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-20170178-IBA1-EN
Issue date	13.11.2017
Valid to	12.11.2022

ASSA ABLOY Security Doors – Fire door

ASSA ABLOY

Institut Bauen und Umwelt e.V.

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

1. General Information

ASSA ABLOY Security Doors

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

Declaration number
EPD-ASA-20170178-IBA1-EN

This Declaration is based on the Product Category Rules - PCR:
Windows and doors, 11.2015
(PCR tested and approved by the independent expert committee (SVR))

Issue date
13.11.22017

Valid to
12.11.2022

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

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

ASSA ABLOY Security Doors (AASD) Fire door

Owner of the Declaration
ASSA ABLOY Security Doors
21 Ferguson Drive Knockmore Hill Industrial Park
Lisburn, Northern Ireland BT28 2EX

Declared product / Declared unit
The declaration represents ASSA ABLOY Security Doors Fire door
- 1 Door frame
- 1 Door Leaf with associated hardware

Scope:
This declaration and its LCA study are relevant to the ASSA ABLOY Fire Door which is manufactured in ASSA ABLOY Security Doors (Lisburn Plant).
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:
AASD Fire Door

Product characteristics:

- Door frame consists of hinge reinforcements and hardware reinforcements and frame adjusters
- Door Leaf consists of hinge reinforcements, Dufaylite (honeycomb cardboard infill) and hardware reinforcements allowing the hardware to operate correctly.

For the use and application of the product the respective national provisions at the place of use apply. The product is accredited to BS 476 Part 22 1987 and BS EN1634-1 2008.

2.2 Application

ASSA ABLOY Fire door consists of a whole range of door types offered in with various finishes and various door hardware fitted.

2.3 Technical Data

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

Item	Value and unit
Fire resistance class DIN EN 1634-1	4 hrs
Door size	2.2m X 1.2m
Thermal insulation	3.7 W/m2 °K
Total energy transmittance	n/a
Installation depth	n/a
Mounting type (sealing system)	Silicone Sealant
Possible opening types	All
Material used (door frame)	Magizinc coated steel (hot-dip zinc coating alloyed with magnesium and aluminium)

The standards that can be applied for ASSA ABLOY Fire Doors are:

- BS 476 Part 22 1987
- BSEN 1634-1 2008 standard for fire resistance

2.4 Delivery status
ASSA ABLOY Fire doors are delivered on purpose built pallets and timber skids.

2.5 Base materials / Ancillary materials
The composition of the AASD fire doors is as following:

Component	Percentage in mass (%)
Stainless Steel	0.66
Steel	96.85
Dufaylite (Paper)	2.49
Total	**100.0**

2.6 Manufacture
The following manufacturing processes occur at ASSA ABLOY Security Doors factory in Knockmore Hill Industrial Park:

- Punching and Folding of sheet steel material
- Gluing and forming of door
- Manufacture of Door frame
- Fabrication of Door
- Powder coating of door and frame
- Door hardware fitted
- Door packaged and dispatched

The factory of ASSA ABLOY Security Doors 21 Ferguson Drive Knockmore Hill Industrial Park Lisburn, Northern Ireland BT28 2EX 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 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 according to ISO 14001:2015.

- 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.

2.8 Product processing /Installation
ASSA ABLOY Fire Doors are distributed through and installed by trained installation technicians, and a network of Trade partners who install to national standards and requirements. The product can also be installed directly by the end-user.

2.9 Packaging
AASD fire doors are packed on specialist pallets with timber skids. The packaging is fully recyclable. 1 to 6 doors and frames per pallet depending on sizes.

Material	Percentage in mass (%)
Wood	100.0
Total	**100.0**

2.10 Condition of use
Doors can be used internally and externally with different coating specification to suit harsh environments. In exceptionally harsh environments, the doors will need to have a cleaning schedule to remove harmful substrates from the surface and prevent corrosion.

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
Properly installed and maintained steel metal doors often last 15 years. The location and intended use of the steel door assembly, the environment to which it is exposed, and the cycling of the door assembly will determine the steel door life expectancy.

2.13 Extraordinary effects
Fire
The door is resistant to fire. The resistance to fire is tested in accordance to the following standards:
BSEN 1634-1 2008 - Fire testing of steel doors to European standard 4hrs
BS 476 Part 22 1987 - Fire Test for uninsulated single action and double leaf door sets 4hrs

Water
No substances are used which have a negative impact on ecological water quality on contact by the door with water.

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 in other door openings.
The majority, by weight, of door components is steel which can be recycled.
In collaboration with the Steel Recycling Institute, customers can utilize a locator tool, allowing them to find a recycling centre near them. The locator tool is hosted on the Steel Recycling Institute's website

(www.recycle-steel.org); it simply asks the user for location information, and provides the nearest recycling location. The tool is free to use and allows the consumer to travel just a short distance and properly dispose their materials. This free program provides recycling and/or disposal of door and frame products that have reached the end of their life cycle and are beyond the product's warranty period.

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 Dufaylite) is recycled or incinerated with energy recovery.
Packaging material is directed to local recyclers.

2.16 Further information

ASSA ABLOY Security Doors
21 Ferguson Drive Knockmore Hill Industrial Park
Lisburn, Northern Ireland BT28 2EX
Web www.assaabloy.co.uk

3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of AASD Fire door as specified in Part B requirements on the EPD for Windows and doors,(PCR tested and approved by the independent expert committee (SVR))

Declared unit

Name	Value	Unit
Declared unit	2.2m x 1.2m	Reference door (frame)
Conversion factor to 1 kg	0.01318	-

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 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.

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 (Wood packaging)	30	kg

Reference service life

Name	Value	Unit
Reference service life	15	a

End of life (C2-C4)

Name	Value	Unit
Collected separately Steel, Stainless steel and Paper (excl. packaging)	75.86	kg
Recycling Steel	73.47	kg
Recycling Stainless steel	0.5	kg
Incineration of Paper	1.89	kg

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

Name	Value	Unit
Collected separately waste type (incl. packaging)	105.86	kg
Recycling Steel	69.40	%
Thermal Treatment Wood	28.34	%
Incineration of Paper	1.79	%
Recycling Stainless steel	0.47	%

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 AASD Fire door

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	1.08E+02	4.03E+00	4.55E+01	3.61E-01	0.00E+00	1.47E+00	-1.36E+02
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	3.03E-09	1.74E-11	1.80E-10	1.73E-12	0.00E+00	-3.07E-10	-4.64E-09
AP	Acidification potential of land and water	[kg SO_2-Eq.]	6.27E-01	5.74E-02	6.35E-03	1.65E-03	0.00E+00	-2.16E-03	-5.10E-01
EP	Eutrophication potential	[kg $(PO_4)^{3-}$- Eq.]	5.48E-02	7.27E-03	9.78E-04	3.77E-04	0.00E+00	-9.12E-05	-4.11E-02
POCP	Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	9.32E-02	-9.93E-04	5.17E-04	-5.33E-04	0.00E+00	-1.98E-04	-7.08E-02
ADPE	Abiotic depletion potential for non-fossil resources	[kg Sb Eq.]	1.66E-03	1.34E-07	6.04E-07	1.36E-08	0.00E+00	-4.15E-08	-1.15E-03
ADPF	Abiotic depletion potential for fossil resources	[MJ]	1.86E+03	5.33E+01	1.00E+01	4.98E+00	0.00E+00	-1.66E+01	-1.37E+03

RESULTS OF THE LCA - RESOURCE USE: One piece of AASD Fire door

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	6.20E+02	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	6.20E+02	1.40E+00	9.91E-01	1.96E-01	0.00E+00	-1.45E+00	-5.06E+00
PENRE	Non-renewable primary energy as energy carrier	[MJ]	1.91E+03	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	1.91E+03	5.34E+01	1.19E+01	4.99E+00	0.00E+00	-1.95E+01	-1.36E+03
SM	Use of secondary material	[kg]	1.06E+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]	7.08E-01	1.08E-03	1.18E-01	1.38E-04	0.00E+00	4.01E-03	-1.32E-01

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One piece of AASD Fire door

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	3.35E-02	1.00E-04	8.32E-04	1.14E-05	0.00E+00	-1.09E-03	6.05E-02
NHWD	Non-hazardous waste disposed	[kg]	3.05E+00	4.45E-03	6.46E-01	6.28E-04	0.00E+00	6.33E-02	-2.38E+00
RWD	Radioactive waste disposed	[kg]	1.98E-02	6.85E-05	7.37E-04	6.54E-06	0.00E+00	-1.14E-03	7.05E-03
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	2.80E+01	0.00E+00	7.40E+01	1.89E+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	5.30E+01	0.00E+00	0.00E+00	3.39E+00	0.00E+00
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	1.49E+02	0.00E+00	0.00E+00	9.56E+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 68% and 99% 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 steel mainly due to the energy consumption on this process.

Packaging waste processing stage (module A5) contributes around 29% to the GWP result due to the incineration of wooden pallets. Wooden packaging material is 30% of the total product weight (including packaging) and produce GWP emissions due to their carbon intensity during incineration process.

Steel accounts in total with approx. 97% 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

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: 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 1634-1
Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Fire resistance test for door and shutter assemblies and openable windows.

EN 14351-1+A1:2010
Windows and doors. Product standard, performance characteristics.
Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics.

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

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/

BS 476 Part 22 1987
Fire Test for uninsulated single action and double leaf doorsets

BSEN 1634-1 2008
Fire testing of steel doors to European standard.

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 AASD Fire door

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
GWP	Global warming potential	[kg CO_2-Eq.]	1.08E+02	4.03E+00	4.55E+01	3.61E-01	0.00E+00	1.47E+00	-1.36E+02
ODP	Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	3.23E-09	1.85E-11	1.92E-10	1.84E-12	0.00E+00	-3.26E-10	-4.94E-09
AP	Acidification potential of land and water	[kg SO_2-Eq.]	6.37E-01	6.34E-02	7.29E-03	2.16E-03	0.00E+00	-1.98E-03	-5.14E-01
EP	Eutrophication potential	[kg N-eq.]	4.07E-02	2.65E-03	4.00E-04	1.52E-04	0.00E+00	-8.66E-05	-2.94E-02
Smog	Ground-level smog formation potential	[kg O_3-eq.]	9.44E+00	1.19E+00	1.39E-01	4.44E-02	0.00E+00	-1.54E-02	-7.39E+00
Resources	Resources – resources fossil	[MJ]	5.49E+01	7.66E+00	1.16E+00	7.16E-01	0.00E+00	-2.10E+00	-2.10E+01

RESULTS OF THE LCA - RESOURCE USE: One piece of AASD Fire door

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
PERE	Renewable primary energy as energy carrier	[MJ]	6.20E+02	-	-	-	-	-	-
PERM	Renewable primary energy resources as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PERT	Total use of renewable primary energy resources	[MJ]	6.20E+02	1.40E+00	9.91E-01	1.96E-01	0.00E+00	-1.45E+00	-5.06E+00
PENRE	Non-renewable primary energy as energy carrier	[MJ]	1.91E+03	-	-	-	-	-	-
PENRM	Non-renewable primary energy as material utilization	[MJ]	0.00E+00	-	-	-	-	-	-
PENRT	Total use of non-renewable primary energy resources	[MJ]	1.91E+03	5.34E+01	1.19E+01	4.99E+00	0.00E+00	-2E+01	-1.36E+03
SM	Use of secondary material	[kg]	1.06E+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]	7.08E-01	1.08E-03	1.18E-01	1.38E-04	0.00E+00	4.01E-03	-1.32E-01

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: One piece of AASD Fire door

Parameter	Parameter	Unit	A1 - A3	A4	A5	C2	C3	C4	D
HWD	Hazardous waste disposed	[kg]	3.35E-02	1.00E-04	8.32E-04	1.14E-05	0.00E+00	-1.09E-03	6.05E-02
NHWD	Non-hazardous waste disposed	[kg]	3.05E+00	4.45E-03	6.46E-01	6.28E-04	0.00E+00	6.33E-02	-2.38E+00
RWD	Radioactive waste disposed	[kg]	1.98E-02	6.85E-05	7.37E-04	6.54E-06	0.00E+00	-1.14E-03	7.05E-03
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	2.80E+01	0.00E+00	7.40E+01	1.89E+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	5.30E+01	0.00E+00	0.00E+00	3.39E+00	-
EET	Exported thermal energy	[MJ]	0.00E+00	0.00E+00	1.49E+02	0.00E+00	0.00E+00	9.56E+00	-

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