## **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-20150226-IBA1-EN

Issue date 21.08.2015 Valid to 20.08.2020

Doors – Bellecour Steel Security Door ASSA ABLOY – Fichet



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## 1. General Information

## **ASSA ABLOY - Fichet**

#### Programme holder

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

Germany

#### **Declaration number**

EPD-ASA-20150226-IBA1-EN

# This Declaration is based on the Product Category Rules:

Windows and doors, 11.2014

(PCR tested and approved by the independent expert committee (SVR))

Issue date

21.08.2015

Valid to

20.08.2020

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

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

## **Bellecour Steel Security Door**

#### Owner of the Declaration

ASSA ABLOY

Assa Abloy Cote Picarde Rue Alexandre Fichet

80460 Oust Marest

#### **Declared product / Declared unit**

This declaration represents one Bellecour steel security door

#### Scope:

This declaration and its LCA study are relevant to Bellecour steel doors at a single manufacturing ASSA ABLOY Door Group site - Oust Marest France. All Bellecour component assembly and manufacturing processes are performed at our manufacturing facility - Assa Abloy Oust Marest. The Bellecour doors are marketed under the following ASSA ABLOY Door Group brand: Fichet.

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 evidence.

#### Verification

The CEN Standard EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025

internally

externally



#### 2. Product

#### 2.1 Product description

Product name: Bellecour Steel Security Door

Product characteristics: Bellecour door is used for internal residential applications. It is a complete door solution, designed to offer a large number of performances: fire resistance, burglary resistance, sound and thermal insulation.

The door is designed to be easily installed on existing doorframe. The door includes a high security lock case, a double plasterboard to increase fire resistance, a metallic structure with central metallic welded wire mesh and an adjustable pivoting system. This tailor-made solution offers a wide range of customizations such as door coatings or various wooden surfaces, door handles and molding decorations.

#### 2.2 Application

Bellecour can only be used indoors. Common applications are interior door openings for residential applications, especially for retrofit market.

#### 2.3 Technical Data

Properties of the Bellecour door:

- Burglary resistance: A2P BP1
- Fire resistance: El2 30

- Sound insulation: 42 dB

- Thermal insulation: 2,1 W/m2.°K

# **2.4** Placing on the market / Application rules No legal provisions applicable.

Bellecour meets the requirements of:

- CNPP H64 rules for burglary resistance (private certification system from the French insurance companies for burglary resistant products)
- EN 1634-1: standard for fire resistance
- ISO 140-1 & ISO 717-1 for sound insulation
- ISO 10077-1 & ISO 10077-2 for thermal insulation

## 2.5 Delivery status

Finished Bellecour doors are placed horizontally on cardboard pallet and banded to pallet for shipment. Minimum of 1 and max 6 doors per pallet.

## 2.6 Base materials / Ancillary materials

The average composition for ASSA ABLOY Bellecour steel security door is as follows:



Component	Percentage in mass (%)
Aluminum	4.3
Plastics	0.4
Brass	0.4
Steel	60.8
Wood	5.3
Others (fiber gypsum board, rock wool, adhesives, coating powder)	28.8
Total	100

#### 2.7 Manufacture

The manufacturing process takes place in our factory Assa Abloy Cote Picarde, Rue Alexandre Fichet, 80460 Oust Marest.

The door production process is composed of:

- cutting
- folding
- stamping
- CNC
- electrostatic powder painting

AACP Production Process is third party certified by DEKRA according to ISO 9001

#### **Environment and health during** 2.8 manufacturing

ASSA ABLOY Cote Picarde is committed to protecting human health and the environment; meeting or exceeding legislation, regulations, codes, and guidelines. Painting and welding areas of the manufacturing plant have an extraction ventilation system to remove dust, VOC and air borne materials. Sound abatement is implemented where possible and Personal Protective Equipment is provided. Waste water is pre-treated prior to dispensing into city waste water treatment system. · AACP Production Process is third party certified by DEKRA according to ISO 9001 & ISO 14001

- 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 the effectiveness of the environmental management program is evaluated.
- · Code of Conduct covers human rights, labor practices and decent work. The management of ASSA ABLOY is aware of their roles and responsibilities, providing appropriate training, supporting accountability and recognizing outstanding performance.

#### Product processing/Installation

Doors are typically installed into residential applications. Personal Protective Equipment should be provided at construction site.

## 2.10 Packaging

Finished Bellecour doors are placed horizontally on cardboard pallet and banded to pallet for shipment. Minimum of 1 and max 6 doors per pallet.

Component	Percentage in mass (%)
Wood	76.6
Cardboard/paper	23.4
Total	100.0

#### 2.11 Condition of use

Doors are delivered with final painting (used of precoated steel sheet). Gaskets are used to control the flow of air, smoke, heat or cold and sound through the door opening.

Repairs or replacement are not usually necessary. No cleaning efforts need to be taken into consideration.

#### 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

Properly installed steel doors often last 30 years or longer. Bellecour doors have cycle tested (open/closed) 200 000 cycles with no issues. 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 assembly life expectancy.

## 2.14 Extraordinary effects

#### Fire

Fire Protection

Fire Door Labeling Agency: Efectis

Test: EN1634-1 Rating: El2 30

#### 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.

## 2.15 Re-use stage

Re-use

Bellecour is tailor made, but can be reused during the reference service life and moved from one similar door opening to another.

## Recycling

In collaboration with the Fédération Française du Bâtiment, customers can utilize a locator tool, allowing them to find a recycling center near them. The locator tool is hosted on the Fédération Française du Bâtiment's website (http://www.dechets-chantier.ffbatiment.fr); it simply asks the user for location information, and provides the nearest recycling location. The tool is free to use. 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.

## 2.16 Disposal

Materials or product parts that could not be recycled or separately collected (fiber gypsum board, rock wool, adhesives, coating powder) were assumed to be disposed on local landfill.

#### 2.17 Further information

For additional information on our products, please visit our web sites:

http://www.assaabloy.fr http://www.fichet-pointfort.fr



#### 3. LCA: Calculation rules

## 3.1 Declared Unit

The declaration refers to the functional unit of 1 piece of Bellecour steel door as specified in Part B requirements on the EPD for Windows and doors/IBU PCR Part B/.

## **Declared** unit

Deciared unit		
Name	Value	Unit
Declared unit	1	piece of Bellecour steel door
Conversion factor to 1 kg	0.013	-
Area	1.9	sqm/pc
Ratio to reference door	0.71	Measuring 1.23 m x 2.18 m = 2.68 sqm/pc (reference door based on EN14351-1)

## 3.2 System boundary

Type of the EPD: cradle to gate - with options. The following life cycle stages were considered for Bellecour steel door:

A1-A3 Production stage:

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

#### A4-A5 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)

These information modules include provision and transport of all materials, products, as well as energy and water provisions, waste processing up to the end-of-waste state or disposal of final residues.

#### Module D:

 Declaration of all benefits or recycling potential from EoL and A5

#### 3.3 Estimates and assumptions

#### Transport:

For materials and pre-products the actual means of transport and distances, provided by the suppliers, were considered.

#### 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 modeling 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 validations during the commission of the present study in order to ensure its quality of the present document and results. 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:

- Waste incineration of plastic
- Waste incineration of paper
- 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

In the EPD scenarios and/or technical information for Modules A5, C2-C4 and D are given.

Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (Paper packaging)	1.2	kg
Output substances following waste treatment on site (Wood packaging)	4.0	kg

#### Reference service life

Name	Value	Unit
Reference service life	30	а

End of life (C2-C4)

Name	Value	Unit
Collected separately Aluminum, brass, steel, plastics, paper, wood	56.8	kg
Collected as mixed construction waste	23.0	kg
Recycling Aluminum, brass, steel	52.3	kg
Thermal Treatment Plastics, paper, wood	4.5	kg
Landfilling	23.0	kg

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

Name	Value	Unit
Collected separately waste type Steel door (including packaging)	84.96	kg
Recycling aluminum	4.01	%
Recycling brass	0.44	%
Recycling steel	57.08	%
Thermal Treatment Plastics	0.36	%
Thermal Treatment Wood	4.93	%
Construction waste for landfilling (no recycling potential)	27.04	%
Reuse Packaging (paper, wood) (from A5)	6.14	%



## 5. LCA: Results

Results shown below were calculated using CML2001 – Apr. 2013 Methodology.

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Renew Total u Non rer Non Tota Use Use of	rable prim mate use of renewable prim mate in renewable prim renewable in renewable in use of ni use of se of renewable in on renewable in the prim in	carrier nary encereiral utilizz newable pesources orimary e carrier oble prima erial utilizz on renewable secondary vable secondary	gy resource ation primary er s s energy as energy ener	ces as ergy energy as as anary els fuels disposette dis	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	0.00E+00 3.63E+02 1.72E+03 0.00E+00 1.72E+03 7.51E+00 0.00E+00 1.03E+00 UT FLOW	2 1.10 3 2.80 0 0.00 0 0.00 0 7.70 VS AN	- DE+00 - DE+01 DE+01 DE+00 DE+00 DE+00 DE+00 A1 3.02 1.311 4.44	2.26 0.00 0.00 2.18 STE -3 E-02 E+01 E-02	- 7E-01	1.10E-0  2.80E+0 0.00E+0 0.00E+0 7.76E-0  30RIES  A5 1.36E- 1.38E- 1.38E-	000 C C C C C C C C C C C C C C C C C C	- 0.00E+00 - 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00	C3 0.00E++ 0.00E+	- 18E-01 15E+00 00E+00 00E+00 00E+00 26E-03 - C4 00 3.58E 00 2.03E-00 00 2.13E	-1.30E+02 -1.17E+03 -1.17E+03 -1.17E+03 -1.17E+00 -0.00E+00 -0.00E+00 -4.18E-01  D -04 4.20E-02 +01 -6.36E+00
Renew Total u Non rer Non Tota Use Use of	rable prim mate use of renewable prim mate in renewable prim renewable in renewable in use of ni use of se of renewable in on renewable in the prim in	carrier nary encereiral utilization essential utilization essentia	gy resource ation primary er senergy as energy as energy ation wable primarces a material condary further econdary in water electrons waste parameter bus waste dous waste dous waste dous waste dous waste waste waste waste dous wast	els fuels dispos er re-us	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	0.00E+00 3.63E+02 1.72E+03 0.00E+00 1.72E+03 7.51E+00 0.00E+00 1.03E+00 UT FLOW	2 1.10 3 2.80 0 0.00 0 0.00 0 7.70 VS AN  Unit  [kg]	- DE+00 DE+01 DE+01 DE+00 DE+00 DE+00 DE+00 A1 3.02 1.311 4.44 0.000	2.26 0.00 0.00 2.18 STE -3 E-02 E+01 E-02	- TE-01	1.10E-0  2.80E+0 0.00E+0 0.00E+0 7.76E-0 GORIES  1.58E-3 1.36E-5 1.38E-0 0.00E+0	00 C C C C C C C C C C C C C C C C C C	- 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00	C3 0.00E++ 0.00E++ 0.00E++	- 18E-01 145E+00 00E+00 00E+00 00E+00 00E+00 00E+00 00E+00 00E+00 00E+00 00E+00 00E+00 00E+00 00E+00	-1.30E+02 -1.17E+03 -1.17E+03 -1.17E+03 -1.17E+00 -1.18E-01
Renew Total u Non rer Non Tota Use Use of	rable prim mate use of renewable prim mate in renewable prim mate in renewable prim mate in use of n ener use of see of renewable prim mate in use of n ener use of see of renewable prim material use of see of prim material use of see of renewable prim material use of see of	carrier nary energial utilizz newable pesources orimary e carrier oble prima erial utilizz on renew gy resou econdary vable sec ewable s net fresh Gellecc Hazard on hazar Radioac Comp	gy resource ation primary er s energy as e energy as e energy ation vable prim rces material condary fu econdary n water  IE LCA pur ste Paramete cous waste rdous waste tive waste conents fo	ces as anergy energy as as anary els fuels disposet disposet el disposet el disposet re-us el disposet re-us el disposet el di	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	0.00E+00 3.63E+02 1.72E+03 0.00E+00 1.72E+03 7.51E+00 0.00E+00 1.03E+00 UT FLOW	2 1.10 3 2.80 0 0.00 0 0.00 0 7.70 VS AN  Unit  [kg] [kg] [kg]	- DE+00 - DE+01 DE+00 DE+00 DE+00 DE+00 A1 3.02 1.311 4.44 0.001 0.001	2.26 0.00 0.00 2.18 STE -3 E-02 E+01 E-02 E+00 E+00	- 7E-01	1.10E-0  2.80E+0 0.00E+0 0.00E+0 0.00E+0 7.76E-0 3 1.36E- 1.38E-0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0	00 C C C C C C C C C C C C C C C C C C	- 0.00E+00	C3 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++	- 18E-01 - 18E-01 - 15E+00 00E+00 00E+00 00E+00 26E-03 - C4 00 3.58E 00 2.03E- 00 2.03E- 00 0.00E- 01 0.00E- 01 0.00E-	-1.30E+02 -1.30E+02 -1.17E+03 0.00E+00 0.00E+00 -4.18E-01  D -04 4.20E-02 +01 -6.36E+00 -04 -2.23E-02 +00 0.00E+00 +00 0.00E+00 +00 0.00E+00
Renew Total u Non rer Non Tota Use Use of	rable prim mate use of renewable prim mate in renewable prim mate in renewable prim mate in use of n ener use of see of renewable prim mate in use of n ener use of see of renewable prim material use of see of prim material use of see of renewable prim material use of see of	carrier nary enere erial utilizz newable   esources primary e carrier lesources lesour	gy resource ation primary eresource some primary eresource some primary eresource some primary eresource some primary energy as a primary energy as a primary energy as a primary energy energial energy ener	els fuels  - Ceel si dispos r re-us cycling y reco	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	0.00E+00 3.63E+02 1.72E+03 0.00E+00 1.72E+03 7.51E+00 0.00E+00 1.03E+00 UT FLOW	2 1.10 3 2.80 0 0.00 0 0.00 0 7.70 VS AN  Unit  [kg] [kg] [kg]	- DE+00 DE+01 DE+00	2.26 0.00 0.00 2.18 STE =-3 E-02 E+01 E-02 E+00 E+00 E+00	- 7E-01	1.10E-0  2.80E+0 0.00E+0 0.00E+0 7.76E-0  GORIES  A5 1.36E-5 1.38E-0 0.00E+0	00 C 00 C 00 C 00 C 00 C 00 C 00 C 00 C	- 0.00E+00 0	C3 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++ 0.00E++	- 18E-01 - 18E-01 - 145E+00 00E+00 00E+00 00E+00 26E-03 - C4 00 3.58E 00 2.03E-00 2.13E 00 0.00E-01 0.	-1.30E+02 -1.30E+02 -1.17E+03 0.00E+00 0.00E+00 -4.18E-01   D -04 4.20E-02 +01 -6.36E+00 -04 -2.23E-02 +00 0.00E+00 +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 95% 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 steel, with almost. 99%, mainly due to the energy consumption on this process.

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

## **IBU PCR Part A**

IBU PCR Part A: Institut Bauen und Umwelt e.V., Königswinter (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**

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

## **DIN EN ISO 14025**

DIN EN 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

#### GaBi 6 2013

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

#### GaBi 6 2013D

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

#### **CNPP H64**

CNPP H64: rules for burglary resistance (private certification system from the French insurance companies for burglary resistant product)

#### EN 1634-1

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

#### ISO 10077-1

ISO 10077-1:2006: Thermal performance of windows, doors and shutters. Calculation of thermal transmittance. General

## ISO 10077-2

ISO 10077-2:2012: Thermal performance of windows, doors and shutters. Calculation of thermal transmittance. Numerical method for frames

#### ISO 140-1

ISO 140-1: Acoustics. Measurement of sound insulation in buildings and of building elements. Requirements for laboratory test facilities with suppressed flanking transmission.

#### ISO 717-1

ISO 717-1: Acoustics. Rating of sound insulation in buildings and of building elements. Airborne sound insulation.



#### 9. Annex

Results shown below were calculated using TRACI Methodology.

DESC	CRIP	TION O	F THE	SYST	ЕМ	BOU	NDAI	RY (X	( = IN	CLUDE	D IN	LCA;	MND =	MOD	ULE	NOT DE	CLARED)
PROI	DUCT	STAGE	CONST ON PRO	OCESS				US	E STA	GE			EN	D OF L	IFE ST	AGE	ENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Maintellaile	Repair	Replacement <sup>1)</sup>	Refurbishment <sup>1)</sup>	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential
A1	A2	A3	A4	A5	В1	В	2	В3	B4	B5	<b>B6</b>	B7	C1	C2	C3	C4	D
Х	Х	Х	Х	Χ	MNI	D MN	ND N	IND	MND	MND	MND	MND	MND	Х	Х	Х	Х
RESU	JLTS	OF TH	E LCA	۱ - EN۱	/IRC	NME	NTA	LIMF	PACT	: 1 piec	e – B	ellec	our ste	el sec	curity	door	
Param	eter	F	aramete	er		Ur	nit	A	1-3	A4	А	5	C2	C	3	C4	D
GWI	Р		warming			[kg CC	<sub>2</sub> -Eq.]	1.74	E+02	2.02E+00	8.23E	+002	.02E-01	0.00E	E+00	9.09E+00	-1.15E+02
ODF	>		on potenti heric ozc		[k	kg CFC	11-Eq.	.] 9.18	E-09	1.03E-11	3.581	≣-11 1	.03E-12	0.00	≣+00	3.90E-11	1.48E-08
AP	A	cidification	potentia water	l of land	and	[kg SC	<sub>2</sub> -Eq.]	6.77	'E-01	1.21E-02	1.52	E-03 1	.21E-03	0.00E	E+00	3.59E-03	-4.78E-01
EP		Eutrop	hication p	otential		[kg N	-eq.]	4.50	E-02	8.54E-04	8.46	=-05 8	.54E-05	0.00E	E+00	2.43E-04	-2.26E-02
Smo	g	Ground-le	evel smog		n	[kg O	₃-eq.]	9.04	E+00	2.49E-01	3.10	E-02 2	.49E-02	0.00E	E+00	6.32E-02	-6.04E+00
Resour	rces	Resource	potential s – fossil		es	[M	J]	6.51	E+01	4.01E+00	2.221	E-01 4	.01E-01	0.00E	E+00	7.14E-01	-2.80E+01
RESU	JLTS	OF TH	E LCA	- RES	SOU	RCE	USE:	1 pi	ece -	- Bellec	our s	teel s	ecurity	door			
Parai	Parameter Parameter				Unit	A	1-3	A4	А	5	C2	C	3	C4	D		
PE	RE	Ren	ewable p	rimary e		y as	[MJ]	3.63	E+02	-	-		-	-		-	-
PE	RM		newable	primary	ener		[MJ]	0.00	E+00	-			-	-	,	-	-
		Total use of renewable primary					[]						1.10E-01 0				
PE	RT		use of re	enewabl			[MJ]	3.63	E+02	1.10E+00	1.87	≣-01 1	.10E-01	0.00E	E+00	5.18E-01	-1.30E+02
	RT	Total Non re	use of re energy enewable energ	enewabl resourd primary gy carrie	es ener	nary gy as		1	E+02 E+03	1.10E+00 -	1.871	≣-01 1	.10E-01 -	0.00E	E+00	5.18E-01 -	-1.30E+02
PEN		Total Non re	use of re energy enewable energenewable	enewabl resourd primary gy carrie	es ener r ener	nary gy as	[MJ]	1.72		1.10E+00 - -	1.87	Ξ-01 1	.10E-01 - -	0.00E		5.18E-01 -	-1.30E+02
PEN	NRE	Non re	energy enewable energy enewable energenewable materia	enewable resource primary gy carrie primary al utilizat	es r ener r ener ion able p	rgy as	[MJ]	1.72 0.00	E+03 E+00	-	-		-	-		-	-
PEN PEN	NRE	Non re Non re Total us	energy enewable energy enewable energenewable materia	enewable resource primary gy carries primary al utilizate resource resource	es ener er ener ion able pres	rgy as rgy as rimary	[MJ]	1.72 0.00 1.72	E+03 E+00 E+03	-	2.26	E+002.	- - .80E+00	- 0.00E	E+00	-	- -1.17E+03
PEN PEN S	NRE NRM NRT	Non re Non re Total us	energy enewable energy enewable materia se of nor energy	enewable resource primary gy carrie primary al utilizate resource pondary n	es vener er vener ion able poses nateria	rgy as rgy as rgy as rimary	[M7] [M7]	1.72 0.00 1.72 7.51	E+03 E+00 E+03 E+00	- - 2.80E+01	2.26E	E+002	- - .80E+00	0.00E	E+00 E+00	- - 6.45E+00	- -1.17E+03 0.00E+00
PEN PEN S	NRE NRM NRT	Non re Non re Total us Use of	energy enewable energy enewable materia se of nor energy e of second renewable	enewable resource primary gy carried primary gy carried primary all utilization renewar resource primary in pr	es vener er vener ion able poses nateria	rgy as rgy as rimary al	[kg] [MJ]	1.72 0.00 1.72 7.51 0.00	E+03 E+00 E+03 E+00 E+00	- - 2.80E+0° 0.00E+00	2.26E	E+002. E+000	- .80E+00 .00E+00	0.00E 0.00E 0.00E	E+00 E+00 E+00	- - 6.45E+00 0.00E+00	- -1.17E+03 0.00E+00 0.00E+00
PEN PEN S RS	NRE NRM NRT M	Total  Non re  Non re  Total us  Use of  Use of	energy enewable energy enewable materia se of nor energy e of second renewable	enewable resource primary gy carrie primary al utilization renewar resource pondary noble seconewable fuels	ces v ener v ener ion able p bes nateria	rgy as rgy as rimary al r fuels	[MJ] [MJ]	1.72 0.00 1.72 7.51 0.00 0.00	E+03 E+00 E+03 E+00 E+00 E+00	- 2.80E+0 <sup>2</sup> 0.00E+00	2.26E 0.00B 0.00E	E+002. E+000 E+000 E+000	- .80E+00 .00E+00 .00E+00	0.00B 0.00B 0.00B	=+00 =+00 =+00 =+00	- 6.45E+00 0.00E+00	-1.17E+03 0.00E+00 0.00E+00 0.00E+00
PEN PEN S R(S NR FI	NRE NRM NRT M SF SF W JLTS	Total Non re Non re Total u: Use of Use o	use of reenergy newable energy newable materia se of nor energy e of secon renewable f non ren	enewable resource primary gy carries primary al utilizata resource production of the primary al utilizata resource production of the primary resource pr	res rener re	rgy as rgy as rimary al r fuels andary	[MJ] [MJ] [MJ]	1.72 0.00 1.72 7.51 0.00 0.00 1.03	E+03 E+00 E+03 E+00 E+00 E+00 E+00	- 2.80E+0° 0.00E+00 0.00E+00	2.26E 0.00E 0.00E 0.00E 2.18I	E+002 E+000 E+000 E+000 E+000	- .80E+00 .00E+00 .00E+00	0.00B 0.00B 0.00B	=+00 =+00 =+00 =+00	- 6.45E+00 0.00E+00 0.00E+00	-1.17E+03 0.00E+00 0.00E+00 0.00E+00
PEN PEN S R(S NR FI	NRE NRM NRT M SF SSF W JLTS	Total  Non re  Non re  Total u:  Use of  Use of	use of renergy enewable energy materials se of nor energy e of second renewal from	enewable resource primary gy carries primary al utilizata resource production of the primary al utilizata resource production of the primary resource pr	res rener re	rgy as rgy as rimary al r fuels andary	[MJ] [MJ] [MJ]	1.72 0.00 1.72 7.51 0.00 0.00 1.03	E+03 E+00 E+00 E+00 E+00 E+00 E+00	- 2.80E+0 <sup>2</sup> 0.00E+00 0.00E+00 0.00E+00 7.76E-04	2.26E 0.00E 0.00E 0.00E 2.18I	E+002 E+000 E+000 E+000 E+000	- .80E+00 .00E+00 .00E+00	0.00E 0.00E 0.00E 0.00E	=+00 =+00 =+00 =+00	- 6.45E+00 0.00E+00 0.00E+00	-1.17E+03 0.00E+00 0.00E+00 0.00E+00
PEN PEN S RS NR F RESU 1 piec	NRE NRM NRT M SF SF W JLTS CC - I	Total Non re Non re Total u Use of Use of OF TH Bellecce	use of renergy enewable materials of normal from renergy e of second renewal from renergy expenses of normal from renewal	enewable resource primary gy carrier primary gy carrier primary all utilizate premewar resource product produc	des	rgy as rimary al r fuels andary	[MJ] [MJ] [MJ] [MJ] [kg] [MJ] [MJ] [MJ] [m3] OWS r	1.72 0.00 1.72 7.51 0.00 0.00 1.03 AND	E+03 E+00 E+00 E+00 E+00 E+00 E+00 D WA	- 2.80E+0° 0.00E+0° 0.00E+0° 0.00E+0° 7.76E-04 STE CA	2.26E 00.00E 00.00E 00.00E 2.18I	=+00 2. =+00 0 =+00 0 =+00 0 =-02 7 ORIES		0.00E 0.00E 0.00E 0.00E	=+00 =+00 =+00 =+00 =+00	- 6.45E+00 0.00E+00 0.00E+00 0.00E+00 8.26E-03	-1.17E+03 0.00E+00 0.00E+00 0.00E+00 -4.18E-01
PEN PEN S RS NR FI RESU 1 piec	NRE NRM NRT M SF SF W JLTS CCC - neter	Total Non re Non re Total u: Use of Use of Haza	use of renergy enewable energy materials se of nor energy e of second renewal from	enewable resource primary ggy carries primary ggy carries primary all utilization renewar resource production renewar resource production renewable fuels et fresh valued second renewable fuels et fresh valued r	res version veneration able presentation and version able presentation and version material veneration veneration and veneration ven	rimary al rifuels andary	[MJ] [MJ] [MJ] [MJ] [Kg] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ	1.72 0.00 1.72 7.51 0.00 0.00 1.03	E+03 E+00 E+00 E+00 E+00 E+00 E+00 E+00	- 2.80E+0' 0.00E+00 0.00E+00 0.00E+00 7.76E-04 STE CA A4 6.37E-0	2.26B 0.00B 0.00B 2.18I TEG	E+002. E+000 E+000 E+000 E-02 7	.80E+00 .00E+00 .00E+00 .00E+05 .76E-05	0.00E 0.00E 0.00E 0.00E	E+00 E+00 E+00 E+00 E+00 C3	- 6.45E+00 0.00E+00 0.00E+00 0.00E+00 8.26E-03	-1.17E+03 0.00E+00 0.00E+00 0.00E+00 -4.18E-01 D 4 4.20E-02
PEN PEN S RS NR FI RESU 1 piec	NRE NRM NRT M SF SSF W ILLIA NRT	Total  Non re  Non re  Total us  Use of  Use o  Hazz  Non ha	use of renergy enewable energy enewable materials se of nor energy e of secondary enewable from renewal from renewal from renergy e of secondary enewal from renewal from rene	enewable resource primary ggy carries primary ggy carries primary al utilizata renewar resource primary nole secondary nole secondewable fuels et fresh velocities primary resource present a secondary nole secondewable fuels et fresh velocities et fresh velocities et secondary nole secondary no secon	reses representation	gy as gy as rimary al r fuels ndary  TFL y doo	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	1.72 0.00 1.72 7.51 0.00 0.00 1.03 AND A1- 3.02E	E+03 E+00 E+00 E+00 E+00 E+00 D WAS E-02 E+01	- 2.80E+0° 0.00E+0° 0.00E+0° 0.00E+0° 7.76E-04 STE CA	2.26E 0.00B 0.00E 2.18I TEG 5 1.	E+002. E+000 E+000 E+000 E-02 7 ORIES		0.00E 0.00E 0.00E 0.00E	E+00 E+00 E+00 E+00 E+00 C3 00E+0	- 6.45E+00 0.00E+00 0.00E+00 0.00E+00 8.26E-03	-1.17E+03 0.00E+00 0.00E+00 0.00E+00 -4.18E-01 D 4 4.20E-02 1 -6.36E+00
PEN PEN S RS NR F PEN PEN NH NH NH NH	NRE NRM NRT M SF SSF W V D NNCCC NNC	Total Non re Non re Total u Use of Use o OF TH Bellecc Non ha	use of reenergy enewable energy material se of nor energy e of secon renewal f non ren  Jse of no  E LCA  Para  ardous wazardous	enewable resource primary gy carrier primary al utilizate primary al utilizate primary al utilizate primary al utilizate primary resource prim	resident description of the control	rgy as rgy as rimary al r fuels andary  JT FL y doo	[MJ] [MJ] [MJ] [MJ] [Kg] [MJ] [MJ] [MJ] [MJ] [MJ] [Kg] [kg]	1.72 0.00 1.72 7.51 0.00 0.00 1.03 AND 41- 3.02E	E+03 E+00 E+00 E+00 E+00 E+00 O WA: -3 E-02 E+01 E-02	2.80E+0° 0.00E+0° 0.00E+0° 0.00E+0° 7.76E-04 STE CA A4 6.37E-0 3.52E-0	2.26B0 0.00E0 0.00E0 2.18B TEG	E+002. E+000 E+000 E+000 E-02 7 ORIES A5 58E-04 36E-03	.80E+00 .00E+00 .00E+00 .00E+00 .76E-05 S:	0.00E 0.00E 0.00E 0.00E	E+00 E+00 E+00 E+00 E+00 O0E+0 O0E+0	- 6.45E+00 0.00E+00 0.00E+00 0.00E+00 8.26E-03 C4 0 3.58E-0	-1.17E+03 0.00E+00 0.00E+00 0.00E+00 -4.18E-01 D 4 4.20E-02 1 -6.36E+00 4 -2.23E-02
PEN PEN S RS NR FI RESU 1 piec Paran HW NHV	NRE NRM NRT M SF SSF W JLTS CCC NVD NVD VD RU	Total  Non re  Non re  Total u:  Use of  Use of  Haza  Non ha  Radii	use of renergy enewable energy enewable materials so of nor energy e of secondary enewable from renewal from	enewable resource primary ggy carries primary all utilization renewar resource primary noble secondary noble s	es e	rimary al rimary al rimary al rimary door	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	1.72 0.00 1.72 7.51 0.00 0.00 1.03 AND A1-3 3.02E 1.31E 4.44E	E+03 E+00 E+00 E+00 E+00 E+00 E+00 E+00	- 2.80E+0° 0.00E+0° 0.00E+0° 0.00E+0° 7.76E-04 STE CA A4 6.37E-0 3.52E-0 3.66E-0	2.26E 0.00E 0.00E 2.18B TEGO 5 1.3 3 1.5 5 1.00 0.0	E+00 2 E+00 0 E+00 0 E+02 7 ORIES A5 58E-0-36E-0-38E-0-00E+0		0.00E 0.00E 0.00E 0.00E 0.00E	E+00 E+00 E+00 E+00 E+00 E+00 O0E+0 O0E+0 O0E+0	- 6.45E+00 0.00E+00 0.00E+00 0.00E+00 8.26E-03	-1.17E+03 0.00E+00 0.00E+00 0.00E+00 -4.18E-01 D 4 4.20E-02 1 -6.36E+00 4 -2.23E-02 0 -
PEN PEN S RS NR F PEN PEN NR F RESU 1 piece Paran HW NHV RW CR	NRE NRM NRT M SSF SSF W V D RU RR RR	Total  Non re  Non re  Total us  Use of  Use of  Hazz  Non ha  Radii  Cc	use of renergy enewable materials se of nor energy e of secondary from renewal from renewal from renewal from renewal from renergy e of secondary to the from renewal from ren	enewable resource primary ggy carries primary ggy carries primary all utilization renewar resource primary noble secondary nob	reserventes de la constant de la con	rimary al r fuels andary  TFL y doo d sed d	[MJ] [MJ] [MJ] [MJ] [Kg] [MJ] [MJ] [MJ] [MJ] [MJ] [Mg] [Mg] [Mg] [Kg] [Kg] [Kg] [Kg]	1.72 0.00 1.72 7.51 0.00 0.00 1.03 AND A1. 3.02E 4.44E 0.00E	E+03 E+00 E+00 E+00 E+00 E+00 O WA  -3 E-02 E+01 E-02 E+00 E+00	- 2.80E+0° 0.00E+0° 0.00E+0° 0.00E+0° 7.76E-04 STE CA A4 6.37E-0 3.52E-0 3.66E-0 0.00E+0°	2.26E0 00.00E0 00.00E 2.18I TEG0 5 1. 3 1. 0 0.	E+00 2 E+00 0 E+00 0 E+02 7 ORIES A5 58E-0-36E-0-38E-0-00E+0	.80E+00 .00E+00 .00E+00 .00E+00 .76E-05 S:	0.00E 0.00E 0.00E 0.00E 0.00E	E+00 E+00 E+00 E+00 E+00 O0E+0 O0E+0 O0E+0 O0E+0 O0E+0	- 6.45E+00 0.00E+00 0.00E+00 0.00E+00 8.26E-03 C4 0 3.58E-0- 0 2.03E+0 0 2.13E-0- 0 0.00E+0	-1.17E+03 0.00E+00 0.00E+00 0.00E+00 -4.18E-01 D 4 4.20E-02 1 -6.36E+00 4 -2.23E-02 0 -
PEN PEN S RS NR F PEN T PEN NH NH RW CR	NRE NRM NRT M SF SSF W V JLTS CC - V V D RU GR GR GR GR	Total Non re Non re Total u Use of Use of Use of Use of CF TH Bellecc  Hazz Non ha Radii Cc M Mater	use of renergy enewable materials for the energy enewable materials se of nor energy e of second renewal from renergy.  Jse of nor renewal from rene	enewable resource primary ggy carrier primary ggy carrier primary ggy carrier primary all utilization renewar resource primary resource primar	reses references refer	rimary al riuels andary  TFL y doo d sed d	[MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ] [MJ]	1.72 0.00 1.72 7.51 0.00 0.00 1.03 AND A1-3.02E 1.31E 4.44E 0.00E	E+03 E+00 E+00 E+00 E+00 E+00 E+00 E+00	2.80E+0° 0.00E+0° 0.00E+0° 0.00E+0° 0.00E+0° 3.76E-04  A4 6.37E-0 3.66E-0 0.00E+0° 0.00E+0° 0.00E+0° 0.00E+0° 0.00E+0°	2.26B0 0.00E 0.00E 2.18B TEG 5 1. 3 1. 5 1. 00 0.	E+00 2. E+00 0 E+00 0 E+00 0 E-02 7 ORIES A5 58E-04 36E-0 00E+0 00E+0		0.00E 0.00E 0.00E 0.00E 0.00E 0.00E 2.06 0.1 2.06 0.1 4.00 0.1 4.00 0.1	E+00 E+00 E+00 E+00 E+00 O0E+0 O0E+0 O0E+0 O0E+0 O0E+0	- 6.45E+00 0.00E+00 0.00E+00 0.00E+00 8.26E-03 C4 0 3.58E-0- 0 2.03E+0 0 2.13E-0- 0 0.00E+0 1 0.00E+0	-1.17E+03 0.00E+00 0.00E+00 0.00E+00 -4.18E-01 D 4 4.20E-02 1 -6.36E+00 4 -2.23E-02 0 - 0 - 0 -



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