ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

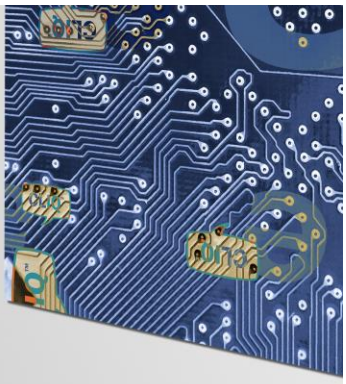
Owner of the Declaration	ASSA ABLOY
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ASA-20170149-IBA1-EN
Issue date	04.09.2017
Valid to	03.09.2022

eCLIQ electronic key

ASSA ABLOY

Institut Bauen und Umwelt e.V.

www.ibu-epd.com / https://epd-online.com



ASSA ABLOY

1. General Information

ASSA ABLOY Sicherheitstechnik GmbH

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Declaration number
EPD-ASA-20170149-IBA1-EN

This Declaration is based on the Product Category Rules - PCR:
Electronic Access Control Systems, 07.2016
(PCR tested and approved by the independent expert committee)

Issue date
04.09.2017

Valid to
03.09.2022

Prof. Dr.-Ing. Horst J. Bossenmayer
(President of Institut Bauen und Umwelt e.V.)

Dr.-Ing. Burkhart Lehmann
(Managing Director IBU)

eCLIQ electronic key

Owner of the Declaration
ASSA ABLOY Sicherheitstechnik GmbH
Goerzallee 299
14167 Berlin, Germany

Declared product / Declared unit
The declaration represents 1 eCLIQ electronic key

Scope:
The Life Cycle Assessment is based on data collected from the cylinder production facility in Berlin, Germany
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Verification

The CEN Standard EN 15804 serves as the core PCR
Independent verification of the declaration according to ISO 14025
☐ internally ☒ externally

Dr. Wolfram Trinius
(Independent verifier appointed by SVA)

2. Product

2.1 Product description
Product name: eCLIQ electronic key

Product characteristic:
The eCLIQ key, produced by IKON, an ASSA ABLOY Group brand, is an electronic key that uses the ASSA ABLOY CLIQ chip technology. The eCLIQ key operates the eCLIQ cylinder and is available in different electronic versions.

2.2 Application
The eCLIQ key is suitable for indoor and outdoor use. Common applications include Commercial buildings, Office buildings; Education establishments, Healthcare buildings and Infrastructure.

2.3 Technical Data
The product has the following technical properties:

Technical data

Item	Value
Mounting	In euro profile locks and fittings
Power supply	3 VDC
Current requirements	100 mA
Operating temperature	0°C to 70°C
Operating Humidity	5% to 95%
Power consumption	0.03 W

Compliance with European Union Directives

- EN 1303 - Building hardware - Cylinders for locks - Requirements and test methods
- DIN 18252 - Profile cylinders for door locks –
- Terminology, dimensions, requirements and marking
- DIN EN 15684 - Mechatronic cylinders
- CE marking

RoHS Conformity:
RoHS2 directive - RL2011/65/EU

2.4 Delivery status
Keys are delivered in packs of up to six keys.
Packaged key dimensions: 16,5cm x 10cm x 5cm

2.5 Base materials / Ancillary materials
The composition of the key in percentages (%) of total mass per unit is as following:

Component	Percentage in mass (%)
Brass	1.62
Plastics	38.92
Stainless Steel	3.24
Steel	37.30
Electronic	3.24
Electro mechanics	15.14
Others	0.54
Total	**100.0**

2.6 Manufacture

The eCLIQ key is assembled at the production facility at ASSA ABLOY Sicherheitstechnik, Berlin – Germany. Main components are sourced from suppliers within Germany. The electronic components, including PCB, are purchased externally from suppliers in China. During assembly the individual parts are assembled and then packaged for shipment.

2.7 Environment and health during manufacturing

Environmental operations, Greenhouse Gas Emissions, energy, water, waste, VOC, surface treatment and H&S are being routinely monitored. Inspections, audits, and reviews are conducted periodically to ensure that applicable standards are met and to evaluate the effectiveness of the environmental management program.

The factory of Berlin has an environmental management system certified according to ISO 14001:2009.

2.8 Product processing/Installation

eCLIQ keys are taken in use by trained distribution partners or by the product end user. Usage instructions are included with each key unit.

2.9 Packaging

The key is packed in a cardboard box to avoid damage. Also included in the packaging are paper usage instructions. Packaging materials shall be collected separately for recycling.

Material	Percentage in mass (%)
Cardboard/paper	100
Total	**100.0**

2.10 Condition of use

The eCLIQ electronic key runs on a standard CR2032 lithium cell (LiMnO2) which needs to be replaced after 3 years or 30.000 operations. No cleaning efforts need to be taken into consideration.

2.11 Environment and health during use

There is no harmful emissive potential. No damage to health or impairment is expected under normal use corresponding to the intended use of the product.

2.12 Reference service life

The service life of the eCLIQ key is estimated to be 15 years.

2.13 Extraordinary effects

Fire

As the keys carry a lithium battery they shall not be exposed to fire. In case of fire, normal water can be used as a fire extinguisher.

Water

Contains no substances that have an impact on water in case of flooding. The general recommendations for the usage of batteries are valid.

Mechanical destruction

No danger to the environment can be anticipated during mechanical destruction. The general recommendations for the usage of batteries are valid.

2.14 Re-use stage

It is possible to re-use the product during the reference service life - if the lock-case for which the key is functional is dismounted and used in another application.

2.15 Disposal

The product can be mechanically dissembled to separate the different materials. The majority, of components is steel and electro mechanics which can be recycled. The plastic components can be used for energy recovery in an incineration plant. No disposal is foreseen for the product nor for the corresponding packaging.

2.16 Further information

ASSA ABLOY Sicherheitstechnik GmbH
Bildstockstr. 20
72458 Albstadt, Germany
Tel: +49 7431 123 0
www.assabloy.de

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of eCLIQ electric key as specified in Part B requirements on the EPD for PCR Electronic Access Control Systems.

Declared unit

Name	Value	Unit
Declared unit for readers	1	pce.
Mass (total system)	0.0185	kg
Conversion factor to 1 kg	54.05	-

3.2 System boundary

Type of the EPD: cradle to gate - with Options
The following life cycle stages were considered:

Production stage:

- A1 – Raw material extraction and processing
- A2 – Transport to the manufacturer and
- A3 – Manufacturing

Construction stage:

- A4 – Transport from the gate to the site
- A5 – Packaging waste processing

The use stage:

- B4 - Replacement

End-of-life stage:

- C2 – Transport to waste processing
- C3 – Waste processing
- C4 – Disposal (landfill)

This includes provision of all materials, products and energy, packaging processing and its transport, as well as waste processing up to the end-of waste state or disposal of final residues.

- D - Declaration of all benefits and loads

3.3 Estimates and assumptions

Transportation: Data on mode of transport and distances, as reported by suppliers were used for those materials and parts contributing more than 2% of total product mass. In case of unknown transport distances for parts and materials, contributing less than 2% to the total product mass, transport by road over an average distance of 500 km was assumed.

Use stage: For the use stage it is assumed that the coin cell is replaced twice within the lifetime of the product.

EoL: In the End-of-Life stage, for all the materials, which can be recycled, a recycling scenario with 100% collection rate was assumed.

3.4 Cut-off criteria

In the assessment, all available data from the production process are considered, i.e. all raw materials used, auxiliary materials (e.g. lubricants), thermal energy consumption and electric power consumption - including material and energy flows contributing less than 1% of mass or energy (if available). In case a specific flow contributing less than 1% in mass or energy is not available, worst-case assumption proxies are selected to represent the respective environmental impacts.
Impacts relating to the production of machines and facilities required during production are out of the scope of this assessment.

3.5 Background data

For life cycle modelling of the considered products, the GaBi 6 Software System for Life Cycle Engineering, developed by thinkstep AG, is used /GaBi 6 2013/. The GaBi-database contains consistent and documented datasets which are documented in the online GaBi-documentation /GaBi 6 2013D/.
To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the /IBU PCR PART A/. thinkstep performed a variety of tests and checks during the entire project to ensure high quality of the completed project. This obviously includes an extensive review of project-specific LCA models as well as the background data used.
The technological background of the collected data reflects the physical reality of the declared products. The datasets are complete and conform to the system boundaries and the criteria for the exclusion of inputs and outputs. All relevant background datasets are taken from the GaBi 6 software database.

3.7 Period under review

The period under review is 2015/2016 (12-month average).

3.8 Allocation

Regarding incineration, the software model for the waste incineration plant (WIP) is adapted according to the material composition and heating value of the combusted material. In this EPD, the following specific life cycle inventories for the WIP are considered for:
Waste incineration of paper (cardboard)

Regarding the recycling material of metals, the metal parts in the EoL are declared as end-of-waste status. Thus, these materials are considered in module D. Specific information on allocation within the background data is given in the GaBi dataset documentation.

3.9 Comparability

A comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building context, respectively the product-specific characteristics of performance, are taken into account.

4. LCA: Scenarios and additional technical information

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment if modules are not declared (MND).

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (Paper packaging)	0.056	kg

Replacement (B4)Name	Value	Unit
Two coin cells (CR2032 lithium cell (LiMnO2)) used in the life cycle of the product	0.0056	kg

Reference service life

Name	Value	Unit
Reference service life	15	a

End of life (C2-C4)

Name	Value	Unit
Collected separately Brass, Plastics, Stainless Steel, Steel, Electronic, Electro mechanics	0.0185	kg
Collected as mixed construction waste – construction waste for landfilling	0.0029	kg
Recycling Brass	0.0003	kg
Recycling Stainless Steel	0.0006	kg
Recycling Steel	0.0069	kg
Recycling Electronic	0.0006	kg
Incineration Plastic Parts	0.0072	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Collected separately waste type (including packaging)	0.0745	kg
Recycling Brass	0.4	%
Recycling Stainless Steel	0.81	%
Recycling Steel	9.26	%
Recycling Electronic	0.81	%
Incineration Plastics (incl. packaging)	9.66	%
Reuse Paper packaging (from A5)	75.17	%
Construction waste landfilling	3.89	%

5. LCA: Results

Results shown below were calculated using CML 2000 – Apr. 2013 Methodology.

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 BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	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	MND	MND	MND	X	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: One piece of eCLIQ electronic key

Parameter	Parameter	Unit	A1-3	A4	A5	B4	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	8.16E-01	3.27E-03	7.93E-02	1.39E-01	3.27E-03	5.38E-04	1.81E-02	-1.37E-01
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.54E-10	4.11E-15	3.63E-13	5.48E-12	4.11E-15	3.68E-13	5.49E-14	-1.47E-11
AP	Acidification potential of land and water	[kg SO_2-Eq.]	5.11E-03	1.08E-05	1.81E-05	5.23E-04	1.08E-05	2.54E-06	4.86E-06	-1.05E-03
EP	Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	1.90E-03	2.19E-06	3.16E-06	2.94E-03	2.19E-06	1.43E-07	3.88E-07	-6.45E-05
POCP	Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	3.45E-04	3.17E-08	1.28E-06	4.20E-05	3.17E-08	1.51E-07	2.48E-07	-6.37E-05
ADPE	Abiotic depletion potential for non-fossil resources	[kg Sb Eq.]	6.70E-05	1.13E-10	1.43E-09	1.08E-06	1.13E-10	7.45E-11	1.22E-09	-6.16E-05
ADPF	Abiotic depletion potential for fossil resources	[MJ]	1.10E+01	4.54E-02	2.22E-02	1.63E+00	4.54E-02	6.11E-03	8.16E-03	-1.58E+00

RESULTS OF THE LCA - RESOURCE USE: One piece of eCLIQ electronic key

Parameter	Parameter	Unit	A1-3	A4	A5	B4	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	2.32E+00	-	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	2.32E+00	3.47E-04	2.07E-03	1.31E-01	3.47E-04	1.75E-03	6.08E-04	-8.49E-02
PENRE	Non-renewable primary energy as energy carrier	[MJ]	1.29E+01	-	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	1.29E+01	4.55E-02	2.60E-02	1.78E+00	4.55E-02	9.58E-03	9.04E-03	-1.72E+00
SM	Use of secondary material	[kg]	2.03E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	[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
NRSF	Use of non-renewable secondary fuels	[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
FW	Use of net fresh water	[m^3]	6.06E-03	4.97E-07	2.31E-04	1.07E-03	4.97E-07	4.32E-06	4.27E-05	-7.13E-04

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One piece of eCLIQ electronic key

Parameter	Parameter	Unit	A1-3	A4	A5	B4	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	8.19E-04	9.25E-08	1.79E-06	1.30E-04	9.25E-08	1.33E-06	6.26E-07	-3.96E-05
NHWD	Non-hazardous waste disposed	[kg]	6.74E-02	1.05E-06	1.99E-03	1.01E-01	1.05E-06	3.09E-06	4.49E-03	-1.37E-03
RWD	Radioactive waste disposed	[kg]	7.28E-04	4.50E-08	1.52E-06	6.17E-05	4.50E-08	1.38E-06	3.50E-07	-5.48E-05
CRU	Components for re-use	[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
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	5.60E-02	0.00E+00	0.00E+00	7.90E-03	0.00E+00	0.00E+00
MER	Materials for energy recovery	[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
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	1.00E-01	0.00E+00	0.00E+00	0.00E+00	3.44E-02	0.00E+00
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	2.83E-01	0.00E+00	0.00E+00	0.00E+00	9.44E-02	0.00E+00

6. LCA: Interpretation

This chapter contains an interpretation of the Life Cycle Impact Assessment categories. Stated percentages in the whole interpretation are related to the overall life cycle, excluding credits (module D).

The production stage (modules A1-A3) contributes between 39% and 98% to the overall results for all the environmental impact assessment categories hereby considered. For the global warming potential (GWP), the contribution from the production stage accounts for approx. 77%. In this category assembly stage (A5) contributes around 7.5% to the result while paper packaging accounts for more than 75% of the total weight of the product (including packaging).

Within the production stage, the main contribution for all the impact categories is the production of steel and plastics (approx. 75% in total weight of the product) mainly due to the energy consumption on these processes. The environmental impacts for the transport (A2) has a negligible impact within this stage.

To reflect the use stage (module B4), the replacement of the coin cell is considered twice during the life cycle of the product and this has a contribution for all the impact assessment categories considered - between 1% on Abiotic depletion potential (ADPE) and 60 % on eutrophication potential (EP).

In the end-of-life stage, there are loads and benefits (module D, negative values) considered. The benefits are considered beyond the system boundaries and are declared for the recycling potential of the metals and for the credits from the incineration process (energy substitution).

7. Requisite evidence

Not applicable in this EPD.

8. References

Institut Bauen und Umwelt
Institut Bauen und Umwelt e.V., Berlin (pub.): Generation of Environmental Product Declarations (EPDs);

General principles
For the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2013-04
www.ibu-epd.com

PCR Part A
Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. April 2013
www.ibu-epd.com

PCR Part B
IBU PCR Part B: PCR Guidance-Texts for Building-Related Products and Services. From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU). Part B: Requirements on the EPD for Electronic Access Control Systems. www.ibu-epd.com

ISO 14025
ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804
EN 15804: 2012+A1:2014: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

ISO 14001
Environmental management systems - Requirements with guidance for use (ISO 14001:2004 + Cor. 1:2009)

GaBi 6 2013
GaBi 6 2013: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Leinfelden-Echterdingen, 1992-2013.

GaBi 6 2013D
GaBi 6 2013D: Documentation of GaBi 6: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Leinfelden-Echterdingen, 1992-2013. http://documentation.gabi-software.com/

EN 1303
Building hardware - Cylinders for locks - Requirements and test methods

DIN 18252
Profile cylinders for door locks – Terminology, dimensions, requirements and marking

DIN EN 15684
Mechatronic cylinders - Requirements and test methods

ROHS2 directive - RL2011/65/EU
Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment

9. Annex

Results shown below were calculated using TRACI Methodology.

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 BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	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	MND	MND	MND	X	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: One piece of eCLIQ electronic key

Parameter	Parameter	Unit	A1-3	A4	A5	B4	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	8.16E-01	3.27E-03	7.93E-02	1.39E-01	3.27E-03	5.38E-04	1.81E-02	-1.37E-01
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.66E-10	4.37E-15	3.86E-13	5.83E-12	4.37E-15	3.92E-13	5.83E-14	-1.76E-11
AP	Acidification potential of land and water	[kg SO_2-Eq.]	5.16E-03	1.36E-05	2.19E-05	5.84E-04	1.36E-05	2.40E-06	5.68E-06	-1.01E-03
EP	Eutrophication potential	[kg N-eq.]	1.05E-03	7.85E-07	1.26E-06	1.08E-03	7.85E-07	1.02E-07	1.90E-07	-3.06E-05
Smog	Ground-level smog formation potential	[kg O_3-eq.]	6.68E-02	3.71E-04	5.11E-04	7.49E-03	3.71E-04	2.18E-05	4.89E-05	-1.18E-02
Resources	Resources – resources fossil	[MJ]	9.51E-01	6.53E-03	2.61E-03	1.48E-01	6.53E-03	4.35E-04	8.52E-04	-1.10E-01

RESULTS OF THE LCA - RESOURCE USE: One piece of eCLIQ electronic key

Parameter	Parameter	Unit	A1-3	A4	A5	B4	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	2.32E+00	-	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	2.32E+00	3.47E-04	2.07E-03	1.31E-01	3.47E-04	1.75E-03	6.08E-04	-8.49E-02
PENRE	Non-renewable primary energy as energy carrier	[MJ]	1.29E+01	-	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	1.29E+01	4.55E-02	2.60E-02	1.78E+00	4.55E-02	9.58E-03	9.04E-03	-1.72E+00
SM	Use of secondary material	[kg]	2.03E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	[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
NRSF	Use of non-renewable secondary fuels	[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
FW	Use of net fresh water	[m^3]	6.06E-03	4.97E-07	2.31E-04	1.07E-03	4.97E-07	4.32E-06	4.27E-05	-7.13E-04

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One piece of eCLIQ electronic key

Parameter	Parameter	Unit	A1-3	A4	A5	B4	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	8.19E-04	9.25E-08	1.79E-06	1.30E-04	9.25E-08	1.33E-06	6.26E-07	-3.96E-05
NHWD	Non-hazardous waste disposed	[kg]	6.74E-02	1.05E-06	1.99E-03	1.01E-01	1.05E-06	3.09E-06	4.49E-03	-1.37E-03
RWD	Radioactive waste disposed	[kg]	7.28E-04	4.50E-08	1.52E-06	6.17E-05	4.50E-08	1.38E-06	3.50E-07	-5.48E-05
CRU	Components for re-use	[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
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	5.60E-02	0.00E+00	0.00E+00	7.90E-03	0.00E+00	0.00E+00
MER	Materials for energy recovery	[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
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	1.00E-01	0.00E+00	0.00E+00	0.00E+00	3.44E-02	0.00E+00
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	2.83E-01	0.00E+00	0.00E+00	0.00E+00	9.44E-02	0.00E+00

Publisher
Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Tel +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
Mail info@ibu-epd.com
Web **www.ibu-epd.com**

Programme holder
Institut Bauen und Umwelt e.V.
Panoramastr 1
10178 Berlin
Germany

Tel +49 (0)30 - 3087748- 0
Fax +49 (0)30 – 3087748 - 29
Mail info@ibu-epd.com
Web **www.ibu-epd.com**

Author of the Life Cycle Assessment
thinkstep AG
Hauptstraße 111-113
70771 Leinfelden-Echterdingen
Germany

Tel +49 (0)711 341817-0
Fax +49 (0)711 341817-25
Mail info@thinkstep.com
Web **www.thinkstep.com**

Owner of the Declaration
Assa Abloy Sicherheitstechnik GmbH
Attilastrasse 61-67
12105 Berlin, Germany

Tel: +49 3081060
Web **www.assaabloy.de**