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EPD® THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

MARMOLINE ADVANCED BUILDING MATERIALS

NORDIA

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025:2006 & EN 15804:2012 + A2:2019 / AC:2021

Cement-based plasters by NORDIA S.A.

EPD of multiple products based on the average results of the product group.
This EPD covers more than 10 products.
A detailed list of products can be found between pages 6 and 9.

EPD Registration Number
S - P - 09530

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UN CPC
375: Articles of concrete, cement and plaster

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

Revision Date
2024-02-20 (Version 1.1)

PROGRAM INFORMATION

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- The EPD owner has the sole ownership, liability, and responsibility for the EPD.

PRODUCT CATEGORY RULES (PCR)	▪ CEN Standard EN 15804 serves as the Core Product Category Rules (PCR) ▪ PCR 2019:14 Construction products version 1.3.1 (EN 15804:A2)
PCR REVIEW WAS CONDUCTED BY	The technical Committee of the International EPD ® System. See www.environdec.com/TC for a list of members. Chair: No Chair Appointed Contact via: info@environdec.com
LCA ACCOUNTABILITY	SustChem Technical Consulting S.A. www.sustchem.gr
INDEPENDENT THIRD-PARTY VERIFICATION OF THE DECLARATION AND DATA, ACCORDING TO ISO 14025:2006, VIA	✓ EPD verification by accredited certification body
THIRD PARTY VERIFICATION	Business Quality Verification P.C. is an approved certification body accountable for the third-party verification www.bqv.gr – info@bqv.gr
THE CERTIFICATION BODY IS ACCREDITED BY	Hellenic Accreditation System ESYD with accreditation number 1218
PROCEDURE FOR FOLLOW-UP OF DATA DURING EPD VALIDITY INVOLVES THIRD PARTY VERIFIER	YES ✓ NO

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.

COMPANY INFORMATION

VISION

NORDIA S.A. is a prominent company with extensive expertise in the building materials industry, actively engaged in the following sectors:

- Production and construction of construction chemicals and mortars under the MARMOLINE brand.
- Production of concrete admixtures as an authorized licensee of the French multinational CHRYSO.
- Quarrying, processing, and sales of marble under the NORDIA MARBLE brand.

The company's objective is to cater to the construction sector's diverse needs, ranging from home renovations to large-scale new developments. Its foundation lays back in 1998 by establishing a manufacturing plant for construction mortars in Dionyssos, Attica. Dionyssos marble dust, a unique raw material featured in most of their products even today, played a significant role in the development of a product line focused on ready-to-use mortars, with particular emphasis on ready-to-use renders and tile adhesives.

Environmental Commitment

Each product is designed and produced according to the following principles:

- Raw material saving and recycling.
- Energy saving.
- Zero environmental pollution.
- Clean and tidy building site.

EMBLEMATIC CONSTRUCTIONS

- *Stavros Niarchos Foundation Cultural Center*
- *The New Acropolis Museum*
- *Athens Conservatoire*
- *Basil & Elise Goulandris Foundation*
- *Ayia Sofia Arena Stadium - AEK*
- *Tae Kwo Do Arena*
- *Olympic Velodrom*
- *Megaron the Athens Concert Hall*
- *Grand Resort Lagonissi*

VALUES

The company's dedication is to create top-notch, user-friendly materials while maintaining a strong commitment to environmental responsibility. It adheres to the ISO 14001 standard for Environmental Management Systems, implement innovative and secure production processes, and employ state-of-the-art production facilities with ISO 9001-certified Quality Management. These measures ensure the production of high-quality products that conform to European Commission standards and meet the specific requirements of the countries where the products are distributed.

Its primary focus is on delivering safe, user-friendly, and environmentally responsible products for both residential and commercial developments. The company's team stands out for their exceptional scientific knowledge and professional expertise. Its main objective is to continually seek new knowledge to stay at the forefront of technological advancements. Concurrently, it prioritizes the development of its workforce's skills and foster a culture of teamwork and respect.

PRODUCT INFORMATION

This Environmental Product Declaration (EPD) primarily aims to convey the environmental impacts linked to the manufacturing of **Cement-based Plasters** offered by **Nordia S.A**.

A CONCISE OVERVIEW AND DESCRIPTION OF NORDIA'S CEMENT-BASED PLASTERS

The examined products comprise of two main subcategories, them being Ready Mixed Plasters and Render Repair Plasters. Both subcategory products consist mainly of high-strength Portland Cement (I-52.5N), granulometric graded aggregates, various chemical additives, and fibers, which impart products with impeccable mechanical strength.
High-quality materials and production process, guarantee a high-strength product that will prevent cracking, has excellent adhesion, is easy during its installation process, is moisture- and frost-proof and can used both indoors and outdoors.
All products from both categories are classified as A1 category in terms of their Reaction to Fire (RtF) and are CE certified according to EN specific standards.

TECHNICAL SPECIFICATIONS

DESCRIPTION	CONTROL NORM	SV1	SV2	BP110	SV3	SV60	MONO SV100	SV101	SV103
Form	-	Powder	Powder	Powder	Powder	Powder	Powder	Powder	Powder
Granules	-	0-4mm	0-4mm	0-1.2mm	0-1.2mm	0-2mm	0-1.2mm	0-1.2mm	0-1.2mm
Adhesion	EN 998-1:2016 – Table 2 - L3 EN 1015-12	> 0.6 N/mm^2	> 0.25 N/mm^2		≥0.6 N/mm^2	0.3 N/mm^2	≥ 0,5 N/mm^2	0.6 N/mm^2	0,6 N/mm^2
Packaging	-	Paper bags (25-40kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25-40kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (30kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (20kg) Pallets Big Bags (1000kg) Plastic Bags (5kg) Silos (12-18-22m^3)
Water absorption	EN 998-1:2016 – Table 2 - L5 EN 1015-18	Wc0	Wc0	Wc0	Wc1	Wc1	Wc1	>0.3kg/m^3	>0.3kg/m^3
Water vapour permeability coefficient	EN 998-1:2016 – Table 2 - L8 EN 1015-19	μ=18	μ=10/20		μ=5	μ=5/20	μ=5/20	μ=5/20	μ=11
Durability	EN 998-1:2016 – 5.2.3.2	NPD	NPD	NPD	NPD	-	-	NPD	NPD
Reaction to Fire	EN 998-1:2016 – 5.2.3.2 & Table 2 - L3, L5	Class A1	Class A1	Class A1	Class A1	Class A1	Class A1	Class A1	Class A1

PRODUCT INFORMATION

MARMOLINE

TECHNICAL SPECIFICATIONS										
DESCRIPTION	**CONTROL NORM**	**DECOR SV010**	**BP115**	**GN30**	**FP140**	**CM40**	**LM400**	**ST10 PRO**	**STUCCO BIANCO**	**TL2**
Form	-	Powder	Powder	Powder	Powder	Powder	Powder	Powder	Powder	Powder
Granules	-	0-1.2	0-2	0-4	0-1.2	3	3	-	-	0-2
Adhesion	EN 998-1:2016 – Table 2 - L3 EN 1015-12	≥0.3 N/mm^2	0.6 N/mm^2	≥0.7 N/mm^2	0.6 N/mm^2	0.15 N/mm^2	0.15 N/mm^2		≥0.6 N/mm^2	
Packaging	-	Paper bags (20kg) Pallets Big Bags (1000kg) Plastic Bags (5kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Plastic Bags (5kg) Cartonboxes	Paper bags (25kg) Pallets	Paper bags (30kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)	Paper bags (25kg) Pallets Big Bags (1000kg) Silos (12-18-22m^3)
Water absorption	EN 998-1:2016 – Table 2 - L5 EN 1015-18	Wc2	Wc2	Wc1	Wc2	< 1.0 kg/m^2 min$^{0.5}$	< 0.5 kg/m^2 min$^{0.5}$		Wc0	
Water vapour permeability coefficient	EN 998-1:2016 – Table 2 - L8 EN 1015-19	μ=5/20	μ=5/20	μ=15/35	μ=15/35	μ=15/35	μ=15/35		μ=23	
Durability	EN 998-1:2016 – 5.2.3.2	NDP	-	NDP	NDP	NDP	NDP		NDP	
Reaction to Fire	EN 998-1:2016 – 5.2.3.2 & Table 2 - L3, L5	Class A1	Class A1	Class A1	Class A1	Class A1	Class A1	Class A1	Class A1	Class A1

NORDIA

PRODUCT INFORMATION

SV 1 is a high strength spatter dash coat.
It is mainly used as a first coat (thrown or splashed) in all rendering techniques and methods, to improve the adhesion of the plaster applied afterwards. It is applied on bricks, concrete blocks, porous concrete elements (YTONG - ALFABLOCK etc.), concrete surfaces (columns - ceilings - beams etc.), stone, thermal insulation slabs and other materials.

SV 2 is a base-coat ready plaster used for improving adhesion on difficult surfaces.
It is used as a base coating on exterior and interior surfaces when applying the three-coat technique, creating a suitable flat surface over which the final white render will be applied. It is suitable for the construction of mud guides. It may be applied on bricks, concrete blocks, porous concrete elements, concrete surfaces (columns - ceilings - beams etc.), stone, thermal insulation slabs and other materials, after the application of the hammered plaster (SV1).

SV 3 is a marble-based white finish-coat ready plaster used to enhance adhesion.
It is used in the application of the three-layer technique, as a final layer of plaster (marble) on external and internal surfaces which have been previously coated with the base layer plaster (SV2). Due to the nature and fine grain size of the Dionysus marble content (<1,2mm) it gives white and smooth final surface ready for sanding and painting. In special cases the product can be enhanced by adding MARMOLINE MP 20 resin.

SV 60 is a single layer ready plaster with additives used to improve adhesion.
It minimizes material preparation time and increases the speed of application. It provides a smooth final surface ready for sanding and painting, due to the nature and fine grain size of the calcareous aggregate content (< 2 mm). The application is done either manually, with a trowel or with plastering presses. In special cases the product can be reinforced by adding MARMOLINE MP 20 resin.

PRODUCT INFORMATION

DECOR SV 010 is a water repellent, cement-based finish coat render, applied as final coating, while increasing resistance to moisture snow and frost.
It can also be applied as a finish coat on external thermal insulation systems. In combination with the fiber-reinforced adhesive FK 202 it is used as a final coating for external thermal insulation systems of buildings. Ideal for cases where additional protection from moisture is required (coastal houses, islands, mountainous - semi-mountainous areas, etc.).

BP 115 is a single layer white ready plaster with aggregates of selected granulometry and special additives to strengthen adhesion.
Mixing with water only is required. This minimizes the preparation time of the material and increases the speed of application of the material. It replaces mud and marble by combining both in one layer. It is applied like the basic plaster and sanded like marble.

MONO SV 100 is a single layer white ready plaster with special additives to improve adhesion.
It replaces mud and marble by combining both in one layer. It is applied like the basic plaster and sanded like marble. The application thickness should not exceed 2 cm. Due its nature and the fine grain size of the Dionysus marble content (<1,2mm) gives a white and smooth final surface ready for sanding and painting.

BP 110 is a ready cement-based plaster used as a one-layer plaster on exterior and interior surfaces.
It replaces mud and marble by combining both in one layer. Similarly, to BP115 it provides a white and smooth final surface ready for sanding and painting.

PRODUCT INFORMATION

FP 140 is a water repellent, cement-based finish coat render, applied as a final coating.
Ideal where protection from moisture is required (seafront houses, islands, mountainous – partly mountainous areas, etc.). It is used when applying a three-layer technique, as a final layer of plaster (marble) on external surfaces that have been previously coated with the SV2 base layer plaster. In combination with FK 202 fiber-reinforced adhesive, it is used as a final coating for external thermal insulation systems for buildings.

GN 30 is a gunite plaster used for masonry reinforcement.
It is used where aiming for significant reinforcement of the masonry, e.g., old brick walls, stone walls, etc. and in cases it may be used in combination with metal mesh. It is ideal for renovation, repair, reconstruction of old and new buildings. Also, for repairing problems after an earthquake, for repairing listed buildings, etc.

SV 103 is a one coat ready, white plaster of single layer repair plaster used to ensure strong adhesion to the substrate and high mechanical strength.
It is used for the repair and restoration of damaged plaster parts, in old and new constructions, on external and internal surfaces of buildings. Additionally, its usage includes repair work to restore plaster sections. Ideal for repairing corners, and as a restoration plaster in cases where traditional marble plaster has been removed after frost damage.

LM 400 is a ready white thick bed plaster used to ensure adhesion of marble and granite tiles and boards to difficult surfaces.
LM 400 ensures maximum protection of white or colored marbles against stains from the substrate. The addition of MARMOLINE MP 20 resin provides additional strength and elasticity of bonding of the marble tile to the substrate.

PRODUCT INFORMATION

CM 40 is a grey ready plaster used to improve weld.
It significantly increases the speed of preparation of the material and construction of the masonry. It is used for building bricks, concrete blocks, stone, and generally any kind of building material in internal partitions and external walls.
Used for laying paving slabs, paving blocks and slabs.

SV 101 is a fast-setting, ready, white plaster of single layer repair plaster used to ensure strong adhesion to the substrate and high mechanical strength.
It is mainly used for the repair and restoration of damaged parts of plaster, in old and new constructions, on external and internal surfaces of buildings.

TL 2 is an insulating lightweight base layer plaster used as a base layer of plaster (on external and internal surfaces when applying the three-layer technique, creating a suitable flat surface on which the final white plaster (marble finish) will be applied.

ST 10 PRO is a fine-grained spackling material for the perfect smoothing of surfaces made of plaster, concrete, plasterboard and aerated concrete, indoors and outdoors to be painted.
It is easily spread on the surface without the need for priming and preparation with oil sticks.

STUCCO BIANCO is a ready industrial white super fine-grained new generation plaster with special acrylic additives to improve adhesion. It is used for the perfect smoothing of surfaces made of plaster, concrete, plasterboard, and aerated concrete, in interior and exterior areas to be painted. It is easily spread on the surface without the need for priming and preparation with oil sticks.

CONTENT INFORMATION

This is an EPD of multiple products, based on an average product. Cement-based Plaster has been selected as the average product. The composition of the product is expressed in mass per declared unit (kg/kg). The table below displays the content declaration for this average product.

CONTENT DECLARATION OF AN AVERAGE CEMENT-BASED PLASTER EXPRESSED IN KG PER D.U. (KG/KG)				
PRODUCT COMPONENTS	**WEIGHT KG/KG**	**RANGE**	**POST-CONSUMER RECYCLED MATERIAL (%)**	**BIOGENIC MATERIAL, WEIGHT- % AND KG C/KG**
Portland Cement I 52.5N	1.33E-01	2.77E-02 – 2.80E-01	0%	0
Calcium Carbonate	8.00E-01	7.19E-01 – 8.44E-01	0%	0
Calcium Hydroxide	6.52E-02	0.00E+00 – 1.00E-01	0%	0
Polymer Dispersions	1.65E-04	0.00E+00 – 8.25E-03	0%	0
Additives	1.56E-02	9.00E-04 – 7.70E-01	0%	0
TOTAL	**1.00E+00**	-	**0%**	**0**
PACKAGING MATERIALS	**WEIGHT KG/KG**	**RANGE**	**WEIGHT (%) VERSUS THE PRODUCT**	**WEIGHT, BIOGENIC CARBON, KG C/KG**
Polyethylene LDPE (film)	5.57E-03	2.02E-05 – 1.94E-02	0.557%	0
Paper (Sacks)	1.80E-02	3.25E-03 – 4.05E-02	1.799%	7.55E-03
Wood (pallets)	1.93E-03	1.50E-07 – 3.79E-02	0.193%	3.647E-05
TOTAL	**2.55E-02**	-	**2.549%**	**7.59E-03**

CARBON ELECTRICITY INTENSITY	
ENVIRONMENTAL EFFECTS	**GREEK MIX* - CO_2 EMISSIONS ($KGCO_2/KWH$)**
	0.642

**Residual Greek Mix: DAPEEP Report 2022 In accordance with section 1.4 of PCR 2019: 14 "Construction Products" version 1.3.1, it is required to disclose the climate impact (measured in kilograms of CO2 eq. per kilowatt-hour (kWh) using the GWP-GHG indicator) associated with the electricity acquisition during the manufacturing process in A3*

- No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH Regulations that exceed 0.1% of the total weight are present in the examined systems.

LCA INFORMATION

SYSTEM BOUNDARIES

This LCA study follows a “cradle-to-gate” approach with modules C1-C4 & module D.

DECLARED UNIT

The declared unit used in this EPD is **one (1) kilogram (kg) of an average cement-based plaster.**

TIME REPRESENTATIVENESS

The data used for the analysis are based on one-year average production data, from August 2022 to July 2023.

GEOGRAPHICAL SCOPE

Global

DATABASES USED

Ecoinvent 3.8.1 & Professional 2021

SOFTWARE USED

LCA for experts (GaBi)

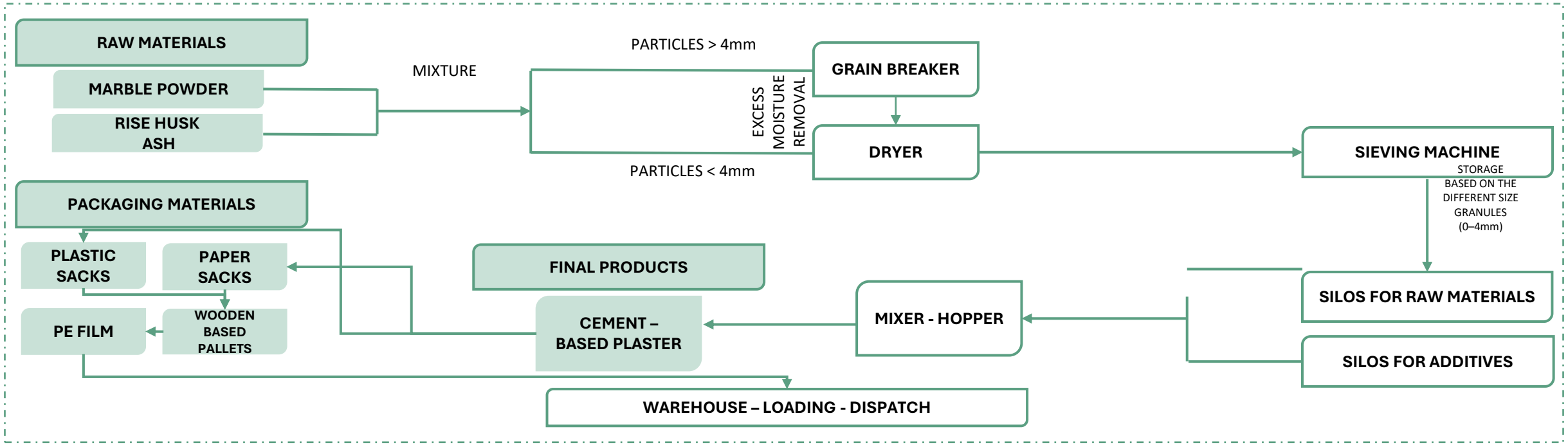
	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				RESOURCE RECOVERY STAGE
	Raw Material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	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**	**X**	**X**	**X**	**X**	**X**
GEOGRAPHY	GLO	GLO	GR	-	-	-	-	-	-	-	-	-	EU-27	EU-27	EU-27	EU-27	EU-27
SHARE OF SPECIFIC DATA		>90%															
VARIATION – PRODUCTS		Variation – products **From -18.37% to 46.91%**															
VARIATION -SITES		0%															

*The variations above correspond to the differences in GWP-GHG indicator results in A1-A3 between an average cement-based plaster product CM40 and GN30, that correspond to the minimum and maximum results of the specific indicator, among the products under study.

DESCRIPTION OF EXAMINED MODULES

As depicted in the preceding diagram, the study encompasses specific Life Cycle stages: **Production, End-of-life,** and **Resource - Recovery**. Information modules that have been excluded (construction and use stages) are scenario-driven. The main aim of this Environmental Product Declaration (EPD) is to communicate the environmental factors associated with the real data that the company can manage during the production of cement-based plasters.

THE PRIMARY PROCESSES INVOLVED IN THE PRODUCTION PROCESS ARE REPRESENTED IN THE BELOW FLOW-CHART:



PRODUCT STAGE

MODULES A1-A3

These aggregated modules (Modules A1-A3), comprehensively assess the entire lifecycle of raw materials and packaging components, encompassing their creation, transportation to Nordia's facilities, and the utilization of associated utilities such as electricity. To be more specific, Module A1 focuses on the manufacture of raw and packaging materials utilized in the production of cement-based plasters, including items like Portland Cement I 52.5N, calcium carbonate, calcium hydroxide, copolymer vinyl acetate and ethylene, as well as paper sacks, wooden-based pallets, and PE film for wrapping. Module A2 pertains to the transportation of these raw and packaging materials to Nordia's manufacturing plant. Lastly, Module A3 deals with the generation of imported electricity from the Greek grid and the utilization of propane for eliminating excess moisture.

DESCRIPTION OF EXAMINED MODULES

END-OF-LIFE STAGE

The end-of-life phase for the construction product initiates when it's either replaced, dismantled, or removed from the building or construction site, no longer serving any purpose. Alternatively, it can commence when the building itself reaches its end-of-life, depending on the chosen scenario for how the product's life ends. In this study, we take the perspective that the end-of-life stage for cement-based plasters begins when the building is deconstructed or demolished, as these plasters cannot be separated from the building's structure once installed.

In terms of the different end-of-life scenarios, we examine the emissions associated with disposing of 100% of cement-based plaster waste during this phase. We opt for the most probable approach, which, in this case, is landfilling. Due to uncertainties regarding the specific disposal methods used, we've taken a practical approach and considered landfilling as the sole disposal option.

PROCESSES	KG/KG
Collection process specified by type	0kg collected separately 1kg collected with mixed construction waste
Recovery system specified by type	0kg for re-use
Disposal specified by type	0kg for recycling
Assumptions for scenario development (transportation)	0kg for energy recovery

MODULE C1

Module C1 focuses on calculating emissions associated with removing the product from the building during the deconstruction process. In this study, we have established a realistic scenario derived from literature research. The deconstruction of cement-based plasters is assumed to be carried out using mechanical means, specifically employing a 100kW diesel excavator.

MODULE C2

Within this module, we examine the transport of disassembled cement-based plasters to waste treatment facilities. We make certain assumptions regarding the average distance between construction sites and waste management facilities, as well as the modes of transportation involved.

MODULE C3

In this module, it is assumed the 100% of the cement plaster waste will be landfilled and hence the environmental impact is considered equal to zero.

MODULE C4

This module takes into account the emissions linked to the disposal of all waste generated from cement-based plaster. The most realist and plausible method, was adopted which in this instance, is landfilling.

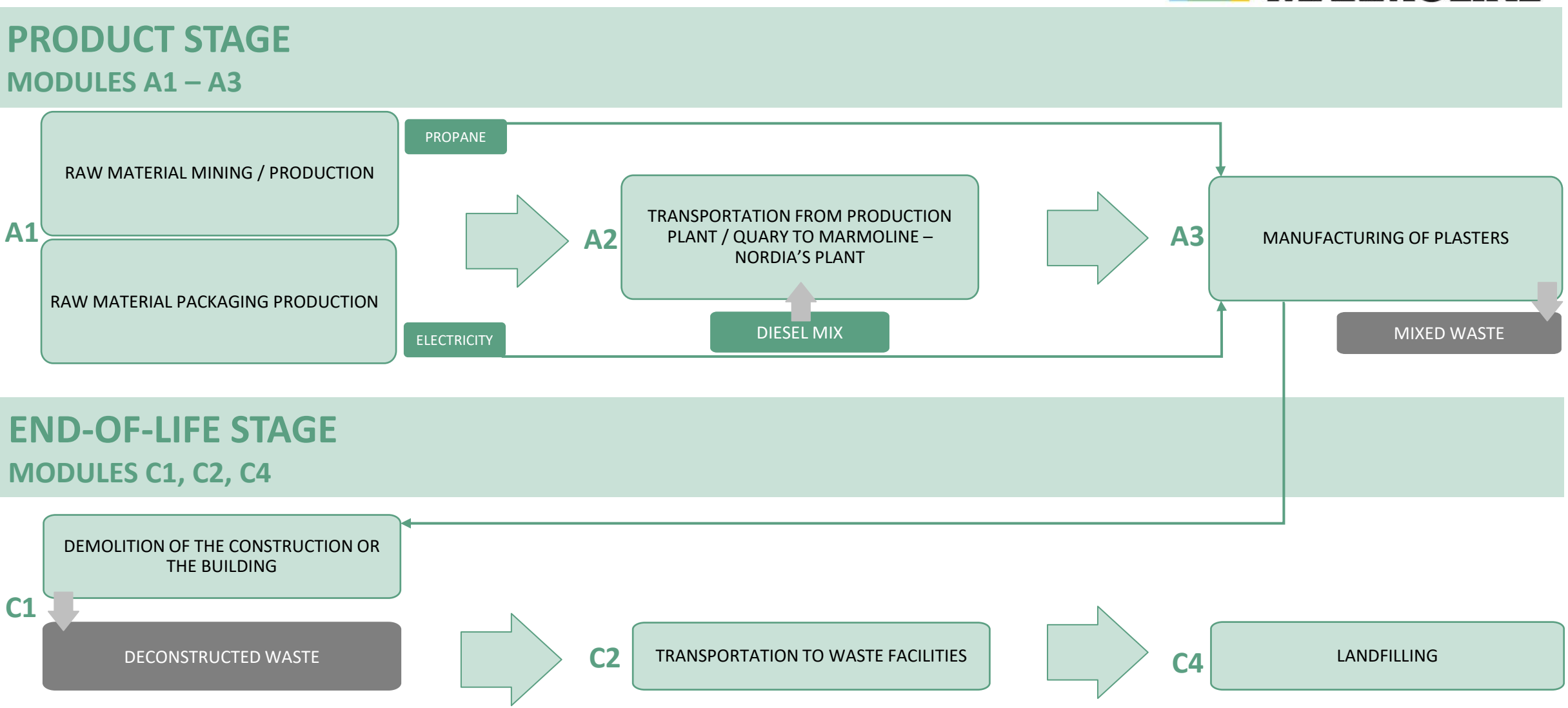
Disclaimer: Considering that Module C is included in this EPD, is discouraged to use the results of modules A1-A3 without considering the results of module C.

RESOURCE/ RECOVERY STAGE

MODULE D

As outlined in the PCR for "Construction products," this module evaluates the environmental consequences of net flows involving reclaimed materials (those that are reused or recycled) or the energy output exiting modules A-C. Given that all deconstructed waste will be sent to a landfill without any recovery, reuse, or recycling processes, this module is considered to have zero impact.

SYSTEM DIAGRAM



ADDITIONAL LCA INFORMATION

ASSUMPTIONS:

- Assumptions were employed when selecting the modes of transportation for road routes, taking into account factors such as technology, fuel type, and payload capacity. An average mode of transportation was chosen for each route to offer a reasonable approximation for all transported goods. It is assumed that a diesel-powered truck with Euro 6 emissions standards, a gross weight of 12-14 tons, and a payload capacity of 9.3 tons is used.
- An assumption was made regarding the timing and method used for disassembling cement-based plasters. The end-of-life phase for these plasters is set to align with the building's demolition. To achieve this, a deconstruction was carried out, using mechanical methods, specifically using a diesel-powered excavator with a 100kW power rating.
- Assumptions regarding the end-of-life of deconstructed cement-based plaster waste is used. More specifically, the most likely outcome is that all the broken-down waste will be sent to a landfill for disposal. This choice is supported by the fact that over 40% of waste made from cement in Greece is disposed of in this manner. Moreover, cement-based plasters do not break down naturally or decompose, making them inappropriate for composting or other organic waste management methods. They are chemically stable, which reduces the risk of harmful substances seeping into the environment when they are securely stored in a landfill.
- Regarding the disposal of cement-based plasters in landfills, a process referred to as "Treatment of limestone residue, inert material landfill" has been utilized. This approach is chosen due to the substantial presence of calcium carbonate in a significant portion of this waste category. Consequently, this specific database is deemed a fitting and precise portrayal of the waste material.
- When annual production volumes were unavailable for the reference year, leading to the absence of packaging material consumption rates, a business-as-usual model was adopted to evaluate the potential environmental impacts of products, particularly exemplified by BP110 and TL2, for which specific data were not accessible.
- An assumption regarding the proximity of waste treatment facilities to construction sites was made. Namely, it was assumed that the treatment facilities would be located within a distance of 100 kilometers from the construction sites.
- Although drying and grain cracking processes do not take place on a regular basis in the production process, the LCA study takes them into account so as to assess the worst-case scenario.

ALLOCATIONS:

- Regarding electricity consumption, 80% of the total volumes used, is attributed to the production of mortars.
- All propane consumption, constituting 100%, is exclusively allocated to mortar production, encompassing adhesives, floor screeds, plasters, grouts, and concrete repair products.
- The mass allocation method was utilized to assess manufacturing process waste, chosen for its reference to total facility waste volumes in the specified year.

CUT-OFFS:

The combined disregarded input flows for each module, such as A1-A3, C1-C4, and module D, should not exceed 5% of the total energy usage and mass. These guidelines were adhered to in order to assess the influence of including or excluding inventory flows. All key raw materials, components, and necessary energy inputs are accounted for within the system boundaries. The study incorporates data for basic flows to and from the product system, accounting for at least 99% of the stated environmental impacts. The only processes not considered in this study are:

- Production of certain primary flows, i.e., special chemical additives, which were determined to be considerably less than 1% of the declared environmental impacts.
- The handling of mixed municipal waste because the quantities generated are so minimal when compared to the declared unit volume, as to be considered inconsequential.
- Wooden-based pallets management is not included in this study since these pallets are intended for multiple uses.
- The manufacturing of silos designed for transportation purposes, as they fall under the classification of capital goods.

ENVIRONMENTAL PERFORMANCE INDICATORS

NORDIA S.A. – CEMENT-BASED PLASTERS

MARMOLINE

POTENTIAL ENVIRONMENTAL IMPACTS/ 1 KG OF AN AVERAGE CEMENT-BASED PLASTER								
CORE ENVIRONMENTAL IMPACT INDICATORS		UNIT	A1-A3	C1	C2	C3	C4	D
Global Warming Potential – total	GWP-total	kg CO_2 eq.	2.239E-01	6.460E-04	1.218E-02	0.000E+00	1.246E-02	0.000E+00
Global Warming Potential – fossil	GWP-fossil	kg CO_2 eq.	2.236E-01	6.410E-04	1.208E-02	0.000E+00	1.243E-02	0.000E+00
Global Warming Potential – biogenic[3]	GWP-biogenic	kg CO_2 eq.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Global Warming Potential – land use and land use change	GWP-luluc	kg CO_2 eq.	2.739E-04	5.057E-06	9.908E-05	0.000E+00	2.625E-05	0.000E+00
Global Warming Potential – GHG[1]	GWP-GHG	kg CO_2 eq.	2.239E-01	6.460E-04	1.218E-02	0.000E+00	1.246E-02	0.000E+00
Ozone Depletion Potential	ODP	kg CFC 11 eq.	3.087E-09	7.889E-20	1.546E-18	0.000E+00	3.597E-09	0.000E+00
Acidification Potential	AP	Mole of H+ eq.	3.689E-04	3.044E-06	1.174E-05	0.000E+00	1.108E-04	0.000E+00
Eutrophication Potential – freshwater	EP-freshwater	kg P eq.	8.738E-06	1.833E-09	3.592E-08	0.000E+00	9.337E-07	0.000E+00
Eutrophication Potential – marine	EP-marine	kg N eq.	2.682E-05	1.431E-06	3.691E-06	0.000E+00	4.286E-05	0.000E+00
Eutrophication Potential – terrestrial	EP-terrestrial	mol N eq.	5.943E-05	1.585E-05	4.454E-05	0.000E+00	4.679E-04	0.000E+00
Photochemical Oxidant Formation Potential	POCP	kg NMVOC eq.	1.368E-03	4.026E-06	1.014E-05	0.000E+00	1.324E-04	0.000E+00
Abiotic Depletion Potential – elements[2]	ADPe	kg Sb eq.	3.494E-04	4.701E-11	9.211E-10	0.000E+00	2.533E-08	0.000E+00
Abiotic Depletion Potential. fossil resources[2]	ADPf	MJ net calorific value	1.186E-07	8.220E-03	1.611E-01	0.000E+00	2.498E-01	0.000E+00
Water Deprivation Potential[2]	WDP	m^3 world eq. deprived	1.476E+00	5.362E-06	1.051E-04	0.000E+00	7.222E-03	0.000E+00

[1] 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

[2] 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.

[3] Actually, this indicator is negative due to an uptake of biogenic carbon in packaging materials. Considering that module A5 is not declared, the correlated emissions due to end-of-life of packaging, are balanced-out already in Module A1-A3, hence resulting in a total value of zero.

NORDIA

ENVIRONMENTAL PERFORMANCE INDICATORS

NORDIA S.A. – CEMENT-BASED PLASTERS

MARMOLINE

POTENTIAL ENVIRONMENTAL IMPACTS/ 1 KG OF AN AVERAGE CEMENT-BASED PLASTER								
RESOURCE USE INDICATORS		UNIT	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ. net calorific value	1.120E+00	4.587E-04	8.988E-03	0.000E+00	2.724E-03	0.000E+00
Use of renewable primary energy resources used as raw materials	PERM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total use of renewable primary energy resources	PERT	MJ. net calorific value	1.120E+00	4.587E-04	8.988E-03	0.000E+00	2.724E-03	0.000E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ. net calorific value	1.476E+00	8.231E-03	1.613E-01	0.000E+00	2.499E-01	0.000E+00
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total use of non-renewable primary energy resources	PENRT	MJ. net calorific value	1.477E+00	8.231E-03	1.613E-01	0.000E+00	2.499E-01	0.000E+00
Use of secondary material	SM	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Use of renewable secondary fuels	RSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Use of non-renewable secondary fuels	NRSF	MJ. net calorific value	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Use of net fresh water	FW	m^3	5.365E-04	5.251E-07	1.029E-05	0.000E+00	1.682E-04	0.000E+00

ENVIRONMENTAL PERFORMANCE INDICATORS
NORDIA S.A. – CEMENT-BASED PLASTERS

MARMOLINE

POTENTIAL ENVIRONMENTAL IMPACTS/ 1 KG OF AN AVERAGE CEMENT-BASED PLASTER								
WASTE INDICATORS		**UNIT**	**A1-A3** 	**C1** 	**C2** 	**C3** 	**C4** 	**D** 
Hazardous waste disposed	HWD	kg	2.060E-10	4.148E-13	8.126E-12	0.000E+00	0.000E+00	0.000E+00
Non-hazardous waste disposed	NHWD	kg	3.130E-04	1.223E-06	2.396E-05	0.000E+00	0.000E+00	0.000E+00
Radioactive waste disposed	RWD	kg	9.920E-06	9.956E-09	1.951E-07	0.000E+00	0.000E+00	0.000E+00
OUTPUT FLOWS		**UNIT**						
Components for re-use	CRU	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Material for recycling	MFR	kg	1.260E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Materials for energy recovery	MER	kg	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Exported energy	EE	MJ	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS		**UNIT**						
Particulate matter emissions	PM	Disease incidence	1.070E-08	3.446E-11	7.031E-11	0.000E+00	6.333E-09	0.000E+00
Ionizing radiation human[4]	IRP	kBq U235 eq.	9.495E-01	1.425E-06	2.793E-05	0.000E+00	1.127E-03	0.000E+00
Eco-toxicity. Freshwater[2]	ETP-fw	CTUe	5.061E-01	5.941E-03	1.164E-01	0.000E+00	1.705E-01	0.000E+00
Human toxicity. cancer effects[2]	HTP-c	CTUh	4.085E-10	1.198E-13	2.349E-12	0.000E+00	5.390E-12	0.000E+00
Human toxicity. non-cancer effects[2]	HTP-nc	CTUh	2.979E-02	7.209E-12	1.215E-10	0.000E+00	1.239E-10	0.000E+00
Land use related impacts/Soil quality[2]	SQP	dimensionless	3.440E+00	2.823E-03	5.531E-02	0.000E+00	3.557E-01	0.000E+00

A complete list of the potential environmental impacts is available for the all Cement-based Plasters and can be directly acquired from Nordia's personnel.

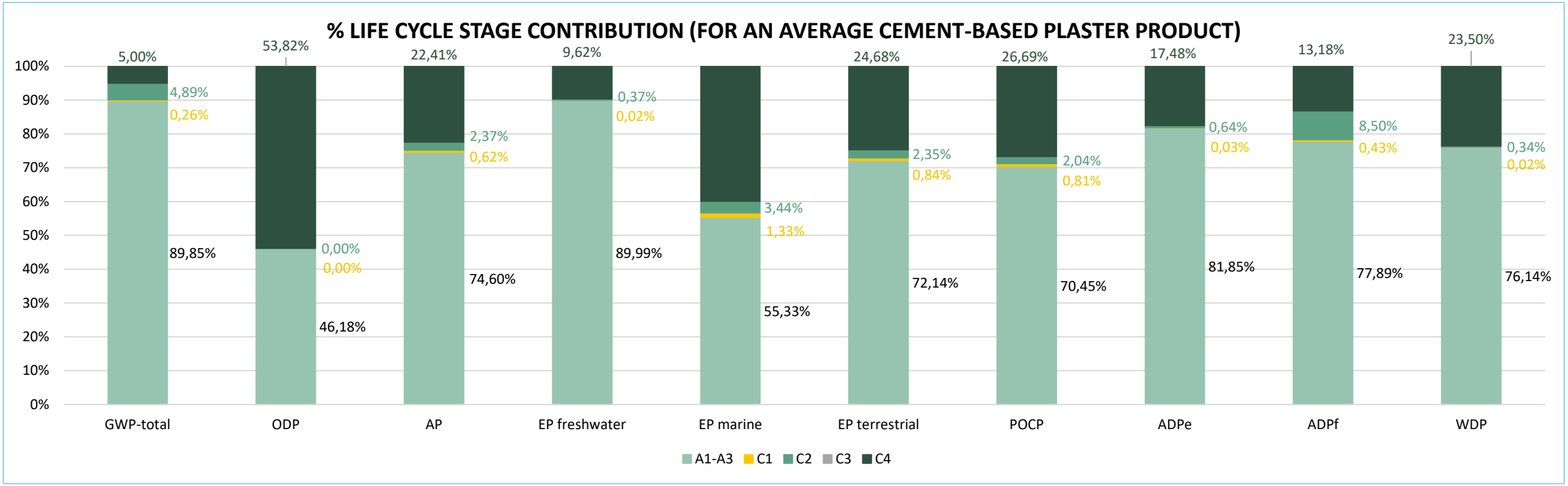
[2] The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.
[4] This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

NORDIA

INTERPRETATION

- The following diagram illustrates the respective contributions of the assessed modules (A1-A3 & C1-C4) to the fundamental environmental impact indicators. The evaluation of the outcomes took the form of a dominance analysis focused on these key environmental impacts. Evidently, the modules A1-A3 exert a predominant influence on the majority of the scrutinized impact categories

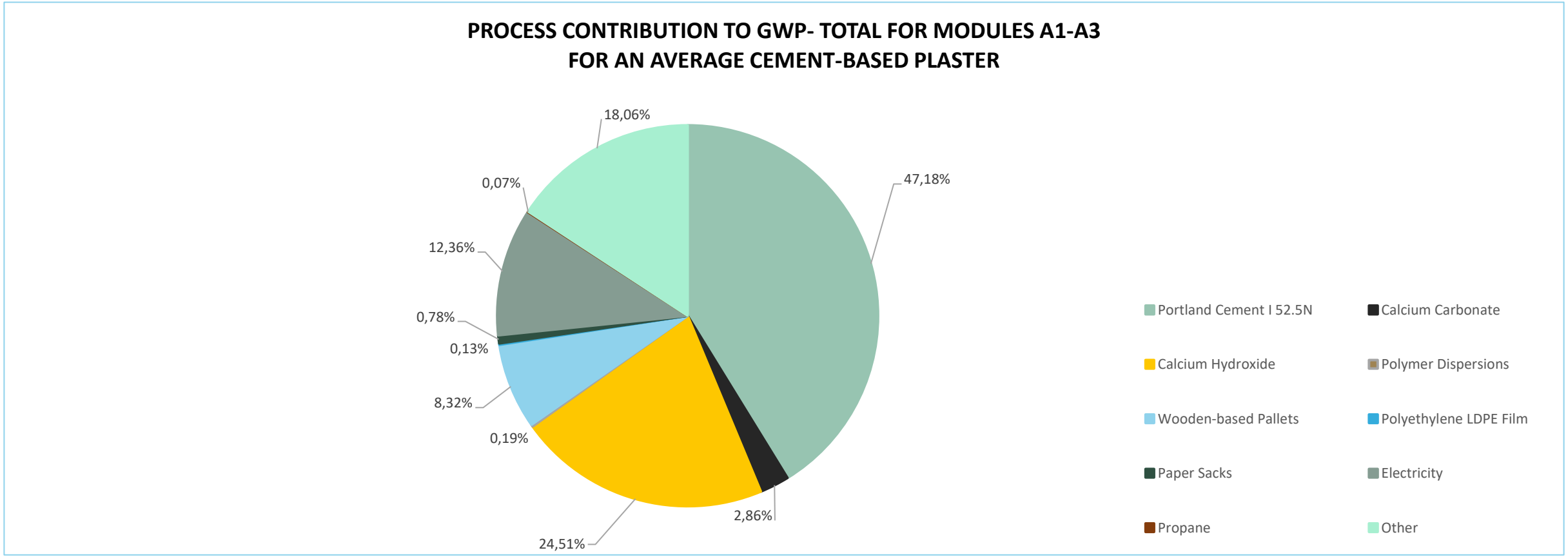
- Concerning the assessment of Global Warming Potential (GWP), it is observed that the most influential phases in the life cycle are modules A1-A3, which collectively contribute to ca. 90% of the total impact. These modules encapsulate a significant portion of environmental considerations. Following these, Modules C1, C2, and C4 also play roles in GWP, albeit to a lesser extent, accounting for 0.26%, 4.89%, and 5.00%, respectively. This breakdown illustrates the hierarchy of contributions to GWP throughout the various phases of the product's life cycle.



Disclaimer: 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.

INTERPRETATION

- The majority of the total Global Warming Potential (GWP) is associated with the extraction and production of raw materials, with a notable focus on the manufacturing of Portland Cement I 52.5N. This significant influence is vividly depicted in the left-side chart of the presentation, where Portland Cement I 52.5N production alone accounts for 47.18% of the entire GWP-total. This emphasizes that the environmental impact, especially in terms of global warming potential, is greatly driven by the processes involved in obtaining and producing raw materials, and the production of Portland Cement I 52.5N plays a central role in this impact. The chart visually underscores the pivotal role of this particular aspect in the overall carbon footprint.



Disclaimer: 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.

ADDITIONAL ENVIRONMENTAL INFORMATION

% VARIATIONS OF INCLUDED PRODUCTS

ENVIRONMENTAL IMPACT INDICATORS

As per the PCR 2019:14 Construction Products version 1.3.1, when the products included exhibit a difference of over 10% concerning their declared environmental impact indicators, the specific variance for each impact indicator should be reported. The subsequent tables showcase total variances observed for all examined products, encompassing all the environmental impacts considered, compared to the potential environmental impacts of an average product.

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER									
INDICATOR	**GN30**	**SV3**	**FP140**	**BP110**	**SV60**	**SV100**	**BP115**	**SV1**	**TL2**
Climate Change - Total	46.91%	5.71%	5.67%	-9.54%	-14.73%	-6.30%	-8.53%	22.25%	-7.68%
Climate Change - Fossil	46.85%	5.72%	5.68%	-9.55%	-14.74%	-6.31%	-8.53%	22.22%	4.88%
Climate Change - Biogenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Climate Change - Land Use and Land Use Change	81.80%	0.60%	-0.28%	-3.90%	-7.71%	-0.29%	-6.53%	38.43%	-2.12%
Global Warming Potential-GWP-GHG	46.91%	5.71%	5.67%	-9.54%	-14.73%	-6.30%	-8.53%	22.25%	4.84%
Ozone Depletion	120.27%	-5.77%	-5.83%	-7.51%	-13.55%	-1.29%	-8.98%	55.64%	8.17%
Acidification	91.94%	-5.41%	-4.80%	-7.89%	-12.39%	-2.09%	-6.78%	39.55%	10.57%
Eutrophication, fresh water	142.33%	-1.39%	-3.34%	-10.34%	-13.09%	0.22%	-8.33%	59.02%	1.53%
Eutrophication, marine	63.63%	2.58%	2.67%	-2.70%	-8.19%	-2.17%	-8.32%	33.74%	-5.58%
Eutrophication, terrestrial	82.35%	-7.29%	-1.79%	-4.96%	-13.88%	-4.66%	-8.51%	31.40%	12.54%
Photochemical Ozone Formation, human health	100.28%	-4.71%	-4.81%	-8.31%	-12.85%	-1.85%	-7.58%	45.27%	8.99%
Resource use, mineral and metals	249.55%	-5.80%	-6.24%	-10.95%	-27.67%	-4.43%	-25.40%	125.65%	-4.16%
Resource use, fossils	84.12%	-0.57%	-0.65%	-8.40%	-13.17%	-3.53%	-9.33%	40.50%	2.13%
Water Use	155.16%	-3.23%	-3.37%	-10.60%	-18.35%	-3.10%	-15.17%	76.33%	-1.22%

The variations in impact indicators among products in this EPD, particularly when differences exceed 10%, were found to be linked with the concentration of cement within the respective product formulations. This association underscores the significance of cement content in influencing the observed differences in environmental impacts among the featured products.

ADDITIONAL ENVIRONMENTAL INFORMATION

% VARIATIONS OF INCLUDED PRODUCTS

ENVIRONMENTAL IMPACT INDICATORS

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER								
INDICATOR	**LM400**	**CM40**	**SV2**	**SV010**	**SV103**	**SV101**	**STUCCO BIANCO**	**ST10 PRO**
Climate Change - Total	-3.51%	-18.37%	10.41%	-6.39%	-0.07%	-5.50%	-7.00%	-4.63%
Climate Change - Fossil	-3.51%	-18.36%	10.39%	-6.39%	-0.07%	-5.49%	-7.02%	-4.67%
Climate Change - Biogenic	NA	NA	NA	NA	NA	NA	NA	NA
Climate Change - Land Use and Land Use Change	-3.37%	-20.68%	22.79%	-6.66%	-3.11%	-9.73%	6.01%	20.78%
Global Warming Potential- GWP-GHG	-3.51%	-18.37%	10.41%	-6.39%	-0.07%	-5.50%	-7.00%	-4.63%
Ozone Depletion	11.96%	-2.00%	23.37%	-3.88%	-0.65%	-5.40%	21.54%	30.27%
Acidification	14.21%	-1.53%	15.47%	-2.74%	0.66%	-5.00%	20.50%	26.37%
Eutrophication, fresh water	1.89%	-47.03%	39.18%	-10.33%	-4.94%	-24.33%	41.87%	74.03%
Eutrophication, marine	-9.59%	-14.76%	18.27%	-7.33%	-2.89%	-4.55%	8.27%	16.92%
Eutrophication. terrestrial	15.59%	0.96%	10.45%	-4.92%	3.14%	-2.14%	15.06%	19.85%
Photochemical Ozone Formation, human health	12.34%	-2.02%	18.29%	-3.12%	-0.03%	-5.04%	17.79%	24.10%
Resource use, mineral and metals	-4.69%	-18.54%	57.70%	-16.48%	-7.75%	-11.56%	115.00%	138.03%
Resource use, fossils	1.34%	-9.32%	17.70%	-5.93%	-1.50%	-5.09%	29.45%	35.52%
Water Use	0.69%	-12.58%	34.94%	-9.56%	-3.59%	-7.82%	48.61%	62.57%

ADDITIONAL ENVIRONMENTAL INFORMATION

% VARIATIONS OF INCLUDED PRODUCTS

USE OF RESOURCES

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER									
INDICATOR	**GN30**	**SV3**	**FP140**	**BP110**	**SV60**	**SV100**	**BP115**	**SV1**	**TL2**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	316.01%	-2.16%	-3.65%	-9.55%	-31.57%	-2.86%	-31.01%	166.26%	-8.63%
Use of renewable primary energy resources used as raw materials	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	316.01%	-2.16%	-3.65%	-9.55%	-31.57%	-2.86%	-31.01%	166.26%	-8.63%
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	84.08%	-0.56%	-0.65%	-8.40%	-13.17%	-3.54%	-9.34%	40.49%	2.09%
Use of non-renewable primary energy resources used as raw materials	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	84.08%	-0.56%	-0.65%	-8.40%	-13.17%	-3.54%	-9.34%	40.49%	2.09%
Use of secondary materials	0%	0%	0%	0%	0%	0%	0%	0%	0%
Use of renewable secondary fuels	0%	0%	0%	0%	0%	0%	0%	0%	0%
Use of non-renewable secondary fuels	0%	0%	0%	0%	0%	0%	0%	0%	0%
Use of net fresh water	155.17%	-2.14%	-2.30%	-10.96%	-19.18%	-3.68%	-15.91%	76.87%	-1.97%

ADDITIONAL ENVIRONMENTAL INFORMATION

% VARIATIONS OF INCLUDED PRODUCTS

USE OF RESOURCES

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER								
INDICATOR	LM400	CM40	SV2	SV010	SV103	SV101	STUCCO BIANCO	ST10 PRO
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	-11.59%	-18.36%	77.44%	-19.02%	-8.64%	-3.44%	10.05%	36.91%
Use of renewable primary energy resources used as raw materials	0%	0%	0%	0%	0%	0%	0%	0%
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	-11.59%	-18.36%	77.44%	-19.02%	-8.64%	-3.44%	10.05%	36.91%
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	1.30%	-9.34%	17.70%	-5.94%	-1.51%	-3.50%	29.43%	35.51%
Use of non-renewable primary energy resources used as raw materials	0%	0%	0%	0%	0%	0%	0%	0%
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	1.30%	-9.34%	17.70%	-5.94%	-1.51%	-3.50%	29.43%	35.51%
Use of secondary materials	0%	0%	0%	0%	0%	0%	0%	0%
Use of renewable secondary fuels	0%	0%	0%	0%	0%	0%	0%	0%
Use of non-renewable secondary fuels	0%	0%	0%	0%	0%	0%	0%	0%
Use of net fresh water	-1.37%	-14.86%	35.51%	-10.39%	-3.83%	-3.39%	46.41%	60.49%

ADDITIONAL ENVIRONMENTAL INFORMATION

% VARIATIONS OF INCLUDED PRODUCTS

WASTE CATEGORIES

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER									
INDICATOR	**GN30**	**SV3**	**FP140**	**BP110**	**SV60**	**SV100**	**BP115**	**SV1**	**TL2**
Hazardous waste disposed	-7.99%	6.62%	6.32%	-0.91%	-2.91%	-2.64%	-3.15%	0.18%	-5.45%
Non-hazardous waste disposed	-17.22%	13.94%	12.71%	-2.26%	-5.69%	-5.14%	-6.10%	0.41%	-11.27%
Radioactive waste disposed	-33.15%	16.43%	16.11%	-1.24%	-5.76%	-6.53%	-6.79%	-7.46%	-13.85%

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER								
INDICATOR	**LM400**	**CM40**	**SV2**	**SV010**	**SV103**	**SV101**	**STUCCO BIANCO**	**ST10 PRO**
Hazardous waste disposed	-12.83%	-12.28%	2.23%	-4.09%	-1.41%	-1.15%	-12.21%	-11.79%
Non-hazardous waste disposed	-26.49%	-25.58%	4.72%	-7.98%	-3.09%	-2.65%	-25.38%	-24.60%
Radioactive waste disposed	-32.00%	-29.74%	2.39%	-9.90%	-3.23%	-2.33%	-30.61%	-30.40%

Regarding Output flows and considering that a mass balance approach was followed for waste produced from production processes, as well as the fact that all waste is considered to be landfilled, the variation for all output flows indicators for all of the examined products is set to 0%.

ADDITIONAL ENVIRONMENTAL INFORMATION

% VARIATIONS OF INCLUDED PRODUCTS

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER									
INDICATOR	**GN30**	**SV3**	**FP140**	**BP110**	**SV60**	**SV100**	**BP115**	**SV1**	**TL2**
Particulate Matter emissions	25.02%	-0.10%	-0.36%	-1.61%	-3.20%	-0.60%	-2.45%	12.36%	0.20%
Ionizing radiation human	144.91%	-16.02%	-15.94%	-19.71%	-19.29%	-1.40%	-4.81%	54.95%	31.26%
Eco-toxicity, freshwater	145.06%	-0.30%	-0.50%	-5.33%	-15.61%	-2.39%	-15.44%	75.53%	-6.28%
Human toxicity, cancer	223.57%	-12.44%	-12.38%	-18.47%	-26.96%	-2.90%	-15.94%	102.45%	19.71%
Human toxicity, non-cancer effects	95.15%	-8.37%	-8.44%	-14.17%	-16.45%	-3.02%	-4.28%	34.65%	25.84%
Land use related impacts/Soil quality	525.52%	-6.03%	-5.75%	-13.80%	-52.66%	-5.49%	-52.23%	274.09%	-13.18%

ADDITIONAL ENVIRONMENTAL INFORMATION

% VARIATIONS OF INCLUDED PRODUCTS

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

% VARIATIONS FROM THE AVERAGE CEMENT-BASED PLASTER								
INDICATOR	**LM400**	**CM40**	**SV2**	**SV010**	**SV103**	**SV101**	**STUCCO BIANCO**	**ST10 PRO**
Particulate Matter emissions	0.31%	-2.30%	5.62%	-2.02%	-0.82%	-0.98%	2.71%	4.80%
Ionizing radiation human	48.83%	16.44%	14.97%	4.19%	5.41%	-6.42%	22.06%	24.61%
Eco-toxicity, freshwater	-8.41%	-14.39%	36.37%	-10.92%	-4.76%	-1.75%	23.80%	38.25%
Human toxicity, cancer	31.26%	6.98%	38.95%	-4.35%	1.12%	-6.29%	20.00%	30.32%
Human toxicity, non-cancer effects	32.41%	4.55%	9.26%	1.69%	4.09%	-5.99%	10.73%	11.97%
Land use related impacts/Soil quality	-16.95%	-27.62%	126.94%	-32.42%	-13.08%	-3.90%	19.36%	64.34%

DIFFERENCES VERSUS PREVIOUS VERSIONS

2024-02-20 (Version 1.1)
Editorial Change: Addition of the Eco-platform logo

REFERENCES

- International EPD® System, PCR 2019:14 Construction Products, version 1.3.1
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