

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

WOLMANIT[®] CX-8WB
**WOLMAN WOOD AND FIRE
PROTECTION GMBH**



Programme: The International
EPD[®] System,
www.environdec.com

Programme operator:
EPD International AB

EPD registration
number: S-P-05468

Publication date:
2022-02-18

Valid until:
2027-02-18

Geographical scope:
Europe

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

MANUFACTURER INFORMATION

Manufacturer	Wolman Wood and Fire Protection GmbH
Address	Dr. Wolman-Strasse 31-33, 76547 Sinzheim, Germany
Contact details	info.wolman@wolman.de
Website	https://www.wolman.de/en/

PRODUCT IDENTIFICATION

Product name	Wolmanit® CX-8WB
Additional label(s)	-
Product number / reference	Wolmanit® CX-8WB
Place(s) of production	Sinzheim, Germany
CPC code	3466 Insecticides, fungicides, herbicides and disinfectants

The International EPD System

EPDs within the same product category but from different programmes may not be comparable.

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	EPD International AB
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.11 (05.02.2021) is used.
EPD author	Annika Bantle – Master Builders Solutions Deutschland GmbH
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Verification date	2022-02-18
EPD verifier	Silvia Vilčeková, Silcert S.r.o.
EPD number	S-P-05468
ECO Platform nr.	-
Publishing date	2022-02-18
EPD valid until	2027-02-18

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Wolmanit® CX-8WB is a liquid high performance wood protection preservative for industrial use for the impregnation of outdoor timber (e.g., deckings, utility poles as well as demanding wood constructions such as timber roller coaster and playgrounds). The product comprises inorganic and organic compounds, to preventively combat wood-destroying fungi, including those causing soft rot, and insects, including termites.

As part of the approval process according to BPR (Regulation (EU) 528/2012), Wolmanit® CX-8WB has been tested extensively to confirm its efficacy.

PRODUCT APPLICATION

Wolmanit® CX-8WB is used for the impregnation of wood in industrial processes, such as the vacuum pressure and oscillating pressure processes.

TECHNICAL SPECIFICATIONS

See website for further details at:

<https://www.wolman.de/en/products/vacuum-pressure-treatment/wolmanit-cx>

PRODUCT STANDARDS

Wolmanit® CX-8WB is an authorized wood preservative according to BPR (Regulation (EU) 528/2012).

For wood in use classes 1-4 according to DIN EN 335.

PHYSICAL PROPERTIES OF THE PRODUCT

Liquid, water-soluble wood preservative concentrate.

Density: 1,2 g/cm³ (20 °C)

pH: 9,8 for a 2,0 % solution (25 °C)

Active ingredients: 2,80 % Bis-(N-Cyclohexyldiazoniumdioxy)-Copper („Kupfer-HDO“); 13,04 % Copper(II) carbonate copper(II) hydroxide (1:1)

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at <https://www.wolman.de/en/>.

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Water	0,25-0,35	100	0	Germany
Polymers	0,05-0,08	0	0	Germany
Phosphates	0,001-1,0	0	0	Germany
Alcohol	0,25-0,35	0	0	Germany
Fatty acid	0,1-0,2	0	0	Germany
Copper Carbonate	0,1-0,2	0	0	Germany
Ligand	0,05-0,1	0	0	Germany

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

MANUFACTURING AND PACKAGING (A1-A3)

Wolmanit[®] CX-8WB is a liquid high performance wood protection preservative for industrial use based on inorganic and organic compounds, used for the preventive impregnation of outdoor timber (e.g. deckings, utility poles as well as demanding wood constructions such as timber roller coaster and playgrounds) to combat wood-destroying fungi and insects, including termites thus extending the life cycle, and further increasing the sustainability of timber. 50 % of the finished product is packaged and transported by tank lorry. The other 50 % is packaged and distributed in IBC containers.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Transportation impacts occurred from final products delivery to the site of use at the wood treatment facility (A4) are not considered.

PRODUCT USE AND MAINTENANCE (B1-B7)

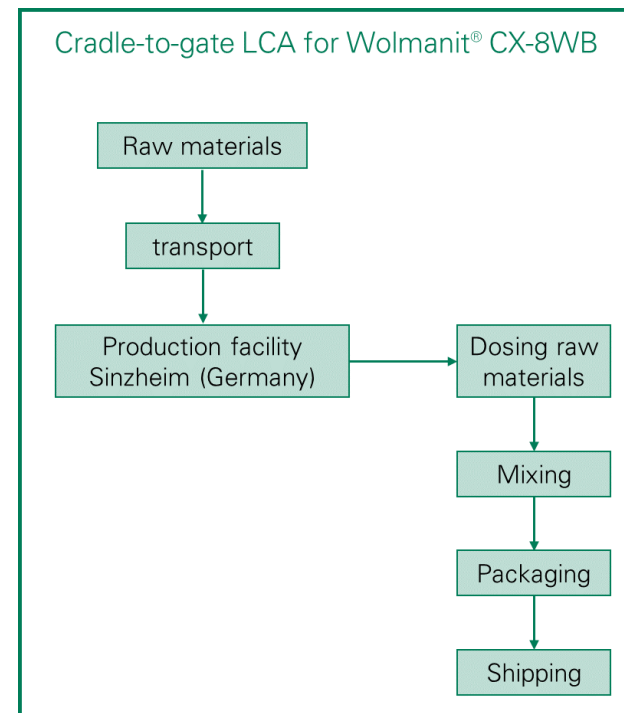
This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life modules (C1-C4) are omitted from the EPD as the Wolmanit[®] CX-8WB product is used to impregnate wood and becomes an integral part of the building material. Therefore, the end-of-life is linked to the final disposition of the wooden element.

The benefits and loads beyond the system boundary (D) are included.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2020
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DECLARED AND FUNCTIONAL UNIT

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	N/A
Reference service life	N/A

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,1167

SYSTEM BOUNDARY

This EPD covers the *cradle to gate with options scope* with following modules; A1 (Raw material supply), A2 (Transport), A3 (Manufacturing) and A5 (Assembly). In addition, module D - benefits and loads beyond the system boundary is included.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
X	X	X	MND	X	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	MND	X	X
Geography, by two-letter ISO country code or regions. The International EPD System only.																		
EU	EU	EU	-	EU	-	-	-	-	-	-	-	-	-	-	-	EU		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and the applied PCR. The study does not exclude any hazardous materials or substances.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1 % of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5 % of energy usage or mass.

No cut-off criteria were applied in the study since all raw materials in the product were taken into consideration. All input/output data reported by the Wolman manufacturing facility were included in the LCI modelling. None of the reported flow data were excluded based

on the cut-off criteria. All major raw materials and essential energy flows are included. The 1 % cut-off rule does not apply for hazardous materials and substances: as such, all flows with environmental significance are included. All solid waste emissions, including those that weigh less than 1 % of the sum of the masses of the inputs, are reported in the end-results.

Packaging waste transportation and impacts from reusing (if applicable) are assumed as negligible (cut-off).

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation.

In this study, as per EN 15804, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g., mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

The production of Wolmanit[®] CX-8WB does not require any co-products. No allocation was required.

The data quality is considered high based on collection directly from the manufacturer and well below the cut-off rule. Additional background processes such as transportation and electricity consumption have been modelled using the Ecoinvent v.3.6 LCI database.

Allocation used in Ecoinvent 3.6 environmental data sources follows the methodology 'allocation, cut-off by classification'. This methodology is in line with the requirements of the EN 15804 - standard.

AVERAGES AND VARIABILITY

This EPD is for a specific product Wolmanit[®] CX-8WB where no average data for the production of the product was collected or utilized.



ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,55E0	1,71E-2	6,17E-3	1,57E0	MND	4,55E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-4E-3
GWP – fossil	kg CO ₂ e	1,6E0	1,71E-2	4,87E-2	1,66E0	MND	2,75E-3	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-4,24E-2
GWP – biogenic	kg CO ₂ e	-6,99E-2	1,14E-5	-4,26E-2	-1,12E-1	MND	4,28E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	3,84E-2
GWP – LULUC	kg CO ₂ e	1,83E-2	5,41E-6	3,42E-5	1,84E-2	MND	2,06E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	3,73E-7
Ozone depletion pot.	kg CFC _{11e}	1,04E-7	3,97E-9	2,92E-8	1,37E-7	MND	2,24E-10	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-4,81E-9
Acidification potential	mol H ⁺ e	5,31E-2	7,11E-5	3,63E-4	5,36E-2	MND	1,01E-5	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-9,13E-5
EP-freshwater ²⁾	kg Pe	4,83E-4	1,4E-7	2,41E-6	4,86E-4	MND	7,39E-8	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-4,27E-7
EP-marine	kg Ne	6,24E-3	2,14E-5	7,16E-5	6,34E-3	MND	2,52E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,7E-5
EP-terrestrial	mol Ne	4,56E-2	2,36E-4	6,55E-4	4,65E-2	MND	2,81E-5	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,86E-4
POCP (“smog”)	kg NMVOCe	1,26E-2	7,48E-5	2,52E-4	1,3E-2	MND	8,69E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,06E-4
ADP-minerals & metals	kg Sbe	2,84E-4	3,41E-7	3,28E-7	2,85E-4	MND	3,94E-8	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-7,17E-8
ADP-fossil resources	MJ	3,57E1	2,63E-1	2,26E0	3,82E1	MND	3,04E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-8,68E-1
Water use ¹⁾	m ³ e depr.	1,81E0	9,41E-4	2,16E-2	1,83E0	MND	5,89E-4	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-9,73E-3

1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO_{4e}.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,58E-7	1,44E-9	3,05E-9	1,62E-7	MND	1,48E-10	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-8,96E-10
Ionizing radiation ³⁾	kBq U235e	6,17E-2	1,15E-3	1,8E-2	8,09E-2	MND	1,23E-4	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	1,09E-4
Ecotoxicity (freshwater)	CTUe	5,15E2	2,02E-1	1,59E0	5,17E2	MND	3,7E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-3,34E-1
Human toxicity, cancer	CTUh	9E-9	5,36E-12	1,28E-10	9,13E-9	MND	2,8E-12	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-2,13E-12
Human tox. non-cancer	CTUh	5,36E-7	2,36E-10	2,53E-9	5,39E-7	MND	4,87E-11	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	1,65E-9
SQP	-	6,09E0	3,46E-1	8,11E-2	6,52E0	MND	1,58E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-5,48E-3

4) SQP = Land use related impacts/soil quality.5) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose 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.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	4,13E0	3,43E-3	1,27E-1	4,26E0	MND	2,26E-3	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-5,33E-4
Renew. PER as material	MJ	0E0	0E0	4,11E-1	4,11E-1	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	0E0
Total use of renew. PER	MJ	4,13E0	3,43E-3	5,38E-1	4,67E0	MND	2,26E-3	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-5,33E-4
Non-re. PER as energy	MJ	3,07E1	2,63E-1	1,96E0	3,29E1	MND	3,04E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-5,69E-1
Non-re. PER as material	MJ	4,97E0	0E0	2,99E-1	5,27E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-2,99E-1
Total use of non-re. PER	MJ	3,57E1	2,63E-1	2,26E0	3,82E1	MND	3,04E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-8,68E-1
Secondary materials	kg	4,24E-2	0E0	5,74E-3	4,82E-2	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	1,07E-2
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	0E0
Use of net fresh water	m ³	4,86E-2	5,2E-5	2E-1	2,49E-1	MND	9,56E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,54E-4

6) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	2,01E-1	2,59E-4	3,96E-3	2,05E-1	MND	1,54E-4	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,18E-3
Non-hazardous waste	kg	2,66E1	2,54E-2	6,03E-2	2,66E1	MND	6,55E-3	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	1,24E-2
Radioactive waste	kg	5,43E-5	1,81E-6	1,21E-5	6,81E-5	MND	1,34E-7	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	6,14E-8

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	MND	3,79E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	0E0

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, Germany, residual mix, 2019
Electricity CO ₂ e / kWh	0,75
District heating data source and quality	N/A
District heating CO ₂ e / kWh	N/A

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	0
Collection process – kg collected with mixed waste	1
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	1
Scenario assumptions e.g., transportation	truck

BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ecoinvent database v3.6 (2019) and One Click LCA database.

EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

Int'l EPD System PCR 2019:14 Construction products, version 1.11 (05.02.2021)

Wolmanit CX-8WB LCA background report 17.02.2022

Ernst & Young Accountants LLP: “Life Cycle Assessment of Newly Manufactured and Reconditioned Industrial Packaging”; 2014.

ABOUT THE MANUFACTURER

Wolman Wood and Fire Protection GmbH is part of the MBCC Group. The company is developing, producing and distributing high performance Wood and Fire Protection chemicals for industrial use. The product portfolio comprises Wood Protection solutions for impregnation of outdoor timber, construction timber, engineered wood, as well as temporary protection of sawn timber against discoloring fungi (e.g., mould). Wolman is the inventor of modern wood protection and has been leading the Wood Protection industry for more than a century, extending the life cycle, and thus further increasing the sustainability of timber. The passive Fire Protection product portfolio secures buildings effectively from the impact of fire by significantly extending the time to save lives and assets. The product portfolio comprises materials based on all existing passive fire protection technologies (e.g., intumescence, ablation) and their systems. Wolman Wood and Fire Protection GmbH's Headquarter is located in Sinzheim close to Baden-Baden. The geographical scope of the product portfolio is Europe.

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Wolman Wood and Fire Protection GmbH
EPD author	Annika Bantle – Master Builders Solutions Deutschland GmbH
EPD verifier	Silvia Vilčeková, Silcert S.r.o.
EPD program operator	EPD International AB
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for Paints, Coatings, Sealants and Adhesives.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with EN 15804, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The background report (project report) for this EPD

Why does verification transparency matter? [Read more online.](#)

VERIFICATION OVERVIEW

Following independent third party has verified this specific EPD:

EPD verification information	Answer
Independent EPD verifier	Silvia Vilčeková, Silcert S.r.o.
EPD verification started on	2022-02-04
EPD verification completed on	2022-02-18
Supply-chain specific data %	90 % of A1-A3 GWP-GHG/fossil
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	Annika Bantle
EPD author training completion	2020-11-20
EPD Generator module	Paints, coatings, Sealants and Adhesives
Independent software verifier	Ugo Pretato, Studio Fieschi & soci Srl
Software verification date	2021-05-11

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of

- the data collected and used in the LCA calculations,
- the way the LCA-based calculations have been carried out,
- the presentation of environmental data in the EPD, and
- other additional environmental information, as present

with respect to the procedural and methodological requirements in ISO 14025:2010 and EN 15804:2012+A2:2019.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.



Silvia Vilčeková, Silcert S.r.o.

VERIFICATION AND REGISTRATION (ENVIRONDEC)

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR)	
PCR	PCR 2019:14 Construction products, version 1.11
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC 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 .
Independent third-party verification of the declaration and data, according to ISO 14025:2006:	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
Third party verifier	Silvia Vilčeková, Silcert S.r.o.
	Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up during EPD validity involves third party verifier	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no



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ANNEX 1: ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	1,55E0	1,69E-2	4,74E-2	1,61E0	MND	2,69E-3	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-4,01E-2
Ozone depletion Pot.	kg CFC ₋₁₁ e	9,6E-8	3,16E-9	2,4E-8	1,23E-7	MND	1,93E-10	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-3,62E-9
Acidification	kg SO ₂ e	4,83E-2	3,46E-5	3E-4	4,87E-2	MND	6,61E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-7,59E-5
Eutrophication	kg PO ₄ ³ e	2,02E-2	7,02E-6	8,09E-5	2,03E-2	MND	6,08E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,44E-5
POCP (“smog”)	kg C ₂ H ₄ e	1,85E-3	2,22E-6	1,91E-5	1,87E-3	MND	5,04E-7	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,24E-5
ADP-elements	kg Sbe	2,84E-4	3,41E-7	3,28E-7	2,85E-4	MND	3,94E-8	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-7,17E-8
ADP-fossil	MJ	3,57E1	2,63E-1	2,26E0	3,82E1	MND	3,04E-2	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-8,68E-1

ANNEX 2: ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	1,55E0	1,69E-2	4,73E-2	1,62E0	MND	2,7E-3	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-4,01E-2
Ozone Depletion	kg CFC ₋₁₁ e	1,19E-7	4,21E-9	2,71E-8	1,51E-7	MND	2,52E-10	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-5,05E-9
Acidification	kg SO ₂ e	4,12E-2	6,2E-5	3E-4	4,16E-2	MND	8,79E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-7,66E-5
Eutrophication	kg Ne	7,73E-3	8,72E-6	9,14E-5	7,83E-3	MND	1,19E-6	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-4,66E-6
POCP (“smog”)	kg O ₃ e	1,8E-1	1,35E-3	3,7E-3	1,85E-1	MND	1,56E-4	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,07E-3
ADP-fossil	MJ	4,48E0	3,77E-2	3,13E-1	4,83E0	MND	3,34E-3	MND	MND	MND	MND	MND	MND	MND	MNR	MNR	MNR	MNR	-1,28E-1