

# Geolite Geolite 10 Geolite 40

Thixotropic geo-mortars, geo-binder based, for passivating, repairing, finishing and monolithic protecting 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-06201

Publication date: 2022-11-22

**Revision date: 2024-11-11** 

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

 $\rightarrow$  Multiple products



## kerakoll

#### **CONTENTS**

- 1. About this EPD
- 2. About Kerakoll
- 3. Manufacturing
- 4. Products
- 5. LCA Information
- 6. Environmental Indicators
- 7. Environmental Performance
- 8. Additional Environmental Information
- 9. Differences versus previous version of the EPD
- 10. References

#### 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**

KERAKOLL Spa www.kerakoll.com info@kerakoll.com Via dell'Artigianato, 9 - 41049 Sassuolo (MO) Italy



#### **EPD** programme and programme operator

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



#### CEN standard EN 15804-2019 served as the core PCP

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.
ndependent third-party verification	
of the declaration and data	☐ EPD verification by accredited certification body
according to ISO 14025:2006	☐ EPD verification by individual verifier

#### Third party verifier

SGS Italia S.p.A. www.sgsgroup.it

Via Caldera, 21 - 20153 Milano, Lombardia (Italy)

Accredited by Accredia - accreditation number: 006H

Procedure for follow-up of data during ☐ Yes EPD validity involves third party verifier ⊠ 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.



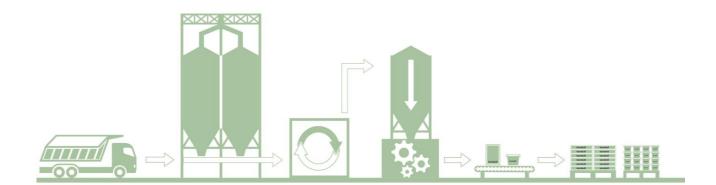
#### 3. MANUFACTURING

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. PRODUCTS

#### **Description and use of the products**

The products are manufactured by Kerakoll S.p.A. in the production plants located in Sassuolo (MO - Italy) and Rubiera (RE - Italy). Geolite® is supplied only in 25 kg paper bags, while Geolite® 10 and Geolite® 40 are supplied both in 5 kg and 25 kg paper bag.

Geolite® is a thixotropic geo-mortar used to passivate, repair, finish and protect reinforced concrete structures such as beams, pillars, slabs, front sections, ramps, facades, decorative elements, cornices and civil engineering structures such as bridges, viaducts, tunnels and water channels.

Suitable for use an inorganic mineral matrix to be used

lite 40 Geolite kerakoll

GeoSteel galvanized steel sheets in certified structural reinforcement, improvement and seismic adaptation systems. Geolite® 10 and Geolite® 40 are thixotropic geo-mortars used to passivate, restore, finish and protect reinforced concrete structures such as beams, pillars, slabs, front sections, ramps, facades, decorative elements, cornices. Specific for operations involving mobile platforms, low temperatures and where the result must be ready for use quickly. Paintable after 4 hour.

Geolite®, Geolite® 10 and Geolite® 40 are thixotropic geo-mortars also used to anchor and fix metal elements on concrete structures.

Class: Repair and reinforcement of reinforced concrete

Coverage per mm thickness: Geolite® and Geolite® 40 17 kg/m²; Geolite® 10 17,5 kg/m²

#### **Products 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 finishing), EN 1504-2 (protection of surfaces) and EN 1504-6 (Anchoring of reinforcing steel bar), according to Principles 2, 3, 4, 5, 7, 8 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 <sup>1</sup>
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. The most representative one for Geolite® 10 and Geolite® 40 in terms of market supply is the 25 kg format. Therefore, 25 kg is the format chosen to be represented in this study. The main characteristics of primary packaging are shown in the table below.

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

<sup>&</sup>lt;sup>1</sup>1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>



The weight of biogenic carbon is the lowest amount between the three products, following the worst-case approach (see section 7, for details).

#### 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

	Upst	ream -	Core		Downstream											
	Product stage pr		Constr prod sta	ess			ı	Jse stage	÷				End of lif	e 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
Module	A1	A2	А3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4
Modules declared	Х	Х	Х	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
Specific data used		>90%		-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products		<10%		-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites		<10%		-	-	-	-	-	-	-	-	-	-	-	-	-

Resource recovery stage
Reuse - Recovery - Recycling - potential
D
ND
ND
-
-
-

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

The "Cradle to Gate" type adopted is justified since:

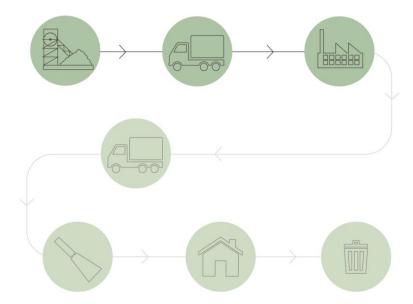
- the product or material is physically integrated with other products during installation so they cannot be physically separated from them at end of life, and
- the product or material is no longer identifiable at end of life as a result of a physical or chemical transformation process, and
- the product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

According to the system boundary of this EPD, a RSL has not been provided.

The EPD is a Group type, so based on three products represented in this study. According to GWP-GHG indicator for modules A1-A3, the variation between products is not larger than 9,8%. The EPD is based on two manufacturing sites According to GWP-GHG indicator for modules A1-A3, the difference between the reported result and the results for each specific sites are not larger than 0,2%.



#### **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	х	
Plastic and LDPE film (e.g. for wrapping material)	х	
Paper bag		Х

#### **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.

#### 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.

#### 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.

### 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.



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).

Three products are represented within this study, reporting one single set of results. An analysis according to environmental impact core indicators (PCR 2019:14 v1.2) for modules A1-A3 has been carried on. The results show for these indicators a variations larger than 10% have been obtained. Therefore a worst-case approach has been followed. The results reported below are the highest one within the three products involved, except for SM - Use of secondary raw materials and Biogenic Carbon content (see notes n.5 and n.8).

#### **Geolite, Geolite 10, Geolite 40**

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 <sub>2</sub> eq	3,62E-01	3,56E-01	2,17E-02	-1,60E-02
Climate change - Fossil (GWP-fossil)	kg CO₂eq	3,91E-01	3,56E-01	2,16E-02	1,42E-02
Climate change - Biogenic (GWP-biogenic) <sup>2</sup>	kg CO₂ eq	-2,99E-02	2,80E-04	2,68E-05	-3,02E-02
Climate change - Land use and LU change (GWP-luluc)	kg CO₂ eq	4,26E-04	3,72E-04	1,02E-05	4,42E-05
Ozone depletion (ODP)	kg CFC-11 eq	2,35E-08	1,72E-08	4,77E-09	1,54E-09
Acidification (AP)	mol H⁺ eq	1,17E-03	1,03E-03	6,83E-05	7,16E-05
Eutrophication, freshwater (EP-freshwater)	kg P eq	5,26E-05	4,28E-05	1,86E-06	7,91E-06
Eutrophication, marine (EP-marine)	kg N eq	2,81E-04	2,46E-04	1,46E-05	2,04E-05
Eutrophication, terrestrial (EPterrestrial)	mol N eq	3,14E-03	2,77E-03	1,59E-04	2,08E-04
Photochemical ozone formation (POCP)	kg NMVOC eq	8,79E-04	7,47E-04	5,73E-05	7,43E-05
Resource use, minerals and metals (ADP-minerals & metals) <sup>3</sup>	kg Sb eq	1,32E-06	1,15E-06	8,24E-08	8,26E-08
Resource use, fossils (ADP-fossil) <sup>3</sup>	MJ	3,09E+00	2,51E+00	3,25E-01	2,55E-01
Water use (WDP) <sup>3</sup>	m³ depriv.	5,91E-02	4,89E-02	1,83E-03	8,34E-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.	1,05E-08	7,88E-09	1,68E-09	9,43E-10
Ionising radiation (IRP) <sup>4</sup>	kBq U-235 eq	2,04E-02	1,71E-02	1,76E-03	1,56E-03
Ecotoxicity, freshwater (ETP-fw) <sup>3</sup>	CTUe	3,89E+00	3,37E+00	2,65E-01	2,51E-01
Human toxicity, cancer (HTP-c) <sup>3</sup>	CTUh	1,23E-10	7,20E-11	1,01E-11	4,09E-11
Human toxicity, non-cancer (HTP-nc) <sup>3</sup>	CTUh	3,78E-09	3,32E-09	2,62E-10	2,02E-10
Land use / Soil quality (SQP) <sup>3</sup>	Pt	4,96E+00	1,60E+00	2,23E-01	3,14E+00

<sup>&</sup>lt;sup>2</sup> 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.

<sup>&</sup>lt;sup>4</sup> 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.



\_

<sup>&</sup>lt;sup>3</sup> 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

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	2,64E+00	2,12E+00	3,23E-01	1,99E-01
Use of non-renewable primary energy resources used as raw materials - PENRM	MJ	4,51E-01	3,93E-01	1,93E-03	5,58E-02
Total use of non-renewable primary energy resources - PENRT	MJ	3,09E+00	2,51E+00	3,25E-01	2,55E-01
Use of renewable primary energy excluding resources used as raw materials - PERE	MJ	1,60E-01	1,44E-01	7,66E-03	8,87E-03
Use of renewable primary energy resources used as raw materials - PERM	MJ	6,22E-01	5,34E-02	1,90E-03	5,67E-01
Total use of renewable primary energy resources - PERT	MJ	7,82E-01	1,97E-01	9,56E-03	5,75E-01
Use of secondary material - SM <sup>5</sup>	kg	1,23E-01	1,23E-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	1,87E-03	1,58E-03	6,01E-05	2,32E-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	1,33E-03	0,00E+00	0,00E+00	1,33E-03
Non-hazardous waste disposed - NHWD	kg	4,28E-03	0,00E+00	0,00E+00	4,28E-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	4,09E-03	0,00E+00	0,00E+00	4,09E-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 <sup>6</sup>	kg CO₂eq	3,92E-01	3,56E-01	2,17E-02	1,44E-02

BIOGENIC CARBON CONTENT	Unit	A1 - Product	A3 - Packaging <sup>7</sup>
Biogenic Carbon content <sup>8</sup>	kg C	0,00E+00	8,29E-03

<sup>&</sup>lt;sup>5</sup> Lowest amount of secondary raw material between the three products, according to the worst-case approach

<sup>&</sup>lt;sup>8</sup> 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<sub>2</sub>. Lowest amount of biogenic carbon content between the three products, according to the worst-case approach



<sup>&</sup>lt;sup>6</sup> 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<sub>2</sub> is set to zero.

<sup>&</sup>lt;sup>7</sup> Primary, secondary and tertiary packaging included.

#### 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	10%
Geolite 10	15%
Geolite 40	15%

#### **Quality and Environmental management systems**

Kerakoll is ISO 9001 certified since 2000.

#### 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

2022-12-16 - Graphic updates of packaging and cover page.

2023-07-19 - 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).

2024-11-11 - 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 1504-2:2005 Products and systems for the protection and repair of concrete structures - Part 2: Surface protection systems for concrete

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, Geolite 10, Geolite 40, 19-07-2023

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.

All rights reserved. © Kerakoll. All rights to the content of this publication are reserved in accordance with applicable law. The duplication, publication and distribution, in full or in part, of all material contained herein are expressly forbidden without written authorization.

