Environmental Product Declaration

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

PPG TECNOCERAMIC SMALTO OPACO

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0027797
Version date:	2026-01-14
Validity date:	2031-01-14

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com.

Product-specific EPD, based on representative formulation.

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

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:	support@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): *International EPD System, PCR for Construction Products, 2019:14, version 2.0.1.*

PCR review was conducted by: The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chairs:Rob Rouwette (chair), Noa Meron (co-chair)
The review panel may be contacted via support@environdec.com.

Life Cycle Assessment (LCA)
LCA accountability: Yiping Qu, Product Sustainability Specialist, Product Sustainability CoE
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☑ EPD verification by EPD Process Certificationn* without a pre-verified LCA/EPD tool Internal auditor: Zixuan Zhang,Senior Product Sustainability Specialist, Product Sustainability CoE
Third-party verifier, accountable for the certification: Epsten Group, Inc. 101 Marietta St. NW, Suite 2600, Atlanta, Georgia 30303, USA www.epstengroup.com
Third-party verifier is accredited by A2LA
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☑ No

EPD Type: Product-specific. This EPD is based on a white/light color formulation of PPG TECNOCERAMIC SMALTO OPACO.

*EPD process certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.envrondec.com.

The EPD owner has the sole ownership, liability, and responsibility for the EPD. This EPD is intended for B2B communication

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 shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Information about EPD owner

Owner of the EPD:	PPG Industries, 1 PPG Place, Pittsburgh, PA, 15272
Contact:	Sustainability.COE@ppg.com
Description of the organisation:	PPG is a global manufacturer of coatings who is the owner of many brands through-out the world.

Product-related or management system-related certifications:

PPG's EHS Policy incorporates the elements of voluntary global industry initiatives, including Responsible Care® and Coatings Care®, which help companies manage safe and environmentally responsible practices in the chemicals and coatings industries. At more than 40 of its facilities, PPG has received ISO 14001:2004 certification.

Name and location of production site(s):

Cavallirio, Italy

Product Information

Product name:	PPG TECNOCERAMIC SMALTO OPACO
Product identification:	Products are identified by name
Product description:	Water-based epoxy finish, specifically for tiles; excellent scratch and abrasion resistance, excellent resistance to washing, industrial detergents, and disinfectants, HACCP certified for use in food environments.
	**Any technical information of the product should refer to the TDS.
UN CPC code:	35110
Geographical scope:	European Union Countries
Coverage rate:	5 m2/L

LCA Information

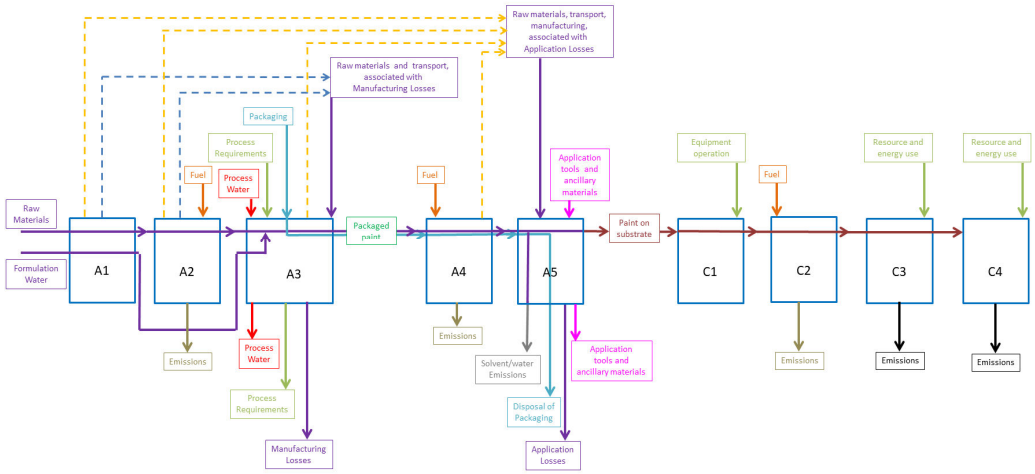
Declared unit:	The declared unit for this EPD is 1 kg. The spreading rate is averaged at 5 m2/L .
Time representativeness:	2024
Database(s) and LCA software used:	Ecoinvent 3.10, Industry Data 2.0; Simapro v. 9.6.0.1.
Electricity usage in A3:	Residual mix of Italy; Climate impact: 0.641 kg CO2eq/kWh (GWP-GHG)
Cut-off rules:	Neglected flows in all modules are less than 1% of mass and energy. Neglect flows per life-cycle stages A1-A3, A4-A5 and C1-C4, aggregated are less than 5% of mass and energy. Cut-off rules do not apply to Module A1, which is 100% modelled.
Allocation method:	Mass allocation: A3 energy/material inputs and waste outputs are allocated by total products manufactured over 1 year

Description of system boundaries:

The type of EPD is Cradle to Gate with Options (EPD Type b - Modules A1-A3, A4, A5, C1-C4, and D). B modules are excluded since no use phase maintenance, repair or replacement is expected during the technical life time.

System diagram:

Please refer the table below for A1-C4 life cycle stages.



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

	Product stage			Distribution/installation stage		Use stage	End of life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use, maintenance, repair, replacement, refurbishment, operational energy and water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	ND	X	X	X	X	X
Geography	EU27	EU27	IT	EU27	EU27		EU27	EU27	EU27	EU27	EU27
Variation – products	<10%										
Variation – sites	N/A										

Declaration of data sources, reference years, data categories, and share of primary data:

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Raw materials and associated transportation	Database	Ecoinvent 3.10/Industry data 2.0	2024/2023	Secondary data	0%
Production process and product packaging	Collected data, database, supplier data	EPD owner, Ecoinvent 3.10, packaging supplier	2024	Primary data/Secondary data	13%
Total share of primary data, of GWP-GHG results for A1-A3					13%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

Manufacturing processes in module A3 are always less than 2 years old.

Summary of product and data quality assessment:

Water-based epoxy finish, specifically for tiles; excellent scratch and abrasion resistance, excellent resistance to washing, industrial detergents, and disinfectants, HACCP certified for use in food environments.

Its A1-A3 GWP total is 3.6 kg CO2e/kg.

Primary data, such as water and electricity consumption and production waste, are based on measurements at the relevant manufacturing plant from 2024-01-01 to 2024-12-31. Except for A3 manufacturing processes, all upstream and downstream processes are based on secondary data from Ecoinvent 3.10 or Industry Data 2.0, or supplier data (for raw materials only)

According to Annex E, Table E.1 of EN 15804, the data quality levels of the datasets are classified as very good, good, or fair.

Content Declaration

Product components	Weight, kg	Average Weight, kg	Post-consumer material, weight-% of product	Biogenic material, weight-% of product	Biogenic material, kg C/declared unit
Binders	4.5E-01~4.9E-01	4.7E-01	-	-	-
Solvents	7.4E-02~8.1E-02	7.8E-02	-	-	-
Pigments	1.4E-01~1.5E-01	1.5E-01	-	-	-
Water	2.9E-01~3.2E-01	3.1E-01	-	-	-
Others	<0.001	<0.001	-	-	-
Total	1.0E+00	1.0E+00	0	0	0

Packaging materials (Note 1)	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/declared unit	PCR material, Weight-% in packaging material
Steel for cans/buckets	7.6E-02	7.5%	0.0E+00	-
Polypropylene for cans/buckets	7.1E-02	7.1%	0.0E+00	35%
TOTAL	1.5E-01	14.6%	0.0E+00	-

Note 1: Packaging weights are the maximum of the individual products included in the EPD. Packaging weight percentages are assessed on the maximum product weight per declared unit given above.

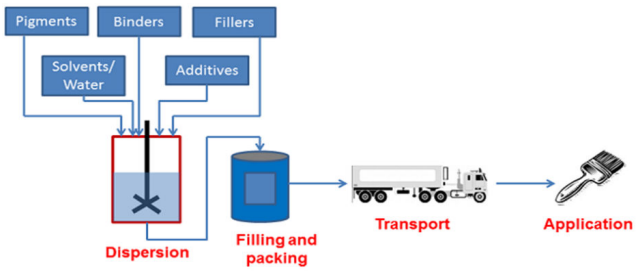
Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per declared unit
None			

Biogenic carbon content	Product's biogenic carbon content at the factory gate kg C
Biogenic carbon content in product (Note2)	0.0E+00
Biogenic carbon content in accompanying packaging (Note 3)	0.0E+00

Note 2, Note 3: Biogenic carbon in the product and in the packaging is the minimum of the individual products and packagings included in the EPD

Manufacturing Process

The manufacturing process for coatings primarily involves the mixing and dispersing of raw materials into a homogeneous mixture. Raw materials include pigments and fillers, which provide colour, hiding, and gloss control; resins/binders, which dry to form a solid film and adhere the coating to the substrate and additives, which assist with various coating properties. The product is then shipped to the customers as a set for them to mix at the job site before application.



Assumptions beyond module A3

A4

Transportation distance is assumed to be 850 km according to EU geography and location of PPG factories. Transportation mode is assumed to be by Euro 5 16-32 metric ton truck.

A5

The following sub modules and assumptions are included in A5

1. Application tools and ancilliaries: roller and its packaging.
2. Disposal of application waste: environmental impact from manufacturing and content of estimated 1% application loss is included. Environmental impact of manufacturing, content and disposal of 1% product leftover is also included. Content of leftovers are assumed to be disposed of as nonhazardous waste to landfill.
3. Primary packaging (steel and/or plastic) are disposed as nonhazardous waste to landfill, application loss is considered.

C1-C4

1. C1: Energy associated with demolition of the substrate structure is prorated for the mass of paint.
2. C2: Transportation to disposal is assumed to 80 km and transportation mode is assumed to be by Euro 5 16-32 metric ton truck.
3. C3: No waste processing options are considered.
4. C4: It is assumed that the paint will be disposed of along with the substrate in a landfill.

D

No benefits and loads beyond the product system boundary were declared since no reuse or recovery occurs in general. Therefore, no benefit is claimed in module D.

List of excluded processes

1. A3: Raw materials and processing for the packaging (e.g. cardboard) of the paint containers (e.g., steel and plastic), and secondary packaging of paint finished products (e.g., plastic wraps for easy of transportation) are excluded from the system.
2. Personnel related processes, such as transportation of employees to and from work, are excluded.
3. The production and end-of-life processes of infrastructure or capital goods of PPG plants are excluded.

Environmental performance

Potential environmental impact – mandatory indicators according to EN 15804 based on EF3.1

Results per declared unit (1 kg of product)

Indicator	Unit	A1-A3	A4	A5	B1 - B7	C1	C2	C3	C4	D
GWP - fossil	kg CO_2 eq.	3.6E+00	1.9E-01	9.1E-02	ND	4.7E-04	9.5E-03	0.0E+00	2.8E-02	0.0E+00
GWP -biogenic	kg CO_2 eq.	1.3E-02	3.4E-05	2.2E-04	ND	1.1E-07	1.7E-06	0.0E+00	5.3E-03	0.0E+00
GWP - luluc	kg CO_2 eq.	6.7E-03	6.2E-05	8.8E-05	ND	9.9E-08	3.1E-06	0.0E+00	3.6E-06	0.0E+00
GWP - total	kg CO_2 eq.	3.6E+00	1.9E-01	9.1E-02	ND	4.7E-04	9.5E-03	0.0E+00	3.3E-02	0.0E+00
ODP	kg CFC 11 eq.	1.0E-06	3.7E-09	1.1E-08	ND	4.1E-11	1.9E-10	0.0E+00	2.0E-10	0.0E+00
AP	mol H^+ eq.	1.4E-02	5.9E-04	3.2E-04	ND	1.8E-06	3.0E-05	0.0E+00	4.7E-05	0.0E+00
EP - freshwater	kg P eq.	7.4E-04	1.4E-06	9.0E-06	ND	3.0E-09	7.3E-08	0.0E+00	7.5E-08	0.0E+00
EP - marine	kg N eq.	2.7E-03	2.0E-04	8.7E-05	ND	2.7E-07	9.9E-06	0.0E+00	1.8E-05	0.0E+00
EP-terrestrial	mol N eq.	2.8E-02	2.2E-03	6.8E-04	ND	2.9E-06	1.1E-04	0.0E+00	2.0E-04	0.0E+00
POCP	kg NMVOC eq.	1.3E-02	9.2E-04	3.2E-02	ND	4.3E-06	4.6E-05	0.0E+00	7.5E-05	0.0E+00
ADP - minerals & metals*	kg Sb eq.	4.1E-05	6.2E-07	6.0E-07	ND	2.7E-10	3.1E-08	0.0E+00	1.4E-08	0.0E+00
ADP - fossil*	MJ	6.7E+01	2.6E+00	1.7E+00	ND	2.7E-02	1.3E-01	0.0E+00	1.5E-01	0.0E+00
WDP*	m^3	2.0E-01	1.1E-02	0.0E+00	ND	2.5E-05	5.5E-04	0.0E+00	7.3E-03	0.0E+00

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Statement: The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit

Indicator	Unit	A1-A3	A4	A5	B1 - B7	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	3.6E+00	1.9E-01	9.1E-02	ND	4.7E-04	9.5E-03	0.0E+00	2.8E-02	0.0E+00
Particulate Matter	disease inc.	1.6E-07	1.5E-08	3.6E-09	ND	1.6E-11	7.4E-10	0.0E+00	1.1E-09	0.0E+00
Ionizing radiation, human health (IRP) [2]	kBq U235 eq.	2.0E-01	1.2E-03	3.2E-03	ND	3.6E-06	6.1E-05	0.0E+00	6.4E-05	0.0E+00
Eco-toxicity - freshwater (ETP-fw)	CTUe	1.0E+02	7.1E-01	1.3E+00	ND	1.3E-03	3.6E-02	0.0E+00	2.4E+00	0.0E+00
Human toxicity, cancer effect (HTP-c)	CTUh	4.8E-08	1.3E-09	1.0E-07	ND	1.8E-12	6.6E-11	0.0E+00	3.6E-11	0.0E+00
Human toxicity, non-cancer effects (HTP-nc)	CTUh	3.4E-08	1.7E-09	2.4E-07	ND	2.2E-12	8.3E-11	0.0E+00	6.1E-11	0.0E+00
Land use related impacts/Soil quality (SQP)	dimensionless	9.1E+00	1.6E+00	3.0E-01	ND	1.4E-03	7.9E-02	0.0E+00	3.5E-01	0.0E+00
Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017										

Note 1: GWP-GHG is calculated as GWP - total minus any climate change impact (positive or negative) caused by biogenic carbon emission or uptake.

Note 2: This impact category deals mainly with the eventual impact of low does ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

LCIA results includes infrastructure processes embedded in the generic LCI datasets used in modeling the entire life cycle of our products (A1-C4), which may include manufacturing, transportation and energy infrastructure plants outside PPG's direct control. Infrastructure processes of PPG manufacturing plants are excluded.

Use of resources

Results per declared unit

Indicator	Unit	A1-A3	A4	A5	B1 - B7	C1	C2	C3	C4	D
PERE	MJ	3.4E+00	4.5E-02	7.6E-02	ND	1.0E-04	2.3E-03	0.0E+00	2.3E-03	0.0E+00
PERM	MJ	0.0E+00	0.0E+00	0.0E+00	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PERT	MJ	3.4E+00	4.5E-02	7.6E-02	ND	1.0E-04	2.3E-03	0.0E+00	2.3E-03	0.0E+00
PENRE	MJ	6.7E+01	2.6E+00	1.7E+00	ND	2.7E-02	1.3E-01	0.0E+00	1.5E-01	0.0E+00
PENRM	MJ	3.4E+01	0.0E+00	7.1E-01	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PENRT	MJ	1.0E+02	2.6E+00	2.4E+00	ND	2.7E-02	1.3E-01	0.0E+00	1.5E-01	0.0E+00
SM	kg	0.0E+00	0.0E+00	0.0E+00	ND	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	ND	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	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FW	m^3	4.7E-02	3.6E-04	8.8E-04	ND	8.9E-07	1.8E-05	0.0E+00	1.7E-04	0.0E+00

Waste production

Results per declared unit

Indicator	Unit	A1-A3	A4	A5	B1 - B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.6E-02	8.0E-05	2.0E-04	ND	2.6E-07	4.0E-06	0.0E+00	4.3E-05	0.0E+00
Non-hazardous waste disposed	kg	2.1E+00	1.5E-01	2.0E-01	ND	4.0E-05	7.7E-03	0.0E+00	6.1E-01	0.0E+00
Radioactive waste disposed	kg	2.1E-04	8.4E-07	3.0E-06	ND	2.4E-09	4.2E-08	0.0E+00	4.5E-08	0.0E+00

Output flows

Results per declared unit

Indicator	Unit	A1-A3	A4	A5	B1 - B7	C1	C2	C3	C4	D
Components for re-use	kg	0.0E+00	0.0E+00	0.0E+00	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Material for recycling	kg	0.0E+00	0.0E+00	0.0E+00	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Materials for energy recovery	kg	0.0E+00	0.0E+00	0.0E+00	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy, electricity	MJ	0.0E+00	0.0E+00	0.0E+00	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Exported energy, thermal	MJ	0.0E+00	0.0E+00	0.0E+00	ND	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

LCIA results includes infrastructure processes embedded in the generic LCI datasets used in modeling the entire life cycle of our products (A1-C4), which may include manufacturing, transportation and energy infrastructure plants outside PPG's direct control. Infrastructure processes of PPG manufacturing plants are excluded.

Abbreviations

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
CEN	European Committee for Standardization
CPC	Central product classification
Environmental Impact Indicators (EN 15804)	
GHG	Greenhouse gas
GWP	Global Warming Potential (kg CO_2 eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO_2 eq.)
GWP-biogenic	Global Warming Potential from biogenic sources(kg CO_2 eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg
GWP-total	Total Global Warming Potential (kg CO_2 eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO_2 eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H^+ eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m^3)
Resource Use Indicators	
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw
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 fresh water (m^3)

Abbreviation	Definition
Waste Indicators	
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
Lifecycle Stages / Modules	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
Other Relevant Terms	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2 eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared
EU27	Countries of the European Union
kWh	kilowatt-hour

Other Environmental Performance Indicators

None included

Additional Environmental Information

None included

Additional Social and Economic Information

None included

Information Related to Sector EPD

Not applicable

Version history

v 1.0: Original Version of the EPD, 2026-01-14.

References

General Programme Instructions of the International EPD System®, Version 5.0.1

EPD International Product Category Rules (PCR) for Construction Products, PCR 2019:14, Version 2.0.1

ISO 14044:2006-10, Environmental Management — Life Cycle Assessment — Requirements and Instructions (ISO 14044:2006); EN ISO 14044:2006

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