ENVIRONMENTAL PRODUCT DECLARATION

B-EPD .BE

026.0308.007- 01.00.00

DIAMUR NV - Coloured Mortars

245DSKxxx, 268DSKxxx, 268DBMKxxx and VMKxxx



ISSUED 18.09.2026
VALID UNTIL 18.09.2031

THIRD PARTY VERIFIED
Conform to EN 15804+A2 and B-EPD PCR

UNIT AND DECLARED MODULES

Declared unit: 1 kg of coloured masonry mortar, including packaging, as installed, distributed in Belgium.. Cradle-to-gate with options, modules C1-C4 and D

EPD Cradle to gate with options

A123	A4	A5	B	C	D
√	√	√	□	√	√

The Environmental Product Declaration (EPD) is used to communicate scientifically based environmental information for construction products, in order to assess the environmental performance of buildings. A B-EPD is only recognised after it has been validated and registered on www.b-epd.be. FPS Public Health is not responsible for the information provided by the EPD owner.

TABLE OF CONTENTS

1 ProductS description 3
1.1 Products name 3
1.2 Product description and intended use 3
1.3 Declared unit 3
1.4 Installation 4
1.5 Composition and content 5
1.6 Reference service life 5
1.7 Description of geographical representativeness 5
1.8 Description of the production process and technology 6
2 Technical data/physical characteristics 7
3 Life Cycle Assessment (LCA) 8
3.1 LCA date 8
3.2 Software 8
3.3 Information on allocation 8
3.4 Information on cut-off 8
3.5 Information on excluded processes 8
3.6 Information on biogenic carbon modelling 9
3.7 Information on carbon offsetting 9
3.8 Information on carbonation of cementitious materials 9
3.9 Additional or deviating characterisation factors 9
3.10 Specificity 9
3.11 Description of the variability 9
3.12 Period of data collection 10
3.13 Information on data collection 10
3.14 Database used for background data 10
3.15 Energy mix 10
4 Production site(s) 11
5 System boundaries 11
6 Potential environmental impacts per reference flow 12
7 Resource use 13
8 Waste categories & output flows 14
9 potential additional environmental impact 15
Focus on environmental impact categories 16
10 Details of the underlying scenarios used to calculate the impacts 18
10.1 A1 – Raw material supply 18
10.2 A2 – Transport to the manufacturer 18
10.3 A3 – Production 18
10.4 A4 – Transport to the building site 18
10.5 A5 – Installation in the building 19
10.6 B – Use stage (excluding potential savings) 19
10.7 C – End of life 20
10.8 D – Benefits and loads beyond the system boundaries 20
11 Discharge of hazardous substances during the use stage 21
11.1 Indoor air 21
11.2 Water and soil 21
12 Verification 21
13 Interpreting the LCA 21
14 Technical information for scenario development 22
15 Additional information on reversibility 23
16 Bibliography 24

1 PRODUCTS DESCRIPTION

1.1 Products name

- 245DSKxxx Coloured full-bed masonry mortar
- 268DSKxxx Coloured full-bed masonry mortar (low-absorption substrates)
- 248DBMKxxx Coloured thin-bed masonry mortar
- VMKxxx Coloured jointing mortar

1.2 Product description and intended use

Products description:
Factory-produced, cement-based coloured mortars for masonry applications. Products consist of oven-dried graded sand, hydraulic binders (Portland cement as main constituent), mineral pigments providing colour, and functional additives improving workability, water retention and adhesion. All constituents are pre-mixed in dry form. Available in 15-25 mineral colour variants per product.

Products type:
Classified as mixtures.

Specificity:
This EPD covers a group of factory-produced coloured masonry mortars, including the following product lines: 245DSKxxx, 268DSKxxx, 248DBMKxxx and VMKxxx (xxx standing for various colours). A worst-case approach has been applied. The 268DSK101 formulation (white variant, 25 kg bag) is selected as the conservative reference. the results declared in this EPD are therefore applicable to all products within the group.

Intended use(s):
Designed for coloured masonry applications including full-bed laying, thin-bed bonding and jointing of bricks and masonry units. Suitable for a wide range of substrates, they ensure durable adhesion, colour stability and reliable performance under standard construction conditions.

1.3 Declared unit

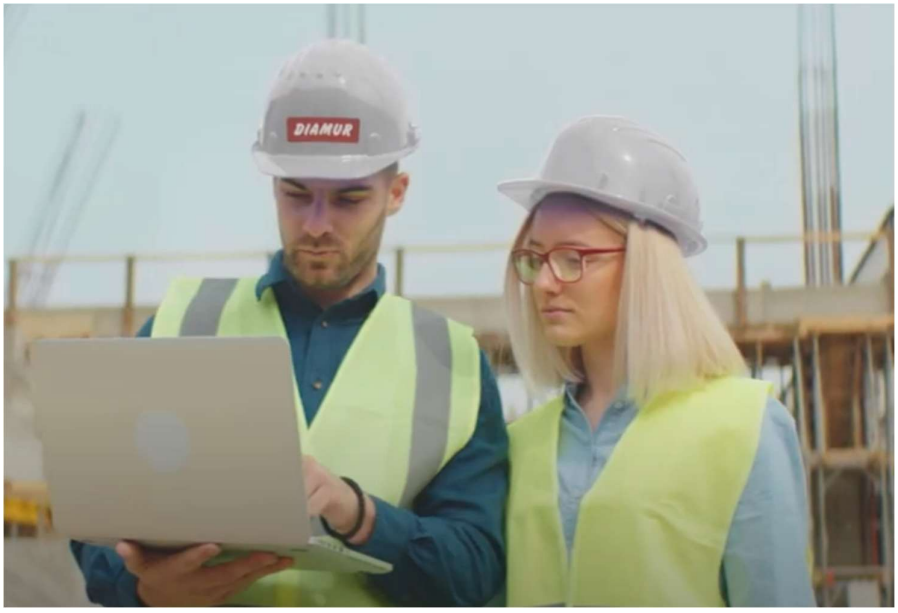
Declared unit: 1 kg of coloured masonry mortar and its packaging, as installed, distributed in Belgium.

Packaging is included. The weight per reference flow is 1kg. The density of the fresh product is 2,100-2,200 kg/m^3.

1.4 Installation

The product is as installed.

On site, Diamur coloured masonry mortars (245DSKxxx, 268DSKxxx, 248DBMKxxx and VMKxxx) are mixed with water according to the specified dosage and applied to masonry units or joints using standard tools such as a trowel or jointing iron. Each 25 kg bag is mixed with approximately 3.0–3.5 liters of tap water to obtain a homogeneous mortar with suitable consistency for full-bed, thin-bed or jointing applications, ensuring proper adhesion, uniform load transfer and consistent colour appearance. Mixing is typically performed using a construction mixer for several minutes to achieve a uniform and workable consistency. This equipment type is commonly used on construction sites, and its power rating forms the basis for calculating electricity consumption during installation. The mortar is applied in layers depending on the application type (typically 4–15 mm for masonry joints or full-bed layers), ensuring continuous bonding without the need for additional fixing materials. An installation loss of 10% is considered. Detailed information on this scenario can be found in Chapter “10. Details of the underlying scenarios used to calculate the impacts". You will find detailed information on how to implement a correct scenario at building level in Chapter "14. Technical information for scenario development
.



1.5 Composition and content

Components	Composition/content/ingredients	Quantity
Product	- Binders - Aggregates - Pigment & Additives	- 10-20% - 65-85% - 0-2%
Fixing materials	- None	-
Jointing materials	- None	-
Treatments	- None	-
Packaging	- LDPE (plastic bag) - Wooden pallet	- 0.0024 kg/kg_{mortar} - 0.001 p/kg_{mortar}

The product does not contain materials listed in the “Candidate list of Substances of Very High Concern for authorization”.

1.6 Reference service life

The service life of the mortars is considered to be equivalent to the service life of the masonry system in which they are applied. As such, the products are designed for long-term use and are not intended to be replaced independently. In line with common practice for masonry materials, a reference service life (RSL) of more than 60 years can be assumed, depending on the building design and exposure conditions.

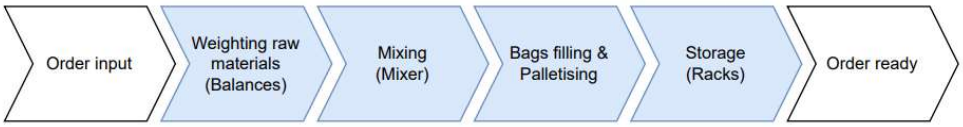
1.7 Description of geographical representativeness

This B-EPD is representative of the Belgian market.

1.8 Description of the production process and technology

This flowchart illustrates the production process for the mortars, from raw material preparation to final storage at Kastelweg plant, Antwerp:

- Raw materials: the raw materials are precisely weighed to ensure correct proportions. The sea sand is dried.
- Mixing: The weighed materials are thoroughly combined in a mixer to achieve a consistent mortar blend.
- Bags filling & palletizing: The mixed mortar is packaged into bags, which are then palletized for efficient handling and transport.
- Storage: The filled and palletized bags are stored on racks, ready for dispatch or use.



2 TECHNICAL DATA/PHYSICAL CHARACTERISTICS

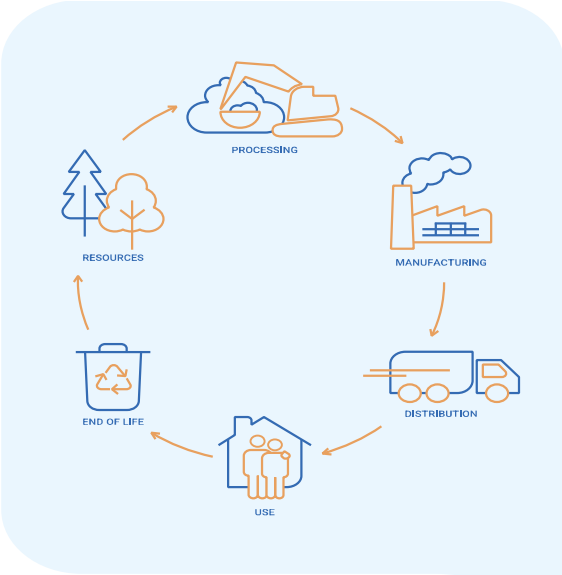
Characteristic	245DSKxxxx / 268DSKxxx / 248DBMKxxx	VMKxxx	Standard / Method
Dry mortar properties			
Maximum particle size	1–2 mm	~1 mm	NBN EN 1015-1
Fresh mortar properties (average values)			
Chloride content	< 0.1 % (m/m)	< 0.1 % (m/m)	NBN EN 1015-17
Water demand	≈ 12–18 %	≈ 9–12 %	-
Water retention	≈ 95–99 %	≈ 95–99 %	PTV / internal
Flow / spread	≈ 160–180 mm	≈ 160–180 mm	NBN EN 1015-3
Bulk density (fresh)	≈ 1600–1800 kg/m³	≈ 1700–1850 kg/m³	NBN EN 1015-6
Hardened mortar properties			
Strength class	M10	M15	NBN EN 1015-11
Compressive strength	≥ 10 N/mm²	≥ 15 N/mm²	NBN EN 1015-11
Shear adhesion strength	≥ 0.15–0.30 MPa	≥ 0.30 MPa	NBN EN 998-2
Water absorption coefficient	NPD / ≤ 0.40 kg/(m²·min$^{0.5}$)	≤ 0.40 kg/(m²·min$^{0.5}$)	NBN EN 1015-18
Reaction to fire	Euroclass A1	Euroclass A1	NBN EN 998-2
Water vapour permeability	15/35 (tabulated)	15/35 (tabulated)	NBN EN 1745
Thermal conductivity λ10,dry (P=50%)	< 0.61 W/(m·K)	< 0.82 W/(m·K)	NBN EN 1745
Thermal conductivity λ10,dry (P=90%)	< 0.66 W/(m·K)	< 0.89 W/(m·K)	NBN EN 1745
Durability	Suitable for aggressive environments when professionally applied	Same	-

The performance of the coloured mortars is covered by the following Declarations of Performance in accordance with EN 998-2:2016 and Regulation (EU) No 305/2011: 245DSKxxx – DIAMUR-0049, 268DSKxxx – DIAMUR-0048, 248DBMKxxx – DIAMUR-0050, VMKxxx – DIAMUR-0051

3 LIFE CYCLE ASSESSMENT (LCA)

3.1 LCA date

The LCA computation was done in May 2026, based on calendar year 2025 data.



3.2 Software

For the calculation of the LCA results, the software program One Click LCA V3.0 has been used.

3.3 Information on allocation

In this study, as per EN 15804+A2, 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.

Electricity allocation at DIAMUR's plant was based on the mass of the products, with an adjustment for packed goods, which require 30% more electricity than bulk goods.

3.4 Information on cut-off

The cut-off criteria applied in this study specify that any inputs or outputs contributing less than 1% of total mass, energy, or environmental impact may be excluded, with a cumulative exclusion threshold of 5%. Minor components were excluded based on these criteria. Exclusions are justified on the basis that these elements are unlikely to significantly influence the overall LCA results.

3.5 Information on excluded processes

The following processes were excluded from the inventory:

– lighting, heating, and cleaning of production sites
– the administrative department
– employee transport
– manufacturing of production tools and transport systems (where not directly involved in the lifecycle inventory)
– infrastructure related to foreground processes (capital goods and infrastructure are included for background datasets)
– long-term emissions

3.6 Information on biogenic carbon modelling

The biogenic carbon content of the material is calculated using the following formula: (WM = wet matter, DM = dry matter)
kg C = material mass (kg WM) x DM content x C content of DM (kg C/kg DM)

For the pallet associated with 1 kg of mortar:

- Material mass (wet matter): 0.025 kg
- Dry matter content: 0.85 (typical for wood)
- Carbon content of dry matter: 0.494 (based on Ecoinvent data for softwood)

Biogenic carbon content	(kg C/FU or DU)
Biogenic carbon content in product (at the gate)	0
Biogenic carbon content in packaging (at the gate)	0.0105 kg C

3.7 Information on carbon offsetting

Carbon offsetting is not allowed under EN 15804+02 and is therefore not taken into account in the calculations.

3.8 Information on carbonation of cementitious materials

Carbonation is a natural process occurring during the use phase of cementitious materials, in which carbon dioxide (CO_2) from the atmosphere reacts with hydrated cement phases to form calcium carbonate. As the mortar is applied as a thin joint layer between masonry units and is largely shielded from air exposure, carbonation does not represent a relevant degradation mechanism for the declared application. Therefore, its effects are not considered in the environmental calculations of this study.

3.9 Additional or deviating characterisation factors

For EN 15804+A2, characterisation factors based on the most recent version of the EC-JRC website EF v3.1 have been applied. No additional or deviating characterisation factors were used.

3.10 Specificity

The data used for the LCA are specific to several products (245DSKxxx, 268DSKxxx, 248DBMKxxx, VMKxxx) which are manufactured by DIAMUR NV in Antwerp.

3.11 Description of the variability

For Diamur coloured masonry mortars (245DSK, 268DSK, 248DBMK and VMK), the variability analysis confirms that the environmental impacts of these products can be represented within a single EPD using a conservative worst-case approach, as follows:

- Range of variability of the LCIA: The variation between the best-case product (VMK) and the worst-case product (268DSK) remains limited. For Climate Change (GWP-total), differences are up to approximately 5.8%, which remains within accepted thresholds for grouped EPDs. The results are therefore representative of the entire product range.

- Qualitative differences: The products are cement-based mortars designed for different masonry applications (full-bed, thin-bed and jointing). Despite these differences, they share a common functional principle (bonding, load transfer and durability in masonry systems), similar material composition (cement, aggregates and additives), and identical production technology. These variations mainly affect application performance and do not significantly influence the overall environmental profile.

- Product range: This EPD covers four products: Diamur coloured masonry mortars 245DSKxxx, 268DSKxxx, 248DBMKxxx and VMKxxx.

- Influencing parameters: The primary factor affecting variability is the proportion of cement, which significantly drives the environmental impacts across the LCA stages, particularly in raw material extraction and production (Module A1). The pigment

content is also a relevant driver of variability: depending on the colour variant, the type and quantity of pigment can influence the overall results. This is particularly the case for the ecotoxicity freshwater (ETP-fw) indicator, where the production route and the limited representativeness of available datasets introduce additional uncertainty; results for this indicator should therefore be interpreted with caution.

3.12 Period of data collection

Manufacturer-specific data has been collected for the year 2025.

3.13 Information on data collection

For data collection, primary data on material and energy consumption, origin, and transport distances for raw materials were provided directly by DIAMUR to reflect real operational conditions. These primary data points were then integrated with standard datasets from the databases in line with B-EPD guidelines.

3.14 Database used for background data

For background data, the database used is ecoinvent 3.10.1/3.11 This database provides standardized and geographically relevant information to model environmental impacts in accordance with B-EPD guidelines, supporting consistent and reliable background processes across the LCA stages. When available, EPDs from manufacturers were used.

3.15 Energy mix

The electricity residual mix is based on ecoinvent 3.11 background data. The most recent available dataset reflects the shares of electricity technologies for Belgium for the year 2024; no more recent version was available at the time of modelling. Gas for sand drying is modelled using the ecoinvent 3.11 market dataset for district or industrial heat in Belgium (2024). These background dataset vintages are independent of the study reference year (2025), which reflects the foreground manufacturing data collected for that period.

4 PRODUCTION SITE(S)

DIAMUR production site is a single location, situated at Kastelweg, BE 2030 Antwerp (Belgium).

5 SYSTEM BOUNDARIES

Product stage			Construction installation stage		Use stage							End-of-life stage					Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction installation stage	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal		Reuse-Recovery- Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒		☒

X = included in the EPD
☐ = module not declared

The LCA for mortars is conducted in accordance with the B-EPD framework and covers the following life cycle stages and modules:

- **A1-A3 (Product stage):** extraction and processing of raw materials (A1), transport to the manufacturing site (A2), and manufacturing of the mortar and its packaging (A3).
- **A4-A5 (Installation stage):** impacts associated with on-site installation of the mortar.
- **C1-C4 (End-of-life stage):** deconstruction and demolition (C1), transport of waste materials (C2), waste processing for reuse, recycling, and energy recovery (C3), and final disposal (C4).
- **D (Benefits and loads beyond the system boundary):** potential benefits and impacts from reuse, recycling, and recovery beyond the product life cycle.

The use stage is not declared, as no relevant emissions, maintenance, repair, or replacement processes occur during use. The mortar is applied as a thin joint layer between masonry units and is not exposed to air; carbonation during use is therefore considered negligible. The service life of the mortars is assumed to be equivalent to that of the masonry system in which they are applied.

6 POTENTIAL ENVIRONMENTAL IMPACTS PER REFERENCE FLOW

	Production			Construction process stage		Use stage							End-of-life stage				
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
GWP total (kg CO2 eq./FU)	1,51E-01	8,53E-03	-8,50E-03	1,95E-02	6,01E-02	ND	ND	ND	ND	ND	ND	ND	3,67E-03	6,43E-03	1,14E-03	5,03E-04	-3,76E-03
Fossil GWP (kg CO2 eq./FU)	1,57E-01	8,52E-03	2,32E-02	1,95E-02	2,67E-02	ND	ND	ND	ND	ND	ND	ND	3,67E-03	6,43E-03	1,05E-03	4,97E-04	-3,76E-03
Biogenic GWP (kg CO2 eq./FU)	-6,39E-03	1,98E-06	-3,17E-02	3,93E-06	3,34E-02	ND	ND	ND	ND	ND	ND	ND	6,99E-07	1,27E-06	7,92E-05	6,35E-06	0,00E+00
PRG LULUC (kg CO2 eq./FU)	4,55E-04	7,03E-06	3,80E-05	7,13E-06	5,41E-05	ND	ND	ND	ND	ND	ND	ND	3,76E-07	2,27E-06	2,01E-06	1,25E-07	-2,51E-06
ODP (kg CFC 11 eq./FU)	1,64E-09	1,37E-10	7,58E-10	3,73E-10	3,67E-10	ND	ND	ND	ND	ND	ND	ND	5,45E-11	1,28E-10	3,62E-11	1,67E-11	-4,78E-11
AP (mol H+ eq./FU)	1,18E-03	8,33E-05	7,90E-05	6,16E-05	1,50E-04	ND	ND	ND	ND	ND	ND	ND	3,28E-05	2,01E-05	5,18E-06	5,60E-06	-3,02E-05
EP – fresh water (kg P eq./FU)	1,66E-05	6,90E-07	4,79E-06	1,32E-06	2,98E-06	ND	ND	ND	ND	ND	ND	ND	1,18E-07	4,26E-07	1,73E-07	8,55E-07	-8,27E-07
EP – marine (kg N eq./FU)	1,24E-04	3,06E-05	2,03E-05	2,07E-05	3,15E-05	ND	ND	ND	ND	ND	ND	ND	1,53E-05	6,78E-06	1,81E-06	1,40E-06	-8,95E-06
EP – land (mol N eq./FU)	1,30E-03	3,36E-04	2,12E-04	2,25E-04	2,42E-04	ND	ND	ND	ND	ND	ND	ND	1,67E-04	7,37E-05	1,94E-05	1,50E-05	-1,21E-04
POCP (kg NMVOC eq./FU)	4,38E-04	9,75E-05	1,06E-04	9,56E-05	8,65E-05	ND	ND	ND	ND	ND	ND	ND	5,00E-05	3,15E-05	5,90E-06	5,45E-06	-3,00E-05
ADP Components (kg Sb eq./FU)	3,92E-07	1,45E-08	1,47E-07	6,23E-08	9,02E-08	ND	ND	ND	ND	ND	ND	ND	1,32E-09	2,10E-08	1,71E-08	8,62E-10	-5,77E-08
ADP fossil fuels (MJ/FU)	1,41E+00	1,09E-01	6,21E-01	2,74E-01	3,06E-01	ND	ND	ND	ND	ND	ND	ND	4,78E-02	9,03E-02	3,32E-02	1,17E-02	-5,60E-02
WDP (m^3 water eq. deprived/FU)	1,02E-01	6,19E-04	1,02E-02	1,35E-03	1,74E-02	ND	ND	ND	ND	ND	ND	ND	1,23E-04	4,43E-04	3,54E-04	5,55E-04	-1,64E-02

GWP TOTAL = TOTAL GLOBAL WARMING POTENTIAL (CLIMATE CHANGE); GWP-LULUC = GLOBAL WARMING POTENTIAL (CLIMATE CHANGE) LAND USE AND LAND USE CHANGE; ODP = OZONE DEPLETION POTENTIAL; AP = ACIDIFICATION POTENTIAL FOR SOIL AND WATER; EP = EUTROPHICATION POTENTIAL; POCP = PHOTOCHEMICAL OZONE CREATION; ADPE = ABIOTIC DEPLETION POTENTIAL – ELEMENTS; ADPF = ABIOTIC DEPLETION POTENTIAL – FOSSIL FUELS; WDP = WATER USE (WATER (USER) DEPRIVATION POTENTIAL, DEPRIVATION-WEIGHTED WATER CONSUMPTION)

7 RESOURCE USE

	Production			Construction process stage		Use stage							End-of-life stage				
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
PERE (MJ/FU, net calorific value)	1,22E-01	2,44E-03	2,18E-01	4,61E-03	-3,81E-01	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	3,00E-04	1,56E-03	5,36E-03	2,26E-04	-1,79E-02
PERM (MJ/FU, net calorific value)	3,86E-02	0,00E+00	3,14E-01	0,00E+00	1,09E-01	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	0,00E+00	0,00E+00	-3,66E-02	-1,93E-03	0,00E+00
PERT (MJ/FU, net calorific value)	1,60E-01	2,44E-03	5,32E-01	4,61E-03	-2,72E-01	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	3,00E-04	1,56E-03	-3,13E-02	-1,70E-03	-1,79E-02
PENRE (MJ/FU, net calorific value)	1,13E+00	1,09E-01	4,99E-01	2,74E-01	2,05E-01	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	4,78E-02	9,03E-02	3,32E-02	1,17E-02	-5,60E-02
PENRM (MJ/FU, net calorific value)	2,80E-01	0,00E+00	1,23E-01	0,00E+00	-1,23E-01	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	0,00E+00	0,00E+00	-2,66E-01	-1,40E-02	0,00E+00
PENRT (MJ/FU, net calorific value)	1,41E+00	1,09E-01	6,21E-01	2,74E-01	8,22E-02	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	4,78E-02	9,03E-02	-2,33E-01	-2,27E-03	-5,60E-02
SM (kg/FU)	1,17E-02	6,71E-05	1,25E-03	1,24E-04	1,34E-03	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	1,98E-05	4,14E-05	5,85E-06	3,76E-06	-1,40E-04
RSF (MJ/FU, net calorific value)	8,34E-02	2,98E-07	1,07E-02	1,57E-06	9,41E-03	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	5,18E-08	5,22E-07	4,81E-08	7,10E-08	-9,97E-07
NRSF (MJ/FU, net calorific value)	1,81E-01	0,00E+00	0,00E+00	0,00E+00	1,81E-02	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW (m^3 water eq./FU)	2,68E-02	1,80E-05	2,32E-04	3,75E-05	2,73E-03	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	3,06E-06	1,22E-05	9,74E-06	-1,40E-04	-3,78E-04

PERE = USE OF RENEWABLE PRIMARY ENERGY EXCLUDING RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS; PERM = USE OF RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS; PERT = TOTAL USE OF RENEWABLE PRIMARY ENERGY RESOURCES; PENRE = USE OF NON-RENEWABLE PRIMARY ENERGY EXCLUDING NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS; PENRM = USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES USED AS RAW MATERIALS; PENRT = TOTAL USE OF NON-RENEWABLE PRIMARY ENERGY RESOURCES; SM = USE OF SECONDARY MATERIAL; RSF = USE OF RENEWABLE SECONDARY FUELS; NRSF = USE OF NON-RENEWABLE SECONDARY FUELS; FW = NET USE OF FRESH WATER

8 WASTE CATEGORIES & OUTPUT FLOWS

	Production			Construction process stage		Use stage							End-of-life stage				
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
Hazardous waste disposed (kg/FU)	7,78E-03	2,85E-04	1,10E-03	4,04E-04	1,06E-03	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	5,36E-05	1,30E-04	3,23E-05	1,86E-05	-3,67E-04
Non-hazardous waste disposed (kg/FU)	5,11E-01	5,70E-03	6,95E-02	8,35E-03	2,24E-01	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	7,81E-04	2,73E-03	9,11E-04	1,66E-01	-7,00E-03
Radioactive waste disposed (kg/FU)	1,86E-05	5,39E-08	2,48E-06	8,30E-08	2,51E-06	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	4,99E-09	2,86E-08	2,65E-07	3,57E-09	-2,12E-07
Components for re-use (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,54E-02	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	0,00E+00	0,00E+00	9,72E-01	0,00E+00	0,00E+00
Materials for energy recovery (kg/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,60E-03	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy (MJ/FU)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

9 POTENTIAL ADDITIONAL ENVIRONMENTAL IMPACT

	Production			Construction process stage		Use stage							End-of-life stage				
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	D Reuse, recovery, recycling
PM (disease incidence)	6,34E-09	3,67E-10	9,33E-10	1,59E-09	1,10E-09	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	9,37E-10	5,05E-10	9,85E-11	8,51E-11	-7,02E-10
IRHH (kg U235 eq./FU)	6,86E-03	2,13E-04	1,04E-02	3,35E-04	3,35E-03	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	2,03E-05	1,15E-04	1,09E-03	1,48E-05	-9,49E-04
ETF (CTUe/FU)	2,07E+01	1,28E-02	5,35E-01	3,65E-02	2,20E+00	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	2,73E-02	1,19E-02	4,86E-03	6,30E-01	-1,05E-01
HTCE (CTUh/FU)	3,23E-11	1,30E-12	3,75E-11	3,30E-12	8,29E-12	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	3,74E-13	1,10E-12	3,25E-13	2,00E-13	-2,00E-12
HTnCE (CTUh/FU)	5,81E-10	3,99E-11	1,84E-10	1,73E-10	1,43E-10	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	5,88E-12	5,67E-11	1,54E-11	1,25E-11	-4,90E-11
Land Use Related effects (dimensionless)	2,98E-01	7,52E-02	2,76E+00	1,80E-01	3,68E-01	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	3,16E-03	5,37E-02	6,89E-03	2,90E-02	-1,13E-01

HTCE = Human Toxicity – cancer effects; HTnCE = Human Toxicity – non cancer effects; ETF = Ecotoxicity – freshwater; (potential comparative toxic unit)
PM = Particulate Matter (Potential incidence of disease due to PM emissions);
IRHH = Ionizing Radiation – human health effects (Potential Human exposure efficiency relative to U235);

Focus on environmental impact categories



Global Warming Potential

The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.

It is split up in 4:

- Global Warming Potential total (GWP-total) which is the sum of GWP-fossil, GWP-biogenic and GWP-LULUC
- Global Warming Potential fossil fuels (GWP-fossil): The global warming potential related to greenhouse gas (GHG) emissions to any media originating from the oxidation and/or reduction of fossil fuels by means of their transformation or degradation (e.g. combustion, digestion, landfilling).
- Global Warming Potential biogenic (GWP-biogenic) : The global warming potential related to carbon emissions to air (CO2, CO and CH4) originating from the oxidation and/or reduction of aboveground biomass by means of its transformation or degradation (e.g. combustion, digestion, composting, landfilling) and CO2 uptake from the atmosphere through photosynthesis during biomass growth – i.e. corresponding to the carbon content of products, biofuels or above ground plant residues such as litter and dead wood.[1]
- Global Warming Potential land use and land use change (GWP-LULUC): The global warming potential related to carbon uptakes and emissions (CO2, CO and CH4) originating from carbon stock changes caused by land use change and land use. This sub-category includes biogenic carbon exchanges from deforestation, road construction or other soil activities (including soil carbon emissions).



Ozone Depletion

Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbonsor halons), Which break down when they reach the stratosphere and then catalytically destroy ozone molecules.



Acidification potential

Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.



Eutrophication potential

The potential to cause over-fertilization of water and soil, which can result in increased growth of biomass and following adverse effects.

It is split up in 3:
Eutrophication potential – freshwater: The potential to cause over-fertilization of freshwater, which can result in increased growth of biomass and following adverse effects.
Eutrophication potential – marine: The potential to cause over-fertilization of marine water, which can result in increased growth of biomass and following adverse effects.
Eutrophication potential – terrestrial: The potential to cause over-fertilization of soil, which can result in increased growth of biomass and following adverse effects.



Photochemical ozone creation

Chemical reactions brought about by the light energy of the sun creating photochemical smog. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.



Abiotic depletion potential for non-fossil resources

Consumption of non-renewable resources, thereby lowering their availability for future generations. Expressed in comparison to Antimonium (Sb).

The results of this environmental impact indicator must be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.



Abiotic depletion potential for fossil resources

Measure for the depletion of fossil fuels such as oil, natural gas, and coal. The stock of the fossil fuels is formed by the total amount of fossil fuels, expressed in Megajoules (MJ).

The results of this environmental impact indicator must be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

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1 Carbon exchanges from native forests shall be modelled under GWP - LULUC (including connected soil emissions, derived products or residues), while their CO2 uptake is excluded.

 Ecotoxicity for aquatic fresh water	The impacts of chemical substances on ecosystems (freshwater). The results of this environmental impact indicator must be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
 Human toxicity (carcinogenic effects)	The impacts of chemical substances on human health via three parts of the environment: air, soil and water. The results of this environmental impact indicator must be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
 Human toxicity (non-carcinogenic effects)	The results of this environmental impact indicator must be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
 Particulate Matter	Accounts for the adverse health effects on human health caused by emissions of Particulate Matter (PM) and its precursors (NOx, SOx, NH3)
 Resource depletion (water)	Accounts for water use related to local scarcity of water as freshwater is a scarce resource in some regions, while in others it is not. The results of this environmental impact indicator must be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
 Ionizing radiation - human health effects	This impact category deals mainly with the eventual impact on human health of low dose ionizing radiation 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.
 Land use related impacts	The indicator is the “soil quality index” which is the result of an aggregation of following four aspects: -Biotic production -Erosion resistance -Mechanical filtration -Groundwater The aggregation is done based on a JRC model. The four aspects are quantified through the LANCA model for land use. The results of this environmental impact indicator must be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

10 DETAILS OF THE UNDERLYING SCENARIOS USED TO CALCULATE THE IMPACTS

10.1 A1 – Raw material supply

This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the manufacturing process studied.

10.2 A2 – Transport to the manufacturer

Transport of raw materials to the production site was modelled using supplier-specific distances and standard logistics assumptions. Bulk mineral materials were assumed to be delivered in full truckloads; chemical additives and specialty components via palletized road transport. Two imported components include an ocean freight leg followed by regional road transport.

10.3 A3 – Production

This module covers the manufacturing process for DIAMUR mortars, including the receipt and weighing of raw materials, sand drying, mixing, filling, and final steps of palletizing and storage of the finished product.

10.4 A4 – Transport to the building site

VEHICLE TYPE, FUEL TYPE AND CONSUMPTION OF VEHICLE USED FOR TRANSPORT	Truck 16-32 t, EURO5, Diesel	Truck >32 t, EURO5, Diesel	Truck 16-32 t, EURO5, Diesel	Truck 7.5-16 t, EURO5, Diesel
DISTANCE	100 km	100 km	35 km	35 km
CAPACITY UTILISATION (INCLUDING EMPTY RETURNS)	5.79 t / 15.79 t GVW	15.96 t / 29.96 t GVW	5.79 t / 15.79 t GVW	3.29 t / 9.29 t GVW
DEPARTURE	Diamur factory, Belgium	Diamur factory, Belgium	Supplier, Belgium	Supplier, Belgium
PERCENTAGE OF FREIGHT BY MEANS OF TRANSPORT	75%	25%	90% of 25%	10% of 25%
DESTINATION	Construction site	Supplier	Construction site	Construction site
BULK DENSITY OF TRANSPORTED PRODUCTS	Diamur factory, Belgium	Diamur factory, Belgium	Supplier, Belgium	Supplier, Belgium
VOLUME CAPACITY UTILISATION FACTOR	1	1	1	1

10.5 A5 – Installation in the building

At the construction site, packaging waste is generated. In addition, 10% of material losses have been taken into account.

Parts of the installation	Quantity	Description
Processes necessary for the installation of the product	0.006 kWh/FU	1400W mechanical mixer, 5 min per 25 kg bag, regional electricity mix
Fixing materials	N/A	
Jointing materials	N/A	
Treatments	N/A	
Material losses	10% of mortar + packaging	Spillage and application losses
Packaging	25 kg plastic bags + pallet	Waste generated on site
Other	N/A	

Ancillary materials for installation (specified by material)	Information
Water use	0.13 kg/FU 3.25 L per 25 kg bag, added in two stages
Other resource use	N/A
Quantitative description of energy type (regional mix) and consumption during the installation process	0.00468 kWh/FU Regional electricity mix
Waste materials on the building site before waste processing, generated by the product's installation (specified by type)	10% mortar + packaging
Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route)	95% recycling, 5% landfill. Plastic packaging: 35% recycling, 40% energy recovery, 5% landfill. Wood packaging: sanitary landfill (conservative assumption, neglectable)
Direct emissions to ambient air, soil and water	0.117 kg/FU Water vapour to air
Distance	N/A

10.6 B – Use stage (excluding potential savings)

Not applicable.

10.7 C – End of life

C1: Mechanical demolition; mortar removed adhered to substrate. Electricity consumption: 0.01 kWh/kg.
C2: Transport of waste load to sorting facility, 30 km, 16-32 t EURO5 truck.
C3: Mechanical sorting and crushing at sorting facility; mineral fractions recovered. Diesel for loading/unloading; electricity for rock crushing.
C4: Non-recyclable residues (5%) transported 50 km to landfill, 16-32 t EURO5 truck.

Module C2 – Transport to waste processing		
Vehicle type (truck/boat/etc)	Truck 16-32 t EURO5	Truck 16-32 t EURO5
Fuel consumption (litres/km)	EI dataset	EI dataset
Distance (km)	30 km	50 km
Capacity utilization (%)	37% load factor, including empty returns	37% load factor, including empty returns
Density of products (kg/m³)	1720-1740 kg/m³	1720-1740 kg/m³

End-of-life modules – C3 and C4	
Parameter	Value (kg)
Waste collected separately	-
Waste collected as mixed construction waste	1.013
Waste for re-use	-
Waste for recycling	0.962
Waste for energy recovery	-
Waste for final disposal	0.051

10.8 D – Benefits and loads beyond the system boundaries

Module D accounts for the benefits associated with material recycling and recovery beyond the product's life cycle. The crushed waste, consisting of substrate with adhered mortar, is assumed to result in recycled aggregates corresponding to a 0/31.5 mm fraction of mixed debris gravel, which is commonly used in road base layers. The primary equivalent is natural gravel 0/31.5. The avoided impact of gravel production is reflected as a negative value, representing the environmental savings from using recycled material instead of virgin resources. The data used for these calculations is based on ecoinvent datasets, aligned with standard modeling practices for material recovery scenarios.

QUANTITATIVE DESCRIPTION OF THE COSTS BEYOND THE SYSTEM BOUNDARIES	Rock crushing is included in C3.
QUANTITATIVE DESCRIPTION OF THE ADVANTAGES BEYOND THE SYSTEM BOUNDARIES	Recycled gravel: 0.962+0.095 kg per kg of waste mortar.

11 DISCHARGE OF HAZARDOUS SUBSTANCES DURING THE USE STAGE

11.1 Indoor air

Not applicable.

11.2 Water and soil

The product is not classified as environmentally hazardous and does not contain substances that pose a significant risk to soil or water during use. More information can be found in the product's Safety Data Sheet, available on the manufacturer's website at www.diamur.be

12 VERIFICATION

PCR documents used as a basis for the verification: -EN 15804+A2 and -B-EPD PCR (18.10.2022)

Independent external verification of the environmental declaration and data according to standard EN ISO 14025:2010.

Third-party verifier: Agnes Schuurmans, agnes.schuurmans@sgs.com

13 INTERPRETING THE LCA

The environmental impacts of the products are mainly associated with upstream raw material supply, which is consistent with typical cement-based construction materials. The proportion of cement and the pigment content are the primary drivers of variability across the product range, with the most significant influence on impacts in Module A1. Depending on the colour variant, differences in pigment type and quantity can affect the overall results; the ecotoxicity freshwater (ETP-fw) indicator is particularly sensitive to this variability, given the diversity of pigment production routes and the limited representativeness of available datasets — results for this indicator should be interpreted with care. Additional contributions arise from transport and installation-related processes, while manufacturing operations have a comparatively limited influence. Potential improvement levers include optimisation of material use, sourcing strategies and overall process efficiency across the value chain.

14 TECHNICAL INFORMATION FOR SCENARIO DEVELOPMENT

This EPD was developed as an "as installed" EPD. The A5 scenario was modelled following the recommended scenario provided in the applicable B-EPD. All relevant installation processes, material losses, and packaging end-of-life were included in the impact calculations. No additional scenario development is required at building level for the declared modules.

Parts of the installation	Quantity	Description
Processes necessary for the installation of the product	0.00468 kWh/FU	Mechanical mixing, regional electricity mix
Fixing materials	N/A	
Jointing materials	N/A	
Treatments	N/A	
Material losses	10%	Spillage and application losses on site
Packaging	25 kg bags + pallet	Disposed on-site per declared scenario
Other	N/A	

15 ADDITIONAL INFORMATION ON REVERSIBILITY

Description	Fixing method	Level of reversibility	Ease of disassembly	Speed of disassembly	Ease of handling (size and weight)	Robustness of material (material's resistance to disassembly)	Damage to other components	Comments
The product is installed as a mortar layer for masonry applications (full-bed laying, thin-bed bonding or jointing), ensuring adhesion, load transfer and durability of the masonry system	Cement-based masonry mortar providing bonding between masonry units or within joints	Non-reversible connections	Complex, requires mechanical breaking or drilling tools (e.g. breakers, drills, hydraulic tools)	Slow, as bonded units must be dismantled together	Removal typically requires mechanical equipment and skilled operators	High mechanical resistance; removal generates mineral debris	Removal typically damages the masonry units. The hardened mortar cannot be separated or reused after disassembly due to curing and permanent bonding	
...	...	...						

16 BIBLIOGRAPHY

ISO 14040:2006: Environmental Management-Life Cycle Assessment-Principles and framework.
ISO 14044:2006: Environmental Management-Life Cycle Assessment-Requirements and guidelines.
ISO 14025:2006: Environmental labels and Declarations-Type III Environmental Declarations-Principles and procedures.
EN 15804+A2:2019
B-EPD PCR

General information

Owner of the EPD, Responsible for the data, LCA and information

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Verification

SGS Intron B.V – Agnes Stehmann-Schuurmans
Date of verification: 28.05.2026
External independent verification of the declaration and data according to EN ISO 14025 and relevant PCR documents
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It is impossible to compare EPDs unless they are compliant with the same PCR and take into account the building context.
The program operator cannot be held responsible for the information provided by the owner of the EPD nor the author of the LCA.

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