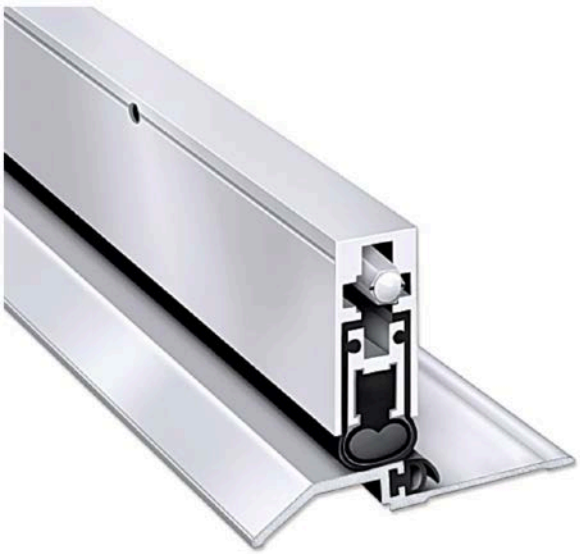
ENVIRONMENTAL PRODUCT DECLARATION

ZERO AUTOMATIC DOOR BOTTOMS



Allegion is pioneering safety by protecting people where they live and work – and protecting our environment at the same time. We promote the health and safety of our employees, customers and local community members worldwide through our commitment to conducting business in a safe and environmentally responsible manner.

Additionally, Allegion recognizes the value of the Leadership in Energy and Environmental Design (LEED) rating system to building environmentally safe and sustainable structures. By using Life Cycle Assessment and Environmental Product Declarations, we aim to provide our customers with the information they need to make decisions regarding their own sustainable building concepts and green solutions.

At Allegion, we value the importance of a cleaner world and are committed to being a responsible member of our global communities.

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ENVIRONMENTAL PRODUCT DECLARATION

ALLEGION

Zero Automatic Door Bottoms

According to ISO 14025,
EN 15804, and ISO 21930:2007

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	Schlage Lock Co-Allegion
DECLARATION NUMBER	4787103471.124.1
DECLARED PRODUCT	Zero Automatic Door Bottoms
REFERENCE PCR	Product Category Rule (PCR) for preparing an Environmental Product Declaration (EPD) for Product Group Builders Hardware (UL 9004). Version: April 3rd, 2014
REFERENCE PCR STANDARD	☒ EN 15804 (2012) ☒ ISO 21930 (2007) ☐ ISO 21930 (2017)
DATE OF ISSUE	July 1, 2020
PERIOD OF VALIDITY	5 Years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications

The PCR review was conducted by:	PCR Review Panel epd@ulenvironment.com
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	Grant R. Martin Grant R. Martin, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas P. Gloria Thomas P. Gloria, Industrial Ecology Consultants

1. Product Definition and Information

1.1. Description of Company/Organization

Allegion is a global pioneer in safety and security, with leading brands like LCN®, Schlage®, Steelcraft® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a $2 billion company, with products sold in almost 130 countries.

As a subsidiary of Allegion plc, Zero International brand is recognized as the standard for quality in door sealing hardware. Their perimeter seals and thresholds are engineered for durability and reliable performance even under the most challenging installation and operating conditions. They also support green building applications by promoting heating and cooling efficiency.

1.2. Product Description

Product Identification

Zero's patented automatic door bottom technology ensures an efficient seal against the floor or saddle. As the door is closed, the adjustable plunger is compressed against the door frame, activating a concealed flat spring mechanism. This mechanism drops the seal smoothly from the housing in a scissor-like motion as illustrated below. The door seal compresses on either even or uneven surfaces and retracts automatically when the door is opened. All Zero automatic door bottoms function the same way. The concealed spring mechanism causes the insert seal to activate on the hinge side first. It prevents the seal from dragging along the floor or threshold while the door is being closed to avoid door hang-up or closing delay.

Table 1: Product specifications

AUTOMATIC DOOR BOTTOM CHARACTERISTICS		
Automatic Door Bottom Model	width (mm)	height (mm)
360AA Heavy Duty Automatic Door Bottoms	23.5	40.0
355A Regular Duty Automatic Door Bottoms	38.1	19.1
365AA Heavy Duty Automatic Door Bottoms	23.3	48.3
362AA Heavy Duty Automatic Door Bottoms	23.3	48.3
For a complete list of products, see Zero's Door Sealing Systems product catalog.		

1.3. Application

Zero automatic door bottoms are designed to be used in commercial applications such as health care, education, hospitality, and retail. The product can also be used residentially if desired.

Table 2: BHMA standards

Automatic Door Bottom Model	ANSI/ BHMA
360AA Heavy Duty Automatic Door Bottoms	R3C3241
355A Regular Duty Automatic Door Bottoms	R3E3241
365AA Heavy Duty Automatic Door Bottoms	R3B3341
362AA Heavy Duty Automatic Door Bottoms	R3B3441
For more information, see Zero's Door Sealing Systems product catalog.	

* All Zero automatic door bottoms are designed for heavy-duty applications and far exceed BHMA A156.22 requirements.

1.4. Declaration of Methodological Framework

This particular LCA is a cradle-to-gate with options LCA. A summary of the life cycle stages can be found in Table 11.

The cut-off criteria are described in Section 2.3 and allocation procedures are described in Section 2.8. No known flows are deliberately excluded from this EPD.

1.5. Technical Data

Table 3: Zero automatic door bottom classification standards

Classification	Standard	Value/ Testing Result	Model
FIRE RATED-UL10C	ANSI/UL 10C	Pass	All
SOUND	OEM Acoustical Rating	Pass	355A, 365AA, 362AA
AIR INFILTRATION	ASTM E-283	Tested	355A, 365AA
For more information, see Zero's Door Sealing Systems product catalog.			

This chart illustrates the most common types of automatic door bottom clasifications.

1.6. Properties of Declared Product as Delivered

For shipping, all automatic door bottoms are packaged individually in cardboard boxes. Along with the automatic door bottom, an instruction manual, labels and screw bag are also included.

1.7. Material Composition

The materials that make up the automatic door bottoms are indicated in Table 4.

Table 4: Material Composition

Component	Material	Mass %
Product	Aluminum	56.9 – 70.9%
	Neoprene	5.1 – 6.2%
	EPDM Rubber	2.3 – 2.8%
	Steel	0.6 – 2.8%
	Brass	18.9 – 32.7%
	Silicone	0.0 – 9.3%
Fasteners	Steel	0.7 – 1.1%

1.8. Manufacturing

Zero automatic door bottom products are manufactured at Allegion's Indianapolis plant, located at 2720 Tobey Dr, Indianapolis, IN 46219. Allegion receives metal sub-components from their suppliers in the US and China. These components are then assembled, finished and packaged in the facility in Indianapolis. Along with the automatic door bottom, an instruction manual, labels and a screw bag are also included in cardboard boxes.

Product is shipped to customers via UPS or LTL carriers.

Natural resources used in the manufacturing process include electricity, natural gas and water. Steel waste is also generated as parts of the product are formed, sheared and assembled. All steel waste is collected and recycled offsite.

1.9. Packaging

Packaging utilized in the shipment of the product is described in Table 5.

Table 5: Packaging

Packaging Type	Material	Amount (kg)	Disposal Pathway
Screw pack bag	Polypropylene	0.0010	Landfilled (68%), Incinerated (17%), Recycled (15%)
Endcap bag	Polypropylene	0.0001	Landfilled (68%), Incinerated (17%), Recycled (15%)
Plastic sleeve	Polypropylene	0.0100	Landfilled (68%), Incinerated (17%), Recycled (15%)
Instruction sheet	Paper	0.0400	Landfilled (20%), Incinerated (5%), Recycled (75%)

1.10. Transportation

It is assumed that all raw materials are distributed by truck, based on global region. An average distance using this information was calculated and used in the model.

An average shipping distance from the manufacturing location to the customer was utilized and was calculated from sales records. The transportation distance for all waste flows is assumed to be 161 km based on best available data.

1.11. Product Installation

Detailed installation instructions can be found online. While installation equipment is required to install the product, it is not included in the study as these are multi-use tools and the impacts per declared unit is considered negligible. All waste generated during installation, including packaging waste, is disposed of according to the tables found in Section 2.8.5 of *Part A: Life Cycle Assessment Calculation Rules and Report Requirements* from UL Environment.

1.12. Reuse, Recycling, and Energy Recovery

Zero automatic door bottom produts may be recycled or resued at the end of life. The LCA that this EPD is created from takes the conservative approach by assuming that all products are disposed of within the system boundary.

1.13. Disposal

Disposal pathways in the EPD are modeled in accordance with disposal routes and waste classification referenced in Sections 2.8.5 and 2.8.6 of *Part A: Life Cycle Assessment Calculation Rules and Report Requirements* from UL Environment. This indicates an end-of-life split amongst landfill, recycling, and incineration pathways.

2. Life Cycle Assessment Background Information

2.1. Declared Unit

The declared unit is one automatic door bottom per standard doorleaf, as indicated in Table 6.

Table 6: Declared Unit

NAME	VALUE	UNIT
Declared Unit	1 door bottom per standard door leaf	
Mass per Declare Unit, excluding fasteners	1.24	kg
Fasteners	0.01	kg

2.2. System Boundary

The type of EPD is cradle-to-gate with options. All LCA modules are included and are summarized in Table 7.

Table 7: System Boundary

Module Name	Description	Analysis Period	Summary of Included Elements
A1	Product Stage: Raw Material Supply	2018	Raw Material sourcing and processing as defined by secondary data.
A2	Product Stage: Transport	2018	Shipping from supplier to manufacturing site. Fuel use requirements estimated based on product weights and estimated distance.
A3	Product Stage: Manufacturing	2018	Energy, water and material inputs required for manufacturing products from raw materials. Packaging materials and manufacturing waste are included as well.
A4	Construction Process Stage: Transport	2018	Shipping from manufacturing site to project site. Fuel use requirements estimated based on product weights and mapped distance.
A5	Construction Process Stage: Installation	2018	Installation materials, installation waste and packaging material waste.
B1	Use Stage: Use	MND	Module not declared
B2	Use Stage: Maintenance	MND	Module not declared
B3	Use Stage: Repair	MND	Module not declared
B4	Use Stage: Replacement	MND	Module not declared
B5	Use Stage: Refurbishment	MND	Module not declared
B6	Operational Energy Use	MND	Module not declared
B7	Operational Water Use	MND	Module not declared
C1	EOL: Deconstruction	2018	No inputs required for deconstruction.
C2	EOL: Transport	2018	Shipping from project site to landfill. Distance assumed to be 100 miles from installation site to landfill.
C3	EOL: Waste Processing	2018	Waste processing not required. All waste can be processed as is.
C4	EOL: Disposal	2018	Assumes all products are sent to landfill. Landfill impacts modeled based on secondary data.
D	Benefits beyond system	MND	Module not declared

2.3. 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 declared unit, i.e., one automatic door bottom. Another assumption is that the installation tools are used enough times that the per automatic door bottom impacts are negligible.

2.4. Cut-off Criteria

All inputs in which data was available were included. 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.

The list of excluded materials and energy inputs include:

- Some raw materials were excluded. This was due to lack of adequate representative secondary data within GaBi. However, the excluded materials were significantly below the cut-off criteria and include minor additives. The excluded materials include:
    - Finishes (0 - 2% of the automatic door bottom)

2.5. Data Sources

Primary data were collected by facility personnel and from utility bills 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 GaBi Database Version 9.2.0.58, Service pack 39.

2.6. Data Quality

Geographical Coverage

The geographical scope of the manufacturing portion of the life cycle is Indianapolis, Indiana. This LCA uses country specific energy datasets that take into account US eGrid specific energy and transportation mixes. Overall, the geographic coverage of primary data is considered good.

Time Coverage

Primary data were provided by Allegion associates and represent calendar year 2018. Using 2018 data meets the PCR requirement that manufacturer specific data be within the last 5 years. Time coverage of this data is considered good. Data necessary to model cradle-to-gate unit processes was sourced from thinkstep LCI datasets. Time coverage of the GaBi datasets varies from approximately 2010 to present. All datasets rely on at least one 1-year average data. Overall time coverage of the datasets is considered good and meets the requirement of the PCR that all data be updated within a 10-year period. The specific time coverage of secondary datasets can be referenced in the dataset references table in each supplemental LCA report.

Technological Coverage

Primary data provided by Allegion 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. Data necessary to model cradle-to-gate unit processes was sourced from thinkstep LCI datasets. Technological coverage of the datasets is considered good relative to the actual supply chain of Allegion. 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.

2.7. Period under Review

The period under review is calendary year 2018.

2.8. Allocation

General principles of allocation were based on ISO 14040/44. Where possible, allocation was avoided. When allocation was necessary it was done on a physical mass basis. 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.

3. Life Cycle Assessment Scenarios

Table 8: Transport to the building site (A4)

NAME	VALUE	UNIT
Fuel type	Diesel	
Liters of fuel	39.0625	l/100km
Vehicle type	Truck	
Transport distance	621.30	km
Capacity utilization	0.65	%
Gross density of products transported	221.71	kg/m^3
Capacity utilization volume factor	1	-

Table 9: Installation into the building (A5)

NAME	VALUE	UNIT
Fasteners	0.01	kg
Product loss per functional unit	0	kg
Waste materials at the construction site before waste processing, generated by product installation	0	kg
Direct emissions to ambient air, soil and water	0	kg
VOC emissions	N/A	µg/m^3

Table 10: End of life (C1-C4)

NAME		VALUE	UNIT
Collection process	Collected separately	0	kg
	Collected with mixed construction waste	1.250	kg
Recovery	Reuse	0	kg
	Recycling	1.063	kg
	Landfill	0.187	kg
	Incineration	0	kg
Disposal	Product or material for final deposition	0.187	kg

4. Life Cycle Assessment Results

Table 11: Description of the system boundary modules

	PRODUCT STAGE			CONSTRUCT-ION 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	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
Cradle to Gate with Options	X			X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	MND

4.1. Life Cycle Impact Assessment Results

Table 12: CML Results

CML v4.2	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-elements [kg Sb eq]	1.24E-04	1.88E-08	2.48E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.88E-09	0.00E+00	3.21E-09	0.00E+00
ADP-fossil fuel [MJ]	1.84E+02	1.39E+00	3.70E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.13E-01	0.00E+00	1.21E-01	0.00E+00
AP [kg SO_2 eq]	4.49E-02	3.35E-04	9.22E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.09E-05	0.00E+00	3.30E-05	0.00E+00
EP [kg Phosphate eq]	3.61E-03	9.42E-05	8.35E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	8.94E-06	0.00E+00	7.53E-06	0.00E+00
GWP [kg CO_2 eq]	1.42E+01	1.01E-01	3.01E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.52E-02	0.00E+00	7.80E-03	0.00E+00
ODP [kg CFC 11 eq]	2.24E-08	9.35E-18	4.48E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.44E-18	0.00E+00	2.83E-17	0.00E+00
POCP [kg Ethene eq]	2.68E-03	-4.77E-05	5.81E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	-4.65E-06	0.00E+00	2.92E-06	0.00E+00

Table 13: TRACI Results

TRACI v4.2	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
AP [kg SO_2 eq]	4.41E-02	4.54E-04	9.19E-04	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.09E-05	0.00E+00	4.32E-05	0.00E+00
EP [kg N eq]	2.45E-03	3.79E-05	5.73E-05	MND	MND	MND	MND	MND	MND	MND	0.00E+00	3.98E-06	0.00E+00	4.86E-06	0.00E+00
GWP [kg CO_2 eq]	1.42E+01	1.01E-01	3.00E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.52E-02	0.00E+00	7.75E-03	0.00E+00
ODP [kg CFC 11 eq]	2.44E-08	-5.31E-16	4.89E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	-8.13E-17	0.00E+00	-4.07E-16	0.00E+00
Resources [MJ]	1.94E+01	1.86E-01	3.92E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.86E-02	0.00E+00	1.56E-02	0.00E+00
SFP [kg O_3 eq]	5.21E-01	1.06E-02	1.08E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	9.19E-04	0.00E+00	7.15E-04	0.00E+00

4.2. Life Cycle Inventory Results

Table 14: Resource Use

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE [MJ]	3.64E+01	4.33E-02	7.24E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	6.64E-03	0.00E+00	9.45E-03	MND
PERM [MJ]	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
PENRE [MJ]	2.08E+02	1.40E+00	4.17E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.15E-01	0.00E+00	1.24E-01	MND
PENRM [MJ]	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
SM [kg]	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
FW [m^3]	1.49E-01	1.68E-04	2.98E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	2.58E-05	0.00E+00	1.48E-05	MND

Table 15: Output Flows and Waste Categories

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD [kg]	1.30E-02	1.09E-08	1.10E-10	MND	MND	MND	MND	MND	MND	MND	0.00E+00	1.67E-09	0.00E+00	4.18E-10	MND
NHWD [kg]	2.22E+00	5.08E-05	1.63E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	7.77E-06	0.00E+00	1.70E-01	MND
HLRW [kg]	1.13E-05	3.60E-09	-4.21E-09	MND	MND	MND	MND	MND	MND	MND	0.00E+00	5.52E-10	0.00E+00	1.45E-09	MND
ILLRW [kg]	9.23E-03	2.98E-06	-3.52E-06	MND	MND	MND	MND	MND	MND	MND	0.00E+00	4.56E-07	0.00E+00	1.15E-06	MND
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
R [kg]	0.00E+00	0.00E+00	3.59E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	9.64E-01	0.00E+00	MND
MER [kg]	0.00E+00	0.00E+00	4.43E-03	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EE [MJ]	0.00E+00	0.00E+00	1.08E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND

5. Interpretation

The dominance analysis shows that the Production Stage (A1-A3) of the life cycle is responsible for the vast majority of impacts across all impact categories. Specifically, phases A1-A3 contributes the most to ADP-fossil through electricity and thermal energy used during manufacturing. The resources used to extract, and process (electricity and thermal energy) steel and aluminum mainly contribute to the impacts in the A1-A3 module. Transportation to customer (A4) and installation (A5) stages have second and third highest ADP-fossil impacts respectively. This is mainly due to fuels used for transportation to customer and steel fasteners used to install the product.

6. Additional Environmental Information

6.1. Environment and Health During Manufacturing

Allegion meets all federal and state standards related to the Environment and Health during manufacturing. Additionally, Allegion employs a strict waste minimization and recycling program that reduces and recycles waste produced in the manufacturing process.

Beyond what is regulated, there are no additional environment and health considerations during the production of goods.

6.2. Environment and Health During Use

There are no environmental or health considerations during the use of the product.

7. Supporting Documentation

The full text of the acronyms found in Section 4 are found in Table 16.

Table 16. Acronym Key

Acronym	Text	Acronym	Text
LCA Indicators			
ADP-elements	Abiotic depletion potential for non-fossil resources	GWP	Global warming potential
ADP-fossil	Abiotic depletion potential for fossil resources	OPD	Depletion of stratospheric ozone layer
AP	Acidification potential of soil and water	POCP	Photochemical ozone creation potential
EP	Eutrophication potential	Resources	Depletion of non-renewable fossil fuels
LCI Indicators			
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PENRT	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
PERM	Use of renewable primary energy resources used as raw materials	SM	Use of secondary materials
PERT	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	RSF	Use of renewable secondary fuels
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	NRSF	Use of non-renewable secondary fuels
PENRM	Use of non-renewable primary energy resources used as raw materials	FW	Net use of fresh water
HWD	Disposed-of-hazardous waste	MFR	Materials for recycling
NHWD	Disposed-of non-hazardous waste	MET	Materials for energy recovery
RWD	Disposed-of Radioactive waste	EEE	Exported electrical energy
CRU	Components for reuse	EET	Exported thermal energy

8. References

1. Life Cycle Assessment, Allegion, LCA report for Zero Gasketing and Thresholds. WAP Sustainability Consulting. April 2020.
2. Product Category Rule (PCR) for preparing an Environmental Product Declaration (EPD) for Product Group Builders Hardware (UL 9004). Version: April 3rd, 2014
3. ISO 14044: 2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.
4. ISO 14025: 2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
5. ISO 21930: 2007 - Sustainability in building construction -- Environmental declaration of building products
6. EN 15804: 2012-04 - Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction product.