Environmental Product Declaration

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

Mineral-based shower tray

from

Marmite Sp. z o.o.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-10300
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Valid until:	2028-08-11

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

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): *Construction Product, 2019:14, version 1.2.5, covering the UN CPC code 376 "Monumental or building stone and articles thereof*" among others.
PCR review was conducted by: The Technical Committee of the International EPD® System (chair: Claudia A. Peña). A full list of members available on www.environdec.com. The review panel may be contacted via info@environdec.com. Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee and if so were excused from the review.
Life Cycle Assessment (LCA)
LCA accountability: *PwC France*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: Vito D'Incognito, from Take Care International, vdincognito@take-care.it Approved by: The International EPD® System

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

☐ Yes ☒ No

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.

Version history

Version	Change description
1	Initial release
2	Updated denomination of the material used

Company information

Owner of the EPD: Marmite Sp. z o.o.

Contact: Marcin Sędziak

- Marmite Sp. z o.o.
- Przemysłowa 4 Street, Zakrzewo
- 62-070 Dopiewo, Poland
- https://marmite.eu/

Description of the organisation:

Marmite Sp. z o.o. ("Marmite") is a leading European manufacturer of mineral-based basins, bathtubs and shower trays. Marmite is part of the ES Group.

The range of machinery consists of 8 production lines, with a production capacity of 2,000,000 products per year, in two plants, based in Poland and employing 800 people. The Zakrzewo plant produces bathtubs and washbasins, and the Łowyń plant produces shower trays.

Marmite is certified on several ISO standards such as ISO 14 001 on environmental management systems, ISO 9 001 on quality management systems and ISO 28 000 on security management systems for the supply chain.

Marmite purchases green electricity produced by hydro power plant, with Guarantees of Origin, and commits to keep doing so in the next 5 years.

Mission: Deliver the best products and support, to ensure market success for our customers, by continuous improvements in every aspect of our business.

Vision: To be the first-choice supplier and long-term partner in B2B mineral-based products segment.

Values:
- Customer focus,
- Teamwork,
- Diversity,
- Continuous improvement,
- Sustainability,
- Respect.

Product information

Product name: Mineral-based shower tray

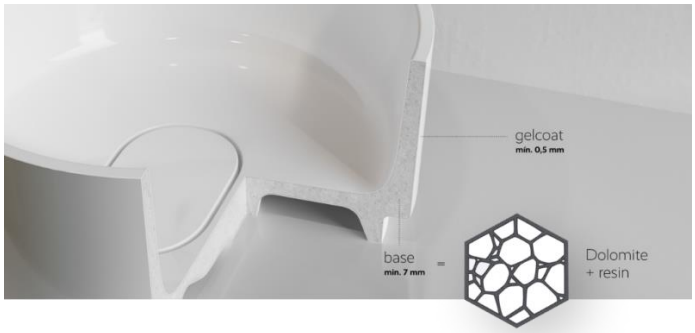
UN CPC code: *376* "Monumental or building stone and articles thereof"

Product identification:

Marmite's shower trays are made of mineral-based material, which is a composite material made of crushed stone bound together by an adhesive to create a solid surface. The basis of this material is dolomite and resin, and its surface is covered with a gelcoat, a plastic-based material used to provide a high-quality finish.

A wide range of designs and sizes are possible thanks to the flexible manufacturing process; minimum and maximum weights are respectively 18 and 80 kg.

The products have a Reference Service Life (RSL) of 20 years in regular market conditions.



Product description:

Table 1 shows the typical material composition for mineral-based products, and the average weight considered in the EPD, which refers to a representative product.

Table 1: Reference weight per product and per component for Marmite's shower trays

	Shower tray
Weight	45 kg
Raw materials composition (in %)	
Dolomite	65-75%
Resin	15-25%
Gelcoat	2-10%
Hardener	<1%
Light filler	0.5-2%

The products are sold in a packaging system mainly composed of corrugated cardboard (3.1E-2 kg/kg of shower tray).

Geographical scope: The geographical scope of this EPD is Europe, as products are produced in Poland and transport distances are modelled for the European market.

LCA information

General information

Declared unit: **1 kg of mineral-based shower tray**

Time representativeness: The LCA was modelled based on information provided by Marmite (2021-2022) and the most recent EcoInvent data available. The scenario is based on data sources that are less than five years old.

Database(s) and LCA software used: The TEAM™ software (v5.4) has been used to carry out the LCA, together with the EcoInvent database 3.9.1. The LCA methods used are in accordance with the UNE-EN 15804 Standard: EN 15804:2012 + A2:2019.

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

	Product stage			Construction process stage		Use stage							End of life stage				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**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Geography	EU - USA	EU	PL	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0% (1 manufacturing site)			-	-	-	-	-	-	-	-	-	-	-	-	-	-

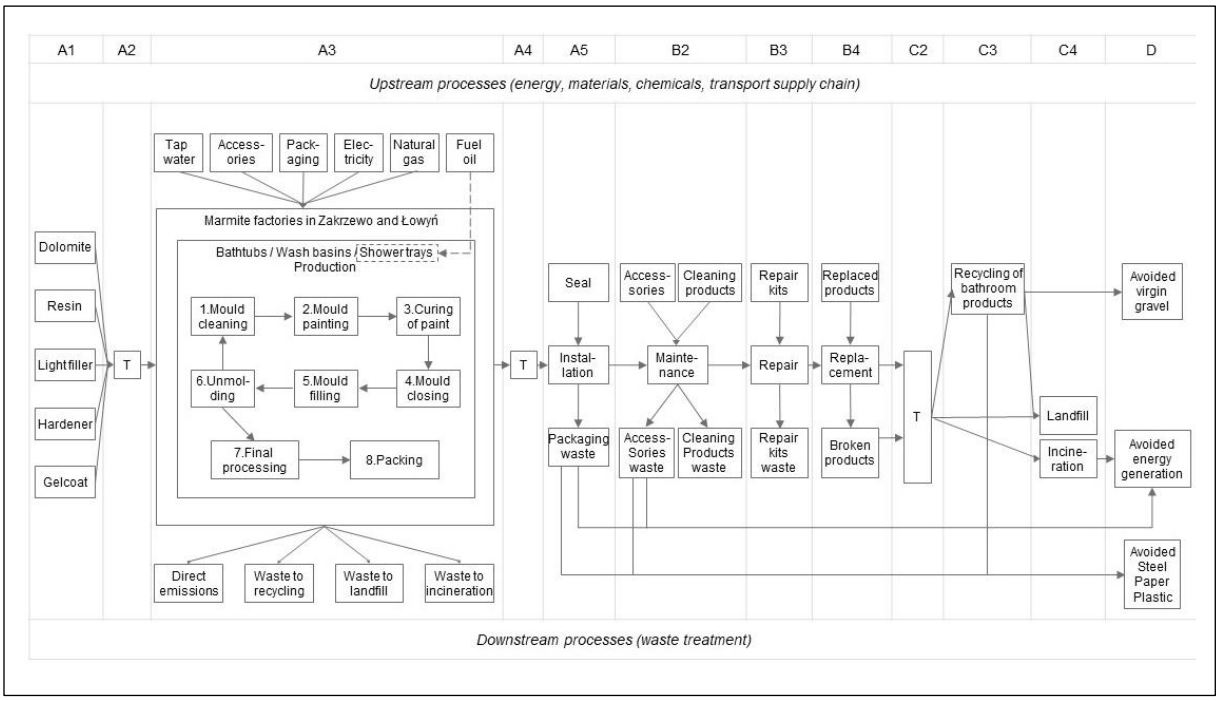
Notes:

- Variations may arise between products as the packaging, accessory components and cleaning products are not exactly proportional to the weight of the product, however these variations are considered as lower than 10% of the GWP-GHG indicator.
- PL = Poland, EU = European Union, USA = United-States of America

System boundaries

This EPD is of “type c” i.e., cradle-to-grave and module D (A + B + C + D), as defined by the EN 15 804 standard.

This statement may not be comparable with those developed in other programs or in accordance with different reference documents; in particular, it may not be comparable with Declarations not prepared in accordance with UNE-EN 15804 Standard: EN 15804:2012 + A2:2019. Similarly, environmental claims may not be comparable if the source of the data is different, the same information modules are not included, or they are not based on the same scenarios.



Allocations and cut-off rules

As requested by the EN 15804 standard, LCA data includes a minimum of 95% of total inflows (mass and energy) per module. No cut-off criteria were applied on material and energy flows. All the known inventory flows were characterized for the modelling.

As recommended by EN 15804, the “polluter pays principle” is applied, i.e., the waste processing impacts are allocated to the producer until the end-of-waste state is reached. The waste leaving the phases A5 to C4 leads to benefits and loads in phase D.

Marmite’s manufacturing site in Łowyń only produces shower trays, with no co- or by-products. As such, no allocation has been necessary.

Requirements for data quality

Data collection followed the guidance provided in ISO 14044:2006 (4.3.2). All producer-specific data are from 2021, are based on one-year averaged data, and are representative of 2022. In addition, Marmite’s supplier of resin provided cradle-to-gate LCA impact results of its product.

The generic background processes from EcoInvent database version 3.9.1 were chosen to assure the best technological, geographic (e.g., from Poland or Europe in most cases) and temporal (recent data when possible) representativeness.

Description of life cycle stages

Module A1:

The raw materials include dolomite, recycled PET-based resin, hardener, gelcoat from European countries and light filler from the USA. Their cardboard and plastic packaging are included to the step A1.

Module A2:

The raw materials are transported to Poland by sea in container ships and by road in lorries to the Marmite in Łowyń to produce shower trays.

Module A3:

The manufacturing step includes energy, auxiliary materials such as moulds, packaging materials and accessory components. For their operation, the manufacturing processes of shower trays consume electricity, gas, water, and heavy fuel oil. The electricity supply relies on renewable electricity produced by hydro power plants.

The following types of waste are generated at the plant and sent to recycling facilities: mineral-based waste, metallic waste, plastic waste and cardboard waste. Other waste, such as post-production particles and dust, other distillation and reaction residues, or mixed packaging waste, is sent to incineration.

Module A4:

The final products are transported to the customers by trucks.

Module A5:

The installation step requires the use of seal, composed of silicone. Depending on the clients' behaviour, plastic and cardboard packaging waste is landfilled, incinerated, or recycled.

Module B1:

The operational use of the bathroom products is considered to have no impact within the scope of the study.

Module B2:

The maintenance for bathroom products includes the consumption of cleaning product, vinegar, wax, sponge, and cotton cloth for the cleaning of the bathroom product over 20 years.

This step also involves the use of additional elements such as drains, grids and seals which may need to be renewed over the use lifetime of the bathroom products. Maintenance involves the production of waste, transport and treatment for accessories made of plastic and steel.

Module B3:

The repair phase involves the use of repair kits sold by Marmite, that can be used by customers for all bathroom products for minor repairs and maintenance. These repair kits consist of a catalyst, gelcoat, a polishing paste, plastic components, and a paper brochure, all packaged in a board box. This repair phase involves the production of plastic, paper, and cardboard waste.

Module B4:

The replacement phase has been modelled on the assumption that customers need to completely replace their bathroom products in case of necessity (less than 0.07% of products).

In line with Marmite's Reference Service Life (RSL), those maintenance and repair phases B2 – B3 ensures a 20-year lifespan for bathroom products.

Modules B5, B6, B7:

The refurbishment and the operational use of the bathroom products are considered to have no impact within the scope of the study, this is why B5, B6 and B7 show 0 on all indicators.

Module C1:

The first module for the end-of-life is the deconstruction. This step is considered to be done manually in most cases and therefore no impact has been modelled.

Module C2:

Final product waste is transported by road, to be disposed for recycling, incineration, or landfill during their waste processing.

Module C3:

This module registers the primary treatment preparing the recycling of 89% of the bathroom products, as well as the recycled plastic and steel accessory components, to take them to their end-of-waste state.

Module C4:

The other waste management practices, landfill and incineration in municipal plants, fit as disposal in this module.

Module D:

At their end-of-life, bathroom products are treated as waste mineral construction products: they are crushed and recycled as secondary gravel for the construction of road sub-bases. Therefore, recycling bathroom products brings the benefits of avoiding virgin gravel production.

Some of the packaging waste from module A5 and accessories waste from module B2, C3 and C4 are incinerated, generating avoided energy as recycling potential in this module. The share of those elements that is recycled also avoids the production of steel, paper, and plastic.

As specified by the PCR 2019:14 for Construction Products, inventory flows from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process are excluded from the life cycle inventory (LCI), as they are not known to have the potential to cause significant environmental impact. And inventory flows from personnel-related processes, such as transportation to and from work, are also not accounted for in the LCI.

Content information

The resin used in the product composition is composed of 21% of recycled PET, according to Marmite's supplier. However, no information is available on the share of recycled PET coming from a post-consumer source, therefore, post-consumer recycled content in product is not declared All other components are produced with virgin materials.

The cardboard packaging, which is the only bio-based material in the product and packaging, is assumed to include 50% of recycled fibers.

Product components	Post-consumer material, kg/kg of bathroom product	Biogenic material, kg C/kg of bathroom product
Product	Not declared	0
Packaging	1.56E-02	1.4E-02

There is no dangerous substance from the candidate list of SVHC for Authorisation in the product.

Results of the environmental performance indicators

The results of the LCA are detailed in the tables on the following pages along with the interpretation of the global impacts produced by declared unit (1 kg of product). Estimated results of the impact are only relative statements that do not indicate the end points of the categories of impact, exceeding threshold values, safety margins or risks.

The impact model used for this LCA is EF 3.1.

Mandatory impact category indicators according to EN 15804

Results per declared unit (1 kg of shower tray product)																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,4E+00	1,1E-01	3,3E-03	0,0E+00	6,6E-02	8,0E-06	9,6E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,0E-03	4,3E-03	7,6E-03	-1,0E-02
GWP-biogenic	kg CO_2 eq.	9,2E-04	8,2E-05	5,2E-02	0,0E+00	-7,0E-03	2,0E-06	3,3E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,5E-06	-2,4E-07	1,2E-06	1,3E-02
GWP-luluc	kg CO_2 eq.	1,4E-03	5,2E-05	1,8E-06	0,0E+00	2,3E-03	6,3E-08	8,9E-07	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,8E-07	7,0E-07	7,6E-07	1,4E-04
GWP-total	kg CO_2 eq.	1,4E+00	1,1E-01	5,6E-02	0,0E+00	6,2E-02	1,0E-05	9,9E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,0E-03	4,3E-03	7,6E-03	3,6E-03
ODP	kg CFC 11 eq.	3,5E-07	2,4E-09	6,3E-10	0,0E+00	2,8E-09	2,5E-12	2,2E-10	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,6E-11	6,5E-11	4,0E-11	-6,4E-10
AP	mol H^+ eq.	6,7E-03	2,6E-04	1,6E-05	0,0E+00	4,4E-04	3,2E-08	4,4E-06	0,0E+00	0,0E+00	0,0E+00	0,0E+00	5,0E-06	3,7E-05	1,0E-05	-6,1E-05
EP-freshwater	kg P eq.	3,0E-04	7,9E-06	5,9E-07	0,0E+00	2,3E-05	3,0E-09	1,9E-07	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,5E-07	1,7E-07	1,2E-07	1,1E-06
EP-marine	kg N eq.	1,1E-03	7,2E-05	1,0E-05	0,0E+00	2,9E-04	1,6E-08	7,6E-07	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,4E-06	1,7E-05	8,2E-06	2,0E-04
EP-terrestrial	mol N eq.	1,1E-02	7,4E-04	5,2E-05	0,0E+00	1,2E-03	8,6E-08	7,5E-06	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,4E-05	1,8E-04	4,3E-05	-2,4E-04
POCP	kg NMVOC eq.	4,9E-03	4,3E-04	2,0E-05	0,0E+00	2,4E-04	2,9E-08	3,4E-06	0,0E+00	0,0E+00	0,0E+00	0,0E+00	8,1E-06	5,5E-05	1,4E-05	-7,7E-05
ADP-minerals&metals(1)	kg Sb eq.	1,0E-05	3,1E-07	1,8E-08	0,0E+00	6,2E-07	3,4E-11	6,5E-09	0,0E+00	0,0E+00	0,0E+00	0,0E+00	5,8E-09	3,1E-09	2,1E-09	-2,3E-08
ADP-fossil(1)	MJ	2,8E+01	1,6E+00	4,5E-02	0,0E+00	1,2E+00	1,3E-04	1,8E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,1E-02	5,5E-02	3,1E-02	-2,8E-01
WDP(1)	m^3	2,9E-02	1,9E-03	9,4E-05	0,0E+00	5,6E-01	9,0E-07	1,9E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,7E-05	3,3E-05	2,5E-04	-1,3E-02
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 freshwater end compartment; EP-marine = 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 potential, deprivation-weighted water consumption															

Disclaimer-(1)- The results of this environmental impact indicator should be used with caution, as uncertainties about these results are high or experience with the indicator is limited.

Additional mandatory and voluntary impact category indicators

Results per declared unit (1 kg of shower tray product)																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	1,4E+00	1,1E-01	7,6E-03	0,0E+00	7,0E-02	9,7E-06	9,7E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,0E-03	4,3E-03	7,6E-03	8,3E-04
PM	Disease incidence	6,8E-08	1,1E-08	2,6E-10	0,0E+00	4,5E-09	4,4E-13	5,3E-11	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,0E-10	7,6E-09	2,0E-10	-1,4E-09
SQP(1)	dimensionless	6,6E+00	1,6E+00	1,5E-02	0,0E+00	7,8E-01	1,8E-04	5,1E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,1E-02	6,4E-03	5,9E-02	-4,3E+00
ETP-fw(1)	CTUe	1,4E+01	7,8E-01	4,2E-02	0,0E+00	1,2E+00	8,7E-05	9,5E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,5E-02	2,6E-02	2,7E-02	3,1E-01
IRP(2)	kBq U235 eq.	9,9E-02	2,0E-03	2,1E-04	0,0E+00	3,9E-03	6,2E-07	6,3E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,9E-05	3,9E-05	2,1E-05	-2,2E-03
HTP-c	CTUh	1,3E-09	4,8E-11	2,7E-12	0,0E+00	7,4E-11	8,4E-15	8,3E-13	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,0E-13	1,6E-12	1,1E-12	-9,0E-13
HTP-nc	CTUh	1,3E-08	1,2E-09	4,9E-11	0,0E+00	9,5E-10	1,3E-13	8,7E-12	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,2E-11	1,2E-11	2,6E-11	-3,0E-11
Acronyms	GWP-GHG = Global warming potential; PM = Particulate matter emissions; SQP = Land use related impacts/Soil quality; ETP-fw = Eco-toxicity – freshwater; IRP = Ionizing radiation, human health; HTP-c = Humant Toxicity cancer effect; HTP-nc = Humant Toxicity, non-cancer effect.															

Disclaimer-(1)- The results of this environmental impact indicator should be used with caution, as uncertainties about these results are high or experience with the indicator is limited.

Disclaimer-(2)- This impact category mainly refers to the eventual impact of low doses of ionizing radiation on the human health of the nuclear fuel cycle. It does not take into account the effects due to possible nuclear accidents, occupational exposure or underground radioactive waste disposal facilities. Potential ionizing radiation from soil, radon, and some building materials is also not measured by this indicator.

Resource use indicators

Results per declared unit (1 kg of shower tray product)																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,5E+00	2,3E-02	4,8E-02	0,0E+00	2,1E-01	-8,5E-06	9,9E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,4E-04	4,9E-04	3,0E-04	-1,1E+00
PERM	MJ	4,3E-01	0,0E+00	-4,5E-02	0,0E+00	0,0E+00	4,6E-05	2,3E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
PERT	MJ	2,0E+00	2,3E-02	3,0E-03	0,0E+00	2,1E-01	3,8E-05	1,2E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,4E-04	4,9E-04	3,0E-04	-1,1E+00
PENRE	MJ	1,1E+01	1,6E+00	4,2E-02	0,0E+00	1,1E+00	1,1E-04	8,2E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,1E-02	5,4E-02	1,1E-01	-2,6E-01
PENRM	MJ	1,2E+00	0,0E+00	4,4E-03	0,0E+00	1,1E-01	2,0E-05	6,6E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	-8,0E-02	0,0E+00

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

PENRT	MJ	1,3E+01	1,6E+00	4,6E-02	0,0E+00	1,2E+00	1,3E-04	8,9E-03	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,1E-02	5,4E-02	3,0E-02	-2,6E-01
SM	kg	6,6E-02	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,1E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
RSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
NRSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
FW	m^3	1,3E-02	3,3E-04	1,6E-05	0,0E+00	1,3E-02	1,5E-07	8,0E-06	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,2E-06	5,7E-06	4,2E-05	-2,2E-03
Acronyms	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 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															

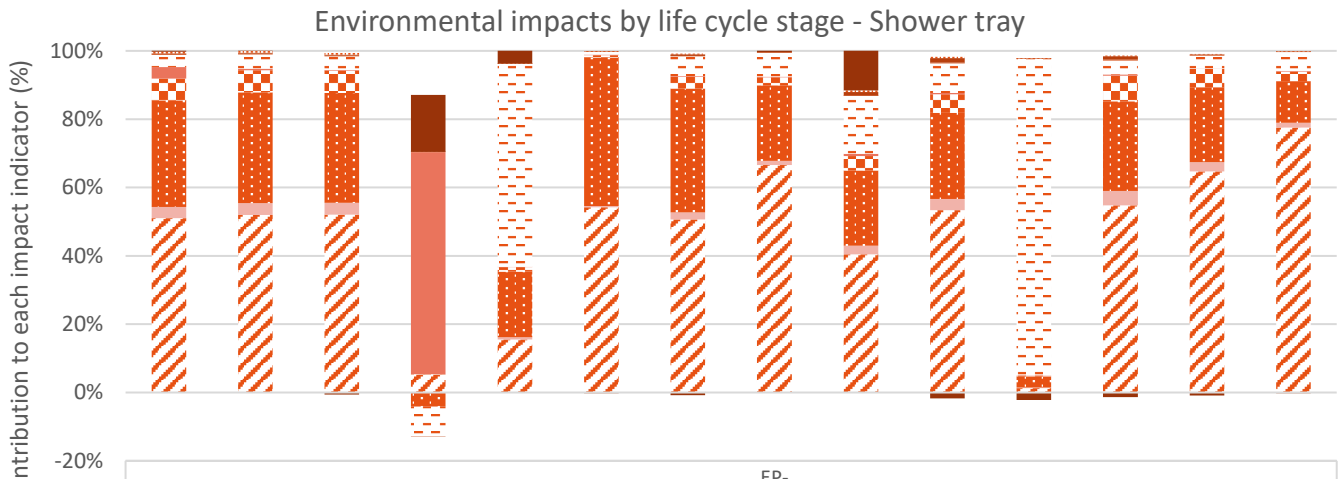
Waste indicators

Results per declared unit (1 kg of shower tray product)																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4,6E-02	1,6E-03	2,0E-04	0,0E+00	8,5E-03	1,2E-06	3,0E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	3,0E-05	6,5E-05	4,6E-04	-8,3E-04
Non-hazardous waste disposed	kg	4,4E-01	1,5E-01	4,3E-03	0,0E+00	3,8E-02	3,8E-06	4,9E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,9E-03	4,9E-04	1,9E-01	1,0E-02
Radioactive waste disposed	kg	3,1E-05	4,9E-07	5,4E-08	0,0E+00	9,9E-07	1,6E-10	2,0E-08	0,0E+00	0,0E+00	0,0E+00	0,0E+00	9,3E-09	9,4E-09	5,0E-09	-5,8E-07

Output flow indicators

Results per declared unit (1 kg of shower tray product)																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Material for recycling	kg	2,2E-01	0,0E+00	2,6E-02	0,0E+00	1,3E-03	0,0E+00	7,0E-04	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	8,9E-01	0,0E+00	0,0E+00
Materials for energy recovery	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
Exported energy, electricity	MJ	2,8E-02	0,0E+00	5,6E-03	0,0E+00	1,0E-02	0,0E+00	2,7E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	1,0E-02	0,0E+00
Exported energy, thermal	MJ	5,8E-02	0,0E+00	1,1E-02	0,0E+00	2,0E-02	0,0E+00	5,5E-05	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,0E-02	0,0E+00

of results



	GWP-total (kg CO2e)	GWP-GHG (kg CO2e)	GWP-fossil (kg CO2e)	GWP-biogenic (kg CO2e)	GWP-luluc (kg CO2e)	ODP (kg CFC 11 eq.)	AP (mol H+ eq.)	EP-freshwater (kg NPO4 eq.)	EP-marine (kg N eq.)	EP-terrestrial (mol N eq.)	WDP (m3 world eq.)	POCP (kg NMVOCeq.)	ADPF (MJ, net calorific)	ADPE (kg SbEq.)
D	3.6E-03	8.3E-04	-1.0E-02	1.3E-02	1.4E-04	-6.4E-10	-6.1E-05	1.1E-06	2.0E-04	-2.4E-04	-1.3E-02	-7.7E-05	-2.8E-01	-2.3E-08
C4	7.6E-03	7.6E-03	7.6E-03	1.2E-06	7.6E-07	4.0E-11	1.0E-05	1.2E-07	8.2E-06	4.3E-05	2.5E-04	1.4E-05	3.1E-02	2.1E-09
C3	4.3E-03	4.3E-03	4.3E-03	-2.4E-07	7.0E-07	6.5E-11	3.7E-05	1.7E-07	1.7E-05	1.8E-04	3.3E-05	5.5E-05	5.5E-02	3.1E-09
C2	2.0E-03	2.0E-03	2.0E-03	1.5E-06	9.8E-07	4.6E-11	5.0E-06	1.5E-07	1.4E-06	1.4E-05	3.7E-05	8.1E-06	3.1E-02	5.8E-09
B4	9.9E-04	9.7E-04	9.6E-04	3.3E-05	8.9E-07	2.2E-10	4.4E-06	1.9E-07	7.6E-07	7.5E-06	1.9E-05	3.4E-06	1.8E-02	6.5E-09
B3	1.0E-05	9.7E-06	8.0E-06	2.0E-06	6.3E-08	2.5E-12	3.2E-08	3.0E-09	1.6E-08	8.6E-08	9.0E-07	2.9E-08	1.3E-04	3.4E-11
B2	6.2E-02	7.0E-02	6.6E-02	-7.0E-03	2.3E-03	2.8E-09	4.4E-04	2.3E-05	2.9E-04	1.2E-03	5.6E-01	2.4E-04	1.2E+00	6.2E-07
A5	5.6E-02	7.6E-03	3.3E-03	5.2E-02	1.8E-06	6.3E-10	1.6E-05	5.9E-07	1.0E-05	5.2E-05	9.4E-05	2.0E-05	4.5E-02	1.8E-08
A4	1.1E-01	1.1E-01	1.1E-01	8.2E-05	5.2E-05	2.4E-09	2.6E-04	7.9E-06	7.2E-05	7.4E-04	1.9E-03	4.3E-04	1.6E+00	3.1E-07
A3	5.2E-01	5.3E-01	5.3E-01	-3.4E-03	7.5E-04	1.6E-07	2.7E-03	7.4E-05	3.8E-04	3.4E-03	2.0E-02	1.5E-03	6.8E+00	1.4E-06
A2	5.6E-02	5.6E-02	5.6E-02	4.3E-05	2.8E-05	1.3E-09	1.6E-04	4.1E-06	4.3E-05	4.4E-04	1.0E-03	2.4E-04	8.6E-01	1.6E-07
A1	8.6E-01	8.5E-01	8.5E-01	4.2E-03	6.1E-04	1.9E-07	3.8E-03	2.2E-04	7.0E-04	7.2E-03	7.7E-03	3.2E-03	2.0E+01	8.6E-06

A1 A2 A3 A4 A5 B2 B3 B4 C2 C3 C4 D

The raw materials acquisition is the largest source of GHG emissions, accounting for 52 % of the GHG impact (A+B+C). Of all the raw materials, the resin is the most impactful.

The manufacturing process is the second most impactful phase in terms of GHG emissions (32% of the GHG footprint).

Acronyms: GWP = Global warming potential / ODP = Depletion potential of the stratospheric ozone layer / AP = Acidification potential, accumulated exceedance / EP = Eutrophication potential / WDP = Water [user] deprivation potential / POCP = Photochemical ozone creation potential / ADPF = Abiotic depletion potential - fossil resources / ADPE = Abiotic depletion potential - non-fossil resources

References

- General Programme Instructions of the International EPD® System. Version 4.0.
- PCR 2019:14, VERSION 1.2.5, 2022-11-01: Product Category Rules (PCR), Construction Products (EPD – Environdec)
- Eurostat Database – Waste, 2018 and 2020
- Ecoinvent Database version 3.9.1 (2022), system model ‘allocation, cut-off by classification
- EPD of acrylic shower trays available on the INIES platform made by the Ministère De La Transition Écologique and the Ministère En Charge Du Logement (French Ministery of Ecological Transition and Ministery of Housing) in 2022