Environmental Product Declaration



EPD[®]

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

ISOLIMPIA®

Thermo-acoustic insulation in polyester

From

OVATTIFICIO OLIMPIA DI ZORZATO ALBERTO E C. sas



ESSENZIALE E TECNOLOGICO

Programme:	The International EPD [®] System, <u>www.environdec.com</u>
Programme operator:	EPD International AB
EPD registration number:	S-P-01627
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General information

Programme information

Programme:	The International EPD [®] System					
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden					
Website:	www.environdec.com					
E-mail:	info@environdec.com					

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): PCR 2019:14 Construction products, version 1.2.5 c-PCR 005 Thermal insulation product UN CPC codes: 369

PCR review was conducted by: PCR Committee: IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB

Moderator: Martin Erlandsson, IVL Swedish Environmental Research Institute

Life Cycle Assessment (LCA)

LCA accountability: Ing. Francesca Intini, T&A - TECNOLOGIA & AMBIENTE srl

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

 \boxtimes EPD verification by individual verifier

Third-party verifier: Adriana Del Borghi delborghi@tetisinstitute.it

Approved by: The International EPD[®] System

Procedure for follow-up of data during EPD validity involves third party verifier:

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.





Company information

Owner of the EPD: OVATTIFICIO OLIMPIA DI ZORZATO ALBERTO E C. sas

Contact: Ing. Giorgio Michelotto, e-mail giorgio.michelotto@isolimpia.it

<u>Description of the organisation</u>: Since 1971 Olimpia continues the evolution and the research dedicating the production to mattress felt and textile articles for the padding of mattresses and pillows. Since the eighties he has developed an important commercial network in European markets (in particular France, Germany, Austria and Switzerland), becoming in a few years a point of reference for companies dealing with mattresses, pillows and furniture.

The Company's potential has developed considerably when, at the end of the 1990s, Olimpia revolutionized its systems and promoted new investments, expanding the range of products and entering the thermo-acoustic insulation and filtration sector.

Products are certified according to the criteria set by the most important regulations in the textile sector. From safety to health, to the ecological compatibility of products, the efforts are aimed at offering increasingly safe and environmentally friendly products.

The Company has obtained ISO 9001: 2015 quality certification and is able to meet the needs of different national and European markets. Its registered and operational office is in S. Angelo di Piove in the province of Padua – Italy.

Name and location of production site(s): Via S.Polo, 115 / A 35020 - S. Angelo di Piove (PD) Italy

Product information

Product name: ISOLIMPIA®

Product identification:

ISOLIMPIA® is a thermally insulating material and an acoustic absorbent made of 100% thermobounded polyester fiber (Polyethylene terephthalate - Polyethylene terephthalate Co-polymer).

<u>Product description</u>: The composition of the product, net of packaging, consists of 100% polyester, of which about 70% of recycled PET from post-consumer white bottles and 30% of thermobonding virgin PET. The white polyethylene terephthalate fiber guarantees a constant diameter.

ISOLIMPIA® has been designed for building applications, as well as for the most common applications in the railway sector and for general and industrial uses.

The characteristic of the thermo-binding is the complete recyclability of the product and the cut-outs of its workings and for this reason ISOLIMPIA® can be considered to all intents and purposes 100% recyclable. On this characteristic, attention must be increasingly focused because, if recyclability does not affect ecological culture, it certainly concerns the cost of disposing of any clippings.

No less important is the fact that ISOLIMPIA® does not fray and does not disperse dust, particles or fibrils that are potentially harmful to humans in the environment.



Picture 1. Product images





It can be produced in different thickness and density variants, which allow it to meet the numerous technical performance requirements and to comply with current regulations both in terms of thermal insulation, sound insulation and reaction to fire.

Thickness	From 10 up to 100 mm +/- 5 mm
Fire reaction class	 Accordig to EN 13501-1: Bs2d0 for density 20 kg/m³ and thickness from 10 to 60 mm According to italian regulation: CL1 for density 10 and 40 kg/m³ and thickness from 20 to 100 mm
Smoke class	according to AFNOR NF F16-101 for density 10 kg/m^3 and 40 kg/m^3 : F1 class
Temperature range of use	From – 40°C up to +100 °C
Thermal conductivity	"λ"= 0,0389 [W/m°K] at density 20 kg/m ³
Fiber diameter	27,9 [μm] (calculated)
Lower calorific value	21600 [Kj/Kg]
Specific Heat	0,24 [Kj/Kg°K]

 Table 1. Isolimpia technical features

<u>UN CPC code:</u> 369 Geographical scope: Globale

LCA information

Functional unit / declared unit:

The functional unit of the study, in line with the objective, the field of application and the the PCR 2019:14 Construction products and construction services (v1.11 of the 05/02/2021) and c-PCR 005 Thermal insulation product (v 1.0 of the 20/12/2019), is 1 m² of insulation panel with specific R-value (Thermal Resistance expressed in m²K/W), usable according to the applications provided in Annex A of Standard EN 16783: 2017, with density 20 kg/m³ and λ of 0,0389 W/m^oK and with nominal panel thickness 100 mm. It is representative of the other solutions with a density of 20 kg/m³ and λ of 0.0389 W/mK and with a nominal panel thickness of 20 mm and 50 mm, in fact it is the one with the greatest weight per linear square meter and therefore with the greatest environmental loads.

INPUT	λ [W/mK]	0,0389	0,0389	0,0389
	Density [kg/m ³]	20	20	20
	Thilkness [mm]	20	50	100
OUTPUT	Thermal resistance [m ² K/W]	0,51	1,29	2,57
	Need of material 1 m ² [kg]	0,40	1,00	2,00

Table 2. Material requirement for 1 m² of insulation

<u>Time representativeness:</u> Reference year for data 2022, data used for LCA calculations 2022. <u>Database(s) and LCA software used:</u> SimaPro 9.4 Ecoinvent 3.8 <u>Description of system boundaries:</u> Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D) <u>System diagram:</u>







Picture 2. Flow Diagram

In case of selective demolition of buildings, the product can be recovered in its original form, and then recycled for the same use or sent to companies specialized in the recovery of polyester fiber.



Picture 3. ISOLIMPIA production scheme A1-A3

Below are the scenarios adopted for the modelling of modules C1, C2, C3, C4 and D:

- C1 The impacts associated with the demolition phase were considered negligible.
- C2 The transport of the product at the end of its life and of the packaging is modelled with a scenario equal to 50 km by truck
- C3 The product after the demolition activities is not recovered. This module therefore contains only the benefits and impacts due to the recycling and energy recovery of the product packaging materials that can be considered negligible.
- C4 The product after demolition activities is disposed in landfill





• D - There are no avoided impacts because since 100% of the weight of the product and its packaging is considered landfilled.

The geographical representation of the study is Europe.

Cut-off rule: 1% cut-off rule was applied for input flows in the inventory.

The core process is within the Italian territory, therefore the data relating to energy aspects refer to the energy mix of the Italian supplier, with the exclusion of the manufacturing process of some raw materials, for which reference was made to the energy mix of the country of production.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Pro	duct st	age	Const proc sta	ruction cess age		Use stage End of life stage			ge	Resource recovery stage						
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling- potential
Module	A1	A2	A3	A4	A5	B1	B2	В3	В4	В5	B6	B7	C1	C2	C3	C4	D
Modules declared	х	х	х	ND	ND	ND	ND	ND	ND	ND	ND	ND	х	х	х	х	х
Geography	GLO	GLO	IT										EU	EU	EU	EU	EU
Specific data used		>90%				-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	No	ot Releva	int			-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	No	ot Releva	int			-	-	-	-	-	-	-	-	-	-	-	-





Content information

The content of recycled or recovered material or by-products included per functional unit (considering the pre- and post-consumer material used and adopting the mass balance method) is equal to 40%.

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight- % and kg C/kg
PET recycled fiber	1,40	40%	
PET bicomponent fiber	0,60	0%	
TOTAL	2,00		
Packaging materials	Weight, kg	Weight-% (versus the product)	Biogenic material, weight- % and kg C/kg
Film/LDPE	0,065	0%	
TOTAL	0,065	0%	

The product does not contain substances which exceed the limits for registration with the European Chemicals Agency regarding the "Candidate List of Substances of Very High Concern for Authorisation".



Results of the environmental performance indicators

Results per functional or declared unit										
Indicator	Unit	A1-A3	C1	C2	C3	C4	D			
GWP-fossil	kg CO ₂ eq.	6,55E+00	0,00E+00	5,39E-02	0,00E+00	3,21E-01	0,00E+00			
GWP-biogenic	kg CO ₂ eq.	3,89E-01	0,00E+00	-2,52E-05	0,00E+00	3,36E-06	0,00E+00			
GWP- luluc	kg CO ₂ eq.	5,23E-03	0,00E+00	3,60E-05	0,00E+00	8,92E-07	0,00E+00			
GWP- total	kg CO ₂ eq.	6,95E+00	0,00E+00	5,39E-02	0,00E+00	3,21E-01	0,00E+00			
ODP	kg CFC 11 eq.	1,00E-05	0,00E+00	1,13E-08	0,00E+00	1,91E-09	0,00E+00			
AP	mol H⁺ eq.	3,76E-02	0,00E+00	1,99E-04	0,00E+00	9,33E-05	0,00E+00			
EP-freshwater	kg P eq.	2,33E-03	0,00E+00	7,65E-06	0,00E+00	2,78E-07	0,00E+00			
EP- marine	kg N eq.	9,99E-03	0,00E+00	5,62E-05	0,00E+00	4,34E-03	0,00E+00			
EP-terrestrial	mol N eq.	9,06E-02	0,00E+00	6,13E-04	0,00E+00	4,51E-04	0,00E+00			
POCP	kg NMVOC eq.	3,99E-02	0,00E+00	1,95E-04	0,00E+00	2,05E-04	0,00E+00			
ADP-minerals&metals	kg Sb eq.	1,51E-04	0,00E+00	2,47E-07	0,00E+00	4,61E-09	0,00E+00			
ADP-fossil	MJ	1,14E+02	0,00E+00	7,76E-01	0,00E+00	1,22E-01	0,00E+00			
WDP	m ³	2,03E+00	0,00E+00	3,04E-03	0,00E+00	1,92E-04	0,00E+00			
Acronyms	Acronyms GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP- luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non- fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation									

Mandatory impact category indicators according to EN 15804

potential, deprivation-weighted water consumption

Results per functional or declared unit Indicator Unit A1-A3 C1 C2 C3 C4 D 0,00E+00 GWP-GHG[1] kg CO₂ eq. 6,82E+00 0,00E+00 5,40E-02 0,00E+00 3,21E-01





Additional mandatory and voluntary impact category indicators

Resource use indicators

Results per functional or declared unit											
Indicator	Unit	A1-A3	C1	C2	C3	C4	D				
PERE	MJ	4,49E+00	0,00E+00	2,01E-02	0,00E+00	6,91E-04	0,00E+00				
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				
PERT	MJ	4,49E+00	0,00E+00	2,01E-02	0,00E+00	6,91E-04	0,00E+00				
PENRE	MJ	9,89E+01	0,00E+00	8,27E-01	0,00E+00	1,30E-01	0,00E+00				
PENRM	MJ	2,29E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				
PENRT	MJ	1,22E+02	0,00E+00	8,27E-01	0,00E+00	1,30E-01	0,00E+00				
SM	kg	1,47E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				
FW	m ³	6,70E-02	0,00E+00	1,50E-04	0,00E+00	7,00E-06	0,00E+00				
	PERE = Use of	renewable pr	imary energy exclud	ing renewable prim	ary energy res	ources 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 nonrenewable 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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

Waste indicators

Acronyms

Results per functional or declared unit										
Indicator	Unit	A1-A3	C1	C2	C3	C4	D			
Hazardous waste disposed	kg	1,18E-04	0,00E+00	2,08E-06	0,00E+00	3,35E-07	0,00E+00			
Non-hazardous waste disposed	kg	9,44E-01	0,00E+00	2,57E-02	0,00E+00	1,64E-04	0,00E+00			
Radioactive waste disposed	kg	2,94E-04	0,00E+00	4,70E-06	0,00E+00	8,45E-07	0,00E+00			

Output flow indicators

Results per functional or declared unit											
Indicator	Unit	A1-A3	C1	C2	C3	C4	D				
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				
Material for recycling	kg	1,00E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				
Materials for energy recovery	kg	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00				
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00				





Differences versus previous versions

The reason for updating the EPD is because a newer version of EN 15804 has been published. The previous version was made according to EN 15804:2012+A1:2013 while this version is made according to the updated version standard EN 15804:2012+A2:2019/AC:2021.

References

General Programme Instructions of the International EPD® System. Version 4.0.

PCR 2019:14 Construction products, version 1.2.5

c-PCR 005 Thermal insulation product (v 1.0 del 20/12/2019)

Life Cycle Assessment (LCA) ISOLIMPIA® Isolante termoacustico in poliestere, rev 1.1 aprile 2023

EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

UNI EN 16783:2017 Thermal insulation products - Product category rules (PCR) for factory made and in-situ formed products for preparing environmental product declarations

