

UNION FOAM SpA



ENVIRONMENTAL PRODUCT DECLARATION

Product name:  
**EUROBATEX HF**

Site plant:  
**VIA DELL'INDUSTRIA 11,  
20882, BELLUSCO (MB)**

**In compliance with ISO 14025 and EN 15804:2012 + A1:2013**

Program Operator	EPDItaly
Publisher	EPDItaly

Declaration number	UF-HF2021
Registration number	EPDITALY0112
UNCPC code	3623

Issue date	23/01/2021
Valid until	<u>23/01/2026</u>



[www.epditaly.it](http://www.epditaly.it)

v1 23/01/2021

## 1. GENERAL INFORMATION

### EPD owner

Union Foam SpA

Registered office: Via Manzoni 43, 20121, Milano

VAT No.: 02651770154

### Plant

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

### Scope of application

This document refers to 1 m<sup>3</sup> of elastomeric material for thermal insulation of the EUROBATEX HF product line. The product range covered by the declaration consists of: tubes in pipe sections and sheets produced in extruded and expanded elastomer. These products are indicated for the thermal insulation of the components of refrigeration, air conditioning and plumbing systems in civil and industrial applications. Tubes and sheets are made of different thicknesses, and in some cases they can be finished with adhesive material.

### Program Operator

EPDITALY

### Independent verification

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](http://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](mailto: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.

### **Liability**

UNION FOAM Spa relieves EPDIItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence; EPDIItaly 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 EPDIItaly Program Regulations rev. v.5 dated 01/07/2020, available on the website [www.epditaly.it](http://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.

Union Foam Spa is a leading manufacturer in Europe, in strong expansion and with a great experience in research, testing and implementation of innovative products with high technological content.

Its products and systems, able to prevent the formation of condensation, to limit energy losses, to absorb noise and vibrations and to protect the environment, are used in a wide range of civil and industrial applications: plumbing, air conditioning, refrigeration, oil, petrochemical, marine, railway.

Certifying bodies, accredited both nationally and internationally, guarantee the consistency of quality and performance of the various types of products in compliance with the regulations in force.

The versatility of the production plants and the ability to meet the needs of customers worldwide allow us to adapt the different types of products to the full compliance with the regulations required in the various countries where the company interacts. Union Foam Spa is present with Agencies and Distributors among the leading companies in the main world markets to promote 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 HF flat sheets in rolls
- EUROBATEX HF flat sheets WITH ADHESIVE
- EUROBATEX HF pipe , 2 meters version
- EUROBATEX HF pipe, 2 meters version WITH ADHESIVE

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 color closed-cell flexible elastomeric foam (FEF). Does not contain halogens (Chlorine, Bromine, Fluorine) and PVC
Product range	Tubes in pipes sections (also in a adhesive version with thicknesses from 13 to 32mm and diameters from 10 to 139 mm. Flat sheets r in rolls (also in a adhesive version) with 3mm thicknesses .
Fields of application	Thermal insulation of the components of civil and industrial air conditioning and refrigeration systems. Particularly suitable in applications such as naval, railway and civil applications where safety requirements are required with regard to the development of smoke in case of fire.
Dimensional tolerances	In accordance with the European Standard EN 14304.
Environmental information	Flexible and expanded CFC and HCFC-free. It does not damage the ozone layer (ODP zero) and does not contribute to the greenhouse effect (GWP zero).
Additional information	For adhesive versions, an acrylic adhesive with reinforcing mesh is used, protected by polyethylene film. There may be traces of silicone on the protective film.
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. -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 +130 °C	EN 14706 / EN 14707
Thermal conductivity $\lambda$ At a mean temperature of 0°C	$\leq 0.040$ W/mk	EN 12667 / EN ISO 8497
Water vapor diffusion resistance factor	$\geq 2000$	EN 13469 / EN 12086
Water absorption	$< 0,1$ kg/m <sup>2</sup>	EN 13472 / EN 1609
Fire performance Euroclasse	Tubes D <sub>L</sub> -s2,d0 Sheets 6-25mm: D-s3,d0 Sheets 32mm: E Sheets for linear application: D <sub>L</sub> -s2-d0 Ribbons; D-s3,d0	EN 13501 -1
USA, Canada	UL Approved Flame Class HF-1	UL 94 UL 746 A, UL746 B
Swiss Gruppo di reazione al Fuoco	Tubes: RF3 Sheets: RF3 (cr)	
Shipyards (MED)	Meets test requirements	IMO Res. MSC.307(88); IMO MSC/Circ. 1004 (Direttiva MED 2014/90/UE Moduli B e D)
Railway applications	HL-1/R1 (	ISO 7326
Corrosion risk	Meets test requirements	EN 13468
Corrosion risk	Meets test requirements	EN 13486

## EUROBATEX<sup>®</sup> HF (HALOGEN FREE)

Table 3 shows the main components of the mass balance.

*Table 3: Mass balance.*

<b>Component</b>	<b>Weight/ declared Unit</b>
Polymers	26%
Process additives	10%
Plasticizers	9%
Flame retardants	41%
Other additives	14%

It should be noted that the materials used within the EUROBATEX HF range do not have hazardous characteristics, as required by current regulations.

Eurobatex HF 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 products of the Eurobatex HF range, by virtue of the absence of halogens in their formulation, meet the need for reduced emissions of smoke and toxic gases in the event of fire. For this reason they are used especially where high safety standards are required (hospitals, pharmaceutical industries, public places, airports, public offices, naval and railway sectors).

We can describe the entire production process of EUROBATEX HF, dividing it into the following steps:

- Receipt of raw materials and premixed products with verification of acceptance, weighing and relative storage
- Preparation of the first phase (mixture) with mixing of raw materials in granular form
- Air cooling of the mixture
- Dough is sent to a dough cutter and arranged on pallets
- Quality control of 100% of the first phase production
- Preparation of the second phase (dough) with mixing of raw materials with additives
- Air cooling of the dough
- Quality control of 100% of the second phase production
- Feeding an extruder with the mix: the extruder compresses the material and passes it through a template. There are three extrusion lines to obtain different external shapes.
- The extruded material, compact and already formed, enters two heated ovens where the processes of vulcanization (conferring mechanical properties) and expansion (formation of the material in closed cells that confer the insulating properties to the product) will take place.
- Exit from the oven of the vulcanized and expanded product

- Air cooling
- Stamping, cutting (the sheets are further finished by a cutter) and packaging
- Adhesive application (process by a subcontractor)

The life expectancy of Eurobatex products depends on:

- the conditions of the environment in which the product is used.
- the appropriate choice of applied thickness
- proper installation and use of the equipment

If these conditions are met, the product maintains its insulating properties unaltered, without any significant deterioration, for over 50 years.

Reuse phase: Eurobatex HF, if removed properly, can be reused as a raw material in the production process of the soundproofing material Eurobatex OC

#### **4. CALCULATION METHODOLOGY**

The analysis was carried out according to the Life Cycle Assessment (LCA) methodology, which provides for an assessment of the environmental impacts of a product throughout its life cycle, i.e. from the extraction and procurement of raw materials, through the production and distribution of finished products, to the final disposal and the subsequent recycling and disposal of materials. This approach is defined as "cradle to grave". This methodology is defined by ISO 14040:2006 and 14044:2008.

##### **Scope**

For products in the EUROBATEX HF range, reference has been made to the calculation rules defined by the Construction PCR, as construction is one of the main sectors of product application. The PCR under consideration therefore requires the life cycle to be analyzed using a cradle-to-gate approach, taking into account the extraction and procurement phases of all materials used.

Within the EPD procedure, modules A1-A3 are included that concern, within the system considered, the production processes and energy consumption of:

- Raw materials (A1)
- Transport up to the factory gate (A2)
- Manufacturing processes, including the production and treatment of process wastes (A3)

Table 4 shows the modules included in the analysis: those that were examined are identified with an x, and unreported modules are indicated as MND.

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

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	Maintenance	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

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.

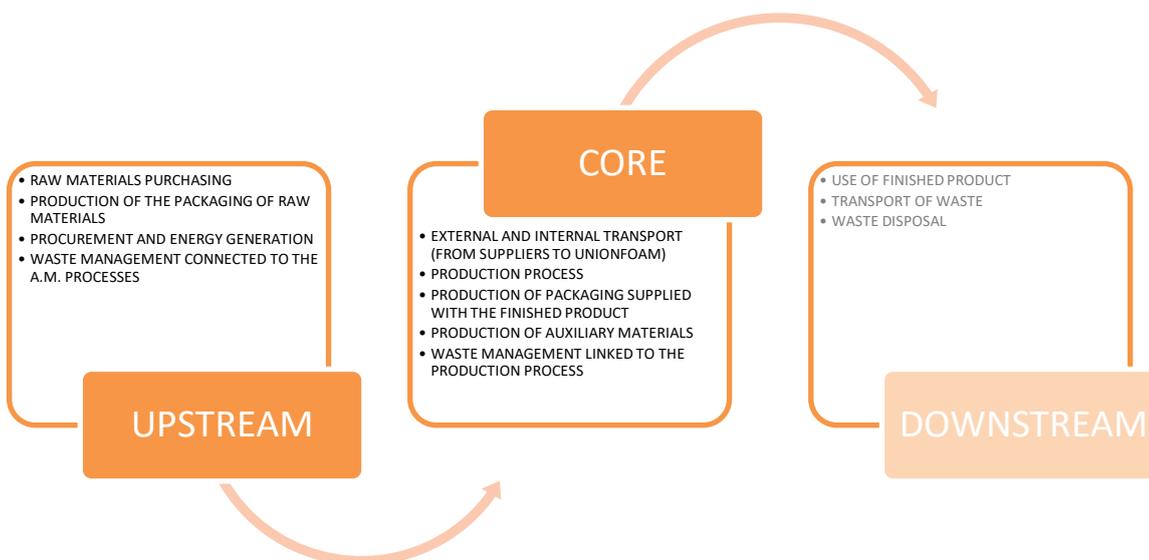


Figure 1: Product's life cycle.

<b>Type of EPD</b>	The EPD under development consider the approach from cradle to gate.
<b>Geographic validity</b>	The environmental issue are calculated for the production plant of UNION FOAM, in Bellusco (MB). The reference market is global
<b>Time validity</b>	Time frame investigated is year 2018.
<b>Database:</b>	Ecoinvent 3.5
<b>Software:</b>	SimaPro 9.0.0.49

### Declared unit

The study was carried out using 1 m<sup>3</sup> of rubber foam as reference unit. This choice allows to include the entire range of products of the EUROBATEX HF 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 HF 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 HF 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 95% 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.

Also, the elements of the life cycle excluded from the study are: the packaging of the auxiliary material, the transport of workers, the adhesive used for the pipes (due to lack of information), and the adhesive for the slabs (previous studies carried out by UNIONFOAM for EPD certification of the EUROBATEX product have shown that the impact of the adhesive is irrelevant on the results). Moreover, with regard to the mass balance, the company wanted to keep a percentage of confidentiality on the data relating to the materials used, equivalent to 2.8%.

### 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 m<sup>3</sup> of rubber, calculated on the basis of the product released on the market in 2018.

Reference of the allocation is the amount of products in sales and not the manufactured quantity, as some of the materials are stored in warehouses and it would have been much more complex, and subject to approximation to include such information.

## **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) have been considered.

For the upstream phases, all impacts due to the production and supply of raw materials were analysed (Module A1), which 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, where for some cases elaborations were carried out to trace back to the initial producer, even where the direct supplier of UNION FOAM is a subcontractor;
- the production of insulation material;
- 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 HF product range, taking into account the different thicknesses and densities. The range of variations is in the order of 15%, and therefore higher than the 10% allowed. However, it is considered acceptable to use the average density product, since the individual densities of the respective codes are an average of the daily productions of each code, and therefore it is not possible to go back to the point value for each individual extruded tube or sheet produced. Therefore, considering that the assessment was made on a weighted average with respect to the average itself from which the different densities are derived from the production plan, the choice of using an average value can be considered appropriate with respect to the purpose of the assessment.

### 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
ADPE	kg Sb eq	2,55E-03	1,21E-05	3,17E-05	2,59E-03
ADPF	MJ	4,84E+03	6,11E+01	2,18E+02	5.122,23
GWP	kg CO2 eq	2,79E+02	4,00E+00	3,28E+01	315,76
ODP	kg CFC-11 eq	5,82E-05	7,44E-07	1,84E-06	6,08E-05
POCP	kg C2H4 eq	8,48E-02	6,58E-04	6,10E-03	9,15E-02
AP	kg SO2 eq	1,65E+00	1,56E-02	6,70E-02	1,74
EP	kg PO4--- eq	9,85E-01	3,69E-03	5,31E-02	1,04

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 1: Resource usage per EUROBATEX average product.

IMPACTS (modules A1-A3)		AVERAGE PRODUCT			
IMPACT CATEGORY	Unit	A1	A2	A3	TOTAL
PERE	MJ	142,39	0,65	395,89	538,93
PERM	MJ	261,35	0	0	657,89
PERT	MJ	403,74	0,65	395,89	800,28
PENRE	MJ	886,22	65,87	267,61	1.219,70
PENRM	MJ	4.794,51	0	0	4.794,51
PENRT	MJ	5.680,73	65,87	267,61	6.014,21
SM	Kg				
RSF	MJ	-	-	-	-
NRSF	MJ	-	-	-	-
FW	m <sup>3</sup>	4,64	0,01	0,77	5,43

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 2: Results of output flows for the EUROBATEX average product.

IMPACTS (modules A1-A3)		AVERAGE PRODUCT			
IMPACT CATEGORY	Unit	A1	A2	A3	TOTAL
HWD	Kg	4,79E-03	3,92E-05	2,20E-03	7,03E-03
NHWD	Kg	31,56	2,92	12,08	46,56
RWD	Kg	9,92E-03	4,20E-04	2,94E-03	1,33E-02
CRU	Kg	-	-	2,09	2,09
MFR	Kg				
MER	Kg				
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. v.5 dated 01/07/2020