

ENVIRONMENTAL PRODUCT DECLARATION

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



VANGUARD & CREAKTIVE facade panels ULMA Architectural Solutions



Programme Related Information

Manufacturer	ULMA Architectural Solutions Zubillaga, 89 - Apdo. 20 20560 Oñati (Gipuzkoa) Spain www.ulmaarchitectural.com
Programme	The International EPD® System. www.environdec.com
EPD development	This Environmental Product Declaration is based in the LCA developed by IK Ingenieria, following CML-IA (Baseline) Methodology V4.8 August 2016, simulated with SimaPro software. The database used is Ecoinvent 3.2.
System Boundaries	Cradle to gate (A1+A2+A3) as considered in EN 15804: 2012 + A1: 2013. Other stages (from A4 to D) are very dependent on particular scenarios and shall better developed for specific building or construction works.
PCR	CEN standard EN 15804 served as the core PCR PCR 2012:01 Construction products and Construction services, Version 2.2, 2017-05-30
PCR review was conducted by	The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via info@environdec.com
Independent verification of the declaration and data, according to ISO14025	<input type="checkbox"/> EPD process certification (Internal) <input checked="" type="checkbox"/> EPD verification (External)
Third party verifier	Auditor: Elisabet Amat (eli.amat@tecnaliacertificacion.com) Tecnalia R&I Certificación, S.L. www.tecnaliacertificacion.com
Accredited or approved by	ENAC. Accreditation no.125/C-PR283
EPD registration number	S-P-01096
Approval date	2017/12/15
Validity	5 years since the approval date (2022/12/15)



The company

ULMA Architectural Solutions is specialized in the fabrication of agglomerated stone panels for wall claddings.

The product

This Product Environmental Statement covers the entire range of prefabricated polymer concrete panels manufactured by ULMA Architectural Solutions, under the CPC code CPC 375, Articles of concrete, cement and plaster.

These panels are used for façade cladding and are mounted as a component of ventilated facades (rainscreens).

Range of products

These are the two ranges of products manufactured:

Vanguard



Vanguard range gives a solution to suit each project, giving the possibility of flexible panel formats, enabling panel cuts as needed and in accordance with the European Technical Assessment ETA 16/0519.

Creaktive



A most versatile range, the range of expression and imagination for architects, where the design and creativity possibilities are endless, the creation of unique, customized facades being unlimited in design, texture and colour.

Textures

Each of the two ranges have different surface finishes:

Air texture



A Smooth surface that adds continuous uniform finish.

Earth texture



Natural appearance of sculpted land and stone carved by the course of time.

Water texture



Endless possibilities of creating dynamic effects and nuances of color.

Colors

The panels can adopt a wide range of colors. Colors can be of two types:

Monochrome (M)



A single color panel.

Porphyry (P)



Mix of several basic colors

Shield Plus protection

Some of the polymer concrete panels are protected by a surface shield called Shield Plus. Shield Plus is a Surface layer of thermostable resins which affords extraordinary protection from UV rays and other atmospheric agents.

Considered product groups

Considering the panels manufactured by ULMA Architecture Solutions, different product groups can be distinguished, depending on their range (Vanguard or Creaktive), their texture (air, earth, water), their type of color (monochrome or porphyry) and their inclusion or not inclusion of the Shield Plus protection.

The product groups considered in the following Environmental Product Declaration are the following:

VANGUARD PANELS	VANGUARD M AT WITH SP	Vanguard Panels - Monochrome - Air textured - with Shield Plus
	VANGUARD M AT WITHOUT SP	Vanguard Panels - Monochrome - Air textured - without Shield Plus
	VANGUARD M ET WITH SP	Vanguard Panels - Monochrome - Earth textured - with Shield Plus
	VANGUARD M ET WITHOUT SP	Vanguard Panels - Monochrome - Earth textured - without Shield Plus
	VANGUARD M WT WITHOUT SP	Vanguard Panels - Monochrome - Water textured - without Shield Plus
	VANGUARD P AT WITH SP	Vanguard Panels - Porphyry - Air textured - with Shield Plus
	VANGUARD P AT WITHOUT SP	Vanguard Panels - Porphyry - Air textured - without Shield Plus
	VANGUARD P ET WITH SP	Vanguard Panels - Porphyry - Earth textured - with Shield Plus
	VANGUARD P ET WITHOUT SP	Vanguard Panels - Porphyry - Earth textured - without Shield Plus
	VANGUARD P WT WITHOUT SP	Vanguard Panels - Porphyry - Water textured - without Shield Plus
CREAKTIVE PANELS	CREAKTIVE M AT	Creaktive Panels - Monochrome - Air textured
	CREAKTIVE M ET	Creaktive Panels - Monochrome - Earth textured
	CREAKTIVE P AT	Creaktive Panels - Porphyry - Air textured

Where: M: monochrome P: Porphyry AT: Air texture ET: Earth texture WT: Water texture SP: Shield Plus

Composition

The panels are composed by a homogeneous mixture of fillers, mineral aggregates and chemical additives bound with unsaturated polyester resins. The external surface of the panel is covered by polyester resin decorative layer.

The average composition of each product group is the following:

Groups of products of the Vanguard & Creaktive ranges	Aggregates	Filler	Unsaturated polyester resin	Chemical additives	Pigments	TOTAL
VANGUARD M AT WITH SHIELD PLUS	72.65%	15.95%	10.42%	0.72%	0.26%	100.00%
VANGUARD M AT WITHOUT SHIELD PLUS	73.66%	16.17%	9.21%	0.70%	0.26%	100.00%
VANGUARD M ET WITH SHIELD PLUS	72.65%	15.95%	10.42%	0.72%	0.26%	100.00%
VANGUARD M ET WITHOUT SHIELD PLUS	73.66%	16.17%	9.21%	0.70%	0.26%	100.00%
VANGUARD M WT (WITHOUT SHIELD PLUS)	72.65%	15.95%	10.09%	0.93%	0.38%	100.00%
VANGUARD P LISA WITH SHIELD PLUS	71.72%	15.74%	11.24%	0.93%	0.37%	100.00%
VANGUARD P LISA WITHOUT SHIELD PLUS	72.69%	15.96%	10.06%	0.92%	0.38%	100.00%
VANGUARD P ET WITH SHIELD PLUS	71.44%	15.68%	11.48%	0.99%	0.41%	100.00%
VANGUARD P ET WITHOUT SHIELD PLUS	72.58%	15.93%	10.15%	0.94%	0.39%	100.00%
VANGUARD P WT WITHOUT SHIELD PLUS	72.67%	15.95%	10.07%	0.92%	0.38%	100.00%
CREAKTIVE M AT	73.01%	16.03%	9.99%	0.71%	0.26%	100.00%
CREAKTIVE M ET	73.66%	16.17%	9.21%	0.70%	0.26%	100.00%
CREAKTIVE P AT	72.69%	15.96%	10.05%	0.92%	0.38%	100.00%

The data above were obtained based on the characteristics and composition of the average of the products manufactured in 2016. The reference products corresponds to the average production of that year.

No substances of the product over 0.1 % of the weight are listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorisation".

Dimensions

The thickness of the agglomerated stone panels is between the following ranges:

Range	Texture	Thickness of the relief of each panel (mm)
Vanguard	Water Texture	Min 11, max 19
	Air Texture	14
	Earth texture	
Creaktive	All textures	Min 13, max 22

Manufacture

The manufacture of the polymer concrete panels begins with the incorporation of the different components of the panel in a mold. After infrared curing, the panel is demolded, cured in a gas oven. Later, the panels are cut to the chosen size, and grooved in order to allow for the posterior placement of the anchors to the facade.

Depending on the location of the panel, the panel can be edged, and on demand, perforations and drawings can be made on the panel. Finally, the product is packed and stored for transportation to customer.

LCA calculation rules

Declared Unit

The Declared Unit is 1 m² of polymer concrete panel, of the Vanguard & Creaktive ranges, manufactured by ULMA Architectural Solutions.

System boundaries

This EPD has been carried out with a "Cradle to Gate" approach, according to EN 15804. The system boundaries over the life cycle of the product, for the Declared Unit, are expressed in the following diagram.

UPSTREAM

A1

- Raw materials production
- Edging materials production
- Auxiliary materials production
- Electricity generation
- Natural gas production

CORE

A2

- Transport of the raw, edging and auxiliary materials to the factory
- Transport of the panels from and to an external water cut company

A3

- Transport of the production residues to their End of Life
- External water-cut process
- Packaging materials production
- End of Life management of the production residues
- Production emissions
- Production residual water

The terms A1, A2 & A3 refer to the specific modules in the EN 15804: 2012 + A1: 2013 standard.

These modules include raw material supply (extraction and processing) (A1), the transport of the raw materials to the manufacturer (A2) and the manufacturing process (A3).

The previous system boundaries are expressed in the following table:

Product stage			Construction process stage		Use stage								End of life stage				Resource recovery stage
Raw materials	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	

X = Included in LCA
 MND = Module Not Declared

Reference flow

The reference flow for the LCA was the total amount of panels that were both molded and cut in the company's factory in Oñati in 2016.

Cut-off rules

ISO 14025 and more specifically, PCR 2012: 01, version 2.2 for construction products and construction services, indicate the possibility of applying a cut-off criterion to the inventoried data. This possible cut-off rule allows the consideration of a minimum of 95% of the total inputs (matter and energy) in the Upstream and Core modules. However, in the Life Cycle Inventory of the considered products, no cut-off rule of this type has been applied, considering all the entries and outputs attributable to the product. It must be remarked that, being a "cradle to door" analysis, the placing of the material in the building (auxiliary structure, machinery or auxiliary equipment needed) has not been considered, nor the stages of use and end of life, that is, the A4 to D modules.

Key Assumptions

An external company develops the decorative cuts in the panels. Being the only data known the number of panels sent to water-cut, the surface of the cuts made has been estimated based on the dimensions of an average panel, with as many perforations as the worst case known.

Transport of raw and auxiliary materials has been estimated to be made in a truck of 7.5 to 15 Tons, EURO 5. Transport to waste management has been estimated to be made in a truck of 7.5 to 15 Tons, EURO 5.

Allocation criteria

Economic allocation has been considered for the allocation between the inflows & outflows of the different production lines in the factory, as the difference between the income of the products is high.

Electrical mix

The electric mix used corresponds to the company AXPO. This company supplies 100% renewable energy, and it has been consequently modeled in the LCA.



LCA results

Environmental impacts

The previous product groups allow identifying the environmental impacts of each of the products of the Vanguard and Creaktive ranges of ULMA Architectural Solutions that meet the requirements of each group, regarding range, texture, color type and protection. The variation of the environmental impacts of each individual product is below 10% with respect to the impacts of its product group

Groups of products of the Vanguard range A1+A2+A3	Global warming (100a)	Ozone layer depletion	Acidification	Eutrophication	Photochemical oxidation	Abiotic depletion	Abiotic depletion (fossil fuels)
	kg CO2 eq	kg CFC-11 eq	kg SO2 eq	kg PO4 ⁻⁻⁻ eq	kg C2H4 eq	kg Sb eq	MJ
VANGUARD M AT WITH SP	27.2803	1.25E-05	0.1153	0.0349	9.92E-03	2.39E-04	510.5304
VANGUARD M AT WITHOUT SP	25.2202	1.23E-05	0.1084	0.0326	9.25E-03	2.13E-04	469.9089
VANGUARD M ET WITH SP	27.3564	1.25E-05	0.1153	0.0349	9.94E-03	2.39E-04	512.2048
VANGUARD M ET WITHOUT SP	25.2214	1.23E-05	0.1085	0.0326	9.25E-03	2.13E-04	469.8187
VANGUARD M WT WITHOUT SP	28.1588	1.27E-05	0.1199	0.0362	1.02E-02	2.55E-04	525.0371
VANGUARD P AT WITH SP	28.8694	1.27E-05	0.1210	0.0368	1.04E-02	2.67E-04	541.1950
VANGUARD P AT WITHOUT SP	26.8804	1.25E-05	0.1144	0.0345	9.79E-03	2.42E-04	501.8041
VANGUARD P ET WITH SP	29.3560	1.27E-05	0.1227	0.0374	1.06E-02	2.75E-04	550.6143
VANGUARD P ET WITHOUT SP	26.9843	1.25E-05	0.1150	0.0348	9.82E-03	2.46E-04	503.7048
VANGUARD P WT WITHOUT SP	28.1354	1.27E-05	0.1198	0.0362	1.02E-02	2.55E-04	524.6253

Groups of products of the Creaktive range A1+A2+A3	Global warming (100a)	Ozone layer depletion	Acidification	Eutrophication	Photochemical oxidation	Abiotic depletion	Abiotic depletion (fossil fuels)
	kg CO2 eq	kg CFC-11 eq	kg SO2 eq	kg PO4 ⁻⁻⁻ eq	kg C2H4 eq	kg Sb eq	MJ
CREAKTIVE M AT	31.4880	1.32E-05	0.1332	0.0404	1.14E-02	2.74E-04	586.3358
CREAKTIVE M ET	29.9929	1.31E-05	0.1285	0.0387	1.09E-02	2.56E-04	556.4945
CREAKTIVE P AT	31.7616	1.32E-05	0.1347	0.0408	1.14E-02	2.88E-04	590.8071

AT: Air texture
M: monochrome

ET: Earth texture
P: Porphyry

WT: Water texture
SP: Shield Plus



Use of Resources

Groups of products of the Vanguard range (monochrome) A1+A2+A3		VANGUARD MAT WITH SP	VANGUARD MAT WITHOUT SP	VANGUARD MET WITH SP	VANGUARD MET WITHOUT SP	VANGUARD MWT WITHOUT SP
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	9.02E+01	8.97E+01	9.02E+01	8.97E+01	9.31E+01
Use of renewable primary energy resources used as raw materials	MJ	2.69E+01	2.69E+01	2.69E+01	2.69E+01	2.69E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.20E+02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	5.48E+02	5.04E+02	5.49E+02	5.04E+02	5.63E+02
Use of non-renewable primary energy resources used as raw materials	MJ	4.78E+01	4.78E+01	4.78E+01	4.78E+01	4.99E+01
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.95E+02	5.52E+02	5.97E+02	5.52E+02	6.13E+02
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02

Groups of products of the Vanguard range (porphyry) A1+A2+A3		VANGUARD PAT WITH SP	VANGUARD PAT WITHOUT SP	VANGUARD PET WITH SP	VANGUARD PET WITHOUT SP	VANGUARD PWT WITHOUT SP
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	9.06E+01	9.01E+01	9.07E+01	9.02E+01	9.31E+01
Use of renewable primary energy resources used as raw materials	MJ	2.69E+01	2.69E+01	2.69E+01	2.69E+01	2.69E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	1.18E+02	1.17E+02	1.18E+02	1.17E+02	1.20E+02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	5.80E+02	5.38E+02	5.90E+02	5.40E+02	5.63E+02
Use of non-renewable primary energy resources used as raw materials	MJ	4.76E+01	4.75E+01	4.75E+01	4.75E+01	4.99E+01
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	6.28E+02	5.86E+02	6.38E+02	5.88E+02	6.13E+02
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02





Groups of products of the Creaktive range A1+A2+A3		CREAKTIVE M AT	CREAKTIVE M ET	CREAKTIVE P AT
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	1.01E+02	1.01E+02	1.01E+02
Use of renewable primary energy resources used as raw materials	MJ	2.69E+01	2.69E+01	2.69E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	1.28E+02	1.28E+02	1.28E+02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	6.29E+02	5.97E+02	6.34E+02
Use of non-renewable primary energy resources used as raw materials	MJ	5.69E+01	5.70E+01	5.64E+01
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	6.86E+02	6.54E+02	6.90E+02
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	1.08E-02	1.08E-02	1.08E-02

Waste categories indicators

Groups of products of the Vanguard range (monochrome) A1+A2+A3		VANGUARD M AT WITH SP	VANGUARD M AT WITHOUT SP	VANGUARD M ET WITH SP	VANGUARD M ET WITHOUT SP	VANGUARD M WT WITHOUT SP
Hazardous waste disposed	MJ	4.44E-01	4.47E-01	4.44E-01	4.47E-01	4.74E-01
Non-hazardous waste disposed	MJ	1.47E+01	1.44E+01	1.47E+01	1.44E+01	1.47E+01
Radioactive waste disposed	MJ	1.17E-03	1.11E-03	1.17E-03	1.11E-03	1.21E-03

Groups of products of the Vanguard range (porphyry) A1+A2+A3		VANGUARD P AT WITH SP	VANGUARD P AT WITHOUT SP	VANGUARD P ET WITH SP	VANGUARD P ET WITHOUT SP	VANGUARD P WT WITHOUT SP
Hazardous waste disposed	MJ	4.41E-01	4.44E-01	4.40E-01	4.43E-01	4.74E-01
Non-hazardous waste disposed	MJ	1.50E+01	1.47E+01	1.51E+01	1.47E+01	1.47E+01
Radioactive waste disposed	MJ	1.21E-03	1.15E-03	1.23E-03	1.16E-03	1.21E-03

Groups of products of the Creaktive range A1+A2+A3		CREAKTIVE M AT	CREAKTIVE M ET	CREAKTIVE P AT
Hazardous waste disposed	MJ	5.53E-01	5.56E-01	5.52E-01
Non-hazardous waste disposed	MJ	1.57E+01	1.57E+01	1.56E+01
Radioactive waste disposed	MJ	1.34E-03	1.30E-03	1.35E-03



Notes

The verifier and the program operator do not have any claim nor have any responsibility of the legality of the product.

EPD of construction products may not be comparable if they do not comply with EN 15804.

Environmental product declarations within the same product category from different programs may not be comparable.

References

General Programme Instructions for the international EPD® System (Version 2.5). The International EPD® System (www.environdec.com)

PCR 2012:01 Construction products and construction services, v 2.2. The International EPD® System (www.environdec.com)

ISO 14040/14044:2006, ISO series on Life Cycle Assessment (www.iso.org)

ISO 14025:2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures (www.iso.org)

EN 15804: 2012 + A1: 2013 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products (www.iso.org)

Ecoinvent database V3.2 (www.ecoinvent.ch).

CML-IA (Baseline) Methodology V4.8 August 2016 (www.universiteitleiden.nl)

SimaPro software V 8.2.3.0 (www.pre.nl).

European Technical Assessment ETA 16/0519 Vanguard external wall cladding in ventilated facades (ec.europa.eu)

Annex 1: Average data for the Vanguard range

Below are the average data for the panels of the Vanguard range, according to the weighted average production of each product during the reference period.

Composition

Components	Average panel of the Vanguard range
Aggregates	72.78%
Filler	15.98%
Unsaturated polyester resin	10.10%
Chemical additives	0.82%
Pigments	0.32%
TOTAL	100.00%

Environmental impacts

Average panel of the Vanguard range		Global warming	Ozone layer depletion	Acidification	Eutrophication	Photochemical oxidation	Abiotic depletion	Abiotic depletion (fossil fuels)
		kg CO2 eq	kg CFC-11 eq	kg SO2 eq	kg PO4 ⁻⁻⁻ eq	kg C2H4 eq	kg Sb eq	MJ
UPSTREAM	A1	22.5678	1.20E-05	0.0994	0.0307	8.69E-03	2.28E-04	448.0439
CORE	A2	2.1541	3.82E-07	0.0070	0.0016	3.66E-04	8.32E-06	33.5813
	A3	2.2366	1.17E-07	0.0082	0.0023	7.58E-04	3.18E-06	21.9462
	A2+A3	4.3907	4.99E-07	0.0152	0.0039	1.12E-03	1.15E-05	55.5275
DOWNSTREAM		-	-	-	-	-	-	-
TOTAL		26.9584	1.25E-05	0.1146	0.0346	9.82E-03	2.39E-04	503.5714



Use of Resources

Average panel of the Vanguard range		UP-STREAM	CORE			DOWN-STREAM	TOTAL
		A1	A2	A3	A2+A3	-	A1+A2+A3
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	5.31E+01	4.44E-01	3.68E+01	3.72E+01	-	9.04E+01
Use of renewable primary energy resources used as raw materials	MJ	0.00E+00	0.00E+00	2.69E+01	2.69E+01	-	2.69E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.31E+01	4.44E-01	6.37E+01	6.42E+01	-	1.17E+02
Use of non- renewable primary energy excluding non- renewable primary energy resources used as raw materials	MJ	4.82E+02	3.42E+01	2.38E+01	5.79E+01	-	5.40E+02
Use of non- renewable primary energy resources used as raw materials	MJ	2.17E+01	2.02E+01	5.93E+00	2.61E+01	-	4.78E+01
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.04E+02	5.44E+01	2.97E+01	8.40E+01	-	5.88E+02
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	0.00E+00
Use of net fresh water	m3	1.05E-02	0.00E+00	2.39E-04	2.39E-04	-	1.08E-02

Waste categories indicators

Average panel of the Vanguard range		UP-STREAM	CORE			DOWN-STREAM	TOTAL
		A1	A2	A3	A2+A3	-	A1+A2+A3
Hazardous waste disposed	kg	4.18E-02	3.04E-03	4.02E-01	4.05E-01	-	4.47E-01
Non-hazardous waste disposed	kg	3.02E+00	1.23E+00	1.04E+01	1.16E+01	-	1.47E+01
Radioactive waste disposed	kg	8.74E-04	2.17E-04	6.79E-05	2.84E-04	-	1.16E-03

Annex 2: Average data for the Creaktive range

Below are the average data for the panels of the Creaktive range, according to the weighted average production of each product during the reference period.

Composition

Components	Average panel of the Creaktive range
Aggregates	72.93%
Filler	16.01%
Unsaturated polyester resin	9.85%
Chemical additives	0.86%
Pigments	0.35%
TOTAL	100.00%

Environmental impacts

Average panel of the Creaktive range		Global warming (100a)	Ozone layer depletion	Acidification	Eutrophication	Photochemical oxidation	Abiotic depletion	Abiotic depletion (fossil fuels)
		kg CO2 eq	kg CFC-11 eq	kg SO2 eq	kg PO4 ³⁻ eq	kg C2H4 eq	kg Sb eq	MJ
UPSTREAM	A1	26.2858	1.26E-05	0.1159	0.0359	1.01E-02	2.67E-04	520.1437
CORE	A2	2.5475	4.52E-07	0.0083	0.0019	4.33E-04	9.84E-06	39.7151
	A3	2.5057	1.24E-07	0.0090	0.0025	8.09E-04	3.39E-06	22.7670
	A2+A3	5.0532	5.76E-07	0.0173	0.0044	1.24E-03	1.32E-05	62.4821
DOWNSTREAM		-	-	-	-	-	-	-
TOTAL		31.3389	1.32E-05	0.1332	0.0403	1.13E-02	2.80E-04	582.6258

Use of Resources

Average panel of the Creaktive range		UP-STREAM		CORE		DOWN-STREAM	TOTAL
		A1	A2	A3	A2+A3	-	A1+A2+A3
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	6.37E+01	5.25E-01	3.69E+01	3.74E+01	-	1.01E+02
Use of renewable primary energy resources used as raw materials	MJ	0.00E+00	0.00E+00	2.69E+01	2.69E+01	-	2.69E+01
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	6.37E+01	5.25E-01	6.38E+01	6.43E+01	-	1.28E+02
Use of non- renewable primary energy excluding non- renewable primary energy resources used as raw materials	MJ	5.60E+02	4.04E+01	2.46E+01	6.50E+01	-	6.25E+02
Use of non- renewable primary energy resources used as raw materials	MJ	2.65E+01	2.39E+01	6.25E+00	3.01E+01	-	5.66E+01
Total use of non- renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	5.87E+02	6.43E+01	3.08E+01	9.51E+01	-	6.82E+02
Use of secondary material	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	0.00E+00
Use of net fresh water	m3	1.05E-02	0.00E+00	2.39E-04	2.39E-04	-	1.08E-02

Waste categories indicators

Average panel of the Creaktive range		UP-STREAM		CORE		DOWN-STREAM	TOTAL
		A1	A2	A3	A2+A3	-	A1+A2+A3
Hazardous waste disposed	kg	4.93E-02	3.59E-03	5.00E-01	5.03E-01	-	5.53E-01
Non-hazardous waste disposed	kg	3.56E+00	1.46E+00	1.06E+01	1.21E+01	-	1.56E+01
Radioactive waste disposed	kg	1.01E-03	2.56E-04	7.20E-05	3.28E-04	-	1.34E-03



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