ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	**ASSA ABLOY Australia Pty Ltd**
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ASA-20160080-IBA1-EN
Issue date	27.04.2016
Valid to	26.04.2021

Lockwood 1800 Series Plate Door Furniture – Lever and Turnsnib 1904/70SC

ASSA ABLOY Australia Pty Ltd

www.bau-umwelt.com / https://epd-online.com

1. General Information

ASSA ABLOY Australia Pty Ltd

Programme holder

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

Declaration number

EPD-ASA-20160080-IBA1-EN

This Declaration is based on the Product Category Rules (PCR):

Locks and fittings , 07.2014
(PCR tested and approved by the independent expert committee (SVR))

Issue date

27.04.2016

Valid to

26.04.2021

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

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

Lever and Turnsnib 1904/70SC

Owner of the Declaration

ASSA ABLOY Australia Pty Ltd
235 Huntingdale Rd
Oakleigh VIC 3166
Australia

Declared product / Declared unit

The declaration represents 1 mechanical door handle on plate consisting of the following items:

- Plate with lever and turn assembly
- Lever
- Turn knob
- Internal operating components

Scope:

This declaration and its LCA study are relevant to the Lever and Turnsnib 1904/70SCmanufactured from components sourced from international Tier-1 suppliers.

The manufacturing occurs in Melbourne. 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.-Ing. Wolfram Trinius
(Independent verifier appointed by SVR)

2. Product

2.1 Product description

Product name: Lockwood 1800 series plate door furniture, internal plate with 70 lever and turn knob satin chrome plated (Part code 1904/70SC).

Product characteristic:

- Lockwood 1800 series plate door furniture consist of a brass lever on a brass base plate, which are satin chrome plated using a chrome 3 process. The lever handle operates a mortice lock mechanism.
- The internal plate with 70 lever requires a matching external plate for a complete door assembly.
- The plate includes a turn knob, which interacts with the mortice lock mechanism to lock and unlock the external handle.
- The product can be used on timber or aluminium frame doors and has been approved for use on fire door assemblies as per AS1905.1-2015.

2.2 Application

Lockwood 1800 series furniture provides functional actuation of both latch bolt and locking mechanism of an appropriately matched mortice lock and facilitates manual operation of the door leaf.

2.3 Technical Data

For the declared product, the following technical data in the delivery status must be provided with reference to the test standard.

Technical data

Parameter	Value	Unit
Available Finishes:	Satin chrome plated brass (Chrome 3 Process)	-

Plate Thickness	12	mm
Plate Width:	48	mm
Plate Height:	166	mm
Lever projection:	53	mm
Lever length	121	mm

2.4 Placing on the market / Application rules

The standards that can be applied for Lockwood 1800 series furniture are:

- AS4145.2-2008
- AS1905.1-2015
- AS1428.1-2009.

2.5 Delivery status

Lockwood 1800 series furniture is delivered as in a box size - 175 mm x 88 mm x 75 mm.

2.6 Base materials / Ancillary materials

The average composition for Lockwood 1800 series plate door furniture are as following:

Component	Percentage in mass (%)
Brass	87.45
Steel	6.40
Stainless Steel	0.67
Plastic	1.03
Zinc	4.45
Total	100.0

2.7 Manufacture

The primary manufacturing processes are made by Tier 1 suppliers and the final manufacturing processes occur at in factory ASSA ABLOY Australia, Melbourne Site.

The factory of ASSA ABLOY Australia, Melbourne Site has a quality management system certified according to /ISO 9001:2008/.

2.8 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 Environment Management program effectiveness is evaluated.
• 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.
• Any waste metals during machining are separated and recycled. The waste from the plating process is delivered to waste treatment plant.

2.9 Product processing/Installation

Lockwood 1800 series plate door furniture is distributed through and installed by trained installation technicians, such as locksmiths, carpenters etc. adhering to local/national standards and requirements.

2.10 Packaging

Lockwood 1800 series plate door furniture is packed in a cardboard box with polyethylene protective foam sleeve. The packaging is fully recyclable. Separate lock case package with dimensions: 380 mm x 185 mm x 26 mm.

Material	Value (%)
Cardboard/paper	98.53
Plastic	1.47
Total	100.0

2.11 Condition of use

Depending on the environment, cleaning should be done with a dilute solution of a mild liquid detergent in warm water followed by rinsing with fresh water and drying of the surface.

2.12 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.

2.13 Reference service life

Approved for 500,000 cycles of the lever and 80,000 cycles of the turn knob under normal working conditions, 25 years depending on cycle frequency.

2.14 Extraordinary effects

Fire

Suitable for use in fire and smoke doors (AS1905.1-2015).

Water

Contains 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.

2.15 Re-use stage

The product is possible to re-use during the reference service life and be moved from one door to another. The majority, of components is brass, steel, stainless steel and zinc, which can be recycled. The furniture can be mechanically disassembled to separate the different materials. The plastic components can be used for energy recovery in an incineration plant

2.16 Disposal

No disposal is foreseen for the product nor for the corresponding packaging.

2.17 Further information

ASSA ABLOY Australia
235 Huntingdale Road
Oakleigh VIC 3166
Australia.

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of door handle as specified in Part B requirements on the EPD for PCR Locks and fittings: (mechanical & electromechanical locks & fittings)

Declared unit

Name	Value	Unit
Declared unit	1	piece of door handle
Mass (without packaging)	0.55	kg
Conversion factor to 1 kg	1.811	-

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 or recycling potential from EOL and A5.

3.3 Estimates and assumptions

EoL:
In the End-of-Life stage a scenario with collection rate of 100% for all the recyclable materials 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 PE INTERNATIONAL 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/.
PE INTERNATIONAL 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. The last revision of the used background data has taken place not longer than 10 years ago.

3.7 Period under review

The period under review is 2015 (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. Following specific life cycle inventories for the WIP are considered:

- Waste incineration of plastic
- Waste incineration of paper.

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.

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 (27 t payload)	39.40	l/100 km
Transport distance truck	1300	km
Capacity utilization (incl. empty runs) of truck	85	%
Ship transport		
Fuel consumption	10900	kg/100 km
Dead-Weight-Tons	27500	DWT
Transport distance ship	2600	km
Capacity utilization	48	%

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (Paper packaging)	0.074	kg
Output substances following waste treatment on site (Plastic packaging)	0.001	kg

Reference service life

Name	Value	Unit
Reference service life	25	a

End of life (C2-C4)

Name	Value	Unit
Collected separately brass, plastic parts, stainless steel, steel, zinc	0.55	kg
Collected as mixed construction waste for landfilling	0.0	kg
Reuse plastic	0.007	kg
Recycling brass, stainless steel, steel,zinc	0.54	kg
Landfilling construction waste	0.0	kg

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

Name	Value	Unit
Collected separately waste type (including packaging)	0.627	kg
Recycling Stainless steel	0.59	%
Recycling Brass	77.01	%
Recycling Zinc	3.92	%
Recycling Steel	5.62	%
Reuse Paper packaging (from A5)	11.77	%
Reuse Plastic packaging (from A5)	1.09	%

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	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: Lever and Turnsnib 1904/70SC

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	1.66E+00	6.21E-02	1.07E-01	4.47E-03	0.00E+00	1.02E-02	-3.17E-01
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.10E-10	2.68E-13	4.87E-13	2.14E-14	0.00E+00	3.48E-14	-5.01E-11
AP	Acidification potential of land and water	[kg SO_2-Eq.]	1.17E-02	8.85E-04	2.45E-05	2.05E-05	0.00E+00	2.12E-06	-1.53E-03
EP	Eutrophication potential	[kg $(PO_4)^{3-}$- Eq.]	9.44E-04	1.12E-04	4.21E-06	4.68E-06	0.00E+00	2.06E-07	-1.05E-04
POCP	Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	7.65E-04	-1.53E-05	1.73E-06	-6.60E-06	0.00E+00	1.22E-07	-1.19E-04
ADPE	Abiotic depletion potential for non-fossil resources	[kg Sb Eq.]	6.38E-04	2.06E-09	2.07E-09	1.69E-10	0.00E+00	4.52E-10	-3.82E-04
ADPF	Abiotic depletion potential for fossil resources	[MJ]	2.11E+01	8.21E-01	3.05E-02	6.17E-02	0.00E+00	3.47E-03	-3.93E+00

RESULTS OF THE LCA - RESOURCE USE: Lever and Turnsnib 1904/70SC

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	4.18E+00	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	4.18E+00	2.16E-02	2.82E-03	2.43E-03	0.00E+00	2.78E-04	-6.61E-01
PENRE	Non renewable primary energy as energy carrier	[MJ]	2.28E+01	-	-	-	-	-	-
PENRM	Non renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PENRT	Total use of non renewable primary energy resources	[MJ]	2.28E+01	8.23E-01	3.56E-02	6.19E-02	0.00E+00	3.92E-03	-4.56E+00
SM	Use of secondary material	[kg]	7.70E-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]	1.54E-02	1.66E-05	3.11E-04	1.72E-06	0.00E+00	2.56E-05	-3.45E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: Lever and Turnsnib 1904/70SC

Parameter	Parameter	Unit	A1-A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	9.90E-04	1.55E-06	2.45E-06	1.41E-07	0.00E+00	2.74E-07	-2.45E-04
NHWD	Non hazardous waste disposed	[kg]	1.61E-01	6.85E-05	2.88E-03	7.79E-06	0.00E+00	6.18E-04	3.55E-02
RWD	Radioactive waste disposed	[kg]	6.94E-04	1.05E-06	2.06E-06	8.11E-08	0.00E+00	1.81E-07	-2.51E-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	7.38E-02	0.00E+00	5.45E-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	1.38E-01	0.00E+00	0.00E+00	1.64E-02	0.00E+00
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	3.88E-01	0.00E+00	0.00E+00	4.53E-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 89% 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 steel, mainly due to the energy consumption on this process. Brass accounts with approx. 87% to the overall mass 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 Locks and fittings.
www.bau-umwelt.com

EN 15804
EN 15804:2012+A1:2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

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

ISO 9001
Quality management systems - Requirements

AS4145.2-2008
Locksets and hardware for doors and windows - Part 2: Mechanical locksets for doors and windows in buildings.

AS1905.1-2015
Components for the protection of openings in fire resistant walls.

AS1428.1-2009
Design for access and mobility - General requirements for access - New building work.

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: Lever and Turnsnib 1904/70SC

Parameter	Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	1.66E+00	6.21E-02	1.07E-01	4.47E-03	0.00E+00	1.02E-02	-3.17E-01
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	1.17E-10	2.85E-13	5.18E-13	2.28E-14	0.00E+00	3.70E-14	-5.33E-11
AP	Acidification potential of land and water	[kg SO_2-Eq.]	1.16E-02	9.76E-04	2.97E-05	2.68E-05	0.00E+00	2.47E-06	-1.47E-03
EP	Eutrophication potential	[kg N-eq.]	5.61E-04	4.09E-05	1.69E-06	1.89E-06	0.00E+00	9.17E-08	-5.60E-05
Smog	Ground-level smog formation potential	[kg O_3-eq.]	1.56E-01	1.84E-02	6.81E-04	5.51E-04	0.00E+00	2.69E-05	-1.52E-02
Resources	Resources – resources fossil	[MJ]	1.51E+00	1.18E-01	3.56E-03	8.88E-03	0.00E+00	3.69E-04	-3.78E-01

RESULTS OF THE LCA - RESOURCE USE: Lever and Turnsnib 1904/70SC

Parameter	Parameter	Unit	A1-3	A4	A5	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	4.18E+00	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	4.18E+00	2.16E-02	2.82E-03	2.43E-03	0.00E+00	2.78E-04	-6.61E-01
PENRE	Non-renewable primary energy as energy carrier	[MJ]	2.28E+01	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	2.28E+01	8.23E-01	3.56E-02	6.19E-02	0.00E+00	3.92E-03	-4.56E+00
SM	Use of secondary material	[kg]	7.70E-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	[m³]	1.54E-02	1.66E-05	3.11E-04	1.72E-06	0.00E+00	2.56E-05	-3.45E-03

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: Lever and Turnsnib 1904/70SC

Parameter	Parameter	Unit	A1-3	A4	A5	B6	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	9.90E-04	1.55E-06	2.45E-06	1.41E-07	0.00E+00	2.74E-07	-2.45E-04	-7.08E-05
NHWD	Non-hazardous waste disposed	[kg]	1.61E-01	6.85E-05	2.88E-03	7.79E-06	0.00E+00	6.18E-04	3.55E-02	1.46E-02
RWD	Radioactive waste disposed	[kg]	6.94E-04	1.05E-06	2.06E-06	8.11E-08	0.00E+00	1.81E-07	-2.51E-04	-1.80E-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	7.38E-02	0.00E+00	5.45E-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	1.38E-01	0.00E+00	0.00E+00	1.64E-02	-	-
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	3.88E-01	0.00E+00	0.00E+00	4.53E-02	-	-

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@bau-umwelt.com
Web **www.bau-umwelt.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@bau-umwelt.com
Web **www.bau-umwelt.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 consulting@thinkstep.com
Web **www.thinkstep.com**

Owner of the Declaration
ASSA ABLOY Australia
235 Huntingdale Road
Oakleigh VIC 3166
AUSTRALIA

Tel +613 8574 3888
Web **www.assaabloy.com.au**