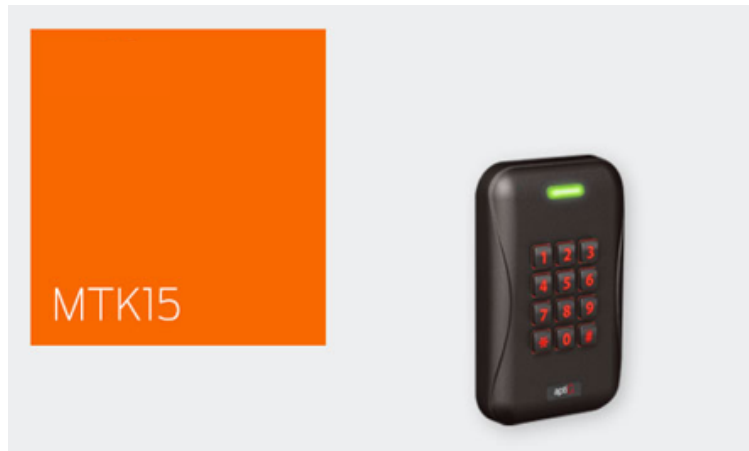


ENVIRONMENTAL PRODUCT DECLARATION

SCHLAGE

SCHLAGE MULTI-TECHNOLOGY SINGLE GANG READER WITH KEYPAD



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.



ENVIRONMENTAL PRODUCT DECLARATION

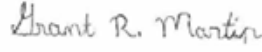




Schlage
Multi-technology Single Gang Reader with Keypad

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

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	Allegion	
DECLARATION NUMBER	4787103471.118.1	
DECLARED PRODUCT	Schlang MTK15 Key Card Reader	
REFERENCE PCR	Product Category Rule (PCR) for preparing an Environmental Product Declaration (EPD) for Product Group, Builders Hardware UL9004. Version: April 3rd, 2014.	
REFERENCE PCR STANDARD	<input checked="" type="checkbox"/> EN 15804 (2012) <input checked="" type="checkbox"/> ISO 21930 (2007) <input type="checkbox"/> ISO 21930 (2017)	
DATE OF ISSUE	April 2, 2018	
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 <input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL	 Grant R. Martin, UL Environment	
	 Thomas P. Gloria, Industrial Ecology Consultants	
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	 Thomas P. Gloria, Industrial Ecology Consultants	

ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION™

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Product Description

Company

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.

This EPD includes the Multi-Technology Single Gang Reader with Keypad sold under Schlage brand.

Product

Allegion's Schlage readers and credentials not only feature cutting-edge security technology, but are transforming basic access control products into all-in-one solutions, providing convenience and options to meet the needs of any facility or business. The reader with a keypad is employed for secure access to facilities. These versatile readers are capable of interfacing with many systems and security products currently on the market and also provide support for future technologies.

Allegion operates plants across the United States and Internationally. The key card readers described in this study are manufactured in Security, Colorado.

The standard application is one unit of product per access point which is usually a standard 3' x 7' door leaf.

Product Characterization

The product is provided to the customer through a fax, phone, or online system. The product is shipped directly to customers in packaging material that includes a cardboard box, shipping labels and plastic materials. The amount of packaging materials is dependent on the size of the customer's order. No ancillary materials other than mounting screws are necessary for installation. Electricity is required for the use of the product. Installation instructions and manuals are provided on-line.

Technical Information

Functional unit: For this product, the functional unit considered is two card readers used for the estimated service life of the building which is assumed to be 60 years. The first reader is used for 30 years after which it is replaced by another reader. The reference service life of the product is 60 years which is the lifetime of the building as per the reference PCR.

Application

The standard application is one unit of product per access point which is usually a standard 3' x 7' door leaf. These versatile readers accommodate most manufacturers' magnetic stripe cards, proximity cards, Schlage smart cards, and the latest in mobile technology – near field communication(NFC). The card readers are suitable for indoor and outdoor use where authentication is required.

Products are designed for commercial applications and fall under the product standard category of ANSI/BHMA A156.6-2010.

Delivery Status

For shipping, each reader is placed in a cardboard box along with instructions on installation. The card reader is protected with a plastic sleeve. A quick connect cable and screws required for installing the card reader are also included with the product. The cardboard box has labels that carry information about the product. The above packaging materials are included in the study.



ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION™

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Base Materials

Table 1: Base Materials, MTK15 Multi-Technology Single Gang Reader with Keypad

MTK15 Multi-Technology Reader			
Component	Material	Amount (kg)	Mass %
Reader	Plastics	0.1402	30.64%
	Steel	0.00026	0.06%
	Electronic Parts	0.03154	6.89%
	Epoxy Resins	0.1059	23.15%
Packaging	Paper/Cardboard	0.1374	30.03%
	Plastics	0.0422	9.22%
Total		0.4575	100.00%

Manufacture

Schlage card readers are manufactured by Allegion at their facility in Security, Colorado. The manufacturing process of Schlage card readers can be described as an assembly process. Fabricated parts and sub-assemblies are provided by suppliers and final assembly is by Schlage using manual and automated processes. Final card readers are programmed, configured, and packaged by Allegion associates. Packaged card readers are then prepared for shipping to the customer.

Environment and Health During Manufacturing

Allegion and Schlage meet all federal and state standards related to the Environment and Health during manufacturing. Beyond what is regulated, there are no additional environmental and health considerations during the production of goods.



ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION™

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Packaging

For shipping, each reader is placed in a cardboard box along with instructions on installation. The card reader is protected with a plastic sleeve. The cardboard box has labels that carry information about the product.

Product Installation

In general, installation is achieved through the hand tightening of mounting screws and connecting the reader to electric supply. Installation of the product also involves configuring the reader to suitable settings to allow authentication of credential holders.

Environment and Health During Use

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

Re-use Stage

Schlage products are not re-used. While products may be recycled, this study takes the conservative approach in making this assumption.

Disposal

It is assumed that all products are landfilled at the end of their life. The distance waste is transported to the landfill is assumed to be 100 miles.

Further Information

Additional information regarding Allegion's sustainability program and environmental legal compliance can be found at <http://us.allegion.com/communities/architects/solutions/Pages/green.aspx>



ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION™

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Life Cycle Assessment

Functional Unit

Table 2: Functional Unit: MTK15 Multi-Technology Reader

MTK15 Multi-Technology Reader		
Name	Value	Unit
MTK 15 Reader	1	piece
Weight per Declared Unit, excluding fasteners	0.263391	kg
Fasteners (pieces x weight/ piece)	0.00026	kg
Declared Unit	0.263651	kg



ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

System Boundary

This particular LCA is a Cradle to grave LCA.

A summary of the life cycle stages included in this LCA is presented in the following table.

Module Name	Description	Summary of Included Elements
A1	Product Stage: Raw Material Supply	Raw Material sourcing and processing as defined by secondary data.
A2	Product Stage: Transport	Shipping from supplier to manufacturing site. Fuel use requirements estimated based on product weights and mapped distance.
A3	Product Stage: Manufacturing	Energy, water and material inputs required for manufacturing gasketing and thresholds from raw materials. Packaging Materials included as well.
A4	Construction Process Stage: Transport	Shipping from manufacturing site to project site. Fuel use requirements estimated based on product weights and mapped distance.
A5	Construction Process Stage: Installation	Installation and packaging material waste.
B1	Use Stage: Use	No inputs required for use.
B2	Use Stage: Maintenance	No inputs required for maintenance.
B3	Use Stage: Repair	Product is typically not repaired. Replacement more likely.
B4	Use Stage: Replacement	Replacement will occur, which is defined as one replacement after 30 years of service.
B5	Use Stage: Refurbishment	Product is typically not refurbished.
B6	Use Stage: Operational Energy Use	Electricity is utilized during use phase.
B7	Use Stage: Operational Water Use	Water not utilized during use phase.
C1	EOL: Deconstruction	No inputs required for deconstruction.
C2	EOL: Transport	Shipping from project site to landfill. Fuel use requirements estimated based on product weight and estimated distance.
C3	EOL: Waste Processing	Waste processing not required. All waste can be processed as is.
C4	EOL: Disposal	Assumes all products are sent to landfill. Landfill impacts modeled based on secondary data.
D	Benefits beyond system	Credits beyond system boundary not considered.



ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION™

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Estimates and Assumptions

Recycled content – Allegion products may contain recycled content, however, the specific amount of recycled content may vary based on the availability of materials to suppliers at the time of sourcing. Data sets sourced from GaBi include assumptions based on typical aluminum and steel recycled content and have been calculated based on expert evaluation and critical review. It was determined appropriate and a conservative approach to use default recycled content values in the GaBi aluminum and steel datasets.

Landfilling at End of Life – All products were considered to be landfilled at end of life. While recycling is an option, the choice of landfilling represents a conservative estimation of the end of life pathway in lieu of having actual verifiable data of end of life recycling.

Cut-off Criteria

All inputs in which data were available were included.

Material inputs greater than 1% (based on total mass of the individual components of the 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.

Specifically for this study, no materials were left out of the study. However, for some electronic components proxy data was used to account for materials in which there was no perfect match in GaBi.

No hazardous and toxic releases, which are mandatory to be monitored and reported to the U.S TRI, are released from the facility.

Background Data

All background data was sourced from GaBi databases. GaBi version 8 was used to complete the assessment.

Data Quality

Geographical Coverage

The geographical scope of the manufacturing portion of the life cycle is Security, Colorado. This LCA uses energy, natural resources and material inputs specific to this location. The geographic coverage of primary data is considered excellent.

The geographical scope of the raw material acquisition, customer distribution, site installation and use portions of the life cycle is global and based on the specific location of each supplier or customer. Locations and shipping distance values were determined through the analysis of purchasing and sales data using GIS mapping software. This data is considered very good.

Disposal and end-of-life geographic coverage (i.e. site of disposal location) are assumed to be 100 miles and based on research relating to the average distance an American lives from a landfill. This data is considered good.

Time Coverage

Primary data were provided by Schlage suppliers and represent calendar year 2016. Calendar year 2016 was the most recently completed 12-month period year at the beginning of the study. Using 2016 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 2009 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 is specific to the technology that the company uses in manufacturing their product. It is site



ENVIRONMENTAL PRODUCT DECLARATION



Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

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 LCA.

Allocation Procedures

General principles of allocation were based on ISO14040/44. Where possible, allocation was avoided. When allocation was necessary it was done on a physical mass basis.

LCA Results – MTK15 Multi-Technology Reader

The following tables disclose the life cycle results for MTK15 Multi-Technology Single Gang Reader with Keypad. Impact categories were determined through reference to the BHMA Product Category Rules for Builder Hardware (UL9004).

Description of the System Boundary (X=included in LCA; MND=module not declared)

Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Benefits and Loads Beyond the System Boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational Water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

TRACI 2.1 – MTK15 Multi-Technology Reader

Results of the LCA - Environmental Impact, TRACI 2.1																	
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
Global Warming Air, incl. biogenic carbon	[kg CO2-Equiv.]	1.67E+01	6.32E-02	0	0	0	0	0	0	4.64E+02	0	0	5.84E-03	0	9.92E-02	MND	
Ozone Depletion Air	[kg CFC 11-Equiv.]	2.08E-08	5.57E-13	0	0	0	0	0	0	1.85E-07	0	0	5.15E-14	0	3.13E-13	MND	
Acidification	[kg SO2-Equiv.]	2.71E-02	2.74E-04	0	0	0	0	0	0	1.44E+00	0	0	2.53E-05	0	6.20E-04	MND	
Eutrophication	[kg N-Equiv.]	2.21E-03	2.29E-05	0	0	0	0	0	0	5.98E-02	0	0	2.12E-06	0	2.22E-04	MND	
Smog Air	[kg O3-Equiv.]	4.92E-01	9.01E-03	0	0	0	0	0	0	1.26E+01	0	0	8.33E-04	0	2.62E-03	MND	
Abiotic Depletion for fossil resources	[MJ surplus energy]	1.74E+01	1.20E-01	0	0	0	0	0	0	3.74E+02	0	0	1.11E-02	0	4.02E-02	MND	



ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

CML 2001 - January 2016 – MTK15 Multi-Technology Reader

Results of the LCA - Environmental Impact, CML 2001 - Jan 2016																
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Potential	[kg CO2-Equiv.]	1.68E+01	6.33E-02	0	0	0	0	0	0	4.67E+02	0	0	5.86E-03	0	1.06E-01	MND
Ozone Layer Depletion Potential	[kg R11-Equiv.]	1.67E-08	5.23E-13	0	0	0	0	0	0	1.74E-07	0	0	4.84E-14	0	2.94E-13	MND
Acidification Potential	[kg SO2-Equiv.]	2.55E-02	2.04E-04	0	0	0	0	0	0	1.53E+00	0	0	1.89E-05	0	2.54E-04	MND
Eutrophication Potential	[kg Phosphate-Equiv.]	3.33E-03	5.49E-05	0	0	0	0	0	0	8.55E-02	0	0	5.08E-06	0	2.49E-04	MND
Photochem. Ozone Creation Potential	[kg Ethene-Equiv.]	2.06E-03	2.12E-05	0	0	0	0	0	0	9.00E-02	0	0	1.96E-06	0	6.29E-05	MND
Abiotic Depletion	[kg Sb-Equiv.]	5.22E-05	1.08E-08	0	0	0	0	0	0	9.35E-05	0	0	9.96E-10	0	8.33E-09	MND
Abiotic Depletion for fossil resources	[MJ surplus energy]	2.20E+02	8.88E-01	0	0	0	0	0	0	5.59E+03	0	0	8.22E-02	0	3.13E-01	MND



ENVIRONMENTAL PRODUCT DECLARATION



Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Resource Use – MTK15 Multi-Technology Reader

Results of the LCA - Resource Use																
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	1.79E+01	2.22E-02	0	0	0	0	0	0	8.30E+02	0	0	2.05E-03	0	2.20E-02	MND
PERM	MJ, net calorific value	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
PERT	MJ, net calorific value	1.79E+01	2.22E-02	0	0	0	0	0	0	8.30E+02	0	0	2.05E-03	0	2.20E-02	MND
PENRE	MJ, net calorific value	2.22E+02	8.93E-01	0	0	0	0	0	0	7.14E+03	0	0	8.26E-02	0	3.21E-01	MND
PENRM	MJ, net calorific value	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
PENRT	MJ, net calorific value	2.22E+02	8.93E-01	0	0	0	0	0	0	7.14E+03	0	0	8.26E-02	0	3.21E-01	MND
SM	Kg	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
RSF	MJ, net calorific value	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
NRSF	MJ, net calorific value	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
FW	M³	5.43E-04	1.65E-07	0	0	0	0	0	0	9.16E-03	0	0	1.53E-08	0	2.64E-07	MND

Key			
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



ENVIRONMENTAL PRODUCT DECLARATION



Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Outputs and Waste – MTK15 Multi-Technology Reader

Results of the LCA - Waste and Output Flows																
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	Kg	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
NHWD	Kg	2.59E+01	8.99E-03	0	0	0	0	0	0	7.37E+02	0	0	8.31E-04	0	4.62E-01	MND
RWD	Kg	-6.02E-04	-1.96E-06	0	0	0	0	0	0	-6.08E-01	0	0	-1.81E-07	0	-3.21E-06	MND
CRU	Kg	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
MFR	Kg	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
MET	Kg	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
EEE	MJ, net calorific value	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND
EET	MJ, net calorific value	0.00E+00	0.00E+00	0	0	0	0	0	0	0.00E+00	0	0	0.00E+00	0	0.00E+00	MND

Key			
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

Comparability of EPDs

The comparison of the environmental performance of Builder's Hardware using the EPD information shall be based on the product's use in and it's impacts on or within the building, and shall consider the complete life cycle with all information modules.

Results presented in this EPD are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks. Results are not intended to be used to determine superiority of one product over another. Environmental declarations from different programs may not be comparable.



ENVIRONMENTAL PRODUCT DECLARATION



ALLEGION™

Schlage
Multi-Technology Single Gang Reader with Keypad

According to ISO 14025

Life Cycle Assessment Interpretation

A Dominance Analysis evaluates each life cycle stage and compares the impacts from that stage to the sum of the impacts calculated for all declared modules. A Dominance Analysis was completed for the TRACI and CML results. Module D was excluded from the Dominance Analysis.

Dominance Analysis - Environmental Impact, TRACI 2.1																
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Air, incl. biogenic carbon	[kg CO ₂ -Equiv.]	3%	0.013%	0%	0%	0%	0%	0%	0%	96%	0%	0%	0.001%	0%	0.02%	MND
Ozone Depletion Air	[kg CFC 11-Equiv.]	10%	0.000%	0%	0%	0%	0%	0%	0%	90%	0%	0%	0.000%	0%	0.00%	MND
Acidification	[kg SO ₂ -Equiv.]	2%	0.019%	0%	0%	0%	0%	0%	0%	98%	0%	0%	0.002%	0%	0.04%	MND
Eutrophication	[kg N-Equiv.]	4%	0.037%	0%	0%	0%	0%	0%	0%	96%	0%	0%	0.003%	0%	0.36%	MND
Smog Air	[kg O ₃ -Equiv.]	4%	0.069%	0%	0%	0%	0%	0%	0%	96%	0%	0%	0.006%	0%	0.02%	MND
Abiotic Depletion for fossil resources	[MJ surplus energy]	4%	0.031%	0%	0%	0%	0%	0%	0%	96%	0%	0%	0.003%	0%	0.01%	MND

The dominance analysis shows that the use phase operational energy (B6) of the life cycle is responsible for the majority of impacts (96%) for Global Warming Potential and (98%) for acidification potential. B6 represents the operational use electricity consumed. The raw material extraction and manufacturing (A1-A3) is the second most impactful stage due to the use of resources and production of components. Overall, of all the impact categories, high values for Global Warming Potential and Acidification Potential associated with energy use per product are causes of concern.

It is important to note that data quality may have an impact on the results of an LCA. Overall data quality is considered good. Improvements can be made through the modification of datasets to incorporate more regional specificity, both in terms of energy and technology. Additionally, the extrusion of both metals and plastics were treated using a generic dataset linked to region specific energy, water and waste data. Utilizing Allegion-specific upstream data provided by suppliers would lead to improvement in data quality. However, the data used in this assessment was considered appropriate in relation to the goal, scope and budget of the project.

References

1. Life Cycle Assessment, Allegion, LCA Report for Allegion Key Card Readers. WAP Sustainability Consulting. Dec. 2017.
2. Product Category Rule (PCR) for preparing an Environmental Product Declaration (EPD) for Product Group, Builders Hardware UL9004. 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. European Standard DIN EN 15804: 2012.04+A1 2013. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products (includes Amendment A1:2013)

