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-20180008-IBA1-EN
Issue date	10.01.2018
Valid to	09.01.2023

TESA TX-TK High Security Cylinder

TESA ASSA ABLOY

Institut Bauen und Umwelt e.V.

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

1. General Information

TESA ASSA ABLOY	TESA TX-TK High Security Cylinder
Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the Declaration** TESA ASSA ABLOY Barrio Ventas S/N 20305 Irun , Spain
Declaration number EPD-ASA-20180008-IBA1-EN	**Declared product / Declared unit** The declaration represents 1 mechanical cylinder series – TESA TX-TK High Security Cylinder
This Declaration is based on the Product Category Rules - PCR: Building Hardware products, 02.2016 (PCR tested and approved by the SVR)	**Scope:** This declaration and its LCA study are relevant to TX-TK high security mechanical cylinders. The primary manufacturing processes are made by external suppliers and the final manufacturing processes and assembly occur at our manufacturing factory in Irun, Spain. 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.
Issue date 10.01.2018	
Valid to 09.01.2023	**Verification** The CEN Norm /EN 15804/ serves as the core PCR Independent verification of the declaration according to /ISO 14025/ ☐ internally ☒ externally
Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)	
Dr.-Ing. Burkhart Lehmann (Managing Director IBU)	Dr. Wolfram Trinius (Independent verifier appointed by SVR)

2. Product

2.1 Product description / Product definition

Product name: TESA TX-TK High Security Cylinder
Product characteristic:
With patented features combined with precision engineering and cross function compatibility, the TX-TK Series are unrivalled in its class.

- Number of pins: 8-10
- Anti-pick cylinder lock (High resistance.)
- Bump proof system.
- Key copies protected with security card.
- Clutch of double security.
- 5 patented keys made of nickel silver.
- Conform to EN-1303 regulation.
- Master key systems: High capability using side pins and multi profile key ways.

2.2 Application

TESA TX-TK Security Cylinder are ideal for a wide range of applications – all from private to commercial and public sectors, for all types of doors:

- Fits in all type of lock cases (Mortise, narrow stiles, Rim), and it is compatible with knob sets, padlocks and ANSI cylinders.
- TX-TK cylinder is available also with electronic cylinder version and it can be combined with SMARTair escutcheons through a RFID Key.

2.3 Technical Data

Cylinders are rated according European standard EN 1303:2016 Building Hardware-Cylinders for locks-Requirements and test methods. The rating for TESA TX-TK High Security Cylinders are:

Class	Required technical characteristics	Defined grades
1	Category of use	1
2	Durability	6
3	Door mass	0 (no req.)
4	Suitability for use in fire resisting and/or smoke control doors	B
5	Safety	0 (no req.)
6	Corrosion resistance and temperature	C
7	Key related security	6
8	Attack resistance	D

2.4 Delivery status
Mechanical cylinders are delivered as separate in a box size - 110 mm x 82 mm x 55 mm

2.5 Base materials / Ancillary materials
The primary product components and/or materials must be indicated as a percentage mass to enable the user of the EPD to understand the composition of the product in delivery status.
The average composition for TX-TK Euro profile is as following:

Component	Percentage in mass (%)
Stainless Steel	0.59
Steel	5.82
Brass	71.47
Copper	22.12
Total	**100.0**

2.6 Manufacture
The manufacturing process is fully completed in TESA-AA in the factory of Irún .
The components come from processes like machined brass, machined nickel silver and hardened steel.
The factory in Irún has a quality management system certified according to ISO 9001:2015.

2.7 Environment and health during manufacturing
ASSA ABLOY is committed to producing and distributing door-opening solutions with minimal environmental impact, where health & safety is the primary focus for all employees and associates.

- Environmental operations, GHG, 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 environmental management program.
- Code of Conduct covers human rights, labour practices and decent work. Management of ASSA ABLOY is aware of their environmental roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.
- The factory of TESA-AA in Irún has an environmental management system certified according to ISO 14001:2015.
- Any waste metals during machining are separated and recycled. All manufacturing waste in minimised and appropriately treated to ensure minimal environmental impact.

2.8 Product processing/Installation
TESA TX-TK High Security Cylinder are distributed through, and installed by trained technicians, such as locksmiths, carpenters etc. adhering to local/national standards and requirements. It can also be installed by the end user.

2.9 Packaging
TESA TX-TK High Security Cylinders are packed in a cardboard box. The packaging is fully recyclable. Separate package with dimensions: 140 mm x 85 mm x 30 mm, weighing 0.3 kilos.

Material	Percentage in mass (%)
Paper	62.24
Plastics	37.76
Total	**100.0**

2.10 Condition of use
To maintain low friction, bi-annual maintenance <1g of oil according to the manufacturers standard, should be added inside the cylinder through the profile.
Mechanical cylinders can be replaced or upgraded.

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 installation and use of the product.

2.12 Reference service life
Approved for 100.000 cycles under normal working conditions, 15 years depending on cycle frequency.

2.13 Extraordinary effects

Fire
Tested according to EN 1303 and is suitable for use in fire and smoke doors.

Water
Contain no substances that have any impact on water in case of flood.

Mechanical destruction
No danger to the environment can be anticipated during mechanical destruction.

2.14 Re-use stage
The product is possible to re-use during the reference service life and can be moved from one door to another.

2.15 Disposal

The product can be mechanically dissembled to separate different materials, which are then directed to the possible options offered by municipalities or garbage haulers.
It is assumed that the majority of the product (steel and brass) is recycled or valued through energy recovery.
Packaging material is directed to local recyclers.

2.16 Further information

TESA ASSA ABLOY
Barrio Ventas S/N
20305 Irun, Spain
Tel. +0034 943669100
E-mail: marketing@tesa.es

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of TESA TX-TK High Security Cylinder as specified in Part B requirements on the EPD for PCR Building Hardware products.

Declared unit

Name	Value	Unit
Declared unit	1	1 piece/product
Conversion factor to 1 kg	2.13	-
Mass of declared Product	0.47	kg

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

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 and transport by ship of was assumed.

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 AG 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 2015/16 (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 wood
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

Basically, 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. The used background database has to be mentioned.

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).

Transport to the building site (A4)

Name	Value	Unit
Truck transport		
Litres of fuel diesel with maximum load (27t payload)	39.4	l/100km
Transport distance truck	500	km
Capacity utilization (incl. empty runs) of truck	85	%

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (Paper packaging)	0.03	kg
Output substances following waste treatment on site (Plastic packaging)	0.01	kg
Output substances following waste treatment on site (Steel packaging)	0.007	kg

Reference service life

Name	Value	Unit
Reference service life	15	a

End of life (C2-C4)

Name	Value	Unit
Collected separately Brass, Stainless steel, Copper and Steel (excl. packaging)	0.46	kg
Recycling Steel	0.02	kg
Recycling Stainless steel	0.002	kg
Recycling Brass	0.34	kg
Recycling Copper	0.10	kg

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

Name	Value	Unit
Collected separately waste type (incl. packaging)	0.55	kg
Recycling Steel	4.98	%
Recycling Brass	61.14	%
Recycling Copper	18.92	%
Incineration of Paper	11.03	%
Incineration of Plastics	3.42	%
Recycling Stainless steel	0.51	%

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	MND	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: One piece of TESA TX-TK High Security Cylinder

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	2.70E+00	4.23E-02	1.34E-01	4.23E-02	0.00E+00	0.00E+00	-3.47E-01
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.07E-09	4.47E-14	5.40E-13	4.47E-14	0.00E+00	0.00E+00	-5.43E-11
AP	Acidification potential of land and water	[kg SO_2-Eq.]	1.72E-02	1.92E-04	3.19E-05	1.92E-04	0.00E+00	0.00E+00	-1.84E-03
EP	Eutrophication potential	[kg $(PO_4)^{3-}$- Eq.]	8.34E-04	3.20E-05	4.37E-06	3.20E-05	0.00E+00	0.00E+00	-1.52E-04
POCP	Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	1.16E-03	9.82E-06	1.99E-06	9.82E-06	0.00E+00	0.00E+00	-1.44E-04
ADPE	Abiotic depletion potential for non-fossil resources	[kg Sb Eq.]	6.73E-04	1.43E-09	4.70E-09	1.43E-09	0.00E+00	0.00E+00	-7.56E-04
ADPF	Abiotic depletion potential for fossil resources	[MJ]	2.95E+01	5.85E-01	4.44E-02	5.85E-01	0.00E+00	0.00E+00	-4.83E+00

RESULTS OF THE LCA - RESOURCE USE: One piece of TESA TX-TK High Security Cylinder

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	9.19E+00	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	9.19E+00	2.67E-03	3.74E-03	2.67E-03	0.00E+00	0.00E+00	-6.05E-01
PENRE	Non-renewable primary energy as energy carrier	[MJ]	4.04E+01	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	4.04E+01	5.86E-01	5.08E-02	5.86E-01	0.00E+00	0.00E+00	-5.38E+00
SM	Use of secondary material	[kg]	5.79E-01	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
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
FW	Use of net fresh water	[m^3]	2.88E-02	5.39E-06	3.68E-04	5.39E-06	0.00E+00	0.00E+00	-4.32E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One piece of TESA TX-TK High Security Cylinder

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	4.08E-03	1.15E-06	3.52E-06	1.15E-06	0.00E+00	0.00E+00	-2.56E-04
NHWD	Non-hazardous waste disposed	[kg]	2.93E-01	7.63E-06	6.60E-03	7.63E-06	0.00E+00	0.00E+00	-1.09E-01
RWD	Radioactive waste disposed	[kg]	4.35E-03	5.69E-07	2.55E-06	5.69E-07	0.00E+00	0.00E+00	-2.20E-04
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
MFR	Materials for recycling	[kg]	0.00E+00	0.00E+00	6.12E-02	0.00E+00	4.75E-01	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
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	2.01E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	5.59E-01	0.00E+00	0.00E+00	0.00E+00	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 92% and 100% to the overall results for all the environmental impact assessment categories hereby considered. Within the production stage, the main contribution for all the impact categories is the production of brass and copper mainly due to the energy consumption on this process.

Brass and copper account in total with approx. 95% to the overall mass of the product, therefore, the impacts are in line with the mass composition of the product. The environmental impacts for the transport (A2) have a negligible impact within this stage.

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.bau-umwelt.de

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.bau-umwelt.de

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 Windows and doors.
www.bau-umwelt.com

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 14001:2015
Environmental management systems - Requirements with guidance for use

ISO 9001:2015
Quality management systems - -- Requirements

EN 1303:2016
Building hardware - Locking cylinders for locks - Requirements and test methods specifies requirements and test methods for locking cylinders for locks. Properties such as strength, sealing resistance, durability and corrosion resistance are tested.

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/

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	MND	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: One piece of TX TK Cylinder

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	2.70E+00	4.23E-02	1.34E-01	4.23E-02	0.00E+00	0.00E+00	-3.47E-01
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.13E-09	4.76E-14	5.74E-13	4.76E-14	0.00E+00	0.00E+00	-5.77E-11
AP	Acidification potential of land and water	[kg SO_2-Eq.]	1.59E-02	2.28E-04	3.81E-05	2.28E-04	0.00E+00	0.00E+00	-1.76E-03
EP	Eutrophication potential	[kg N-eq.]	6.68E-04	1.12E-05	1.81E-06	1.12E-05	0.00E+00	0.00E+00	-6.78E-05
Smog	Ground-level smog formation potential	[kg O_3-eq.]	1.21E-01	5.77E-03	6.71E-04	5.77E-03	0.00E+00	0.00E+00	-1.86E-02
Resources	Resources – resources fossil	[MJ]	2.72E+00	8.41E-02	4.92E-03	8.41E-02	0.00E+00	0.00E+00	-5.21E-01

RESULTS OF THE LCA - RESOURCE USE: One piece of TX TK Cylinder

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	9.19E+00	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	9.19E+00	2.67E-03	3.74E-03	2.67E-03	0.00E+00	0.00E+00	-6.05E-01
PENRE	Non-renewable primary energy as energy carrier	[MJ]	4.04E+01	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	4.04E+01	5.86E-01	5.08E-02	5.86E-01	0.00E+00	0E+00	-5.38E+00
SM	Use of secondary material	[kg]	5.79E-01	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
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
FW	Use of net fresh water	[m^3]	2.88E-02	5.39E-06	3.68E-04	5.39E-06	0.00E+00	0.00E+00	-4.32E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One piece of TX TK Cylinder

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	4.08E-03	1.15E-06	3.52E-06	1.15E-06	0.00E+00	0.00E+00	-2.56E-04
NHWD	Non-hazardous waste disposed	[kg]	2.93E-01	7.63E-06	6.60E-03	7.63E-06	0.00E+00	0.00E+00	-1.09E-01
RWD	Radioactive waste disposed	[kg]	4.35E-03	5.69E-07	2.55E-06	5.69E-07	0.00E+00	0.00E+00	-2.20E-04
CRU	Components for re-use	[kg]	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	6.12E-02	0.00E+00	4.75E-01	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	-
EEE	Exported electrical energy	[MJ]	0.00E+00	0.00E+00	2.01E-01	0.00E+00	0.00E+00	0.00E+00	-
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	5.59E-01	0.00E+00	0.00E+00	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
TESA ASSA ABLOY
Barrio Ventas S/N
20305 Irun , Spain

Tel + 0034 943669100
Fax +0034 943669176
Mail marketing@tesa.es
Web **www.tesa.es**