Saltech Design Labs:
Saltech Slabbing Products

ENVIRONMENTAL PRODUCT DECLARATION

Of multiple products (Grass Paver and Road Slab), based on a representative product
In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

EPD registration number	EPD-IES-0014189
Publication date	2024-05-29
Valid until	2029-05-28
Geographical scope	India
Programme	The International EPD® System
Programme Operator	EPD International AB

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Content

1. INTRODUCTION

Saltech Design Labs Pvt. Ltd was established in 2018 in Gujarat, India. As a manufacturer of construction materials, Saltech has developed a manufacturing process and machinery capable of transforming mixed plastic and industrial waste into composite materials. These materials serve as more sustainable alternatives to conventional cement concrete pre-cast pave blocks, kerb stones, and tiles, offering usability at a lower cost. The composite manufacturing process accommodates various plastic wastes without segregation and can operate efficiently even in highly contaminated environments.

This Environmental Product Declaration (EPD) is based on a life cycle assessment (LCA) conducted for several products manufactured by Saltech Design Labs. The LCA includes paver blocks, paver tiles, grass paver, solar tiles, road slabs and average representative products. The assessment follows the principles established by ISO 14040, ISO 14044, PCR 2019:14 - Construction products - Version 1.3.3 (Erlandsson, 2024; ISO, 2006b, 2006a). The environmental impact indicators selected were based on the International EPD system requirements. They include global warming potential (GWP), acidification potential (AP), abiotic depletion potential (ADP) and others.

This EPD declares the environmental impacts of Saltech Slabbing Products. This representative product is composed of 41-60% waste plastics, 5-30% aggregate and 20-50% fillers. This product is moulded into Road Slabs and Grass Paver for outdoor use.

2. GENERAL INFORMATION

2.1 Programme Information

Program	The International EPD® System, Indian Regional Hub http://www.environdec.com http://www.environdecindia.com
Programme operator	**EPD International AB** Box 210 60, SE-100 31 Stockholm, Sweden
Declaration holder	**Aditya Shukla** **Founder & CEO, Saltech Design Labs Private Limited** Shed No 100, Vibrant Mega Industrial Estate, Zak Vehlal Road, Vehlal, Daskroi, Ahmedabad, Gujarat – 382433 Email: aditya.shukla@saltech.co.in
Product	**Saltech Slabbing Products** This EPD declares the environmental impacts of an average representative product manufactured by Saltech Design Labs. This product is manufactured using post-industrial wastes. Waste plastics constitute 41-60% of the product composition by weight.
CPC Code	37540
EPD registration number	EPD-IES-0014189
Publication date	2024-05-29
Validity date	2029-05-28
Geographical scope	India

2.2 PCR Information

Reference PCR	PCR 2019:14 - 'Construction products' - Version 1.3.3 (CEN standard EN 15804 serves as the core PCR)
Date of issue	2024-03-01
PCR Reviewer	The Technical Committee of the International EPD System. (See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact)

2.3 Verification Information

Type of Verification	External independent verification
Third-party verifier	**Sunil Kumar C S** Founder and Executive Director Chakra4 Sustainability Consulting Services Ivory 501, HM World City, 9th Phase, J P Nagar Bengaluru, Karnataka - 560108 Email: sunilkumar@chakra4.in

2.4 LCA Information

Title	Life Cycle Assessment: Saltech Design Labs – Paving Products Third-Party Report (Version 1.4)
Dated	2024-05-14
Author	**Mili Jain** Founder, Monk Spaces HR-123/6, Pul Pehlad Pur New Delhi – 110044 Email: mili@monkspaces.com
Reference standards	This study has been conducted as per • PCR 2019:14 - 'Construction products' - Version 1.3.3 (Erlandsson, 2024) • EN 15804:2012+A2:2019+AC:2021 (Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products)(CEN, 2019) • JRC characterisation factors defined by EF Reference Package 3.1 (EPLCA, 2022) • ISO 14040 - Environmental management - Life cycle assessment Principles and framework(ISO, 2006a) • ISO 14044 - Environmental management - Life cycle assessment - Requirements and guidelines(ISO, 2006b)

3. PRODUCT DESCRIPTION AND SYSTEM BOUNDARIES

3.1 Product Identification and Usage

Description and Usage	This EPD declares the environmental impacts of construction material manufactured by Saltech Design Labs for outdoor use. The products are manufactured using the following post-industrial waste: • Plastics (PET, HD, LD, PP, PVC, PS, MLP, HMLD Etc. (All Type Mix Post Consumer/Post Industrial Plastic Waste) • Aggregate (Foundry Sand, Sand, Quarry Dust, C&D Crushed Debris, Glass Waste, Ceramic Waste Etc.) • Filler (Fly Ash, Ceramic Sludge (Dry), Dolomite, Quartz Powder, Dry Marble Sludge Powder Etc.) This EPD declares the environmental impacts of an average representative product manufactured by Saltech Design Labs. This representative product uses 41-60% waste plastics, 5-30% aggregate and 20-50% fillers. This product is moulded as Road Slabs and Grass Paver for outdoor use.
Manufacturing Location	**Saltech Design Labs Private Limited** Shed No 100, Vibrant Mega Industrial Estate, Zak Vehlal Road, Vehlal, Daskroi, Ahmedabad, Gujarat - 382433

3.2 Averaging

Saltech manufactures different kinds of products using the same raw materials. Since the raw materials are post-industrial wastes, the composition of these products can change based on availability and structural requirements. Table 1 shows the different ranges of compositions Saltech works with. For publication of the EPD, the products manufactured with 21-40% plastic and 41-60% plastic are averaged into representative products.

Table 1: Raw material composition of the Saltech Products

S No.	Plastic	Compatibilizer	Aggregate	Filler	Products	Notes
1	10-20%	1-3%	5-30%	70-85%		
2	21-40%	1-2%	5-30%	40-65%	Paver Blocks and Paver Tiles	Environmental impact estimated as "Saltech Pavement Products"
3	41-60%	0-1.5%	5-30%	20-50%	Road Slab and Grass Paver	Environmental impact estimated as "Saltech Slabbing Products"
4	61-70%	0.5-1%	5-20%	0-30%	Solar Tiles	
5	71-90%	0.5-0.7%	0-10%	0-20%		

3.3 System Boundary

The system boundary for this analysis (also detailed in Table 2) has been defined per the requirements of PCR 2019:14 - Construction products - Version 1.3.3. Following guidelines established in section 4.3.2 of PCR 2019:14, the production and end-of-life processes of infrastructure or capital goods used in the product system are excluded. Personnel-related processes, such as the transportation of employees to and from work, are not accounted for (Erlandsson, 2024).

Table 2: System Boundary of LCA

Stage	**Product stage**			**Construction process stage**		**Use stage**							**End-of-life stage**				**Beyond the system boundary**
	Raw material extraction	Transportation	Manufacturing	Transport to customer/site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport to waste processing	Waste processing	Disposal	Reuse / Recovery / Recycling
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND									X	X	X	X	X
Geography	IND			-	-	-	-	-	-	-	-	-	IND				IND
Specific data used	>95%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – Grass Paver	7%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – Road Slab	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key: X = included in LCA
ND = module not declared (such a declaration shall not be regarded as an indicator result of zero)

3.3.1 Product stage (A1-A3)

Module A1 indicates the collection of raw materials like plastic waste, aggregate, filler, compatibiliser and colours required for manufacturing the building materials at Saltech Design Labs. Module A2 involves transporting raw materials to the manufacturing unit. These emissions have been estimated at the rate of 1.95 $kgCO_2e$/ton-km. During the reference period (May 2021 – Feb 2024), the average distance travelled for sourcing plastic waste is 315 km. Module A3 evaluates the impacts of manufacturing activities conducted at the manufacturing unit in Ahmedabad, Gujarat. The electricity consumed during manufacturing is drawn

from the city grid. It has been estimated to cause emissions at the rate of 1.1 $kgCO_2e/kWh$ based on data sourced from IEA 2021. The estimate for A3 also includes emissions from using ancillary materials like water, which are essential for manufacturing.

3.3.2 End of Life (C1-C4)

The end-of-life processes expected are as follows:

- Multiple methods, either manual or mechanical, can accomplish the demolition (C1) of the moulded products. Therefore, in accordance with industry practice, this has been assumed to be zero. For the estimation of module C2, the demolished moulded products are expected to be taken to a recycling facility within 50km. This assumption is based on the typical industry practice prevalent in India.
- The environmental impacts of sorting plastic wastes are quantified in module C3 based on emission factors available as secondary data. Out of the collected moulded products, 85% are expected to undergo waste processing at a construction and demolition waste recycling facility. This assumption is based on existing EPDs (Carbon Craft, 2023; GreenJams, 2022; Mutz Dieter et al., 2020; Sekhar Achu et al., 2016).
- For final disposal (C4) of the collected products, the remaining 15% of the moulded products are expected to be disposed of at a landfill. This assumption is as per practice established by existing EPDs like S-P-05265 and S-P-06876 establish this assumption (Carbon Craft, 2023; GreenJams, 2022).

The use of only cradle-to-gate results without considering the results of end-of-life processes (module C) is strongly discouraged.

3.3.3 Beyond system boundary (D)

The manufacturing processes and raw materials used by Saltech Design Labs led to the following benefits:

- Almost one-third of the product comprises plastic waste (a mix of HDP, LDP, PP, MLP, and PET) in manufacturing. This use prevents plastic waste from being sent to the landfill. This avoided landfilling has an environmental benefit quantified as part of module D.
- Using construction and ceramic waste materials as aggregates reduces the demand for natural resources like sand, gravel, and stone. Repurposing these materials reduces the burden on landfill sites and reduces landfill-related emissions.
- Using post-industrial waste as filler material reduces the need for virgin cement. This avoidance is also a benefit of the product.

3.4 Additional information about EPD

Declared Unit	1 kilogram (1 kg)
Geographical Scope	India

Reference Period	The reference period for the primary data (foreground data) used within this EPD is from May 2021 to February 2024. The background data used in the study have been applied through the Ecoinvent v3.8 datasets published in 2021.

The EPD owner is the sole owner, liable, and responsible for the EPD. 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/declared 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.

EPDs within the same product category but registered in different EPD programs or not compliant with EN 15804:2012+A2:2019+AC:2021 may not be comparable. For further information about comparability, see EN 15804:2012+A2:2019+AC:2021 and ISO 14025.

3.5 Data quality requirements

The data quality requirements for this study address the following aspects:

- **Data age**: The reference period for the primary data for the commercial phase is from May 2021 to February 2024.
- **Geographical coverage**: The primary data was collected from two manufacturing plant locations (Mota Chekla and Gandhinagar).
- **Technology coverage**: The secondary data is based on generic technological processes for each raw material. No efficient processes have been considered for manufacturing the raw material.
- **Representativeness**: The results of the LCA assessment represent the materials manufactured by Saltech Design Labs in Gujarat.
- **Consistency**: The study methodology has been uniformly applied to all analysis components. There is no change in the system boundary or quality requirements for any study phase.
- **Reproducibility**: The study is reproducible with access to secondary data sources.

3.6 Cut-off rules

The cut-off rules applied for the assessment are as follows:

- **Mass** – This assessment has accounted for all mass inputs.
- **Energy** – This assessment accounts for all fuel and electrical consumption.

- **Environmental Significance** - In this assessment, wastes are the producer's responsibility ("polluter pays"), and there is an incentive to use recyclable products that are available burden-free ("cut-off"). This means that raw materials that are wastes generated through consumer use or industrial activity are available burden-free. Their use has no implications on the estimations for module A1 (raw material extraction). Impacts due to transporting them to the manufacturing unit (A2) are included. Therefore, for the assessment, the following materials are available burden-free:
    - Plastic - Plastic waste is a mixture of all types of post-consumer and post-industrial wastes collected from different locations in Gujarat. It consists of a mix of Polyethylene terephthalate (PET), High-Density plastics (HD), Low-Density plastics (LD), Polypropylene (PP), Polyvinyl chloride (PVC), Polystyrene (PS), Multilayer Plastic (MLP), HMLD etc.
    - Aggregate - Using natural aggregates is avoided by opting for an aggregate blend comprising foundry sand, sand, quarry dust, crushed construction and demolition (C&D) debris, glass waste, and ceramic waste. These aggregates are collected from Ahmedabad, Gujarat.
    - Filler – The fillers are post-industrial waste in powdery forms. This includes fly ash, ceramic sludge (dry), dolomite, quartz powder, and dry marble sludge powder. The fillers are collected from Gandhinagar, Gujarat.

3.7 Allocation

The manufacturing process of all products is the same. The only difference lies in the mould size and time taken for hydraulic compression. Consequently, each product's electricity consumption (A3) should be different. However, the electricity consumption by the hydraulic press could not be isolated from the total electricity consumption. Therefore, the LCA follows an approach of "allocation by mass". The electricity consumption (kWh) over the reference period is normalised by the total mass (kg) of the product manufactured (kWh/kg).

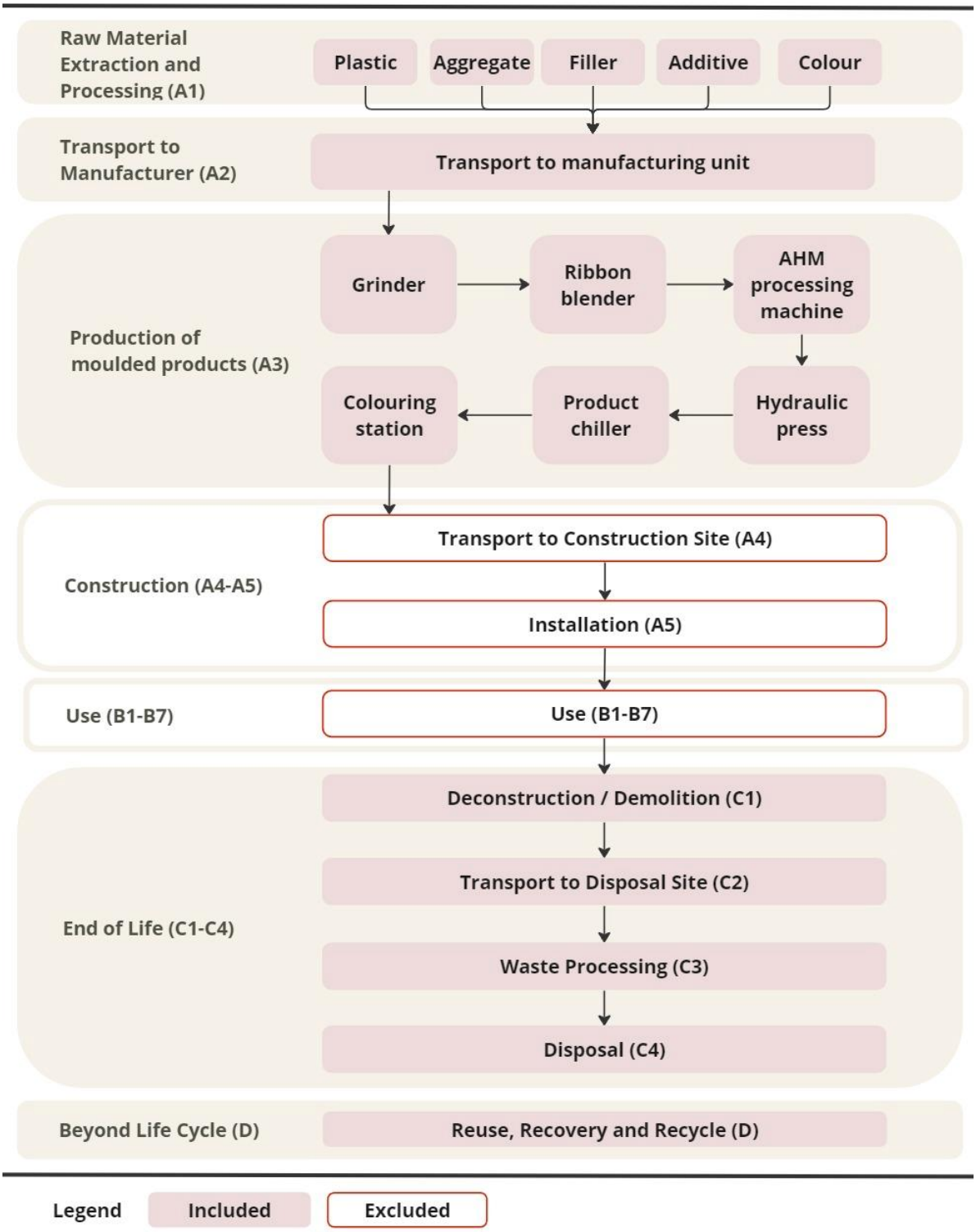

Figure 1: System boundary of LCA

4. CONTENT DECLARATION

The data collected for each reference period were normalised for each kilogram of moulded products manufactured. This normalisation was achieved by separately summing all inputs and outputs for each reference period. Table 3 represents the average composition of products manufactured during the commercial phase at Saltech Design Labs. The product does not contain substances that can be included in the "Candidate List of Substances of Very High Concern for Authorisation".

Table 3: Unit Composition for Saltech Slabbing Products

Inputs		Quantity		Biogenic carbon	Post-consumer material
		kg	%	kg C / declared unit	%
Raw Material	Plastic	0.54	54%	0.00	100%
	Aggregate	0.26	26%	0.00	100%
	Filler	0.19	19%	0.00	100%
	Compatibilizer	0.00	0%	0.00	0%
	Colour	0.01	1%	0.00	0%
	Total	1.00	100%	0.00	99%

4.1 Unit processes

The manufacturing process for producing finished moulded products entails a sequence of interconnected steps, each powered by electricity.

1. It initiates with the preparation of raw materials, wherein unsorted plastic waste gets introduced into an electric-powered grinder, transforming the waste into smaller plastic flakes. A weighing scale precisely gauges the necessary quantity of plastic flakes, which subsequently undergo conveyance to ensuing stages.
2. Aggregates are incorporated by an electric-powered aggregate conveyor, amalgamating with plastic flakes within a ribbon blender, yielding a uniform premix batch. This premix

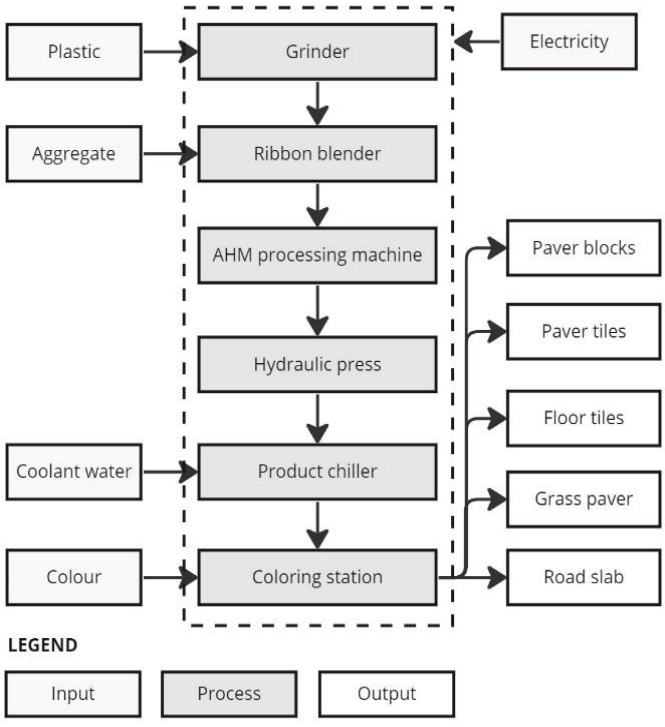

Figure 2: Manufacturing of moulded products

batch is then conveyed to an AHM (Auger Heating and Mixing machine) utilising a batch conveyor.

3. The AHM processes the premix, creating a semi-solid slurry. Quality control measures are upheld through a weighing station.
4. The semi-solid slurry is formed into the desired products by employing a hydraulic press, followed by cooling facilitated by a product chiller.
5. Ultimately, the formed product is subject to customisation via liquid paint at the colouring station, culminating in producing top-quality finished plastic products.

5. LIFE CYCLE ASSESSMENT

5.1 Calculation procedures

The LCA modelling was conducted using the One Click LCA software and Ecoinvent 3.8 database. The tool requires inputs and outputs and is aligned with EN 15804:2012+A2:2019+AC:2021(CEN, 2019).

5.2 LCIA Categories

The environmental impact quantification categories were selected per PCR 2019:14 - Construction products - Version 1.3.3 (Erlandsson, 2024). The estimated impact results are only relative statements that do not indicate impact categories' endpoints, exceeding threshold values, safety margins or risks.

Environmental Impact Indicators for EN 15804:2012+A2:2019+AC:2021		
Impact category	**Indicator**	**Unit**
Climate change - total	Global Warming Potential total (GWP-total)	$kgCO_2e$
Climate change - fossil	Global Warming Potential fossil fuels (GWP-fossil)	$kgCO_2e$
Climate change - biogenic	Global Warming Potential biogenic (GWP-biogenic)	$kgCO_2e$
Climate change - luluc	Global Warming Potential land use and land use change (GWP-luluc)	$kgCO_2e$
Ozone Depletion	Depletion potential of the stratospheric ozone layer (ODP)	$kgCFC_{11}e$
Acidification	Acidification potential, Accumulated Exceedance (AP)	Mole of H+e
Eutrophication aquatic freshwater	Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater)	$kgPO_4^{3-}e$
Eutrophication aquatic marine	Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine)	kgNe
Eutrophication terrestrial	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	molNe
Photochemical ozone formation	Formation potential of tropospheric ozone (POCP)	kgNMVOCe
Depletion of abiotic resources - minerals and metals	Abiotic depletion potential for non-fossil resources (ADP-minerals & metals)	kgSbe
Depletion of abiotic resources - fossil fuels	Abiotic depletion for fossil resources potential (ADP-fossil)	MJ
Water use	Water (user) deprivation potential, deprivation-weighted water consumption (WOP)	m^3

Natural resource use parameters		
Parameter	**Acronym**	**Unit**
Renewable primary energy as an energy carrier	PERE	MJ
Renewable primary energy resources as material utilisation	PERM	MJ
Total use of renewable primary energy resources	PERT	MJ
Non-renewable primary energy as an energy carrier	PENRE	MJ
Non-renewable primary energy as material utilisation	PENRM	MJ
Total use of non-renewable primary energy resources	PENRT	MJ
Use of secondary material	SM	kg
Use of renewable secondary fuels	RSF	MJ
Use of non-renewable secondary fuels	NRSF	MJ
Net freshwater use	FW	m^3

Waste categories parameters		
Parameter	**Acronym**	**Unit**
Hazardous waste disposed	HWD	kg
Non-hazardous waste disposed	NHWD	kg
Radioactive Waste	RW	kg

Output flows		
Parameter	**Acronym**	**Unit**
Components for reuse	CRU	kg
Materials for recycling	MR	kg
Materials for energy recovery	MER	kg
Exported energy, electricity	EEE	MJ

Biogenic carbon	
Parameter	**Unit**
Biogenic carbon content in the product	kg C
Biogenic carbon content in the packaging	kg C

5.3 Core environmental impact – mandatory indicators

Indicator	A1	A2	A3	Total A1-A3	C1	C2	C3	C4	D
GWP-total	6.45E-03	2.98E-02	1.90E-01	2.26E-01	0.00E+00	1.74E-02	4.76E-03	1.16E-02	-2.33E-01
GWP-fossil	6.45E-03	1.89E-04	1.88E-01	1.95E-01	0.00E+00	1.74E-02	4.76E-03	8.97E-03	-2.33E-01
GWP-biogenic	9.50E-06	8.28E-08	3.07E-03	3.08E-03	0.00E+00	6.65E-06	1.32E-06	2.67E-03	-2.17E-05
GWP-luluc	3.28E-06	8.20E-08	1.70E-05	2.04E-05	0.00E+00	7.08E-06	4.02E-07	3.57E-06	-1.61E-05
ODP	5.53E-10	4.12E-11	2.40E-09	3.00E-09	0.00E+00	3.83E-09	1.03E-09	5.21E-10	-7.14E-09
AP	2.82E-05	8.08E-07	1.84E-03	1.87E-03	0.00E+00	7.18E-05	4.98E-05	3.00E-05	-6.33E-04
EP-f	1.56E-07	1.70E-09	1.06E-05	1.07E-05	0.00E+00	1.46E-07	1.93E-08	8.01E-07	-3.69E-06
EP-m	4.86E-06	2.36E-07	2.44E-04	2.49E-04	0.00E+00	2.10E-05	2.20E-05	1.95E-04	-2.52E-04
EP-t	5.39E-05	2.62E-06	2.77E-03	2.83E-03	0.00E+00	2.31E-04	2.41E-04	7.50E-05	-2.18E-03
POCP	2.31E-05	8.03E-07	7.41E-04	7.64E-04	0.00E+00	7.04E-05	6.64E-05	6.00E-05	-5.53E-04
ADP-m	4.39E-08	8.66E-10	3.47E-07	3.92E-07	0.00E+00	6.04E-08	7.27E-09	1.07E-08	-5.33E-07
ADP-f	1.77E-01	2.73E-03	1.88E+00	2.06E+00	0.00E+00	2.51E-01	6.56E-02	4.95E-02	-1.09E+00
WDP	4.35E-03	1.26E-05	5.31E-02	5.75E-02	0.00E+00	1.10E-03	1.22E-04	4.95E-04	-5.71E-03

Acronyms: GWP-fossil = Global Warming Potential fossil fuels ($kgCO_2e$); GWP-biogenic = Global Warming Potential biogenic ($kgCO_2e$); GWP-luluc = Global Warming Potential land use and land use change ($kgCO_2e$); ODP = Depletion potential of the stratospheric ozone layer ($kgCFC_{11}e$); AP = Acidification potential, Accumulated Exceedance ($molH^+e$); EP-f = Eutrophication potential, fraction of nutrients reaching freshwater end compartment ($kgPO_4^{3-}e$); EP-m = Eutrophication potential, fraction of nutrients reaching marine end compartment (kgNe); EP-t = Eutrophication potential, Accumulated Exceedance (molNe); POCP = Photochemical Oxidants Creation Potential (kgNMVOCe); ADP-m = Abiotic depletion potential for non-fossil resources (kgSbe); ADP-f = Abiotic depletion for fossil resources potential (MJ); WDP = Water (user) deprivation potential, deprivation-weighted water consumption (m^3)

5.4 Potential environmental impact – additional mandatory indicators

Indicator	A1	A2	A3	Total A1-A3	C1	C2	C3	C4	D
GWP-GHG	6.11E-03	1.87E-04	1.86E-01	1.92E-01	0.00E+00	1.72E-02	4.73E-03	9.45E-02	-2.21E-01

The indicator includes all greenhouse gases in the GWP-total ($kgCO_2e$). However, it excludes biogenic carbon dioxide uptake, emissions, and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

5.5 Biogenic carbon

Biogenic Carbon Content	Unit	Quantity
Biogenic carbon content in the product	kg C	1.59E-04
Biogenic carbon content in the packaging	kg C	0.00E+00

5.6 Use of resources

Indicator	A1	A2	A3	Total A1-A3	C1	C2	C3	C4	D
PERE	2.82E-03	3.53E-05	1.85E-01	1.88E-01	0.00E+00	2.95E-03	3.55E-04	2.30E-03	-2.28E-02
PERM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	2.82E-03	3.53E-05	1.85E-01	1.88E-01	0.00E+00	2.95E-03	3.55E-04	2.30E-03	-2.28E-02
PENRE	1.23E-01	2.73E-03	1.88E+00	2.01E+00	0.00E+00	2.51E-01	6.56E-02	4.95E-02	-1.09E+00
PENRM	5.34E-02	0.00E+00	4.02E-01	4.56E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	1.78E-01	2.73E-03	2.28E+00	2.46E+00	0.00E+00	2.51E-01	6.56E-02	4.95E-02	-1.09E+00
SM	9.94E-01	9.51E-07	1.30E-04	9.94E-01	0.00E+00	8.27E-05	0.00E+00	1.50E-05	-1.36E-04
RSF	1.59E-07	1.18E-08	1.78E-06	1.95E-06	0.00E+00	1.07E-06	0.00E+00	5.42E-07	-3.28E-06
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	1.04E-04	3.40E-07	7.52E-04	8.56E-04	0.00E+00	2.97E-05	5.79E-06	4.50E-05	-2.96E-04

Acronyms: PERE = use of primary renewable energy excluding renewable primary energy resources used as raw materials (MJ); PERM = Use of renewable primary energy resources used as raw materials (MJ); PERT = Total use of renewable primary energy resources (MJ); PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ); PENRM = Use of non-renewable primary energy resources used as raw materials (MJ); PENRT = Total use of non-renewable primary energy resources (MJ); SM = Use of secondary material (kg); RSF = Use of renewable secondary fuels (MJ); NRSF = Use of non-renewable secondary fuels (MJ); FW = use of net freshwater (m^3)

5.7 Waste production

Indicator	A1	A2	A3	Total A1-A3	C1	C2	C3	C4	D
HWD	2.90E-04	4.22E-06	3.52E-02	3.54E-02	0.00E+00	3.62E-04	7.05E-05	0.00E+00	-2.97E-03
NHWD	5.72E-03	6.86E-05	1.12E+00	1.12E+00	0.00E+00	5.78E-03	7.54E-04	1.50E-01	-9.41E-01
RWD	1.14E-07	1.80E-08	3.34E-06	3.47E-06	0.00E+00	1.66E-06	4.59E-07	0.00E+00	-2.18E-06

Acronyms: HWD = Hazardous waste disposed (kg); NHWD = Non-hazardous waste disposed (kg); RWD = Radioactive waste disposed (kg)

5.8 Output flows

Indicator	A1	A2	A3	Total A1-A3	C1	C2	C3	C4	D
CRU	0.00E+00	0.00E+00	2.40E-01	2.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	0.00E+00	0.00E+00	7.27E-05	7.27E-05	0.00E+00	0.00E+00	8.50E-01	0.00E+00	0.00E+00
MER	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Acronyms: CRU = Components for reuse (kg); MR = Materials for recycling (kg); MER = Materials for energy recovery (kg); EEE = Exported energy, electricity (MJ)

6. INTERPRETATION

Parameter	Interpretation
Global Warming Potential (GWP)	The cradle-to-gate GWP-Total of the Saltech Slabbing Products is 0.23 $kgCO_2e$. This quantity includes GWP-fossil, GWP-biogenic, and GWP-luluc, with module A3 contributing to 84% of the GWP-Total.
Ozone Depletion Potential (ODP)	Ozone Depletion Potential (ODP) measures the potential impact of chloro-fluoro-carbons (CFCs) and chlorinated hydrocarbons (HCs) on depleting the ozone layer. The ODP is negligible for Saltech Slabbing Products.
Acidification Potential (AP)	The Acidification Potential indicator accounts for soil, ground and surface water acidification. The acidification potential for Saltech Slabbing Products is insignificant during the cradle-to-gate stage.
Eutrophication Potential (EP)	Eutrophication Potential (EP) measures the growth of nutrients in water and soil, assessed across freshwater, marine, and terrestrial ecosystems. For Saltech Slabbing Products, terrestrial, marine, and freshwater ecosystems show no significant quantity of excessive nutrients.
Photochemical Oxidants Creation Potential (POCP)	The POCP scale quantifies the ability of volatile organic compounds (VOCs) to produce ground-level ozone. The cradle-to-gate POCP is insignificantly small.
Abiotic Depletion Potential (ADP)	The ADP for fossils for the cradle-to-gate estimation of Saltech Slabbing Products is 2.06 MJ. The ADP for minerals and metals is insignificantly small.
Water Depletion Potential (WDP)	The water footprint of a product is the amount of water consumed or polluted in all processing stages of its production. The WDP of the Saltech Slabbing Products for A1-A3 is 0.06 m^3.

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