ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for

Permoglaze Flexi Build

EPD®
THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM
EPD
EN 15804 VERIFIED

Programme:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB Stockholm, Sweden
EPD registration number:	S-P-04227
Publication date:	09.07.2021
Validity date:	08.07.2026
Geographical scope:	Global

Sofap
Do it smarter

Programme Information

Programme	The International EPD® System www.environdec.com info@environdec.com	EPD International AB Box 210 60 SE-100 31 Stockholm/SWEDEN

2019:14 Version 1.1. 2020-09-14 Construction Products
EN 15804:2012 + A2:2019 Sustainability of Construction Works

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

EPD process certification EPD verification ✓

Third party verifier: Prof. Ing. Vladimír Kočí, Ph.D., MBA

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 from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

Company Information

Sofap has been established since 1988, Sofap has grown to become a leading paint manufacturer in Mauritius through constant innovation and an unflinching commitment to quality.

Sofap manufactures and distributes Permoglaze paints under license from Crown Paints Uk. The product range includes decorative and protective paints and varnishes for both interior and exterior.

Sofap also manufactures a range of textured coatings under the brand TRIBE comprising of 8 different finishes. It also distributes a dry-mixed tile adhesive under the PERMOFIX brand.

Sofap is the exclusive distributor in Mauritius for a number of reputable brands in the coatings industry namely: General Paints for automotive paints, Altex Coatings for marine paints, Nova wood finishes and Rust Oleum brand for DIY Spray paint. In terms of accessories a range of brushes, rollers and tools are offered under the Atlas brand.

Sofap is certified ISO 9001:2015 for Quality Management and ISO 14001: 2015 for Environmental Management.

Product Information

Product name:	Permoglaze Flexi Build Paint
Product identification:	Permoglaze Flexi Build is a high quality water-based paint.
UN CPC code:	35110
Geographical scope:	Global

Permoglaze Flexi Build is a high quality water-based paint designed for bridging hairline cracks on concrete surfaces. It is recommended for inclined roofs and external walls, and for exterior use only.

Purpose

Permoglaze Flexi Build is a high build elastomeric water-based paint with outstanding flexibilit, designed for application on concrete surfaces, inclined roofs as well as exterior façade. It has been developed to accomodate hairline cracks which may appear at a later stage withinthe substrate.

Composition

Permoglaze Flexi Build is a durable acrylic emulsion paint with superior flexibility properties.

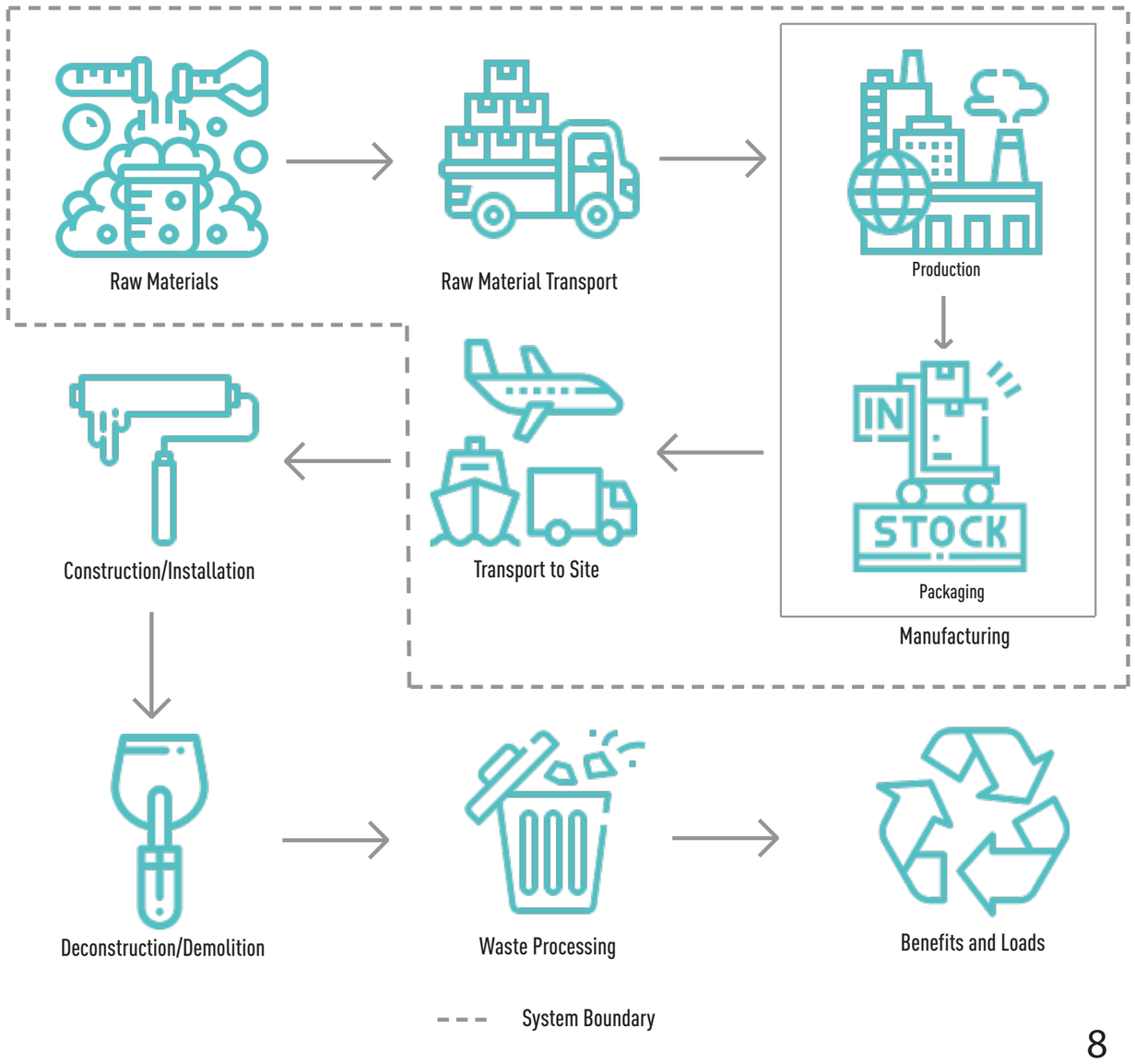
Characteristics

- Effective in bridging hairline cracks
- Resistant to UV light giving excellent long-term durability
- Elongation at break up to400%at 23 °C
- Easy to clean
- Easy to apply
- No residual odour
- Can be used with a reinforcing membrane for waterproofing
- Typically developed for tropical climate (Mauritius)

LCA Information

Declared Unit:	1 m^2 of surface painted with Permoglaze Flexi Build paint (98% opacity)
Time Representativeness:	Average data for 2020
Database(s) and LCA Software Used:	Ecoinvent 3.5 SimaPro 9.0

System Boundary



Description of System Boundary

This EPD's system boundary has been defined as cradle to gate with options, including modules A1-A3. Besides, A4: Transport of End Product stage was added as optional. Once applied, these products become an integral part of the surface that can not be separated at their end of life stage, therefore C (EoLStages) and D modules were not declared.

Upstream			Core			Downstream										Other Environmental Information
Raw Material	Raw Material Transport	Manufacturing	Transport to Plant	Construction / Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction / Demolition	Transport to Disposal Site	Waste Processing	Disposal	Future reuse, recycling or energy recovery potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Description of the system boundary (X = Included in LCA, ND=Not Declared)

A1: Raw Material
Production starts with raw materials. Raw material stage includes raw material extraction/preparation and pre-treatment processes before production.

A2: Raw Material Transport
Transport is relevant for delivery of raw materials and other materials to the plant and the transport of materials within the plant. Transport of raw materials to production site is taken as the weight average values for transport from supplier for the year of 2020.

A3: Manufacturing
Manufacturing prosses comprises of mixing the chemicals using electric energy to form the paint. Then, the final products are quality checked and packaged for delivery.

A4: Transport to Site
Transport of final product to customer is taken as the weight average values for transport for the year of 2020.

More Information

This study is conducted according to the guidelines of ISO 14040/44 and the requirements given in the Product Category Rules (PCR) document for Construction Products with reference to EN 15804 and the general program guidelines by The International EPD System.

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR.

There are no co-products in the production. Hence, there is no need for co-product allocation.

Energy consumption and transport datasets were allocated based on the average production figures for the year of 2020, and weighted average of environmental impacts for the paint were presented.

Accordingly, hazardous and non-hazardous waste amounts were also allocated based on the average waste arisings for the period of 2020. All the waste resulting from the main production and related processes is managed as per Waste Management Plan of Sofap in accordance with Mauritian laws and regulations.

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in the paint product either above the threshold for registration with the
European Chemicals Agency or above 0.1 % (wt/wt).

LCA Results

Environmental Impacts for 1 m^2 of surface painted with Permoglaze Flexi Build paint (98% opacity)						
Impact Category	Unit	A1	A2	A3	A1-A3	A4
GWP - Fossil	kg CO_2 eq	572E-3	14.4E-3	34.8E-3	622E-3	1.43E-3
GWP - Biogenic	kg CO_2 eq	726E-6	12.6E-6	219E-6	957E-6	162E-9
GWP - Luluc	kg CO_2 eq	410E-6	6.96E-6	703E-9	417E-6	504E-9
GWP - Total	kg CO_2 eq	574E-3	14.4E-3	35.1E-3	623E-3	1.43E-3
ODP	kg CFC-11 eq	108E-9	2.89E-9	2.01E-9	113E-9	316E-12
AP	mol H+ eq	3.85E-3	321E-6	190E-6	4.36E-3	5.76E-6
EP - Freshwater (P)	kg P eq	220E-6	1.79E-6	629E-9	223E-6	129E-9
EP - Freshwater (PO_4)	kg PO_4 eq	674E-6	5.49E-6	1.93E-6	681E-6	395E-9
EP - Marine	kg N eq	593E-6	65.9E-6	29.4E-6	688E-6	1.62E-6
EP - Terrestrial	mol N eq	6.04E-3	737E-6	321E-6	7.10E-3	17.8E-6
POCP	kg NMVOC	2.03E-3	195E-6	145E-6	2.37E-3	5.43E-6
ADPE	kg Sb eq	3.21E-6	8.16E-9	5.35E-9	3.23E-6	5.60E-9
ADPF	MJ	7.32E+0	207E-3	946E-3	8.47E+0	21.3E-3
WDP	m^3 depriv.	325E-3	1.34E-3	8.04E-3	335E-3	148E-6
PM	disease inc.	34.1E-9	684E-12	1.65E-9	36.4E-9	88.5E-12
IR	kBq U-235 eq	34.41E-3	1.24E-3	597E-6	36.2E-3	100E-6
ETP - FW	CTUe	13.8E+0	139E-3	92.5E-3	14.1E+0	15.9E-3
HTTP - C	CTUh	764E-12	4.61E-12	5.93E-12	775E-12	519E-15
HTTP - NC	CTUh	18.4E-9	112E-12	169E-12	18.6E-9	17.5E-12
SQP	Pt	2.19E+0	42.0E-3	24.5E-3	2.26E+0	12.3E-3
Acronyms	GWP-total: Climate change, GWP-fossil: Climate change- fossil, GWP-biogenic: Climate change - biogenic, GWP-luluc: Climate change - land use and transformation, ODP: Ozone layer depletion, AP: Acidification terrestrial and freshwater, EP-freshwater: Eutrophication freshwater, EP-marine: Eutrophication marine, EP-terrestrial: Eutrophication terrestrial, POCP: Photochemical oxidation, ADPE: Abiotic depletion - elements, ADPF: Abiotic depletion - fossil resources, WDP: Water scarcity, PM: Respiratory inorganics - particulate matter, IR: Ionising radiation, ETP-FW: Ecotoxicity freshwater, HTP-c: Cancer human health effects, HTP-nc: Non-cancer human health effects, SQP: Land use related impacts, soil quality.						
Legend	A1: Raw Material, A2: Raw Material Transport, A3: Manufacturing, A1-A3: Sum of A1, A2 and A3, A4: Transport					
Disclaimer: EP-freshwater indicator has also been calculated as "kg P eq" as required in the characterization model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml) in addition to "kg PO4 eq" as stated in the standard.						

Resource Use for 1 m^2 of surface painted with Permoglaze Flexi Build paint (98% opacity)						
Impact Category	Unit	A1	A2	A3	A1-A3	A4
PERE	MJ	454E-3	4.27E-3	16.6E-3	475E-3	235E-6
PERM	MJ	0	0	0	0	0
PERT	MJ	454E-3	4.27E-3	16.6E-3	475E-3	235E-6
PENRE	MJ	7.32E+0	207E-3	946E-3	8.47E+0	21.3E-3
PENRM	MJ	0	0	0	0	0
PENRT	MJ	7.32E+0	207E-3	946E-3	8.47E+0	21.3E-3
SM	kg	0	0	0	0	0
RSF	MJ	0	0	0	0	0
NRSF	MJ	0	0	0	0	0
FW	m^3	5.86E-3	25.8E-6	55.3E-6	5.94E-3	3.56E-6

Waste & Output Flows for 1 m^2 of surface painted with Permoglaze Flexi Build paint (98% opacity)						
Impact Category	Unit	A1	A2	A3	A1-A3	A4
HWD	kg	0	0	0	0	0
NHWD	kg	0	0	44.3E-3	44.3E-3	0
RWD	kg	0	0	0	0	0
CRU	kg	0	0	0	0	0
MFR	kg	0	0	0	0	0
MER	kg	0	0	0	0	0
EE (Electrical)	MJ	0	0	0	0	0
EE (Thermal)	MJ	0	0	0	0	0
Acronyms	PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding 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, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water, HWD: Hazardous waste disposed, NHWD: Non-hazardous waste disposed, RWD: Radioactive waste disposed, CRU: Components for reuse, MFR: Material for recycling, MER: Materials for energy recovery, EE (Electrical): Exported energy electrical, EE (Thermal): Exported energy, Thermal.						
Legend	A1: Raw Material, A2: Raw Material Transport, A3: Manufacturing, A1-A3: Sum of A1, A2 and A3, A4: Transport					

Result per funtional declared unit		
Biogenic Carbon Content	Unit	A1-A3
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

References

/GPI/ General Programme Instructions of the International EPD® System. Version 3.0.

/ISO 14020:2000/ Environmental labels and declarations — General principles

/EN 15804:2012+A2:2019/ Sustainability of construction works - Environmental Product Declarations — Core rules for the product category of construction products

/ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

/ISO 14040/44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)

/PCR for Construction Products and CPC 54 Construction Services/ Prepared by IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, The International EPD System, 2019:14 Version 1.1 DATE 2019-12-20

/The International EPD® System/ The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com

/Ecoinvent / Ecoinvent Centre, www.ecoinvent.org

/SimaPro/ SimaPro LCA Software, Pré Consultants, the Netherlands, www.pre-sustainability.com

Contact Information

Programme	The International EPD® System EPD® THE INTERNATIONAL EPD® SYSTEM	The International EPD® System www.environdec.com
Programme operator	EPD International AB Box 210 60 SE-100 31 Stockholm / SWEDEN	www.environdec.com info@environdec.com
Owner of the declaration	Sofap Do it smarter Sofap Ltd. DBM Industrial Zone, Coromande / MAURITIUS	Contact: Rajendra Mahajan Phone: (230) 405 70 00 Fax: (230) 405 70 07 www.sofap.mu sofap@sofap.mu
LCA practitioner	metsims Sustainability Consulting Turkey: Lalegül Sok. No:7/18 Kağıthane 34415 4. Levent – Istanbul / TURKEY +90 212 281 13 33	The United Kingdom: 4 Clear Water Place Oxford OX2 7NL, UK 0 800 722 0185 www.metsims.com info@metsims.com
3rd party verifier	LCA studio Prof. Ing. Vladimír Kočí, Ph.D., MBA	LCA Studio Šárecká 5,16000 Prague 6 - Czech Republic www.lcastudio.cz

Sofap

Do it smarter

Sofap Ltd.
DBM Industrial Zone
Coromandel
MAURITIUS

www.sofap.mu

info@sofap.com