

ENVIRONMENTAL PRODUCT DECLARATION

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

MASTERSEAL 6100 FX MASTER BUILDERS SOLUTIONS

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

Programme operator:
EPD International AB

EPD registration
number: S-P-05026

Publication
date:
2021-11-22

Valid until:
2026-11-22



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	Master Builders Solutions
Address	08940 Cornellà de Llobregat Barcelona, Spain
Contact details	albert.berenguel@mbcc-group.com
Website	https://www.master-builders-solutions.com/es-es

PRODUCT IDENTIFICATION

Product name	MasterSeal 6100 FX
Additional label(s)	N/A
Product number / reference	MasterSeal 6100 FX
Place(s) of production	Madrid, Spain
CPC code	5453 Roofing and waterproofing services

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	The International EPD System
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	David Green - Master Builders Solutions US LLC
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	2021-11-19
EPD verifier	Silvia Vilčeková, Silcert, s.r.o
EPD number	S-P-05026
ECO Platform nr.	-
Publishing date	2021-11-22
EPD valid until	2026-11-22

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Sustainable, one component, elastic and flexible lightweight membrane for waterproofing and concrete protection.

PRODUCT APPLICATION

- For interior and exterior application.
- As a waterproof lining for water retaining structures: tanks, irrigation channels, dams, etc.
- To provide foundation protection.
- To protect concrete surfaces from carbonation and chloride attack.
- For concrete elements in road infrastructure like tunnels, bridges, viaducts, etc.
- For areas constantly submerged in water

TECHNICAL SPECIFICATIONS

See website for further details at: <https://www.master-builders-solutions.com/es-es>

PRODUCT STANDARDS

EN 1504-2 Principles 1.3/2.2/5.1/8.2

Flexible and elastic cementitious waterproofing and surface protection coating

PHYSICAL PROPERTIES OF THE PRODUCT

See website for further details at: <https://www.master-builders-solutions.com/es-es>

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at <https://www.master-builders-solutions.com/es-es>.

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Post-consumer %	Renewable %	Country Region of origin
Quartz	0.35-0.45	0	0	Spain
Polymers	0.30-0.40	0	0	Europe
Cement	0.05-0.15	0	0	Spain
Glass	0.05-0.10	100	0	Germany
Pigments	0.02-0.05	0	0	Europe
Sulphate	0.02-0.05	0	0	Germany
Silicate	0.01-0.05	0	0	Spain
Carbonate	0.001-1.0	0	0	Europe

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	N/A
Minerals	40-50	Belgium, France, Germany, Spain
Fossil materials	40-50	Belgium, Germany
Bio-based materials	0	N/A

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)

MasterSeal 6100 FX is a blended composition of specially selected cements, lightweight fillers, sand and special polymers produced in powder form. The finished material is packaged in 15 kg bags, palletized and shrink-wrapped for distribution.

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.

Only distribution to end customers (distributors and contractors) is considered. MasterSeal 6100 FX is transported by truck and delivered throughout Spain and Portugal. The transportation emissions and distances are a weighted average based on volumes distributed and distances from the Master Builders Solutions production facility in Cabanillas del Campo, Spain. The transportation emissions in A4 are considered conservative based on the single mode of transportation. The quality of the applied shipping data based on 2020 results is considered high.

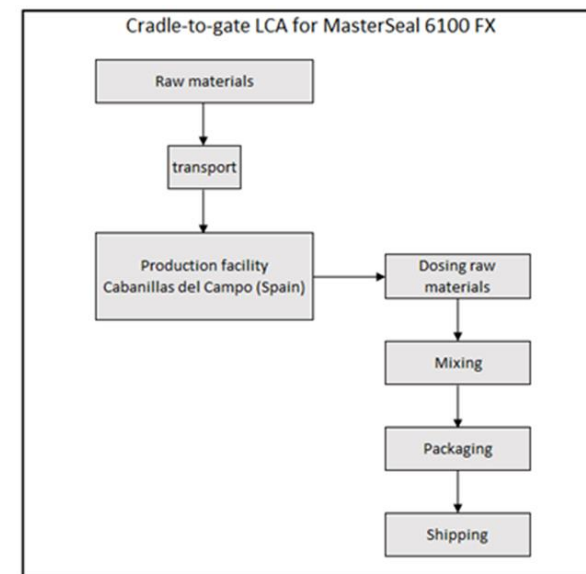
PRODUCT USE AND MAINTENANCE (B1-B7)

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 and D) are omitted from the EPD as the MasterSeal 6100 FX product is applied to concrete components and becomes integral to the exterior of the concrete. Therefore, the end-of-life results are based on the final disposition of the concrete element.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	2020
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DECLARED AND FUNCTIONAL UNIT

Declared unit	1 square meter
Mass per declared unit	1.85
Functional unit	NA
Reference service life	NA

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	0.4715

SYSTEM BOUNDARY

This EPD covers the *cradle to gate with options* scope with following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Assembly).

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	X	X	MND	MND	MND	MND	MND	MND	MND	MDN	MND	MND	MND	MND	MND	MND	X
Geography, by two-letter ISO country code or regions. The International EPD System only.																			
EU	EU	EU	EU	EU	-	-	-	-	-	-	-	EU	EU	EU	EU			EU	
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Operational /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 Master Builders Solutions 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.

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 MasterSeal 6100 FX 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.

Module A4: The transportation distances are defined by project/market situations. A typical delivery of product is assumed to be near the point of application. Average distance of

transportation from the production plant to the project site is assumed at 250 km with lorry being the typical transportation method. The product is securely packaged so transportation does not cause any losses.

The vehicle capacity utilization volume factor is assumed to be 1 equating to a full load with product deliveries directly to the project or to a local distributor adjacent to the project. Although there may be variances in full load deliveries, since transportation emissions in total are small relative to overall emissions of products and production, the variation in load quantity is assumed negligible. Empty returns were not considered based on an assumption that the transportation company will utilize the availability to best service its customers and maximize efficiencies.

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 MasterSeal 6100 FX where no average data for the production of the product was collected or utilized. A weighted average was calculated for the A4 phase to account for the distribution of product to different regions/countries.

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

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	2.86E0	2E-1	-1.68E-1	2.89E0	4.8E-2	2.04E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.81E-2	
GWP – fossil	kg CO ₂ e	2.85E0	2E-1	2.2E-1	3.27E0	4.85E-2	7.36E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.19E-2
GWP – biogenic	kg CO ₂ e	2.15E-4	1.12E-4	-3.9E-1	-3.89E-1	2.71E-5	1.96E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.39E-2
GWP – LULUC	kg CO ₂ e	1.39E-3	6.25E-5	1.62E-3	3.07E-3	1.52E-5	3.33E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.91E-6
Ozone depletion pot.	kg CFC _{11e}	1.42E-7	4.53E-8	1.9E-8	2.06E-7	1.1E-8	1.05E-9	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-8.93E-9
Acidification potential	mol H ⁺ e	1.54E-2	8.49E-4	1.48E-3	1.77E-2	2.06E-4	4.21E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-5.41E-5
EP-freshwater ²⁾	kg Pe	9.05E-5	1.89E-6	3.6E-5	1.28E-4	4.58E-7	1.38E-7	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.32E-7
EP-marine	kg Ne	2.24E-3	2.52E-4	3.81E-4	2.88E-3	6.12E-5	1.45E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.87E-5
EP-terrestrial	mol Ne	2.47E-2	2.78E-3	3.76E-3	3.12E-2	6.76E-4	1.54E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.07E-4
POCP (“smog”)	kg NMVOCe	1.05E-2	8.9E-4	1.05E-3	1.24E-2	2.16E-4	5.33E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.7E-5
ADP-minerals & metals	kg Sbe	6.57E-5	3.38E-6	3.17E-6	7.23E-5	8.15E-7	2.36E-7	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.86E-8
ADP-fossil resources	MJ	6.18E1	3.05E0	2.93E0	6.78E1	7.42E-1	8.55E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.13E0
Water use ¹⁾	m ³ e depr.	1.29E0	1.29E-2	3.66E-1	1.66E0	3.14E-3	7.47E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-8.07E-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	7.72E-7	1.77E-8	2.84E-8	8.18E-7	4.31E-9	1.03E-9	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.65E-10
Ionizing radiation ³⁾	kBq U235e	6.64E-2	1.29E-2	1.2E-2	9.13E-2	3.13E-3	3.35E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.21E-4
Ecotoxicity (freshwater)	CTUe	4.62E1	2.52E0	1.86E1	6.73E1	6.11E-1	5.76E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.11E-1
Human toxicity, cancer	CTUh	5.54E-9	6.02E-11	2.11E-10	5.81E-9	1.46E-11	1.2E-11	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.45E-12
Human tox. non-cancer	CTUh	2.96E-8	2.78E-9	5.34E-9	3.77E-8	6.76E-10	1.36E-10	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.45E-11
SQP	-	6.3E0	4.53E0	6.67E-1	1.15E1	1.11E0	1.67E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.4E-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	1.86E0	3.29E-2	4.17E0	6.07E0	7.97E-3	2.9E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.46E-3
Renew. PER as material	MJ	0E0	0E0	4.19E0	4.19E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Total use of renew. PER	MJ	1.86E0	3.29E-2	8.36E0	1.03E1	7.97E-3	2.9E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.46E-3
Non-re. PER as energy	MJ	3.17E1	3.05E0	2.85E0	3.76E1	7.42E-1	8.55E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.05E0
Non-re. PER as material	MJ	3.01E1	0E0	7.65E-2	3.01E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-7.47E-2
Total use of non-re. PER	MJ	6.18E1	3.05E0	2.93E0	6.78E1	7.42E-1	8.55E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.13E0
Secondary materials	kg	1.91E-2	0E0	1.47E-3	2.06E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.59E-3
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Use of net fresh water	m³	2.9E-2	6.37E-4	5.34E-3	3.5E-2	1.55E-4	1.82E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.06E-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	3.36E-1	3.69E-3	1.56E-2	3.55E-1	8.96E-4	3.45E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.81E-4
Non-hazardous waste	kg	3.76E0	3.34E-1	3.59E-1	4.45E0	8.14E-2	9.62E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	4.32E-3
Radioactive waste	kg	6.16E-5	2.04E-5	1.01E-5	9.21E-5	4.96E-6	4.84E-7	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.06E-7

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	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	1.89E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, Spain, residual mix, 2019
Electricity CO ₂ e / kWh	0.52
District heating data source and quality	NA
District heating CO ₂ e / kWh	NA

Transport scenario documentation (A4)

Scenario parameter	Value
Specific transport CO ₂ e emissions, kg CO ₂ e / tkm	0.07
Average transport distance, km	250
Capacity utilization (including empty return) %	100
Bulk density of transported products	0.7 g/cm ³
Volume capacity utilization factor	1

End of life scenario documentation

Scenario parameter	Value
Collection process – kg collected separately	0
Collection process – kg collected with mixed waste	1.85
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	1.85
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)

MasterSeal 6100 FX LCA background report 04.11.2021

ABOUT THE MANUFACTURER

Under the global umbrella brand Master Builders Solutions, we offer advanced chemical solutions for the construction, maintenance, repair, and renovation of structures. The brand is built on more than 100 years of experience in the construction industry. Our comprehensive portfolio encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing systems, sealants, concrete repair & protection systems, performance grouts, and performance flooring systems. To solve our customers' specific construction challenges from conception through to completion of a project, we draw on our specialist know-how, regional expertise and the experience gained in countless constructions projects worldwide. We leverage global technologies, and our in-depth knowledge of local building needs to develop innovations that help make our customers more successful and drive sustainable construction. We operate production sites and sales offices in more than 60 countries. www.master-builders-solutions.com/es-es

EPD AUTHOR AND CONTRIBUTORS

Manufacturer	Master Builders Solutions
EPD author	David Green - Master Builders Solutions US LLC
EPD verifier	Silvia Vilčeková, Silcert, s.r.o
EPD program operator	The International EPD System
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	2021-11-05
EPD verification completed on	2021-11-19
Supply-chain specific data %	60.8% of A1-A3 GWP-GHG/fossil
Approver of the EPD verifier	The International EPD System

Author & tool verification	Answer
EPD author	David Green - Master Builders
EPD author training completion	27 November 2020
EPD Generator module	Paints, Coatings, Sealants and
Independent software verifier	Ugo Pretato, Studio Fieschi &
Software verification date	11.05.2021

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

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	2.67E0	1.98E-1	2.15E-1	3.08E0	4.8E-2	9.2E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.03E-2	
Ozone depletion Pot.	kg CFC ₁₁ e	1.29E-7	3.6E-8	1.66E-8	1.81E-7	8.74E-9	8.43E-10	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.66E-9
Acidification	kg SO ₂ e	1.37E-2	5.96E-4	1.18E-3	1.55E-2	1.45E-4	3.35E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.08E-5
Eutrophication	kg PO ₄ ³ e	4.01E-3	1.35E-4	5.18E-4	4.66E-3	3.28E-5	3.52E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.5E-6
POCP ("smog")	kg C ₂ H ₄ e	9.69E-4	2.56E-5	5.88E-5	1.05E-3	6.22E-6	2.86E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-5.26E-6
ADP-elements	kg Sbe	6.57E-5	3.38E-6	3.17E-6	7.23E-5	8.15E-7	2.36E-7	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.86E-8
ADP-fossil	MJ	6.18E1	3.05E0	2.93E0	6.78E1	7.42E-1	8.55E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.13E0

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	2.69E0	1.98E-1	2.15E-1	3.1E0	4.8E-2	9.39E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.05E-2	
Ozone Depletion	kg CFC ₁₁ e	1.68E-7	4.8E-8	2.14E-8	2.38E-7	1.16E-8	1.13E-9	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-9.27E-9
Acidification	kg SO ₂ e	1.26E-2	7.44E-4	1.26E-3	1.46E-2	1.81E-4	3.88E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.86E-5
Eutrophication	kg Ne	1.84E-3	1.03E-4	2.95E-4	2.24E-3	2.51E-5	5.21E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.74E-6
POCP ("smog")	kg O ₃ e	1.36E-1	1.6E-2	2.04E-2	1.73E-1	3.88E-3	8.61E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.21E-3
ADP-fossil	MJ	7.42E0	4.32E-1	2.66E-1	8.12E0	1.05E-1	1.06E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.84E-1