

# Environmental Product Declaration



In accordance with ISO 14025 for:

## Metallic Bookcases (low version)

from

**DROMEAS S.A.**





Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
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The environmental impacts of this product have been assessed from cradle to grave. This Environmental Product Declaration has been verified by an independent third party.

An EPD should provide current information, and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com).



## Programme information

<b>Programme:</b>	<p>The International EPD® System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p><a href="http://www.environdec.com">www.environdec.com</a> <a href="mailto:info@environdec.com">info@environdec.com</a></p>
<p>Product category rules (PCR): <b>Furniture, except Seats and Mattresses - 2012:19, Version 2.01</b> (valid until 2023-06-17) <b>Product Category Classification: UN CPC 3812/3813/3814</b> <b>CPC 3812 under the UN CPC classification system v2.1</b></p>	
<p>Independent third-party verification of the declaration and data, according to ISO 14025:2006</p> <p><input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification</p>	
<p>Third party verifier: <b>Vito D'Incognito</b> <b>Take Care International</b></p>  <p>Approved by: The International EPD® System</p>	
<p>Procedure for follow-up of data during EPD validity involves third party verifier:</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	
<p>LCA conducted by: <b>EcoVibes – Environmental Consultants,</b> <b>Edessa, Greece (+30)2381023351</b> <b><a href="http://www.ecovibes.gr/en">www.ecovibes.gr/en</a></b></p> 	

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable.

## Company information

### Owner of the EPD:

DROMEAS S.A., Factory – Showroom Industrial Area of Serres, 62121, Serres, Greece, (+30) 23210 99220, [info@dromeas.com](mailto:info@dromeas.com) , <https://www.dromeas.com/en/>

### Description of the organisation:

DROMEAS S.A. was founded in 1979 and specializes in the production and marketing of office furniture, partition walls, filing systems and custom made furniture solutions. The company is located in the industrial area of Serres, Greece. Production facilities cover 55,000 square meters, situated in a plot of 115.0000 square meters. Today, after more than 40 years, they share the pride and joy for the company's rising recognition by clients across international markets.

All production facilities are vertically integrated and equipped with high tech machinery in the fields of wood processing and dyeing, processing and tempering steel, aluminium die casting, plastic and polyurethane molding, production of metal components and processing wallpaper. Their product range includes a big variety of furniture construction elements and structural parts for car-body and engine. DROMEAS is offering products with high aesthetics, innovative design, customer focused functionality and ergonomics, incorporating quality and highly competitive prices simultaneously.

The company is committed to a continuous effort to meet the growing demands of its customers, while improving its environmental performance in all of its activities through a strong environmental policy. It has also participated in large furnishing programs at local and European level and has been awarded significant projects.

Today, DROMEAS is the largest manufacturer of office furniture in Greece and one of the leading in Europe as far as infrastructure, technology, facilities, capacity and quality are concerned. Their sales network consists of 32 branded stores in major cities in Greece and the Balkans. Finished products and accessories are exported in 14 countries across the world. The company is also the exclusive supplier of office furniture for all services of the European Commission in a global scale.

Based on their continuous research and development, the collaboration with worldwide distinguished designers and their long year experience in manufacturing, alongside with their “ambassadors” - their products and their satisfied users across the globe - they continue their tireless course to a promising and exciting future.

### DROMEAS Certifications:

- Quality Management (EN ISO 9001:2015)
- Environmental Management (EN ISO 14001:2015)
- Managing health and safety of workers (OHSAS 18001 / ELOT 1801:2008)
- Community System for Ecological Management and Audit (EMAS) – 2019, 2020
- «Sustainable management» of timber raw material from certified and controlled sources, for environmental protection «PEFC Chain of Custody»
- Forest Management «FSC Chain of Custody»
- System of Collective Alternative Package Management

DROMEAS products also meet the requirements of ergonomics and safety by complying with European standards EN, GS (Geprüfte Sicherheit) and Blue Angel (The German Ecolabel).

### Name and location of production site:

The product analyzed in this report is manufactured at DROMEAS facility in the Industrial Area of Serres, Greece.

## Product information

Product name: Metallic Bookcases (low version)

Product identification: EU CODE 986-127-201

Product description: Metallic bookcases bear roll-top doors and are ideal for any working environment. The metallic bookcase has walls, back and shelves made steel sheet of 0,9 mm thickness. The roll-top system consists of two sections with vertical profiles made of polypropylene which slide in suitable rails and provides 100% accessibility with 2-point lock for the low version.

### ▪ Technical Data

Key technical properties and certifications are shown in the tables below; consult the relevant product Technical Data Sheet for a comprehensive specification.

TECHNICAL PROPERTIES (TESTS)	Metallic Bookcase (low version)
EN 14073-2:2004 Office furniture. Storage furniture. Safety requirements	PASS
EN 14073-3:2004 Office furniture. Storage furniture. Test methods for the determination of stability and strength of the structure	PASS
EN 14074:2004 Office furniture. Tables and desks and storage furniture. Test methods for the determination of strength and durability of moving parts	PASS
EN 16121:2013+A1:2017 Non-domestic storage furniture – Requirements for safety, strength, durability and stability. Test severity 1	PASS
DIN-Fachbericht 147:2006-06 Requirements and tests of office furniture - Guideline for the security requirements on work tables and storage furniture	PASS

PHYSICAL DATA		
	UNIT	Metallic Bookcase (low version)
Dimensions (length, depth, height)	mm	1200 x 470 x 1200
Volume	m <sup>3</sup>	0,68
Mass	kg	74
Drawers	number	N/A
Storage units according to BIFMA storage PCR (1 unit = 0.15m <sup>3</sup> )	number	4,51

### ▪ Residual Risks and Emergencies

There are no residual risks associated with the normal day-to-day use of DROMEAS metallic bookcases. Care must be taken to follow the guidance for safe use in the product information documents for DROMEAS metallic bookcases available from

<https://www.dromeas.com/en/products-and-solutions/cabinets/metallic-bookcases/>

- **Application/intended use**

The intended use of the products is mainly for staff offices in various European Commission (EC) departments.

- **Maintenance**

All DROMEAS products carry a 5-year warranty and a 10-year warranty for the replacement parts. They require no energy or water inputs to function. DROMEAS guidance to customers is that products should be cleaned periodically with mild detergent (non-chloride) and warm water.

- **End-of-life**

When the users have no further use for DROMEAS office furniture products, they may be reused by others, recycled or disposed. Reuse is recommended, but if no route for reuse is available, the product should be recycled with other goods.

UN CPC code: UN CPC 3812/3813/3814 CPC 3812 under the UN CPC classification system v2.1

Geographical scope: Global

## LCA information

Reference year for data: 2019

LCA software used: openLCA 1.10.3

LCA Practitioners: Antonios Valtsis, Alexandros Liapis  
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Scope:

This cradle to grave EPD is applicable globally. For most of the cases end-of-life treatment scenarios are based on average European statistics. According to the PCR and General Programme Instructions, the life cycle of the product is subdivided into three stages:

- Upstream processes (cradle to gate)
- Core Processes (gate to gate)
- Downstream Processes (gate to grave)

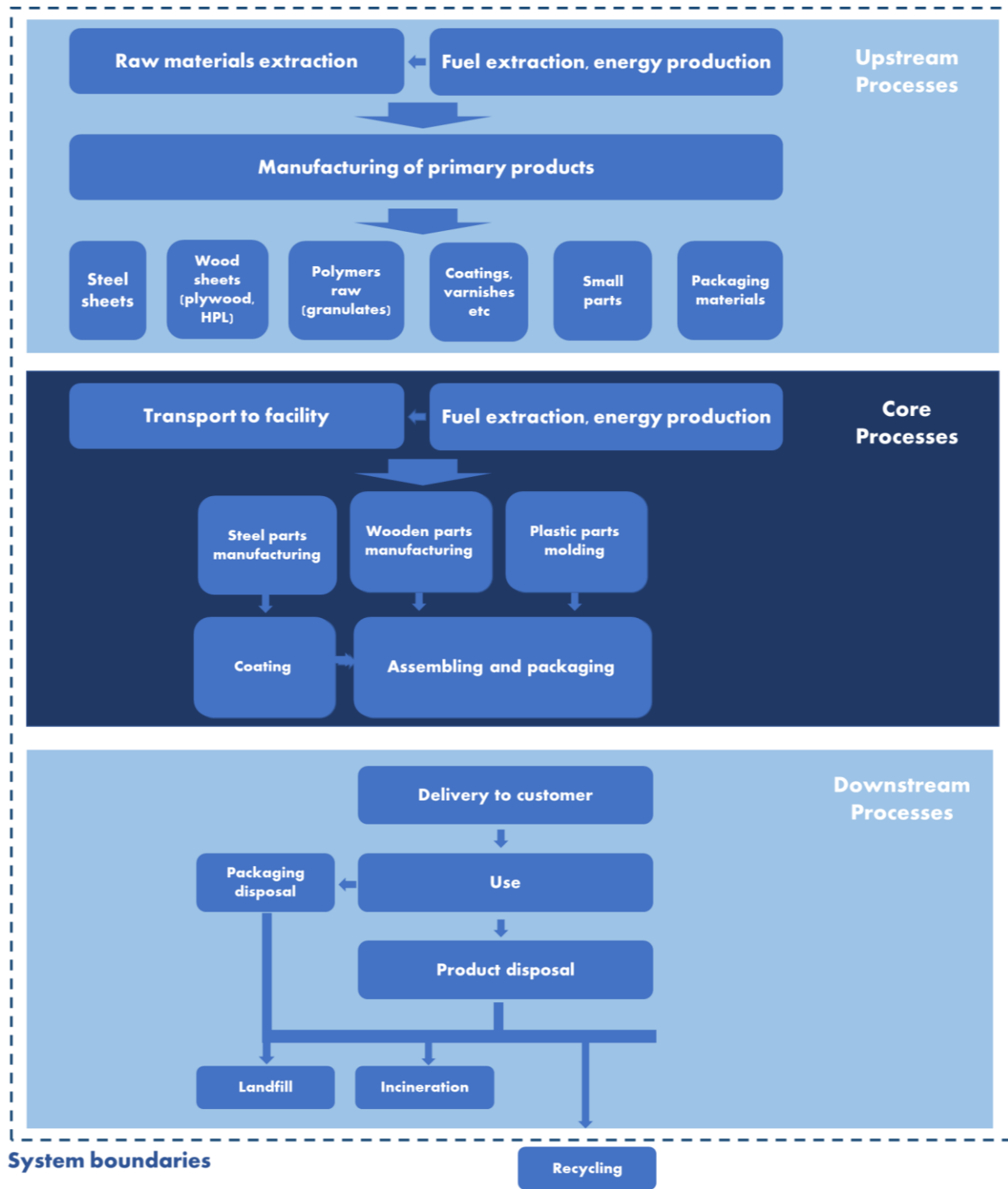
The specific processes that are included in each stage are shown in a subsequent section.

Functional unit / declared unit:

The functional unit is 1 item of furniture product in use, for 15 years. The producer gives a 5-year warranty of the product and a 10-year commitment for provision of spare parts, from purchase date.

System Boundaries:

The system boundaries of the EPD are defined as cradle to grave, according to the PCR. All life cycle stages, from raw materials extraction to end of life of product are considered. According to the directions of the PCR and the General Programme Instructions, the boundaries end at the gate of the processing plant for the corresponding part of waste, where the waste has its lower value (Polluter Pays Principle). In this context, any benefit arising from incineration (e.g. thermal energy) is not attributed to the system. The boundaries of the system are shown in the following diagram:



#### Allocation:

DROMEAS produces a wide range of furniture and spare parts. Therefore, due to the difficulty of collecting site-specific data (energy and resources consumption, production rates, land use etc.) for the manufacturing of the studied item, some rules of allocation had to be followed. Considering the material flows inside the facility, allocation according to physical relations, and more specifically mass (all materials except plywood) and volume (for plywood), was chosen as the most appropriate method. In order to minimize the need for allocation, specific data were collected from separate departments of the facility (metals, wood, plastics), where possible.

#### Data Quality:

For core processes stage, site-specific data were used. For the electricity that is consumed during core processes, according to PCR, national residual electricity mix data was used. For transportation of raw materials, primary products and components to the facility, the parameters that were used (type of vehicle, distance) where reflecting the real supplying habits of the producer.

For upstream and downstream processes, generic data where used, from various sources. For the production of steel sheets, which is the main component of the product's mass, average data from European steel industry were acquired from the World Steel Association. For the other materials' and components' production, databases such as Agribalyse (version 3.01, 2020), the Evah Institute database (2019), European reference Life Cycle Database of the Joint Research Center ELCD (version 3.2, 2015), the New Energy Externalities Developments for Sustainability – NEEDS- database (2015), were used, according to requirements.

For the end of life scenarios, data from literature were acquired in order to depict better the European waste treatment trends.

#### Assumptions:

For the transportation of the product to the customer, a “real-life” scenario was followed, according to which the item is delivered to central Europe. For this purpose, a distance of 1821 km was considered, for a 40 (gross) ton lorry. For the end of life scenarios, an average distance of 150 km from user to disposal site was considered.

The “primary energy used as material” indicators (PERM, PENRM) were calculated by considering the heating value (Higher Heating Value – HHV) of raw materials (oil, wood) rather than products, for the different components of the studied item.

For the “secondary material” indicator in the upstream processes, the content of scrap metal in steel was considered. For the other stages there were no data for secondary materials use.

The “material for recycling” indicator in core processes is referring to the scrap metal and paper that are exported from system boundaries by leaving the factory to the treatment facility. Regarding to downstream processes, the following end of life scenarios were considered (sources: World Steel Association, Eurofer, Plastics Europe, steelconstruction.info, Eurostat).

Waste Material	Recycling	Landfill	Incineration
Steel	95%	5%	-
Plastics	32.5%	24.9%	42.6%
Wood	36%	58%	6%
Paper Packaging	85%	6%	9%

The “exported thermal energy” indicator for core processes uses as data the wood residue from the production of the wooden parts, which is burnt inside the facility (for space heating purposes, not for the production needs). The treatment is considered within the limits of the system, however the produced heat as a benefit is not included (according to PP policy). Same rule is applied for the “exported thermal energy” at the end of life phase (downstream).

#### Cut off rules:

According to the directions of the PCR and the General Programme Instructions, the 99% of mass or energy content of the product is being considered in the LCA. Minor components that fall under the 1% threshold were omitted.



## Content declaration

### Product

The material composition of DROMEAS metallic bookcase (low version) – one unit of product is shown below. It is presented both in weight (kg) and % w/w per material. Content primary data gathered from the manufacturing plant in the Industrial Area of Serres, Greece.

MATERIAL	MASS & % OF MASS PER PRODUCT UNIT	
	Metallic Bookcase (low version)	
	kg	%
DCP steel	60	81,08
multiplex	8,5	11,49
plastic parts	3	4,06
screws	1	1,35
powder (coating)	1,5	2,02
SUM	74	100

The company's effort is to use more environmentally friendly raw and auxiliary materials. In this context, DROMEAS has replaced the paint powders of metal surfaces with other non-hazardous paint powders, resulting in the reduction of pollution of the surrounding area from the production of hazardous waste and the environment in general during the final disposal of products by the final consumer.

At the same time, the strategic choice of DROMEAS is to adapt its products to the modern standards of reducing the use of raw materials (maintaining the necessary characteristics of stability) and the replacement of wood with recyclable materials, specifically with metal, in order not to worsen the environmental footprint of the company's production.

Hazardous materials and chemical substances are reported in the EMAS 2020 Report as a sum of all that are used in all the processes at the manufacturing plant for the year 2019 (16 different materials – 7805 kg). No allocation for the product's hazardous materials was possible.

It should be noted that the hazardous substances used in the factory are auxiliary and are used as adhesives, solvents and varnishes.

### Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:

In the LCA Report, there is a detailed documentation of sources that were used in order to define the recycling content of each material.

Content recycling rates, specific weights and recycled content of DROMEAS metallic bookcase are presented in the tables below.

MATERIAL	% RECYCLED RATE OF MATERIAL		
	% Pre-Consumer	% Post-Consumer	% Total
DCP steel	32	24	56
multiplex	N/A*	N/A	N/A
plastic parts	N/A	32,5	32,5
screws	32	24	56
powder (coating)	N/A	N/A	N/A

\* Not available/Not applicable

MATERIAL	RECYCLED CONTENT (Mass and %)	
	Metallic Bookcase (low version)	
	kg	%
DCP steel	33,6	56
multiplex	N/A	N/A
plastic parts	0,96	32,5
screws	0,56	56
powder (coating)	N/A	N/A
Mass of recycled content	35,12	-
Total Mass of product	74	100
% Recycled Content (Mass of recycled material/ Total Mass of the product)		47,46

Additional information on the overall recyclability of the factory: It is also noted that all the discarded quantities in fabric are either reused or stored in the factory to be recycled. DROMEAS has signed a contract for the collection of these stored quantities with a company of relevant activity. As for the quantities of wood to be disposed of, a contract has also been signed with a licensed wood waste manager for the collection of non-reusable quantities for the production of sawdust. Regarding the management of paint powder residues, they are reused for the second time in the production process mixed with a new amount of powder in a ratio of 1:10. Metal and plastic chemical containers are temporarily collected and then disposed of to a licensed waste manager.

## Packaging

Distribution packaging: Distribution packaging varies according to the destination, but products are always distributed on wooden pallets. One pallet contains two units of product. All pallets from Brussels warehouse are sent back to the factory in Serres to be reused.

Consumer packaging: Products are wrapped in plastic stretch - film to protect them until they reach the user. Cardboard reinforcement is used on the corners of units and other areas particularly susceptible to damage. Cardboard is assumed to have a recycled content of approx. 75% based on the information in Eurostat.

Additional packaging information: Cardboard packaging materials are reused, if they are in good condition, while the company has joined a collective system of alternative management for packaging materials.

## Environmental performance

This section contains environmental information about the specified product, in the form of quantitative indicator values for a number of parameters, which encompass calculated environmental impact potentials, resource and energy use, and waste generation.

For the Impact Assessment of the production of the three furniture, the calculations were done according to the impact categories that are requested from the PCR. Human toxicity impacts and Fresh water ecotoxicity impact categories were also considered in the LCA report. The following Table shows the Impact Method from which the appropriate characterization factors were used, per impact category.

Impact category	Method for calculation
Global Warming Potential (GWP) (fossil, biogenic, land use)	IPCC 2013
Depletion potential of the stratospheric ozone layer (ODP)	CML 2001 baseline
Acidification potential (AP)	CML 2001 non - baseline
Eutrophication potential (EP)	CML 2001 baseline
Formation potential of tropospheric ozone (POCP)	ReCiPe 2008
Abiotic depletion potential – Elements	CML 2001 baseline
Abiotic depletion potential – Fossil resources	CML 2001 baseline
Water scarcity potential	AWARE
Land use	ReCiPe 2016 Endpoint (H)

## METALLIC BOOKCASE (LOW VERSION)

### Potential environmental impact

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO <sub>2</sub> eq.	2,38E+02	9,51E+01	8,80E+00	3,42E+02
	Biogenic	kg CO <sub>2</sub> eq.	7,64E-02	4,71E-01	3,67E-01	9,14E-01
	Land use and land transformation	kg CO <sub>2</sub> eq.	4,30E-02	4,35E-01	1,58E-04	4,78E-01
	TOTAL	kg CO <sub>2</sub> eq.	2,39E+02	9,61E+01	9,17E+00	3,44E+02
Depletion potential of the stratospheric ozone layer (ODP)		kg CFC 11 eq.	9,12E-06	7,61E-06	1,85E-07	1,69E-05
Acidification potential (AP)		kg SO <sub>2</sub> eq.	5,46E-01	3,96E-01	5,48E-02	9,97E-01
Eutrophication potential (EP)		kg PO <sub>4</sub> <sup>3-</sup> eq.	6,79E-02	7,92E-02	2,50E-02	1,72E-01
Formation potential of tropospheric ozone (POCP)		kg C <sub>2</sub> H <sub>4</sub> eq.	5,18E-01	1,83E-01	1,20E-02	7,14E-01
Abiotic depletion potential – Elements		kg Sb eq.	9,85E-05	4,19E-05	7,37E-07	1,41E-04
Abiotic depletion potential – Fossil resources		MJ, net calorific value	7,38E+02	1,46E+03	1,03E+01	2,21E+03
Water scarcity potential		m <sup>3</sup> eq.	6,40E+01	1,41E+02	1,46E+00	2,07E+02
Land use		species.yr	3,96E-07	4,82E-09	5,62E-10	4,01E-07

## Use of resources

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4,37E+02	1,38E+02	2,56E-01	5,75E+02
	Used as raw materials	MJ, net calorific value	4,87E+02	0,00E+00	0,00E+00	4,87E+02
	TOTAL	MJ, net calorific value	9,24E+02	1,38E+02	2,56E-01	1,06E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	6,83E+02	1,75E+03	1,14E+01	2,44E+03
	Used as raw materials	MJ, net calorific value	1,77E+02	0,00E+00	0,00E+00	1,77E+02
	TOTAL	MJ, net calorific value	8,61E+02	1,75E+03	1,14E+01	2,62E+03
Secondary material		kg	4,04E+00	0,00E+00	0,00E+00	4,04E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m <sup>3</sup>	1,53E+00	3,69E+00	5,25E-02	5,27E+00

## Waste production and output flows

### Waste production

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	0,00E+00	5,68E-02	0,00E+00	5,68E-02
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	8,00E+00	8,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00

### Output flows

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	1,51E+01	6,18E+01	7,69E+01
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	3,67E-03	1,03E+01	1,03E+01

## Glossary

CO2	Carbon dioxide
CPC	Central Product Classification
EPD	Environmental Product Declaration
ISO	International Organization for Standardization
kg	kilogram
LCA	Life Cycle Assessment
PCR	Product Category Rules
UN	United Nations
PP	Polluter Pays

## References

General Programme Instructions of the International EPD® System. Version 3.0.

PCR 2012:19. Furniture, except Seats and Mattresses Version 2.01 (valid until 2023-06-17)

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

ISO 14021—Environmental labels and declarations—Self-declared environmental claims (Type II environmental labelling)

ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations – Principles and procedures

ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines

Eurostat - European Packaging waste by waste management operations and waste flow, for France, Germany, the Netherlands, UK, Ireland and Spain. From [www.eurostat.eu](http://www.eurostat.eu)

Towards Recycling Indicators based on EU flows and Raw Materials System Analysis data, JRC Technical Reports, October 2018

Recovery of end-of-cycle furniture and recycling of its materials, UEA Brussels, European Furniture Manufacturers Association

Plastics - The Facts, Plastics Europe 2019

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Wood Recyclers Association UK

Formica Corporation

European Aluminium

Fabricators & Manufacturers Association

EPA

OECD

BIFMA

World Steel Association

<https://www.dromeas.com/en/>

<https://www.environdec.com/home>

