Environmental product declaration for:

Geolite Magma 20

Pourable geo-mortar, geo-binder based, for passivating, repairing and monolithic consolidation of structures in reinforced concrete, anchoring and fixing metal elements.

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

Programme operator: EPD International AB

EPD registration number: S-P-06152

Publication date: 2022-12-16

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Valid until: 2027-11-21

CPC Code: 375-Articles of concrete, cement and plaster

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

→ **Cradle to Gate scope**

→ **Single product**

kerakoll

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

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1. ABOUT THIS EPD

What is an EPD?
Environmental Product Declaration (EPD) is label that provide a transparent, multi-faceted overview of the environmental performance of a product during its life cycle Our intention in providing this EPD is to present the potential environmental impacts for our products. They are presented in single EPDs such that they can be combined to calculate the impacts of a more complex building system. Target audiences of the study are customers and other parties interested in the environmental impacts of our products.

Declaration owner and LCA Author

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CEN standard EN 15804:2019 served as the core PCR

PCR	EN 15804:2012+A2:2019/AC:2021 serves as the core PCR, International EPD System PCR 2019:14 "Construction products", v1.2, 2022-06-22
PCR committee	IVL Swedish Environmental Research Institute Secretariat of the International EPD® System
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	☒ EPD Process Certification* ☐ EPD verification by accredited certification body ☐ EPD verification by individual verifier

*For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI v.4, Section 7.5.

Third party verifier

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Accredited by Accredia - accreditation number: 006H

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.

2. ABOUT KERAKOLL GROUP

Our company
We are a Benefit Company, international leader in the sustainable construction sector and we offer a comprehensive package of sustainable building materials and services to build and live in respect of the environment and housing well-being.
Since 1968 – when the Group was founded in Sassuolo (Italy), the heart of the most important ceramic district in the world, thanks to the business initiative of Romano Sghedoni – our company has undergone a constant growth both on the national and international market for building materials that has taken the company to the forefront of the sustainable building sector and to a level of technological leadership recognized all over the world.

Our commitment
Quality, well-being and safeguarding the environment have always been the company's guiding pillars. As the first Benefit Company among the top player in the Italian building construction sector, we work to create increasingly better places for people to live, in a state of well-being and respect for the environment, co-operating with those who share the same passion for excellence and commitment to work in a responsible, sustainable and transparent manner in four areas of interest: product sustainability, strategic processes and partnerships, people and civic engagement.

Our values
Our main goal is to meet the needs of consumers thanks to new ideas and constant feedback from its associates. The human factor is indeed a key element in our corporate culture. The Group's shared belief is that only by developing corporate culture can value be created over time, retaking and enhancing the experience of the past, in order to constantly question oneself.
The concepts of research and innovation thus acquire value by coexisting with the recovery, preservation and full understanding of the company's past.
Our entrepreneurial philosophy is therefore based on five corporate values that represent at the same time a way of being as much as of working. In Kerakoll Group, people are innovative, responsible, dynamic, true and in touch.

Integrated policy for total quality, wellbeing, and protection of the environment
Focusing on the environmental sustainability on a home and its eco-friendly qualities, in relation to the health of its inhabitants: this is what we care about more. This is the core philosophy behind Kerakoll Group. Indoor air quality, high energy-environmental standards of buildings, and healthy environments in balance with nature: these are the pillars of our living well-being. Our approach aims to integrate the many aspects of sustainable building into everyday life, in keeping with the growing environmental awareness. We believe that sustainable technology along with a coherent development model is the goal to be achieved. The aim of any business should be to develop projects with low environmental impact but hugely innovative in technological terms.

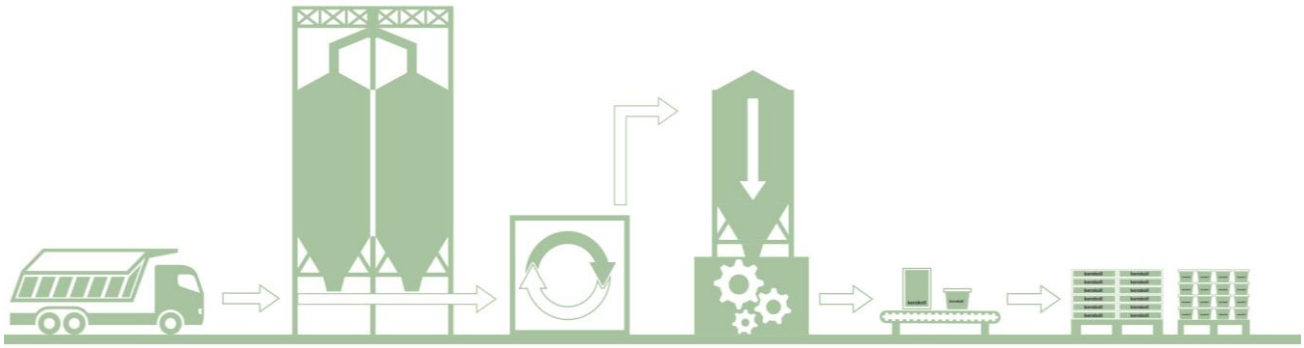
This is why at Kerakoll Group we are naturally committed to combining business with social responsibility that is raising the living standards of the individual and the environment. Our commitment is reflected in our daily life, in our way of doing business and in our sensitivity to consumer needs, with the aim of ensuring the satisfaction of present needs, without compromising the wellbeing of tomorrow. This represents not only our economic mission, but the commitment to social responsibility that guides and unites everyone here at Kerakoll Group.

Taking "Made in Italy" excellence around the world
In our 50 years in the industry, we have made ourselves a position on the market as supplier of sustainable building materials, from being top of the domestic market to a top Italian-based business in the world. We are now active in 12 countries and the process of progressive internationalisation has led us to achieve a 44% share of our turnover in foreign markets. International expansion and an ever more global approach have not eroded our longstanding Kerakoll identity. We offer each customer personalised options that include 81 ranges of innovative products and more than 6.100 references, with which to design, build and live in harmony with the environment and in a state of well-being, together with high added value services such as planning, technical consultancy, training, and on-site assistance.

Quality for safety, sustainability and product performance
In addition to major investments in research and development that have made us champion in its field, and in order to achieve the highest possible quality standards in compliance with international rules and regulations, we have established both in Italy and abroad an integrated management system for ISO 9001 quality. It pushes the company to increasingly standardize processes, to create sustainability-driven synergy with our suppliers and to enhance our employees' ever growing expertise.
The Kerakoll Group system combines the "Total Quality Management" and "Life Cycle Thinking" approaches, thus confirming our commitment in certifying its products from the sourcing of raw materials with low environmental impact, to their design, implementation and distribution, to their performance on site. Through the years, we have adopted a set of rigorous qualification plans aimed at certifying product performance (CE marking, CE MED, CSTB) and quantifying its environmental sustainability (CFP, EPD, GreenBuilding Rating, ISO 14021), thus offering the customer the possibility to transfer quality and sustainability to the "building system" (CAM, LEED and other protocols) in order to build better places to live.

3. MANUFACTURING

The manufacturing process starts from raw materials purchased from suppliers and stored in the plant.
Bulk raw materials are stored in specific silos and added mostly automatically in the production mixer, according to the formula of the products. Other raw materials, supplied in bags or big bags, are stored in their warehouse and added automatically or manually in the mixer.
The production is a discontinuous process, in which all the components are mechanically mixed in batches.
The semi-finished products are then packaged in bags, put on wooden pallets, covered by stretched hoods and stored in the Finished Products' warehouse. The quality of final products is controlled before the sale.



4. PRODUCT

Description and use of the product

The product is manufactured by Kerakoll S.p.A. in the production plant located in Rubiera (RE - Italy) and is supplied in 25 kg paper bags. Geolite® Magma 20 is a pourable geo-mortar for passivation, repair and consolidation of reinforced concrete structures and civil engineering structures that must be ready for use quickly, such as industrial and airport flooring, joints in motorway decking, pavements and with a swelling effect to anchor and fix traps and drains, manholes, fences, sign posts, safety barriers. Very low petrochemical polymer content, free from organic fibres. Pourable, rapid setting 20 min.

Class: Repair and reinforcement of reinforced concrete
Coverage per mm thickness: 19,5 kg/m^2

Product standard

CE-marked and compliant with the performance requirements of Standard EN 1504-7 (passivation of reinforcing bars), EN 1504-3, Class R4 (volumetric reconstruction and consolidation) and EN 1504-6 (anchoring with a swelling effect), according to Principles 3, 4, 7 and 11 as defined by EN 1504-9.

Physical characteristics

The product is supplied from production in dry form, premixed in respect of all contents but water. Water is added at the building site in the construction/ installation stage, in a defined amount and technique, in order to produce a deformable cementitious adhesive of high performance. For specific physical properties, we refer to the CE declaration or Declaration of Performance available on demand or to the technical datasheet on www.kerakoll.com/it.

Content declaration

The main components of the involved products are the following:

Component	Weight (kg)	Post-consumer recycled material (%)	Biogenic material, weight - % and kg C/kg[1]
Aggregates and fillers	0,5-0,8	-	-
Binders	0,2-0,5	-	
Others (additives, etc.)	0,01-0,05	-	

Product is free from substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency in a concentration more than 0,1% (by unit weight). Related to specific components, the table above shows only hazardous ones within the meaning of the CLP regulation and their related classification as stated into product Safety Data Sheet.

The primary packaging is a paper bag, 25 kg format. The main characteristics of the primary packaging are shown in the table below.

Primary packaging	Weight - kg	Weight - % (versus the product)	Weight biogenic carbon - kg C/kg[1]
Paper bag	0,1	0,4%	0,02 / 0,1

[1] 1 kg biogenic carbon is equivalent to 44/12 kg CO_2

5. LCA INFORMATION

Declared Unit

The Declared Unit (DU) is 1 kg of product. Packaging is included since it is proportioned to 1 kg of product, accounting for 0,4% w/w in respect to the packaging format of 25 kg.

Scope

CEN developed the EN 15804:2012+A2:2019/AC:2021, a core set of rules for the development of EPD applicable to construction products. This standard is developed with a modular structure, described below. This EPD is of the "Cradle to Gate" type, including EN 15804 modules from A1 to A3. Modules not accounted in the LCA since they are not assessed are marked as "ND", Not Declared

	Upstream - Core			Downstream												Resource recovery stage
	Product stage			Construction process stage		Use stage							End of life stage				
	Raw material supply	Transports (raw materials - pack)	Manufacturing	Transport to customer	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport to waste processing	Waste processing	Disposal	Reuse - Recovery - Recycling - potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Geography	IT - EU 27	IT - EU 27	IT - EU 27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

System boundaries and processes included in the LCA (X included, ND: Not Declared)

The “Cradle to Gate” type adopted is justified since:

- the product or material is physically integrated with other products during installation so they cannot be physically separated from them at end of life, and
- the product or material is no longer identifiable at end of life as a result of a physical or chemical transformation process, and
- the product or material does not contain biogenic carbon

According to the system boundary of this EPD, a RSL has not been provided. The EPD is of a product-specific type. The EPD is based on a single manufacturing site.

Product (A1-A3)

- A1-A2: extraction, supply and transport of raw materials and packaging to Kerakoll and manufacturing process energy consumption.
- A3: manufacturing process of product and its packaging and waste management from the same process.

It covers dosage and mixing of selected and measured raw materials and additives to ensure that the product meets desired properties and packaging material consumption.
Packaging product materials consist of wooden pallet, cardboard and LDPE used as wrapping material and they include both distribution and consumer packaging, as follows.

Material	Distribution packaging	Consumer packaging
Wooden pallet	x	
Plastic and LDPE film (e.g. for wrapping material)	x	
Paper bag		x

Data quality

For the background data the Ecoinvent v.3.8 database is used. Raw materials and packaging, energy and water consumption and waste data are collected from Kerakoll. The most relevant considered data are European or specific from supplier. Generic and producer specific data are not more than 10 and 5 years old respectively (according to EN 15804 6.3.8.2. "Data quality requirements").

Period under review

All primary data collected from Kerakoll are representative for the year 2021.

Allocations

There are no co-products in the production of paints manufactured by Kerakoll. Hence, there is no need for co-product allocation. The Company sources raw materials from different locations across Europe and other parts of the world and by different means of transport. For this reason, transport is allocated according to raw material quantities.
Kerakoll manufactures various products with specifications for different applications in its different manufacturing plants. Raw materials, transport, energy consumption during manufacturing, packaging and waste data are allocated using data from Kerakoll involved plants.

Cut-off rules

The consumption of auxiliary materials and waste related to extraordinary activities (A3), having a periodicity exceeding 3 years, are excluded, as well as raw material packaging. Quantified contribution from those process: less than 0,5% by mass of products.

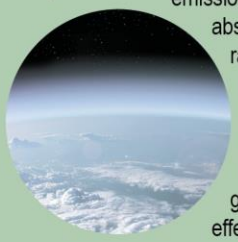
6. ENVIRONMENTAL INDICATORS

An introduction to each environmental indicator is provided below. 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 actual impacts on the environment typically depend upon local, regional and/or global conditions.

Abiotic Depletion Potential (ADP)
The consumption of non-renewable resources leads to a decrease in the future availability of the functions supplied by these resources. Depletion of mineral resource elements (ADPE) and non-renewable fossil energy resources (ADPF) are reported separately.

Acidification Potential (AP)
A measure of emissions that cause acidifying effects to the environment. Acidification potential is a measure of a molecule's capacity to increase the hydrogen ion (H+) concentration in the presence of water, thus decreasing the pH value. Potential effects include forest decline and the deterioration of building materials.

Ozone Depletion Potential (ODP)
A measure of greenhouse gas emissions, such as carbon dioxide and methane. These emissions increase absorption of radiation emitted by the earth, intensifying the natural greenhouse effect.



Eutrophication Potential (EP)
A measure of nutrient enrichment that may cause an undesirable shift in species composition and elevated biomass production in both terrestrial and aquatic ecosystems. It includes potential impacts of excessively high levels of macronutrients, the most important of which are nitrogen and phosphorus.

Water Deprivation Potential (WDP)
It represents the relative available water remaining per area in a watershed, after the demand of humans and aquatic ecosystems has been met. It assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.

Global Warming Potential (GWP)
A measure of greenhouse gas emissions, such as carbon dioxide and methane. These emissions increase absorption of radiation emitted by the earth, intensifying the natural greenhouse effect.

Photochemical Ozone Creation Potential (POCP)
A measure of emissions of precursors that contribute to ground level smog formation (mainly ozone O3), produced by the reaction of volatile organic compounds (VOCs) and carbon monoxide in the presence of nitrogen oxides under the influence of UV light. Ground level ozone may be harmful to human and ecosystem health and may also damage crops.

7. ENVIRONMENTAL PERFORMANCE

All results are referred to the Declared Unit that is 1 kg of mortar (packaging included accounting for 0,4% w/w in respect to the packaging format of 25 kg).

Geolite Magma 20

POTENTIAL ENVIRONMENTAL IMPACTS	Unit	TOT (A1-A3 Product stage)	A1 RM SUPPLY	A2 TRANSPORT OF RM and PACK	A3 MANUFACTURING
Climate change (GWP-total)	kg CO_2 eq	2,79E-01	2,76E-01	1,91E-02	-1,59E-02
Climate change - Fossil (GWP-fossil)	kg CO_2 eq	3,09E-01	2,75E-01	1,91E-02	1,43E-02
Climate change - Biogenic (GWP-biogenic) [2]	kg CO_2 eq	-3,00E-02	1,84E-04	2,29E-05	-3,02E-02
Climate change - Land use and LU change (GWP-luluc)	kg CO_2 eq	9,54E-04	9,00E-04	8,98E-06	4,42E-05
Ozone depletion (ODP)	kg CFC-11 eq	1,68E-08	1,11E-08	4,21E-09	1,54E-09
Acidification (AP)	mol H^+ eq	9,11E-04	7,80E-04	6,00E-05	7,13E-05
Eutrophication, freshwater (EP-freshwater)	kg P eq	4,25E-05	3,30E-05	1,63E-06	7,95E-06
Eutrophication, marine (EP-marine)	kg N eq	2,38E-04	2,05E-04	1,28E-05	2,02E-05
Eutrophication, terrestrial (EP-terrestrial)	mol N eq	2,58E-03	2,24E-03	1,39E-04	2,06E-04
Photochemical ozone formation (POCP)	kg NMVOC eq	6,90E-04	5,66E-04	5,03E-05	7,35E-05
Resource use, minerals and metals (ADP-minerals & metals) [3]	kg Sb eq	7,01E-07	5,45E-07	7,32E-08	8,29E-08
Resource use, fossils (ADP-fossil) [3]	MJ	1,93E+00	1,39E+00	2,86E-01	2,55E-01
Water use (WDP) [3]	m^3 depriv.	4,22E-02	3,22E-02	1,58E-03	8,36E-03

ADDITIONAL ENVIRONMENTAL IMPACTS	Unit	TOT (A1-A3 Product stage)	A1 RM SUPPLY	A2 TRANSPORT OF RM and PACK	A3 MANUFACTURING
Particulate matter (PM)	disease inc.	8,48E-09	6,07E-09	1,47E-09	9,31E-10
Ionising radiation (IRP) [4]	kBq U-235 eq	1,55E-02	1,24E-02	1,55E-03	1,56E-03
Ecotoxicity, freshwater (ETP-fw) [3]	CTUe	2,97E+00	2,48E+00	2,34E-01	2,54E-01
Human toxicity, cancer (HTP-c) [3]	CTUh	1,02E-10	5,25E-11	8,88E-12	4,10E-11
Human toxicity, non-cancer (HTP-nc) [3]	CTUh	2,59E-09	2,16E-09	2,30E-10	2,03E-10
Land use / Soil quality (SQP) [3]	Pt	4,74E+00	1,40E+00	1,95E-01	3,14E+00

[2] Since the EPD is a Cradle to Gate type (A1-A3) the biogenic uptake in module A3 is not manually balanced. Take care of this if the data is intended to be used for downstream systems and studies.

[3] 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

[4] Disclaimer: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear full 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 RESOURCES	Unit	TOT (A1-A3 Product stage)	A1 RM SUPPLY	A2 TRANSPORT OF RM and PACK	A3 MANUFACTURING
Use of non-renewable primary energy excluding resources used as raw materials - PENRE	MJ	1,86E+00	1,38E+00	2,84E-01	1,99E-01
Use of non-renewable primary energy resources used as raw materials - PENRM	MJ	7,40E-02	1,64E-02	1,72E-03	5,58E-02
Total use of non-renewable primary energy resources - PENRT	MJ	1,94E+00	1,40E+00	2,86E-01	2,55E-01
Use of renewable primary energy excluding resources used as raw materials - PERE	MJ	1,24E-01	1,08E-01	6,61E-03	8,89E-03
Use of renewable primary energy resources used as raw materials - PERM	MJ	6,48E-01	7,96E-02	1,66E-03	5,67E-01
Total use of renewable primary energy resources - PERT	MJ	7,72E-01	1,88E-01	8,27E-03	5,75E-01
Use of secondary material - SM	kg	2,00E-01	2,00E-01	0,00E+00	0,00E+00
Use of renewable secondary fuels - RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels - NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water - FW	m3	1,37E-03	1,08E-03	5,22E-05	2,33E-04

WASTE PRODUCTION AND OUTPUT FLOWS	Unit	TOT (A1-A3 Product stage)	A1 RM SUPPLY	A2 TRANSPORT OF RM and PACK	A3 MANUFACTURING
Hazardous waste disposed - HWD	kg	1,15E-03	0,00E+00	0,00E+00	1,15E-03
Non-hazardous waste disposed - NHWD	kg	1,36E-03	0,00E+00	0,00E+00	1,36E-03
Radioactive waste disposed - RWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,26E-03	0,00E+00	0,00E+00	1,26E-03
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00

CLIMATE CHANGE	Unit	TOT (A1-A3 Product stage)	A1 RM SUPPLY	A2 TRANSPORT OF RM and PACK	A3 MANUFACTURING
GWP-GHG [5]	kg CO_2 eq	3,10E-01	2,76E-01	1,91E-02	1,45E-02

BIOGENIC CARBON CONTENT	Unit	A1 - Product	A3 - Packaging [6]
Biogenic Carbon content [7]	kg C	0,00E+00	8,29E-03

[5] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

[6] Primary, secondary and tertiary packaging included.

[7] The indicator reported is for satisfying what asked by EN 15804:2012+A2:2019/AC:2021. Other information are reported in Content Declaration paragraph. 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

8. ADDITIONAL ENVIRONMENTAL INFORMATION

Recycled Content
Kerakoll is always looking to promote circular economy with its product whenever feasible. In this product, recycled (pre-consumer) calcium carbonate is contained according to the amount shown in the table below.

Product	Recycled material content - pre-consumer
Geolite Magma 20	15%

Quality and Environmental management systems
Kerakoll is ISO 9001 certified since 2000 and ISO 14001 since 2012.

VOC emissions
Volatile Organic Compounds (VOC) tests and evidence have been carried out on the product, according to ISO 16000 parts 3, 6, 9 and 11 and EN 16516. The involved product meets the requirements for the emission class Emicode EC1 Plus, as "very low VOC emission", released by GEV (Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V.).
It has been evaluated in emission chambers, in order to detect their VOC emissions after 3 and 28 days storage in the ventilated chambers, according to GEV test method.

9. DIFFERENCES VERSUS PREVIOUS VERSION OF THE EPD

2023-07-25 - Updates of environmental impacts due to a new modelization of a raw material; corrections of computational method for "use of resources - energy" indicators; correction of computational method for "GWP-GHG" indicator; corrections for indicators "waste production and output flows"; some editorial updates on the cover page and about general information of EPD (page 2).

2024-10-28 - Updated EPD with declaration of % of recycled content.

10. REFERENCES

Ecoinvent - Ecoinvent Centre, www.ecoinvent.org
EMICODE GEV - Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e. V. (pub.). www.emicode.de
EN 1504-3:2006 Products and systems for the protection and repair of concrete structures - Part 3: Structural and non-structural repair
EN 1504-6:2007 Products and systems for the protection and repair of concrete structures - Part 6: Anchoring of reinforcing steel bar
EN 1504-7:2007 Products and systems for the protection and repair of concrete structures - Part 7: Reinforcement corrosion protection
EN 1504-8 Products and systems for the protection and repair of concrete structures – Part 8: Quality control and evaluation of conformity
EN 15804:2012+A2:2019/AC:2021 - Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products
EN ISO 16000-9:2008-04 - Indoor air – Part 9: Determination of the emission of volatile organic compounds from building products and furnishings – Emission test chamber method
EPD Study Report Geolite Magma 20, 21-07-2023
GPI - General Programme Instructions, The International EPD® System, Version 4.0
ISO 9001:2015 - Quality management systems - Requirements
ISO 14001:2015 - Environmental management systems - Requirements with guidance for use
ISO 14021:2016 - Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling)
ISO 14025:2009 - Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14040/44:2006 - Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006) and Requirements and guidelines (ISO 14044:2006)
ISO 16000-3:2013-01 - Indoor air –Part 3: Determination of formaldehyde and other carbonyl compounds by sampling using a pump
ISO 16000-6:2012-11 - Indoor air –Part 6: Determination of volatile organic compounds indoors and in test chambers by sampling on TENAX TA®, thermal desorption and gas chromatography using MS or FID
PCR for Construction Products, The International EPD System, 2019:14 Version 1.2, 2022-06-22
SimaPro - SimaPro LCA Software, Pré Consultants, the Netherlands, www.pre-sustainability.com
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

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 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/functional 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. For further information about comparability, see EN 15804 and ISO 14025.

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