-02	MND
POCP [kg O3 eq]	MND	MND	MND	0.00E+00	4.30E-03	0.00E+00	2.67E-03	MND

The results presented in the table above are equivalent to those presented in the EPD. Values are for one exit device.

Below is a summary of the largest life cycle impacts and their contribution to the full life cycle results for each option of the product , which occur in life cycle stages A1-A3.

Summary of Largest Impacts			
Impact Category	Module	Impact	Contribution %
AP [kg SO2 eq]	A1-A3	1.33E-01	96%
EP [kg N eq]	A1-A3	5.74E-03	92%
GWP [kg CO2 eq]	A1-A3	3.22E+01	97%
ODP [kg CFC 11 eq]	A1-A3	4.70E-09	100%
Resources [MJ]	A1-A3	3.10E+01	93%
POCP [kg O3 eq]	A1-A3	1.57E+00	95%

Impact Reduction Action Plan

At an organizational level, Allegion is pioneering safety by protecting people where they live and work and protecting the environment at the same time. Allegion promotes the health and safety of its employees, customers, and local community members worldwide through its commitment to conducting business in a safe and environmentally responsible manner.

Allegion operates with principles that support its proactive commitment. The set of principles includes making continuous improvements in environmental, health, safety (EHS) and sustainability management systems and performance through a reduction of usage of natural resources, waste minimization, and prevention of pollution. Additionally, Allegion is dedicated to designing and operating facilities in a manner that minimizes negative EHS and sustainability impacts. For more information Allegion's sustainability efforts, please visit:

<https://us.allegion.com/en/home/trade/architect/resources/sustainable-building.html>

As indicated by the results on the previous page, the vast majority of the GWP impacts and all other impact categories across the cycle stage are due to the materials chosen for use in the product. Since Allegion does not have direct control over manufacturing of these materials as the majority of the raw material parts are pre-formed by suppliers, there are various challenges in determining which impact reduction steps to take. That being said, the following items have been identified as steps that Allegion will be taking over the course of the next three years to reduce the GWP impacts and other impacts of our products, listed in decreasing order of priority.

Impact Reduction Steps	Target Impact Area	Expected Outcomes	Responsible Team(s)	Due Date
Logistics optimization	Distribution (A4)	Supply chain map with shipping criteria to reduce impacts	Sourcing/ Logistics	1/1/2025
Communicate need for ability to track manufacturing inputs per product type	Sourcing and Manufacturing (A3)	Equipment sub-metering or ability to deduce energy consumption for different product types	Facilities/ Operations	4/1/2025
Request that distributors implement take back programs for customers to return product at end of life for recycling	End of Life (C1-C4)	Decrease contributions to landfill by >10%	Operations/ Distribution/ Sales	4/1/2025
Consider process efficiencies and work with engineering team to reduce energy consumption in production process	Manufacturing (A3)	Report of various considerations on how to make production more energy efficient with a plan to trial some of these solutions	Engineering/ Operations	4/1/2025