ENVIRONMENTAL PRODUCT DECLARATION

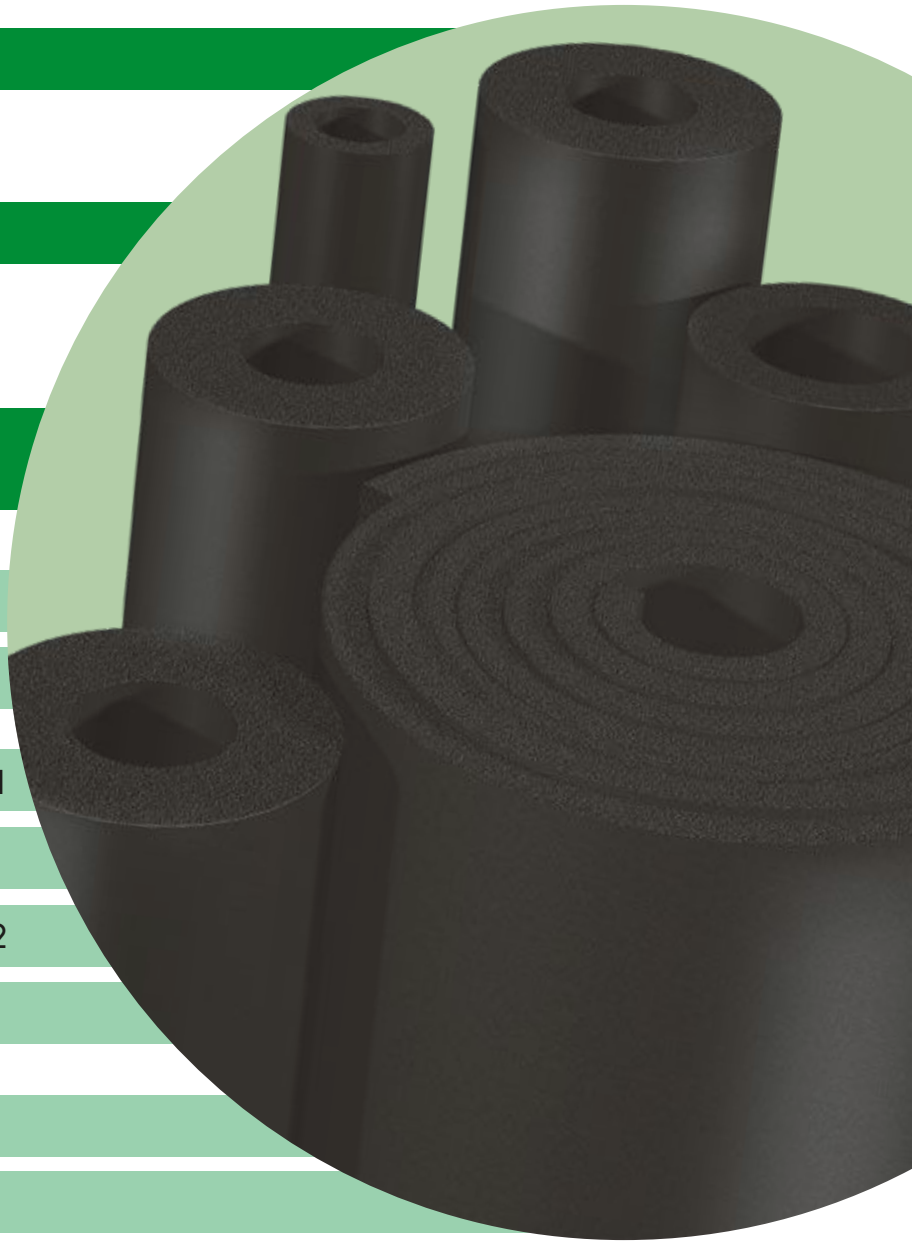
PRODUCT NAME

EUROBATEX®

SITE PLANT

VIA DELL'INDUSTRIA 11,
20882 - BELLUSCO (MB)

In compliance with ISO 14025 and EN 15804



Program Operator | EPDItaly

Publisher | EPDItaly

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www.epditaly.it

1 General information

EPD owner

Union Foam Spa - Registered office: Via Manzoni 43, 20121, Milano - P.IVA: 02651770154

Plant

Via dell'Industria 11, 20882, Bellusco (MB)

Scope of application

This document refers to 1 m3 of elastomeric material for thermal insulation of the EUROBATEX product line. The product range covered by the declaration consists of: tubes in pipe sections and coils (also in self-adhesive version) , thickness from 6 to 60 and I.D. from 6 to 170 mm, flat sheets or rolls (also with a self-adhesive backing), thickness from 6 to 60 mm. The product, extruded and foamed without the use of CFC and HCFC, is particularly suitable for the thermal insulation of refrigeration, air-conditioning and heating & plumbing services in commercial, industrial and domestic applications.

Program Operator

EPDITALY

Indipendent check

This statement was written following the general instructions of the EPD Italy program.
Independent verification of the declaration according to ISO 14025: 2010

○ Internal ● External

Third-party verification performed by: ICMQ SpA, via De Castillia, 10 - 20124 Milano (www.icmq.it).
Accredited by Accredia.

UNCPC code

3623 Tubes, pipes, and hoses of vulcanized rubber other than hard rubber

Corporate contact

Union Foam SpA, via dell'Industria 11, 20882 Bellusco (MB); tel. +39 039 620891; commerciale@unionfoam.it

Technical support

Rossella Luglietti, LCA study director, Greenwich S.r.l., operational headquarters: Via Presolana 2/4, 24030, Medolago (BG); registered office via Vittorio Emanuele II, 179, 24033 Calusco d'Adda – Bergamo; info@greenwichsrl.it

Comparability

Environmental declarations published within the same product category, but from different programs, may not be comparable. In particular, EPD of construction products may not be comparable if not compliant with EN 15804.

Accountability

UNION FOAM Spa relieves EPDItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence; EPDItaly declines all responsibility regarding the manufacturer's information, data and results of the life cycle assessment.

PCR and reference document

This declaration was written following the EPDItaly Program Regulations rev. 4.0 dated 03/06/2019, available on the website www.epditaly.it.

PCR ICMQ-001/15 rev 2.1 Construction products and construction services, EPD Italy. Issuing date: 03/06/2019.
The EN 15804:2012 Standard – Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products. – represents the framework reference for PCR.

2 Company

Union Foam Spa, with their vast experience in research and testing, and thanks to the development of innovative and highly technological products, is now a european market leader in this field and is constantly growing on the market.

The company's products and systems are specifically designed to prevent condensation, limit energy loss, control noise and vibrations and to protect the environment. They are used in a wide range of both domestic and industrial applications (heating and plumbing, air conditioning, refrigeration, oil, petrochemical, shipyards and railways).

Certification bodies, qualified both on a national and international level, guarantee the quality and performance of all products in accordance with the regulations in force.

The versatility of the production plants together with a customer oriented focus, allow the company to satisfy worldwide-customer requirements. The product range meet the needs and comply with the regulations of all of the countries in which Union Foam has established their presence.

Thanks to their network of agents and distributors, Union Foam is now a leading company in the major world wide markets promoting their "Made in Italy" products.



3 Product and production process description

The LCA study and consequently the assessment of the environmental impact relating to EUROBATEX, relates to the following products:

- EUROBATEX flat sheets or rolls
- EUROBATEX flat sheets or rolls in a SELF-ADHESIVE backing
- EUROBATEX pipe slit, SELF-ADHESIVE on one side (AD1)
- EUROBATEX pipe, slit SELF-ADHESIVE on both sides(AD2)
- EUROBATEX pipe, slit SELF-ADHESIVE (AD2) + rubber foam OVERLAP (ADG)
- EUROBATEX in pipe sections or coils

The characteristics of the EUROBATEX products subject of the declaration are summarized in Table 1 and in Table 2.

Table 1: General description of EUROBATEX products.

Type of material	Black closed-cell flexible elastomeric foam (FEF).
Product range	Tubes in pipes sections (also in a self-adhesive version) and coils with thicknesses from 6 to 60 mm and diameters from 6 to 170 mm. Flat sheets or rolls (also in a self-adhesive version) with thicknesses from 6 to 60 mm.
Fields of application	Thermal insulation of refrigeration, air-conditioning and heat & plumbing services in commercial, industrial and domestic applications.
Dimensional tolerances	In accordance with the European Standard EN 14304.
Environmental information	Flexible and expanded CFC and HCFC-free rubber foam. It does not damage the ozone layer (ODP zero) and does not contribute to the greenhouse effect (GWP zero).
Additional information	Self-adhesive material: the self-adhesive coating is based on modified acrylate reinforced with mesh structure. Protection liner made of polyethylene or paper foil. Traces of silicon can be found on the foil protecting the self-adhesive coating.
Storage conditions /shelf life	Store the material in a dry and clean environment at a temperature between 0 °C and 35 °C and a RH between 50% and 70%. Do not expose the material to heat or direct sunlight before installing. Self-adhesive products should not be kept in storage for more than one year.

Table 2: Description of the technical characteristics of EUROBATEX products.

PHYSICAL PROPERTIES	RESULT OBTAINED	TEST METHOD
Operating temperature range	-45 °C +110 °C	EN 14706 / EN 14707
Thermal conductivity λ At a mean temperature of 0°C At a mean temperature of + 40° C	Tubes thk. ≤25mm ≤ 0.033 W/m k Tubes thk. >25mm ≤ 0.035 W/m k Sheets thk. ≤32mm ≤ 0.033 W/m k Sheets thk. >32mm ≤ 0.034 W/m k Tubes thk. ≤25mm ≤ 0.037 W/m k Tubes thk. >25mm ≤ 0.039 W/m k Sheets thk. ≤32mm ≤ 0.037 W/m k Sheets thk. >32mm ≤ 0.038 W/m k	EN 12667 / EN ISO 8497
Water vapour diffusion resistance factor (μ)	Tubes thk. 6-19 mm ≥ 10000 Sheets thk. 6-25 mm ≥ 10000 Tubes thk. 25-60 mm ≥ 7000 Sheets thk. 30-60 mm ≥ 7000	EN 13469 / EN 12086
Water absorption	< 0,1 kg/m2	EN 13472 / EN 1609
Fire performance **Euroclasse** **UK:** **Fire propagation** **Surface spread of flame** **Building Regulations** **USA, Canada**	Tubes BL-s2,d0 Sheets B-s3,d0 Sheets 60mm E i1 ≤ 6.0 Class 1 Class 0 UL Approved Flame Class V-0, fino a 13mm Flame Class V-0, HF-1 - sp.3mm	EN 13501 -1 BS476: Part 6 BS476: Part 7 BS476: Part 6 and 7 UL 94 UL 746 A, UL 746 B
Shipyards (MED)	Meets test requirements	IMO Res. MSC.307(88); IMO MSC/Circ. 1004 (Direttiva MED 2014/90/UE Moduli B e D)
Ozone resistance	Excellent	ISO 7326
Antimicrobial behaviour	Meets test requirements	AATCC test method 30-2004
Corrosion risk	Meets test requirements	EN 13486

Table 3 shows the main components of the mass balance.

Table 3: Mass balance.

Component	Weight/declared Unit
Polymers	25%
Process additives	5%
Plasticizers	20%
Flame retardants	35%
Other additives	15%

Eurobatex doesn't contain SVHC substances (Substance of Very High Concern for Authorisation) in a concentration greater than the limit established in the List of Substances SVHC (Candidate List of SVHC).

The production process of EUROBATEX is divided into the following steps:

- Raw materials check in: verification and storage
- Controls according to the raw material internal inwards control plan and issue of the quality pass
- First phase preparation (masterbatch; semi-finished product)) with mixing of inert raw materials by means of a mixer
- Masterbatch storage and quality control of 100% of the first phase production
- Second phase preparation (compound; semi-finished product) with mixing of the reactive raw materials by means of a mixer
- 100% quality control of second phase production
- Feeding of an extruder with the compound
- The material coming out of the extruder, compact and already formed, is placed in a horizontal oven where the vulcanization (for mechanical properties) and expansion (with formation of the closed cell material that gives the insulating properties to the final product) processes will take place
- Exit of the vulcanized and expanded product from the oven
- Air cooling
- Printing, cutting and packaging

The life expectancy of Eurobatex products depends on the conditions of the environment in which the product is used. If correctly installed and with the right thickness and method of installation, the product maintains its insulating properties unaltered, without any significant deterioration, for over 50 years.

With a view to environmental sustainability, we would like to point out that Eurobatex, if correctly removed, is part of the production process of the Eurobatex OC sound-absorbing material as raw material.

4 Methodology

The methodological approach follows the guideline of Life Cycle Assessment (LCA), that addresses the environmental issues through the life cycle of a product. The LCA is an international, standardised and comprehensive methodology that evaluates “the environmental aspects and potential environmental impacts (e.g. use of resources and the environmental consequences of releases) throughout a product's life cycle from raw material acquisition through production, use, end-of-life treatment, recycling until final disposal (i.e. cradle-to-grave)" [ISO 14040:2006] and [14044:2006].

Scope

The products under evaluation are the EUROBATEX family, both tubes and sheets, with the main application in the construction sector. For this reason the calculation rules are referred to the general construction products using as reference document the calculation rules defined by the construction category rules (PCR). The PCR in question therefore requires an analysis of the life cycle through an approach called "from cradle to gate", taking into consideration the extraction and supply phases of raw materials and energy used.
Therefore, the A1-A3 modules are included in the EPD procedure, which consider the processes of production and consumption of energy and materials in the system considered (A1), the transport to the factory gate (A2), the manufacturing processes, including the production and treatment of process waste (A3). The modules included in the analysis are shown in Table 4: the x identify the steps taken into consideration, while the undeclared modules are indicated with the word MND (module not declared).

BUILDING LIFE CYCLE ASSESSMENT															
Production stage			Construction process stage		Use stage							End of Life stage			
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Replacement	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Table 4: Modules under investigation, with the approach from Cradle to Gate.

Figure 1 provides a brief description of the processes included in each phase of the life cycle. As already indicated in the previous table, the downstream phases have not been included.

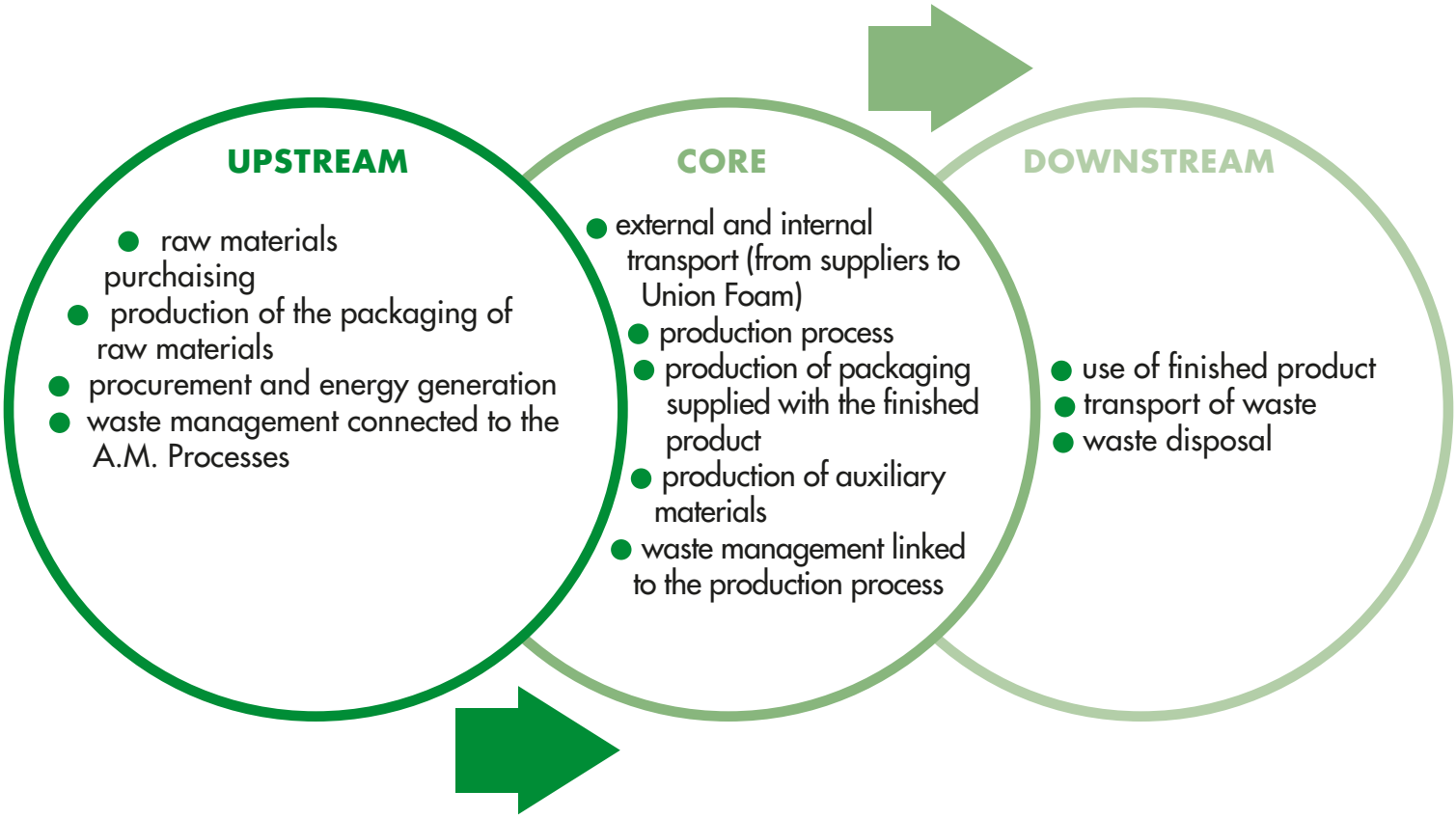


Figure 1: Product's life cycle.

Type of EPD

The EPD under development consider the approach from cradle to gate.

Geographic validity

The environmental issue are calculated for the production plant of UNION FOAM, in Bellusco (MB). The reference market is global

Time validity Time frame investigate

Time frame investigated is the 2018 year.

Database utilizzati:

Ecoinvent 3.5

Software:

SimaPro 9.0.0.49

Declared unit

The study was carried out using 1 m3 of rubber foam as reference unit. This choice allows to include the entire range of products of the EUROBATEX line, in all different thicknesses, in both tube and sheet versions.

Assumptions

The data refer to all the activities that contribute to the production of the EUROBATEX product range All data regarding raw materials, energy consumption, consumption of auxiliary materials, sourced in the production site, were recalculated considering exclusively the production of the EUROBATEX brand. In addition, the mass balance was calculated starting from the composition of the product before the final extrusion phase.

Cut off criteria

All data were collected according to the PCR standard. Due to the complexity of the product and of its life cycle, some assumptions were made which led to the cut-off of some contributions.
In the mass balance, the assessment cover the impacts of 97.5% of the materials involved. This assumption did not lead to a significant impact change, as they mainly consist of inert material, with no effect on the final impacts.
Actually, the elements of the life cycle excluded from the study are: the packaging of the auxiliary material, the transport of workers, the adhesive tape used to close the packaging of the products , the adhesive used in some types of pipes (for the sheets this component was considered).

Data Quality

The data collected for the mass balance and the production process are site-specific, in particular, information regarding weight, quantity, energy consumption, raw materials, transport and waste has been collected directly from the company. All the other information relating to the production and supply of materials and energy, the type of transport and the treatment of waste were taken from the Ecoinvent 3.5 database.
The quality of the electricity and thermal energy data takes into consideration that the company is supplied through the national energy network, and therefore the Italian "Energy mix" is adopted as per Ecoinvent database.
With regard to statistical data, criteria were applied throughout the analysis:

- Geographical equivalence: Italian, European or possibly global systems have been analysed for raw materials, purchased from global suppliers;
- Technological equivalence: comparable technological systems were analysed through literature searches;
- Equivalence with respect to system boundaries: systems taking into account similar inputs and outputs and similar phases were considered.

Proxy data had to be used for some items of the mass balance for which it was not possible to model raw material accurately with the Ecoinvent database.
Proxy data anyway were used for a value of less than 3% of the mass balance.

Allocation

The allocation was done considering 1 m3 of rubber, calculated on the basis of the product released on the market in 2018, including an approximation of the values of 2.3%.
This simplification is however accepted by the PCR references which allows a 5% difference and does not have a significant impact on the final results.
Reference of the allocation is the amount of products in sales and not the manufactured quantity, in order to avoid counting the materials in stock twice.

5 Reference scenario

As reported in the PCR reference document, the raw material procurement (UPSTREAM), transport and internal production (CORE PROCESS) phases were considered, omitting the distribution, use and disposal phases (DOWNSTREAM).
For the upstream phases, all impacts due to the production and supply of raw materials were analysed (Module A1) and include:

- the extraction and processing of the raw materials contained in the expanded rubbers;
- the production of energy used;
- the production and energy supplied for the extraction and transformation of the raw material.

For the Core phase, modules A2 and A3 have been analysed and include:

- external and internal transport within the company
- the production of EUROBATEX family
- the production of the packaging for the finished products
- the production of the auxiliary materials necessary to obtain the finished products
- the management of waste related to the production process.

6 Results

The following tables summarize the total impacts. It should be noted that the results are reported as an average of the EUROBATEX product range, taking into account the different thicknesses and densities, including both pipes and sheets, and any finishes with adhesives. This operation is allowed, as the results fall within the ±10% range, both for products with high thickness and density, and for those with reduced thickness and density.

Environmental impact per declared unit

Table 5: Results of the EUROBATEX average product.

IMPACTS(modules A1-A3)		AVERAGE PRODUCT			
IMPACT CATEGORY	Unit	A1	A2	A3	TOTAL
GWP	kg $CO_{2\ eq}$	185,68	24,54	17,08	227,30
ODP	kg CFC-11 eq	4,21E-05	4,56E-06	1,80E-06	4,85E-05
POCP	kg $C_2H_{4\ eq}$	5,41E-02	4,04E-03	5,42E-03	6,35E-02
AP	kg $SO_{2\ eq}$	1,19	9,58E-02	6,48E-02	1,35
EP	kg $PO_4^{3-}{}_{eq}$	0,57	0,02	0,05	0,64
ADPE	kg Sb_{eq}	5,66E-03	7,41E-05	3,11E-05	5,76E-03
ADPF	MJ	3.032,13	374,25	219,63	3.626,01

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources

Resource use per declared unit

Table 6: Resource usage per EUROBATEX average product.

IMPACTS(modules A1-A3)		AVERAGE PRODUCT			
IMPACT CATEGORY	U.M.	A1	A2	A3	TOTALE
PERE	MJ	264,72	3,56	388,00	656,27
PERM	MJ	-	-	-	-
PERT	MJ	264,72	3,55	388,00	656,27
PENRE	MJ	3.725,01	354,68	267,80	4.347,49
PENRM	MJ	-	-	-	-
PENRT	MJ	3,725,01	354,68	267,80	4.347,49
SM	Kg	1,11	0,06	6,28	7,45
RSF	MJ	-	-	-	-
NRSF	MJ	-	-	-	-
FW	m^3	3,73E-01	5,96E-03	2,25E-03	3,82E-01

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non- renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

Output flows and waste categories per declared unit

Table 7: Results of output flows for the EUROBATEX average product.

IMPACTS(modules A1-A3)		AVERAGE PRODUCT			
IMPACT CATEGORY	U.M.	A1	A2	A3	TOTALE
HWD	Kg	4,56E-03	3,91E-06	3,60E-03	8,16E-03
NHWD	Kg	50,46	0,29	24,52	75,27
RWD	Kg	1,26E-02	4,19E-05	8,57E-03	2,13E-02
CRU	Kg	-	-	1,68	1,68
MFR	Kg	2,46	0,05	14,62	17,12
MER	Kg	9,59E-05	6,30E-06	3,00E-06	1,05E-04
EEE	MJ	-	-	-	-
EET	MJ	-	-	-	-

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

The results of the impact assessment report relative information and are not able to predict future impacts on the final value of the category, the exceeding of any thresholds, safety margins or risks.

7 References

[1] UNI EN ISO 14040: 2006, Gestione ambientale – Valutazione del ciclo di vita – Principi e quadro di riferimento.

[2] UNI EN ISO 14044: 2006, Gestione ambientale – Valutazione del ciclo di vita – Requisiti e linee guida.

[3] UNI EN ISO 14025:2010, Etichette e dichiarazioni ambientali - Dichiarazioni ambientali di Tipo III - Principi e procedure

[4] UNI EN 15804:2012, Sostenibilità delle costruzioni – Dichiarazioni ambientali di prodotto – Regole chiave di sviluppo per categoria di prodotto.

[5] PCR ICMQ-001/15 rev 2.1 Prodotti da costruzione e servizi per costruzione, EPD Italy. Data di emissione: 03/06/2019.

[6] Regolamento EPDItaly rev. 4.0 del 03/06/2019