ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration ASSA AB

Programme holder Institut Bauen und Umwelt e.V. (IBU)

Publisher Institut Bauen und Umwelt e.V. (IBU)

Declaration number EPD-ASA-201600249-IBA1-EN

Valid to 07.03.201

Electric Strike 960 ASSA AB



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1. General Information

ASSA AB

Programme holder

IBU - Institut Bauen und Umwelt e.V.

Panoramastr. 1 10178 Berlin Germany

Declaration number

EPD-ASA-201600249-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

07.03.2017

Valid to

06.03.2022

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

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

960 Series Electric Strike

Owner of the Declaration

ASSA AB Kungsgatan 71 63105 Eskilstuna, Sweden

Declared product / Declared unit

The declaration represents 1 electric strike – 960 series.

Scope:

This declaration and its LCA study are relevant to the 960 series electric strike.

The primary manufacturing processes and the secondary manufacturing processes and assembly occur at the manufacturing factory in Albstadt, 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

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2. Product

2.1 Product description

Product name: 960 Series Electric Strike Product characteristic: Electric Strike

The 960 electric strike is designed for security door, heavy duty and fire door application and to accommodate mainly Scandinavian mortise type locks. All major components are completely encased within its 140mm x 34,5mm x 25,5mm steel housing. The monitoring contact is installed in the housing. Multi-Voltage, high preload capability and high strength make this electric strike versatile. The operation mode is fail secure. The multi voltage range is 12-24 V AC/DC.

2.2 Application

960 Series electric strikes are ideal for a wide range of applications – mainly for commercial and public sectors:

960 Series suits fire rated or smoke resistant doors

2.3 Technical Data

The technical data with respect to the Declaration of Performance (see chapter 2.4) apply.

The table presents the technical properties of 960 series electric strike:

Technical data

Item	Value
Static	15000 Newton (testing according to
strength	factory standard)
Dynamic	95 Joule (factory tested according to
strength	UL 1034 standard)
Endurance	500000 cycles
Multi voltage	12 – 24 V (AC/DC)

2.4 Placing on the market / Application rules

For the placing on the market in the EU/EFTA (with the exception of Switzerland) the Regulation (EU) No. 305/2011 (/CPR/) and the Directive 2014/30/EG (/EMC/) apply. The product needs a Declaration of Performance taking into consideration /EN 14846:2008 Building hardware - Locks and latches - Electromechanically operated locks and striking plates



- Requirements and test methods/ and the CE-

The CE-marking for the product takes into account the Declaration of Performance in accordance with the CPR and the proof of conformity with the harmonised norms based on the Directive 2014/30/EG:

• EN 61000-6-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8.

For the application and use the respective national provisions apply.

2.5 **Delivery status**

Packed in a box 270mm x 113mm x 55mm including connecting cable and installation instructions.

Base materials / Ancillary materials

The average composition for 960 Series is as following:

Component	Percentage in mass (%)
Brass	0.16
Plastics	0.33
Stainless Steel	5.53
Steel	56.94
Zinc	4.43
Electro mechanics	32.61
Total	100.0

2.7 Manufacture

The primary manufacturing processes and the final manufacturing processes occur at the ASSA ABLOY factory in Albstadt, Germany. The electric coil is produced in Albstadt. The components come from processes like stamped steel, plastic moulding, milling, turning and zinc casting. Final assembly takes place in Albstadt.

The factory of Albstadt has a quality management system certified according to ISO 9001:2008.

2.8 **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 Albstadt has an environmental management system certified according to ISO 14001:2009 and an occupational health and safety system certified according to OHSAS 18001:2007.
- Manufacturing waste is minimised and treated appropriately to ensure minimal environmental impact.

Product processing/Installation

960 electric strikes are distributed through and installed by door manufacturers, trained installation technicians, such as locksmiths, system integrators etc. adhering to local/national standards and requirements.

2.10 Packaging

960 electric strikes are packed in a cardboard box. The packaging is fully recyclable. Material composition of packaging in % of total packaging mass is as following:

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

2.11 Condition of use

To maintain low friction and secure latching, annual maintenance <1g of grease on contact surfaces of electric strike is recommended.

No cleaning. Electric strikes can be replaced or upgraded without changing control unit or installation cable.

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 under normal working conditions, 12 years depending on cycle frequency. Approved according DIN EN 14846:2008, System 1.

Extraordinary effects 2.14

Fire

The electric strike itself is not fire proof, but it is suitable for use in fire and smoke doors (EN 14846).

Water

Contains no substances that have any impact on water in case of flood. Electric operation of the device will be negatively influenced.

Mechanical destruction

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

2.15 Re-use stage

It is possible to re-use the product during the reference service life and to move it from one door to another.

2.16 Disposal

The product can be mechanically dissembled to separate the different materials. The majority, of components is steel, iron and zinc 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.

2.17 Further information

ASSA AB Kungsgatan 71 63105 Eskilstuna, Sweden Phone: +46 1617 7000 www.assa.se



3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of 960 series electric strike 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	0.736 kg	1 piece of electric strike
Conversion factor to 1 kg	1.36	-

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:

• B6 - Operational energy use

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

<u>Transportation:</u> 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 phase: For the use phase, it is assumed that the electric strike is used in the European Union, thus a European electricity grid mix is considered within this phase. According to the most representative scenario, the operating hours of the product are accounted for 90 hours per year; the power consumption throughout the whole life-cycle is 4.53 kWh

<u>EoL</u>: 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. 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 2013/14 (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

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)	0.097	kg

Operational energy use (B6)

operational energy acc (20)		
Name	Value	Unit
Electricity consumption*	4.53	kWh
Days per year in use (for 12 years)	300	d
Hours per day in on mode	0.3	h
Hours per day in off mode	23.7	h
Power consumption on mode	4.2	W

^{*}Total energy consumed during the whole product life was calculated using following formula:

(W_active_mode*h_active_mode+W_idle_mode*h_idl e_mode+W_stand_by_mode*h_stand_by_mode)*Life_ span*days_year*0.001

Where:

- W_active_mode Energy consumption in active mode in W
- h_active_mode Operation time in active mode in hours
- W_idle_mode Energy consumption in idle mode in W
- h_idle_mode Operation time in idle mode in hours
- W_stand_by_mode Energy consumption in stand-by mode in W
- h_stand_by_mode Operation time in stand-by mode in hours
- · Life_span Reference service life of product
- days_year Operation days per year
- 0.001 Conversion factor from Wh to kWh.

Reference service life

Name	Value	Unit
Reference service life	12	а

End of life (C2-C4)

Name	Value	Unit
Collected separately Brass, Stainless Steel, Steel, Zinc, Electro mechanics, Plastics	0.7359	kg
Recycling Brass	0.0012	kg
Recycling Stainless Steel	0.0407	kg
Recycling Steel	0.419	kg
Recycling Zinc	0.0326	kg
Recycling Electro mechanics	0.24	kg
Reuse Plastic Parts	0.0024	kg
Reuse Paper	0.097	kg

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

relevant Scenario initorniation		
Name	Value	Unit
Collected separately waste type (including packaging)	0.8329	kg
Recycling Brass	0.14	%
Recycling Stainless Steel	4.89	%
Recycling Steel	50.31	%
Recycling Zinc	3.91	%
Recycling Electro mechanics	28.81	%
Reuse Plastic Parts	0.29	%
Reuse Paper packaging (from A5)	11.65	%



5. LCA: Results

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

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Parame PER PER PENF PENF SMM RSF NRS FW	eter EE M ET RRM RT RT RF FF FF M M M M M M M M M M	Renewa Renewa Renewa resource Total use e Non-rene m Total use of e Use of ren Use of ren Use of ren F Hazardou	Parameter able primary energy car wable prima s as materi e of renewa nergy resou wable prima energy car wable prima energy car wable prima energy resou of non-rene nergy resou f secondary newable sec on-renewab fuels e of net fresi	y energy rier ary energial utilizable prirurces ary energiary ener	y as gy ation mary rgy as rgy as orimary ial y fuels ndary	Un [M.	it A1 9.12 9.12 9.12 0.00	E+00 E+00 E+00 E+01 E+01 E+01 E+01 E+01	1.08E 1.08E 2.74E- 0.00E+ 0.00E+ 7.60E-	-01 4 +00 0 +00 0 +00 0	A5	03 7 02 3 000 0 000 0 000 0 004 1 000 0 000 0	B6	01 2.00 0.00 0.00 0.00 0.00 0.00 ne p		1.29E-1 1.29E-	01 1.7 00 0.0 00 0.0 00 0.0 04 9.5 c Str	- 6E-02 55E-01 0E+00 0E+00 0E+00 0E+00	-7.96E-016.31E+00 0.00E+00 0.00E+00 -2.73E-03
Parame PER PENF PENF PENF SM RSF NRS FW RESU Parame HWI	eter E MM ET RRE RRM II F F F C L L L L L L L L L L L L	Renewa Renewa Renewa resource Total use Non-rene Mon-rene Mon-rene Use of ren Use of ren Use of ren Use of ren Use of no	Parameter able primary energy car wable prima es as materi e of renewa nergy resou wable prima energy car wable prima energy car wable prima energy resou of non-rene nergy resou of secondary newable see on-renewabl fuels e of net fresl IE LCA — Parameter us waste dis azardous wi disposed	y energy rier ary energy and utilizable prirurces ary energy ener	y as gy ation mary rgy as rgy as primary ial y fuels ndary FPUT F Uni [kg [kg	Un	A1 A2 A3 A4 A5 A5 A5 A5 A5 A5 A5	E+00 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E+00	1.08E- 1.08E- 2.74E- 0.00E- 0.00E- 7.60E- ASTE A4 5E-07	-01 4 +00 0 +00 0 +00 0 -06 4 3.10E	A5	02 3 000 0 000 0 000 0 004 1 000 0 5.31	B6	000 0.00 0.00 0.00 0.00 0.00 0.00 0.00		2 7.04E-0 0 0.00E+ 0 0.00E+ 7 3.18E-0 2 2.27E-04	01 1.7 00 0.0 00 0.0 00 0.0 00 0.0 04 9.5 c Str	- 6E-02 55E-01 0E+00 0E+00 0E+02 2E-04 3E-05	-7.96E-01 -7.96E-01 -6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03 60 D -3.00E-04 -4.65E-03
Parame PER PER PENF PENF SMM RSF NRS FW RESU Param HWI RWI	eter E M RT RE RM RT I I I I I I I I I I I I I	Renewa Renewa Renewa Renewa resource Total use e Non-rene m Total use o e Use of ren Use of no Use S OF TH Hazardou Non-ha	Parameter able primary energy car wable primary es as materia e of renewa nergy resou wable prima energy car wable prima aterial utiliz of non-rene newable secondary newable secondary newable secondary aterial utiliz be of net frest Parameter us waste dis azardous wi disposed we waste dis	y energy rier ary energy energ	y as gy ation mary rgy as rgy as orimary ial y fuels ndary PUT F Uni [kg [kg [kg	Un	A1 A2 A3 A4 A4 A4 A5 A5 A6 A5 A6 A6 A6 A6	E+00 E+00 E+00 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E-01 E+00 E-01 E-01 E-00 E-01 E-00 E-01 E-00 E-01 E-00 E-01 E-00 E-00	1.08E- 1.08E- 2.74E- 0.00E+ 0.00E+ 7.60E- 44 5E-07 5E-05	-02 3 3 4 +00 0 0 +00 0 0 4 4 CAT A 3.10E 2.64E	A5 3.59E	02 3 000 0 000 0 000 0 004 1 5.31 1.24	B6	01 2. 00 0.0 00 0.0		3 1.29E-1	000 0.00 0.00 0.00 0.00 0.00 0.00 0.00	- 6E-02 5E-01 00E+00	-7.96E-01 -7.96E-01 -6.31E+00 0.00E+00 0.00E+00 -2.73E-03 60 D -3.00E-04 -4.65E-03 -3.91E-04
Parame PER PER PENF PENF SM RSF NRS FW RESU Param HWI NHW RWI CRU	E M M CT	Renewa Renewa Renewa Renewa resource Total use e Non-rene m Total use o Use of rer Use of no Use of rer Use of no Renewa Radioacti Compo	Parameter able primary energy car wable primary energy car wable prima es as materia e of renewa mergy resou wable prima energy car wable prima material utiliz of secondary mewable sec on-renewabl fuels e of net fresl IE LCA — Parameter us waste dis azardous wa disposed we waste dis ments for re	y energy rier ary energy energ	y as gy ation mary rgy as rgy as orimary ial y fuels ndary PUT F Uni [kg [kg [kg [kg	Un	A1 A1 A1 A1 A1 A1 A1 A1	-A3 E+00 E+00 E+00 E+01 E+01 E+00 E+01 E+00 E+01 E+00 SE-01 E+00 SE-02 O WA A A A A A B A A B A B A B A B A B A B	1.08E 1.08E 2.74E- 0.00E- 0.00E- 7.60E- 7.60E- 5E-07 5E-05 9E-07	-02 3 -02 3 -01 4 +00 0 +00 0 +00 0 -06 4 -01 3.45E 2.64E 0.00E	A5	02 3 7 00 00 00 00 00 00 00 00 00 00 00 00 0	B6	00 0.00 0.00 0.00 0.00 0.00 0.00 0.00		2 7.04E-0 0 0.00E+ 0 0.00E+ 1 0.00E+ 2 2.27E-04 0 0.00E+00	0.000 0.000	- 6E-02 5E-01 0E+00 0E+00 0E+00 0E+00 0E+00 E+00 0E+00 0E+00 0E+00 0E+00	-7.96E-01 -7.96E-01 -1 -6.31E+00 0.00E+00 0.00E+00 -2.73E-03 0 D -3.00E-04 -4.65E-03 -3.91E-04 0.00E+00
Parame PER PENF PENF SM RSF NRS FW RESU Parame HWI NHW RWI CRI	EEE MM PROPERTY OF THE PROPERT	Renewa Renewa Renewa Renewa resource Total use e Non-rene Mon-rene Use of ren Use of ren Use of ren Use of no Use Radioacti Compo	Parameter able primary energy carr wable prima es as materi e of renewab material utiliz nemergy resou f secondary newable secondary newab	y energy rier ary energy energ	y as gy ation mary rgy as rgy as orimary ial y fuels ndary FUT F Uni [kg [kg [kg [kg [kg	Un	A1 A2 A3 A4 A4 A4 A4 A4 A4 A4	E+00 E+00 E+01 E+00 E+01 E+01 E+00 E+00	1.08E- 1.08E- 2.74E- 0.00E+ 0.00E+ 7.60E- ASTE A4 6E-07 6E-05 9E-07 0E+00	-01 4 +00 0 +00 0 +00 0 -06 4 -06 4 -06 4 -06 4 -07 -08 -08 -08 -08 -08 -08 -08 -08 -08 -08	A5	02 3 7 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B6	01 2.00 0.00 0.00 0.00 0.00 0.00 0.00 0.		2 7.04E-0 0.00E+0 0.00E+7 C3 2.27E-04 0.00E+00 0	0.000 0.000	- 6E-02 55E-01 0E+00 0E+00 0E+00 2E-04 6E-05 6E-05 6E-05 6E-00	
Parame PER PER PENF PENF PENF SM RSF NRS FW RESU Param HWI NHW RWI MFI MEI	eter E M CT RRM RT T T T T T T T T T T T T	Renewa Renewa Renewa Renewa Total use Non-rene Mon-rene Mon-rene Use of ren Use of not Use of not Use of not Compo Materials f	Parameter able primary energy car wable primary energy resour wable primary energy resour wable primary energy car wable primary wable primary material utilizer of non-rener energy resour ff secondary mewable ser on-renewable fuels e of net frest IE LCA Parameter us waste dis azardous wadisposed we waste dis enents for recycle for energy re-	y energy rier ary energy energ	y as gy ation mary rgy as rgy as orimary ial y fuels ndary PUT F Uni [kg [kg [kg [kg y [kg y [kg	Un	A1 A2 A3 A4 A4 A4 A4 A5 A5 A5 A5	E+00 E+00 E+00 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E-01 E+00 E-01 E-00 E-00 E-00 0.00 0.00	1.08E- 1.08E- 1.08E- 2.74E- 0.00E- 0.00E- 7.60E- 7.60E- 5E-07 5E-05 6E-07 6E+00 0E+00	-02 3 -02 3 -01 4 -01 4 -01 0 0 -06 4 -06 4 -07 -06 4 -08 -08 -08 -08 -08 -08 -08 -08 -08 -08	A5	02 3 7 00 00 00 00 00 00 00 00 00 00 00 00 0	B6	0.000 0.000		1.29E-1 1.29E-1 1.29E-1 1.29E-1 1.29E-1 1.29E-1 1.00E+1 1.00E+1 1.00E+1 1.01E-0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0	0.000 0.000	- 6E-02 - 5E-01 0E+00 0E+00 0E+00 0E+00 E+00 0E+00 0E+00 0E+00 0E+00 0E+00 0E+00 0E+00	-7.96E-01 -7.96E-01 -1 -6.31E+00 0.00E+00 0.00E+00 -2.73E-03 -3.00E-04 -4.65E-03 -3.91E-04 0.00E+00 0.00E+00
Parame PER PENF PENF SM RSF NRS FW RESU Parame HWI NHW RWI CRI	E M M CT	Renewa Renewa Renewa Renewa Total use Non-rene Mon-rene Mon-rene Use of ren Use of not Use of not Use of not Compo Materials f	Parameter able primary energy carr wable prima es as materi e of renewab material utiliz nemergy resou f secondary newable secondary newab	y energy rier ary energy energ	y as gy ation mary rgy as rgy as orimary ial y fuels ndary FUT F Uni [kg [kg [kg [kg [kg	Un	A1 A2 A3 A4 A4 A4 A4 A4 A4 A4	E+00 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E+01 E+00 E-01 E+00 0:E-02 0:E-02 0:000 0:000 0:000	1.08E- 1.08E- 2.74E- 0.00E+ 0.00E+ 7.60E- ASTE A4 6E-07 6E-05 9E-07 0E+00	-01 4 +00 0 +00 0 +00 0 -06 4 -06 4 -06 4 -06 4 -07 -08 -08 -08 -08 -08 -08 -08 -08 -08 -08	A5	02 3 7 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B6	01 2. 00 0.00 00 0.00 00 0.00 00 0.00 00 0.		2 7.04E-0 0.00E+0 0.00E+7 C3 2.27E-04 0.00E+00 0	0.000 0.000	- 6E-02 55E-01 0E+00 0E+00 0E+00 2E-04 6E-05 6E-05 6E-05 6E-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 31% and 100% to the overall results for all the environmental impact assessment categories hereby considered. Steel accounts in total with a majority of 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.

To reflect the use stage (module B6), the energy consumption was included and it has a major

contribution for all the impact assessment categories considered - between 23% and 32%, with the exception of ODP (67%). In calculating the ozone depletion potential, the anthropogenic released halogenated hydrocarbons, which can destroy many ozone molecules, are recorded first, therefore, as expected; the impact is higher during the use stage of the product (B6). This is a result of 0.3 hours in on mode per day and per 300 days in a year.

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

ISO 14025

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

ISO 14001:2009

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

ISO 9001:2008

Quality management systems - Requirements

EN 15804

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

EN 14846:2008

Building hardware - Locks and latches - Electromechanically operated locks and striking plates - Requirements and test methods

EN 61000-6-2

Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments (IEC 61000-6-2:2005)

EN 61000-4-2

Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2:2008)

EN 61000-4-3

Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3:2006 + A1:2007 + A2:2010)

EN 61000-4-4

Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test (IEC 61000-4-4:2012)

EN 61000-4-5

Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test (IEC 61000-4-5:2014)



EN 61000-4-6

Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:2013)

EN 61000-4-8

Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test (IEC 61000-4-8:2009)

OHSAS 18001:2007

Occupational Health and Safety Assessment Series

CPR

REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

EMC

DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

GaBi 6 2013

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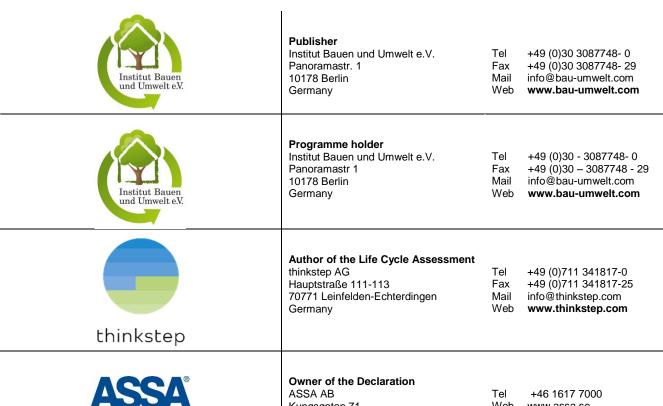
GaBi 6 2013D

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

Resul	lts sh	own be	low we	ere calc	culated	d using	TRAC	н Ме	ethodo	ology.								
DESC	CRIP	rion o	F THE	SYST	EM B	OUND	ARY (X = I	NCLU	JDED	IN L	CA;	MND	= MODI	JLE N	OT D		
PROI	DUCT	STAGE	CONST ON PRO	OCESS		USE STAGE							END OF LIFE STAGE				BEY(SY	FITS AND OADS OND THE 'STEM NDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement ¹⁾	Refurbishment ¹⁾	Operational energy	esn	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-	Recovery- Recycling- potential
A1	A2	А3	A4	A5	B1	B2	В3	В4	В:	5 B	6	B7	C1	C2	C 3	C4		D
Х	Х	Х	Х	Х	MND	MND	MND	MNI	D MN	ID)	(MND	MND	Х	Χ	Х		Х
RESU	JLTS	OF TH	E LCA	- ENV	/IRON	MENT.	AL IM	PAC	T: Or	ne pie	ce E	lectr	ic Str	ike 960				
Paran	neter		Paramete		ι	Jnit	A1 - A	A3	A4		A5	ı	36	C2	СЗ		C4	D
GV	VP		warming		[kg C	O ₂ -Eq.]	4.07E	+00	1.98E-0	02 1.3	7E-01	2.15	E+00	1.98E-03	3.96E	-02 1.	86E-01	-4.35E-01
OE)P		on potent heric ozo		[kg CF	C11-Eq.	7.22E	-10	1.01E-	13 6.6	8E-13	1.57	'E-09	1.01E-14	2.88E-	-11 5.	47E-13	-9.46E-11
Al	Р	Acidificati	on poten and wate		d [kg S	SO ₂ -Eq.]	2.27E	-02	1.18E-0	04 3.7	9E-05	9.62	2E-03	1.18E-05	1.77E	-04 1.	12E-04	-1.75E-03
El	Р	Eutrop	hication p	otential	[kg	N-eq.]	1.43E	-03	8.37E-0	06 2.1	9E-06	4.09	E-04	8.37E-07	7.52E	-06 9.	15E-06	-7.19E-05
Sm	nog	Ground-le	evel smog potential		l [kg	O ₃ -eq.]	2.63E	-01	2.44E-(03 8.8	6E-04	8.71	E-02	2.44E-04	1.60E	-03 3.	56E-03	-2.03E-02
Resou	urces	Resource	•		il [MJ]	4.51E	+00	3.93E-0	02 4.5	2E-03	1.74	E+00	3.93E-03	3.20E-	-02 1.	41E-02	-4.44E-01
RESU	JLTS	OF TH	E LCA	- RES	OUR	CE US	E: One	e pie	ece El	lectric	Stri	ike 9	60					
Paran			Paran			Unit		- A3	A4		A5		36	C2	СЗ		C4	D
PEI	RE	Renew	-	nary ene carrier	rgy as	[MJ]	9.12	E+00	-		-		-	-	-		-	-
DEI		Renewable primary energy					_				-		_					
"=	RM			imary en aterial uti		[MJ]	0.00	E+00	-		-			-	-		-	-
PE		resource Total us	es as ma se of ren	aterial uti ewable p	lization rimary	[MJ]			1.08E	-02 3.5	- 9E-00	3 7.01	E+00	- 1.08E-03	- 1.29E-0	01 1.9	- 96E-02	- -7.96E-01
	RT	resource Total us	es as ma se of rene energy re ewable p	aterial uti ewable p esources rimary er	lization	[MJ]	9.12			-02 3.5	- 9E-00	3 7.01	E+00	- 1.08E-03 -	- 1.29E-0	01 1.9	- 96E-02 -	-7.96E-01
PE	RT IRE	resource Total us Ron-rene Non-rene	es as ma se of rene energy re ewable po energy ewable po	ewable pesources rimary er carrier	lization orimary nergy as	[MJ]	9.12	E+00	1.08E	-02 3.5	- 69E-03 - -	3 7.01		- 1.08E-03 - -		01 1.9	- 96E-02 - -	-7.96E-01 -
PEN	RT IRE IRM	resource Total us Ron-rene Non-rene n Total	es as ma se of rene energy re ewable po energy ewable po naterial u	ewable pesources rimary er carrier rimary er utilization on-renew	dization orimary nergy as nergy as	[MJ]	9.12 6.20 0.00	E+00 E+01 E+00	1.08E		-		-	- 1.08E-03 - - - 2.74E-02	-		-	-7.96E-01 - - - -6.31E+00
PEN PEN	RT NRE IRM	Total us Total us Non-rene Non-rene Total prima	es as ma se of renergy re ewable preservable preservable preservable preservable preservable preservable ary energy	eterial uti ewable p esources rimary er carrier rimary er utilization	nergy as nergy as nergy as	[W1] [W1]	9.12 6.20 0.00 6.20	E+00 E+01 E+00 E+01	1.08E	-01 4.5	- - 51E-02	2 3.83	- - SE+01	-	- 7.04E-0	01 2	- - 2E-01	-
PEN PEN	RT IRE IRM IRT	Total us Total us Non-rene Non-rene Total prima	es as ma se of ren- energy re- ewable pro- ewable pro- naterial use of no ary energor	aterial uti ewable pesources rimary er carrier rimary er utilization on-renew gy resouldary mat	lization vrimary nergy as nergy as vable rces erial	[kā] [W1] [W1] [W1]	9.12 6.20 0.00 6.20 5.89	E+00 E+01 E+00 E+01	1.08E - - - 2.74E 0.00E-	-01 4.5 +00 0.0	- - 51E-02 0E+0	2 3.83	- - SE+01	- 2.74E-02 0.00E+00	7.04E-0	01 2	- - 2E-01 -	- -6.31E+00
PEN PEN SI	RT IRE IRM IRT M	resource Total us Non-rene Non-rene Total prima Use of	es as masse of renergy re- energy re- energy re- energy ewable proposed and re- use of no- ary energy of second- newable	aterial uti ewable pesources rimary er carrier rimary er utilization on-renew gy resour dary mat seconda	lization vrimary nergy as nergy as vable rces erial ary fuels	[MJ] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89	E+00 E+01 E+01 E+01 E-01 E+00	1.08E - - 2.74E 0.00E- 0.00E-	-01 4.5 +00 0.0 +00 0.0	- 51E-02 0E+0 0E+0	2 3.83 0 0.00 0 0.00	- - - - - - - - - - - - - - - - - - -	- 2.74E-02 0.00E+00	7.04E-0	01 2 00 0.0 00 0.0	- - 2E-01 00E+00	- -6.31E+00 0.00E+00
PEN PEN SI RS	RT IRE IRM IRT M SF SF	resource Total us Non-rene Non-rene Total prima Use of Use of n	es as masse of renergy researches per energy researches per energy energy energy enaterial use of neary energy energy energy of second newable on-renew fue e of net f	aterial uti ewable p esources rimary er carrier rimary er utilization on-renew gy resoul dary mat e seconda wable see els rresh wat	lization orimary nergy as nergy as vable cces erial ary fuels condary	[MJ] [MJ] [MJ] [kg] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89 0.00 0.00	E+00 E+01 E+01 E+01 E-01 E+00 E+00	1.08E 2.74E 0.00E- 0.00E- 7.60E	-01 4.9 +00 0.0 +00 0.0 +00 0.0	- 51E-02 0E+0 0E+0 0E+0	2 3.83 0 0.00 0 0.00 0 0.00 4 1.73		- 2.74E-02 3.00E+00 3.00E+00 0.00E+00 7.60E-07	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(00 0.0 00 0.0 00 0.0 00 0.0	- - 22E-01 - 00E+00 00E+00 00E+00	- -6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03
PEN PEN SI RS NR FV	RT IRE IRM IRT M SF SF W JLTS	resource Total us Non-rene Non-rene Total prima Use of Use of n	es as masse of renergy reservable processes as masse of renergy reservable processes as masses of renergy ewable processes of renergy energy e	aterial utile wable persources primary er carrier rimary er utilization con-renew gay resour dary materials secondary wable seeds resh waterials at the control of the cont	lization primary mergy as mergy as mergy as vable rces erial ary fuels condary er	[MJ] [MJ] [MJ] [kg] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89 0.00 0.00 2.66	E+00 E+01 E+01 E+01 E-01 E+00 E+00 E+00	1.08E 2.74E 0.00E 0.00E 7.60E	-01 4.9 +00 0.0 +00 0.0 +00 0.0 -06 4.0	- 0E+0 0E+0 0E+0	2 3.83 0 0.00 0 0.00 0 0.00 4 1.73		- - 2.74E-02 0.00E+00 0.00E+00 0.00E+00 7.60E-07	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(00 0.0 00 0.0 00 0.0 00 0.0 00 0.0	- - - - - - - - - - - - - - - - - - -	- -6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03
PEN PEN PEN SI RS NR FV	RT JRE JRM JRT M SF SF W JLTS	resource Total us Non-rene Non-rene n Total prima Use of Use of n Use OF TH	es as masse of renergy reservable properties of neuron properties of neuron properties of second properties of second properties of neuron properties of neu	aterial utile wable persources rimary er carrier rimary er utilization on-renew gy resouldary materials secondary wable seeds resh waterials are the control of the control	lization orimary orimary orimary orimary orimary orimary original	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89 0.00 0.00 2.66 S ANI	E+00 E+01 E+01 E+01 E+00 E+00 E+00 E+00	1.08E 2.74E 0.00E- 0.00E- 7.60E ASTE	-01 4.5 +00 0.0 +00 0.0 +00 0.0 -06 4.0	- - - - 0E+0 0E+0 0E+0 0E+0	2 3.83 0 0.00 0 0.00 0 0.00 4 1.73 RIES		2.74E-02 0.00E+00 0.00E+00 0.00E+00 7.60E-07	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(C	01 2 00 0.0 00 0.0 00 0.0 00 0.0 04 9.5 ic Str		- -6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03
PEN PEN SI RS NR FV RESU Param	RT IRE IRM M SF SF N JLTS	resource Total us Non-rene Non-rene n Total prima Use of Use of n Use OF TH	es as masse of renergy researches provided in the second second in the second second in the second i	aterial utile wable persources rimary er carrier rimary er utilization con-renew gay resould dary materials secondary wable see els resh waterials waste de	rimary rimary regy as regy as regy as regy rees rerial regy fuels condary rer regy regy regy regy regy regy reg	[MJ] [MJ] [MJ] [MJ] [kg] [MJ] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89 0.00 2.66 S ANI [kg]	E+00 E+01 E+01 E+01 E+01 E+00 E+01 E-01 E+00 E+00 E-02 D W A1	1.08E 2.74E 0.00E 0.00E 7.60E ASTE - A3 9E-03 (-01 4.9 +00 0.0 +00 0.0 +00 0.0 -06 4.0 CATI A4	- - - 00E+0 00E+0 00E+0 00E-0 7 3.10	2 3.83 0 0.00 0 0.00 0 0.00 4 1.73 RIES A5		- 2.74E-02 2.00E+00 0.00E+00 0.00E+00 7.60E-07 piece C2 03 6.25E-	7.04E-0 0.00E+ 0.00E+ 0.00E+ 3.18E-0 Electr C	01 2 00 0.0 00 0.0 00 0.0 04 9.5 ic Stri 3		- -6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03 0 D
PEN PEN PEN SI RS NR FV RESU Param HW	RT IRE IRM M SF SF W ULTS TOTAL TOTA	resource Total us Non-rene Non-rene Total prima Use of Use of ne Use of ne Use of ne Non-rene	es as masse of renergy reservable preservable preservable preservable preservable preservable preservable preservable preservations of reconstructions of reconstructions of second newable con-renevable preservable preserva	aterial utile wable persources primary er carrier rimary er carrier rimary er utilization on-renew gy resound dary materials at the carrier wable see els resh water waste dus waste dus waste dus waste de la carrier a waste dus waste	nergy as nergy as nergy as nergy as roes erial ary fuels condary er	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89 0.00 2.66 S ANI [kg]	E+00 E+01 E+01 E+01 E+00 E+00 E+00 E-02 D W/ A11	1.08E - 2.74E 0.00E 0.00E 7.60E ASTE 1-A3 9E-03 6 0E-01 3	-01 4.8 +00 0.0 +00 0.0 -06 4.0 CATI A4 6.25E-0	- - - 0E+0 0E+0 0E+0 00E-0 7 3.10	2 2 3.83 0 0.00 0 0.00 0 0.00 0 0.00 1.73 RIES DE-06		2.74E-02 0.00E+00 0.0	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(C 08 9.76E	000 0.00 0.00 0.00 0.00 0.00 0.00 0.00		-6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03 0 D -3.00E-04 4.65E-03
PEN PEN SI RS NR FV Param HWW NHW RWW	RT IRE IRM IRM IRM IRM IRM IRM IRM	resource Total us Non-rene Non-rene n Total prima Use of Use of re Use of n OF TH Ra	es as masse of renergy reservable per energy reservable per energy estable per energy estable per energy estable per energy estable per energy	aterial uti ewable p esources rimary er carrier rimary er utilization con-renew gy resound dary mat e seconda wable secula fresh wat rameter waste d us waste d e waste c	lization virimary virimary and regy as mergy as vable reces rerial arry fuels condary er TPUT isposed disposed disposed	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89 0.00 2.666 S ANI Unit [kg] [kg]	E+00 E+01 E+01 E+01 E+00 E+01 E-01 E+00 E+00 E-02 D W A1 5.69 2.44 3.80	1.08E 2.74E 0.00E- 0.00E- 7.60E ASTE - A3 0E-03 0E-01 3 0E-03	-01 4.5 +00 0.6 +00 0.6 -06 4.6 CAT A4 6.25E-0 3.59E-0	- - - - - - - - - - - - - - - - - - -	2 3.83 0 0.00 0 0.00 0 0.00 4 1.73 A5 DE-06		2.74E-02 2.00E+00 0.00E+00 0.00E+00 7.60E-07 2.00E+00 3.00E+00 3.00E+00 3.00E+00 3.00E+00 3.00E+00 3.00E+00	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(C 08 9.766 06 2.276 08 1.016	000 0.00 0.00 0.00 0.00 0.00 0.00 0.00		- -6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03 60 D -3.00E-04 4.65E-03 -3.91E-04
PEN PEN SI RS NR FV RESU Param HW NHV RW	RT IRE	resource Total us Non-rene Non-rene n Total prima Use of Use of n Use OF TH Ha Non- Ra	es as masse of renergy reservable processes as masse of renergy reservable processes as masse of renergy reservable processes as masses of renergy evable processes of renergy energy energy of second newable con-renew fue	aterial utile ewable persources primary er carrier rimary er carrier rimary er utilization con-renew gay resoundary materials exconditional excepts and the control of the	lization primary prima	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	9.12 6.20 0.00 6.20 5.89 0.00 2.66 S ANI Unit [kg] [kg] [kg]	E+00 E+01 E+01 E+00 E+01 E+00 E+00 E+00	1.08E - 2.74E 0.00E- 0.00E- 7.60E ASTE 1-A3 9E-03 6 0E-01 3 0E+00 0	-01 4.5 +00 0.6 +00 0.6 -06 4.6 -07 A4 -0.25E-0 -0.00E+0	- - - - - - - - - - - - - - - - - - -	2 3.83 0 0.00 0 0.00 0 0.00 0 0.00 1.73 RIES A5 DE-06 5E-03 4E-06		2.74E-02 0.00E+00 0.00E+00 0.00E+00 7.60E-07 piece c2 03 6.25E-02 03 3.59E-00 0.00E+	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(C 08 9.76E 06 2.27E 08 1.01E	00 0.00 0.00 0.00 0.00 0.00 0.00 0.00		-6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03 0 D -3.00E-04 -4.65E-03 -3.91E-04
PEN PEN PEN SI RS NR FV Param HW NHV RW CR MF	RT IRE IRM IRT IM INST INST INST INST INST INST INST INST	resource Total us Non-rene n Total prima Use of Use of re Use of n Ha Non- Ra	es as masse of renergy reservable pure energy reservable pure energy energy enaterial use of neary energy e	aterial utile wable persources rimary er carrier rimary er carrier rimary er carrier rimary er carrier rimary er utilization con-renew gy resould dary mater second a vable seeds resh water waste de waste de waste de waste ce ents for recy	lization virimary vir	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [m³]	9.12 6.20 0.00 6.20 0.00 2.66 S ANI [kg] [kg] [kg]	E+00 E+01 E+01 E+01 E+00 E+00 E+00 E+02 2.44 3.88 0.00 0.00	1.08E - 2.74E 0.00E- 0.00E- 7.60E ASTE - A3 0E-01 3 0E-01 3 0E+00 0 0E+00 0	-01 4.5. +00 0.0. +00 0.0. +00 0.0. -06 4.0 6.25E-0 3.45E-0 3.59E-0 0.00E+0	- 11E-020E+0 0E+0 0E+0 0E+0 0F+0 0F-04 7 3.10 7 3.45 5 3.45 7 2.64 0 0.00 0 9.70	2 3.83 0 0.00 0 0 0 0.00 0 0 0.00 0 0 0 0.00 0 0 0 0.00 0 0 0 0.00 0 0 0 0		2.74E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.36.25E-02 0.36.25E-02 0.359E-000 0.00E+000 0.00E+000	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(0.00E+ 0.00E+ 0.	00 0.0 00		-6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03 0 D -3.00E-04 -4.65E-03 -3.91E-04
PEN PEN SI RS NR FV RESU Param HW NHV RW CR MF	RT IRE	resource Total us Non-rene Non-rene n Total prima Use of Use of n Use OF TH Ha Non- Ra Mat	es as masse of renergy reservable processes as masse of renergy reservable processes as masse of renergy reservable processes of renergy energy energ	aterial utile wable persources rimary er carrier rimary er utilization con-renew gy resourced ary material wable seeds resh water waste de waste de waste de ents for recy	rimary rimary rimary rimary rimary regy as regy as reces rerial reces rerial recondary rer recover	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [m³]	9.12 6.20 0.00 6.20 5.89 0.00 2.66 S ANI [kg] [kg] [kg] [kg]	E+00 E+01 E+01 E+01 E+00 E+00 E+00 E+00	1.08E - 2.74E 0.00E- 0.00E- 7.60E ASTE -A3 9E-03 6 0E-01 3 0E-01 0E+00 0 0E+00 0	-01 4.5 +00 0.6 +00 0.6 +00 0.6 -06 4.6 -06 4.6 -0.25E-0 -0.00E+0 -0.00E+0 -0.00E+0 -0.00E+0	- - - 00E+0 00E+0 00E-0 00E-0 7 7 3.10 7 2.64 00 0.00 0 0.00	2 3.83 0 0.00 0 0.00 0 0.00 0 0.00 0 0.00 1.73 EE-06 0E-06 0E-09 0E-00 0E-00		2.74E-02 0.00E+00 0.00E+00 0.00E+00 7.60E-07 2 piece	7.04E-0 0.00E+ 0.00E+ 0.00E+ 3.18E-0 08 9.766 06 2.276 08 1.018 00 0.00E	00 0.0 00 00 0.0 00 0.0	- 2E-01 - 00E+00 00E+00 00E+00	6.31E+00 0.00E+00 0.00E+00 -2.73E-03 0 D -3.00E-04 -4.65E-03 -3.91E-04
PEI PEN PEN SI RS NR FV Param HW NHV RW CR	RT IRE IRM IRT IM INIT INIT INIT INIT INIT INIT INIT	resource Total us Non-rene Non-rene n Total prima Use of Use of re Use of n Usa OF TH Ha Non- Ra Mat	es as masse of renergy reservable pure energy reservable pure energy ene	aterial utile wable persources rimary er carrier rimary er carrier rimary er carrier rimary er carrier rimary er utilization con-renew gy resould dary mater second a vable seeds resh water waste de waste de waste de waste ce ents for recy	lization urimary and a control of the control of th	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [m³]	9.12 6.20 0.00 6.20 0.00 2.66 S ANI [kg] [kg] [kg]	E+00 E+01 E+01 E+00 E+01 E-01 E+00 E+00 0.00 0.00 E+00 E+00 E+00 0.00	1.08E	-01 4.8 +00 0.0 +00 0.0 -06 4.0 -06 4.0 -0.00E+0 0.00E+0 0.00E+0	- 151E-020E+0 00E+0 00E+0 00E+0 00E-04 7 3.10 7 2.64 0 0.00 0 9.70 0 0.00 0 1.74	2 3.83 0 0.00 0 0.00 0 0.00 0 0.00 1.73 RIES AS DE-06 DE-02 DE-02 DE-00 DE-02		2.74E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.36.25E-02 0.36.25E-02 0.359E-000 0.00E+000 0.00E+000	7.04E-(0.00E+ 0.00E+ 0.00E+ 3.18E-(C 08 9.76E 06 2.27E 08 1.01E 00 0.00E 00 4.60E 00 0.00E	00 0.00 0.00 0.00 0.00 0.00 0.00 0.00		-6.31E+00 0.00E+00 0.00E+00 0.00E+00 -2.73E-03 0 D -3.00E-04 -4.65E-03 -3.91E-04





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