ENVIRONMENTAL PRODUCT DECLARATION

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

EASYMIX PLASTERS & MORTARS

of

STAGAKIS COMPANIES

easy mix

EPD REGISTRATION NUMBER		
S-P-12566		
PUBLICATION DATE	**DATE OF VALIDITY**	**PROGRAM OPERATOR**	**PROGRAM**
2024-04-11	2029-04-10	EPD International AB	The International EPD® System www.environdec.com

EPD of multiple products, based on the average results of the product group.
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

PROGRAM INFORMATION

DETAILS OF PROGRAM OPERATOR

PROGRAM OPERATOR:	EPD International AB
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ACCOUNTABILITIES FOR PCR, LCA & INDEPENDENT, THIRD-PARTY VERIFICATION

PRODUCT CATEGORY RULES (PCR)	▪ CEN Standard EN 15804 serves as the Core Product Category Rules (PCR) ▪ PCR 2019:14 Construction products version 1.3.2 (EN 15804:A2)
PCR REVIEW WAS CONDUCTED BY	The technical Committee of the International EPD System. See www.environdec.com for a list of members.
REVIEW CHAIR	No chair appointed. The review panel may be contacted via the Secretariat www.environdec.com/contact.
LIFE CYCLE ASSESSMENT (LCA)	LCA Accountability **SustChem Technical Consulting S.A.** www.sustchem.gr
THIRD-PARTY VERIFICATION	▪ 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 third-party verification www.bqv.gr – info@bqv.gr ▪ Approved by: **Hellenic Accreditation System ESYD with accreditation number 1218**
PROCEDURE FOR FOLLOW-UP OF DATA DURING EPD VALIDITY INVOLVED THIRD PARTY VERIFIER	✓YES NO

Michail I. Stagaki A.E.V.E has the sole ownership, liability and responsibility for the EPD.

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

EPD OWNER

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DESCRIPTION OF THE ORGANIZATION

Michail I. Stagaki A.E.V.E is a well-known firm for its cementitious products, with a history dating back to 1978, when the firm started as a single person company.

The initial factory had been settled near the Atsipopoulo Interchange, close to the city of Rethymno, and commenced production of Concrete Blocks, pumice Blocks and other similar cementitious products as well as lime slurry.

Over the years, **Michail I. Stagaki A.E.V.E** has steadily expanded evolving from a small local producer to a significant industry player. With its wealth of expertise, the experience, and infrastructure, the company specializes in manufacturing a wide range of construction and building products based mainly on cement.

Today, the company's portfolio includes various categories:

- Cement, marketed under the brand name CEMENT OF CRETE®
- Mortars and plasters under the brand name EASYMIX®
- Ready-mix concrete sold as: BETON OF CRETE®
- Precast concrete products, branded as STAGAKIS PRECAST ®
- Lime slurry under the brand name STAGAKIS LIME®

PRODUCTION SITE:

The Manufacturing site for the products examined in this EPD is located in Latzimas, 741 50, Rethymno, Greece.

PRODUCT INFORMATION

The products covered in this EPD include cementitious plasters and mortars, marketed under the trade name "**EASYMIX**", presented below:

650 sprayed mortar is a cementitious mortar, used for preparing walls before their coating with first-layer or one-coat plaster. It ensures excellent adhesion both to the substrate and to the subsequent plaster layer, for both interior and exterior surfaces. Suitable for use on common brick walls (regular or thermal insulation), cement blocks, or aerated concrete, as well as on surfaces made of exposed concrete or covered with insulation materials. It can also be used for minor repairs and patches in construction areas.

750 first layer plaster is used as a main layer plaster after the application of the sprayed mortar. Suitable for both interior and exterior wall constructions, for repairing old walls as well as for patches and minor repairs. It serves as an ideal substrate for the application of the final coat plaster.

800 final coat plaster is used as a final coat plaster, applied after the first-layer plaster, for both interior and exterior surfaces in new constructions or the renovation of old ones. It can also be used for skim coating surfaces made of exposed concrete.

840 final coat plaster used as a final coat plaster, applied after the first-layer coat plaster, for both exterior and interior surfaces in new constructions or the restoration of old ones.

900 one coat plaster is a one-coat, resin-based, water-repellent plaster suitable for both exterior and interior surfaces. Applied after the undercoat plaster, it is suitable for conventional brick walls, lightweight structures, or partially insulated with thermal insulation materials (such as polystyrene thermal insulation boards, etc.), as well as exposed concrete, etc. It is also suitable for renovating old, deteriorated plastered surfaces, for skim coating, and for minor repairs in the construction area.

- For the placement on the market within the European Union/European Free Trade Association (EU/EFTA), Regulation No 305/2011 (CPR) is applicable. All products are accompanied by a Declaration of Performance (DoP) in compliance with EN 998-1: 2016.

Essential Properties Based On En 998-1:2016

Essential Properties	650 Sprayed Mortar	750 First Layer Plaster	800 Final Coat Plaster	840 Final Coat Plaster	900 One Coat Plaster
Reaction to fire	A1	A1	A1	A1	A1
Adhesive Strength	≥ 0.7 N/mm2	≥ 0.6 N/mm2	≥ 0.7 N/mm2	≥ 0.4 N/mm2	≥ 0.4 N/mm2
Water Absorption	Wc1	WO	Wc1	WO	W1
Water vapor diffusion coefficient	μ= 15/35	μ= 15/35	μ= 5/20	μ= 5/20	μ= 5/20
Thermal conductivity coefficient	$\lambda_{10,dry} \leq 0.72$ W/mK, P=50%	$\lambda_{10,dry} \leq 0.67$ W/mK, P=50%	$\lambda_{10,dry} \leq 0.45$ W/mK, P=50%	$\lambda_{10,dry} \leq 0.48$ W/mK, P=50%	$\lambda_{10,dry} \leq 0.47$ W/mK, P=50%

- More Information regarding the technical characteristics of the products can be acquired from the respective Technical Data Sheets (TDSs) of the products which are available on demand.
- According to the UN CPC classification system, these products can be classified under the UN CPC code: 375 – Articles of concrete, cement, and plaster.

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CONTENT DECLARATION

- This is an EPD of multiple products, based on an average product weighted over production volumes. 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 along with the range in content for all products within the product group.

- 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.

Content Declaration of Easy-mix Plasters expressed in kg per D.U. (kg/kg)

Product Components	Average Product Weight kg/kg	Content Range Weight kg/kg	Post-consumer recycled material (%)	Biogenic material, weight- % and kg C/kg
Limestone	0.8113	0.7078-0.8585	-	-
Cement	0.1200	0.1070-0.2538	-	-
Hydrated lime	0.0534	0.0000-0.1040	-	-
Aggregates	0.0105	0.0000-0.0373	-	-
Additives	0.0049	0.0012-0.0107		
Total	**1.0000**	-	-	-

Packaging Materials	Average Product Weight kg/kg	Content Range Weight kg/kg	Weight (%) versus the product for the average product	Weight, Biogenic carbon, kg C/kg average product
Paper Bag	0.00273	0.00248-0.00292	0.27%	-
Wooden Pallet	0.01677	0.01563-0.01826	1.68%	-
Polyethylene	0.00043	0.00039-0.00047	0.04%	-
Polypropylene Bag	0.00012	0.00000-0.00030	0.01%	-
Total	**0.02004**	-		**-**

- The content declaration does not include the share of recycled and biobased materials in the product components. In fact, some additives used in the products' formulations, are starch ether and cellulose (fibers), deriving from biological sources. The overall contribution of these materials to the products' content is less than 5%, and their biogenic content is only available from generic LCI datasets. According to PCR 2019:14, the share of biobased/recycled materials, as stated in generic LCI datasets, cannot be used as the sole basis for declaring biobased/recycled content. Therefore, the biobased content of these additives is left out.

LCA INFORMATION

SYSTEM BOUNDARIES	DECLARED UNIT	TIME REPRESENTATIVENESS	GEOGRAPHICAL SCOPE	DATABASES USED	SOFTWARE USED
This LCA study follows a “cradle-to-gate” approach with modules C1-C4 & module D.	The declared unit used in this EPD is **one (1) kilogram (kg) of an average Easymix plaster.**	The data used for the analysis are based on one-year average production data, from 1st of January 2022 to 31st of December 2022.	For Modules A1-A2, the geographic scope is global. Module A3 focuses on Greece, while Module C encompasses the Eastern Mediterranean region (EMED).	Ecoinvent 3.8.1 & Professional 2021	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
MODULES	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										EMED	EMED	-	EMED	-
SPECIFIC DATA USED	~60%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
VARIATION - PRODUCTS	35.51%*			-	-	-	-	-	-	-	-	-	-	-	-	-	-
VARIATION - SITES	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

- This variation represents the difference between the declared average GWP-GHG result for Modules A1-A3 and the product with GWP-GHG results furthest from the declared results corresponding to the product 650 sprayed mortar.

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SYSTEM DIAGRAM

PRODUCT STAGE: MODULES A1 – A3

PRODUCTION OF RAW MATERIALS

Cement, Limestone, Hydrated Lime, Bentonite, Additives

PRODUCTION OF PACKAGING MATERIALS

Paper Bags, Pallets, PE Film, PP Bags

Transport of input commodities from production facilities to Stagakis' manufacturing plant

Diesel Mix

Easymix plasters manufacturing

Electricity

END-OF-LIFE STAGE: MODULES C1, C2, C3, C4

C4 Landfilling of 100% of plaster waste

C3 Treatment of deconstructed product

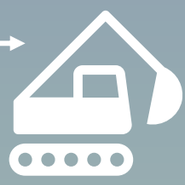
C2 Transport of deconstructed product to waste handling facilities

C1 Demolition – deconstruction of the building

Diesel Mix

Deconstructed plaster

Diesel Mix



RECOVERY STAGE: MODULE D

Potential benefits from recycling and/or energy recovery of waste flows from module C3

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DESCRIPTION OF EXAMINED MODULES

As depicted in the preceding diagram, the study encompasses specific Life Cycle stages, namely **Product, End-of-life,** and **Resource - Recovery**. Information modules that have been omitted are A4-A5 (Construction stage) and Modules B1-B7 (Use phase stage). All the excluded information modules are scenario-based while the purpose of this EPD is to communicate the environmental aspects across life cycle stages where the company has influence over.

PRODUCT STAGE

MODULE A1

This module encompasses all processes associated with the production of input commodities, including the production of raw materials used in the manufacturing of the examined products and the provision of utilities, which, in this study, is limited solely to electricity.

The electricity used in the production is sourced from the Greek electricity grid for medium voltage, with the company holding a contractual agreement with a specific electricity provider “Fysiko Aerio-Hellenic Energy Company”. For the modelling of electricity, the residual electricity mix of the provider is considered as depicted in the most recent report published by the Greek Administrator of Renewable Energy and Guarantees of Origin (DAPEEP) which is representative for the year 2022.

The emission Intensity of electricity production, as computed from the LCA Software, LCA for Experts, for the residual Electricity mix of the provider for 2022, expressed as GWP-GHG result, is equal to 0.534 kg CO_2 eq./kWh.

MODULE A2

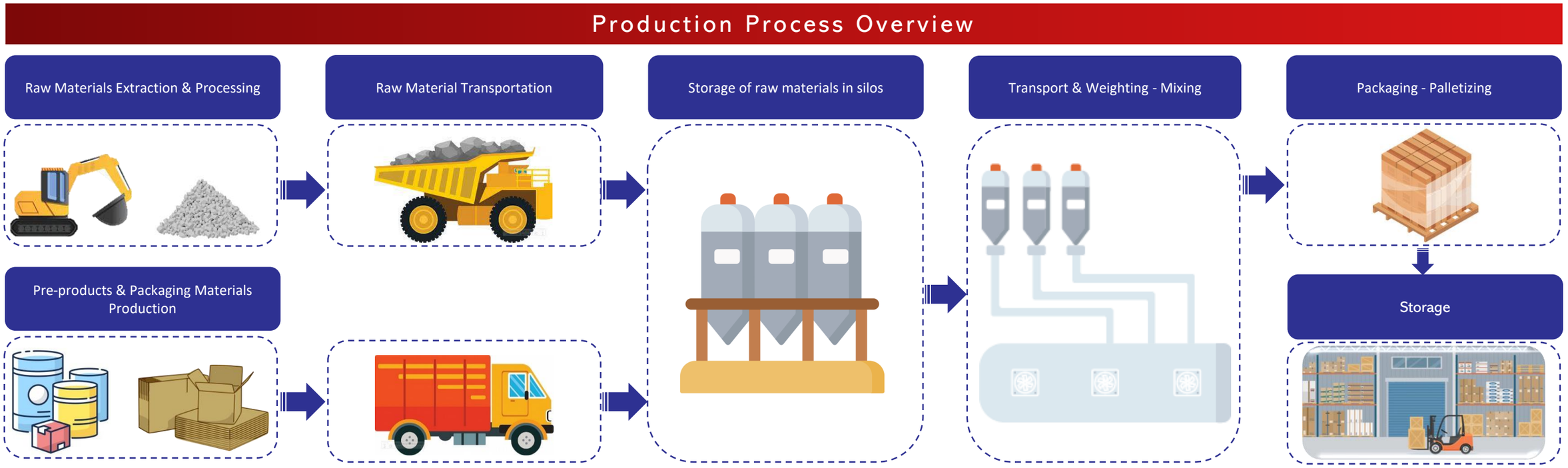
In Module A2, the transportations of input commodities to the manufacturing plant are included, considering both raw and packaging materials. Transportation routes and distance covered in kilometres, are subject to assumptions based on the actual locations of the producers. Transportation modes were modelled through selected LCI datasets, retrieved by Managed LCA Database (MLC database) bearing in mind technological and temporal specificity.

Due to diverse densities of the transferred goods two distinct datasets were used for heavy, and light transferred goods for road transportation, while for marine transportation an average container vessel was employed.

Scenarios For Provision Of Input Commodities		
Transportation Route	**Type Of Transferred Good**	**Transportation Mode**
Road	Heavyweight cargo transferred in bulk	Lorry, Euro 6, 28 - 32t gross weight / 22t payload capacity
Road	Lightweight cargo	Truck, Euro 6, 12 - 14t gross weight / 9.3t payload capacity
Marine	Lightweight cargo	Average ship, 3.500t payload capacity

MODULE A3

This module includes the manufacturing of packaging materials as well as the manufacturing of the examined products. The production process starts with raw materials being delivered and transferred to designated silos equipped with screw mechanisms and weighing systems. These systems ensure precise measurement of raw materials according to set specifications stored electronically. The entire process is centrally controlled and monitored from a production control room. Once the raw materials are dispensed into the mixer, blending occurs according to a preset program tailored to the product group. The mixed product is then discharged into a hopper and continuously supplied. A robotic packaging system facilitates bagging, with filled bags moving along a belt for printing of traceability data. Bags are transferred to pallets, arranged electronically, and enclosed with stretch film for protection. Prepared pallets are then stored and transported to clients via trucks.



DESCRIPTION OF EXAMINED MODULES

END-OF-LIFE STAGE

The end-of-life stage of the construction product starts when it is replaced, dismantled, or deconstructed from the building or construction works and does not provide any further functionality. It can also start at the end-of-life of the building, depending on choice of the product's end-of-life scenario. The approach followed in this study, considers that the end-of-life stage of Coat plasters starts when they are deconstructed along with the rest of the building, as once installed, they are integrated part of the building.

Regarding the various end-of-life scenarios, we examined the emissions associated with disposing of 100% of dismantled waste. We selected the most probable approach, which in this case is landfilling, due to uncertainties surrounding specific disposal methods. Our practical approach acknowledges landfilling as the primary disposal option.

EoL Scenarios for Easxymix Plasters	
Processes	**Unit (Expressed Per Declared Unit)**
Collection process specified by type	0kg collected separately
	1kg collected with mixed construction waste
Recovery system specified by type	0kg for re-use
	0kg for recycling
	0kg for energy recovery
Disposal specified by type	1kg product or material for final deposition
Assumptions for scenario development (transportation)	Distance of waste disposal facilities: 100km

MODULE C1

Module C1 concentrates on quantifying emissions linked to extracting the product from the building during the deconstruction phase. Within this investigation, a pragmatic scenario has been developed based on literature findings. The dismantling of plasters occurring concurrently with the rest of the building is assumed to be performed with the use of a diesel-driver excavator of 100kW power.

MODULE C2

Within this module, we investigate the transportation of disassembled plasters to waste treatment facilities. We establish specific assumptions regarding the typical distance between construction sites and waste management facilities, assuming 100 km distance as well as the transportation methods employed.

MODULE C3

This module does not encompass any emissions as the end-of-life scenario developed, assumes that the entire quantity of dismantled plasters is directed for landfilling.

MODULE C4

This module considers the emissions associated with the landfilling of plaster as inert material.

RESOURCE/ RECOVERY STAGE

MODULE D

In general, this module accounts for the net benefits derived from recovery procedures. However, in this study, the product after its use is assumed to be fully landfilled, resulting in no potential benefits from recovery. Also, Module A5 is not part of the system boundary and therefore no benefits can be examined from the potential recycling or reuse of packaging materials.

ADDITIONAL LCA INFORMATION

ALLOCATIONS:

Mass allocation has been employed to attribute the share of each product to the consumption of electricity and utilities of the manufacturing process

CUT-OFFS:

The study incorporates data for processes, accounting for at least 99% of the stated environmental impacts. Excluded processes are:

- Production of infrastructure and capital goods
- End-of-life of waste packaging from raw materials
- Emission from diesel combustion during dryers' and construction work machines' operation

ASSUMPTIONS:

- The study's calculations consider a distance of 100 kilometers (km) to reach treatment facilities in Module C2. This assumption accounts for the hypothetical distance materials would need to be transported to access necessary treatment facilities for processing or disposal, serving as a baseline assumption for logistical planning and environmental impact assessments.
- All waste generated from the deconstruction process (Module C1) is assumed to be disposed of in landfills as part of its disposal procedure. (Module C4).

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ENVIRONMENTAL PERFORMANCE

Environmental Results Normalized to 1kg of Average Easymix Plaster

- In this EPD, the selected impact categories and respective indicators describing them, as defined by International EPD System, default indicator list version 2.0. and PCR 2019:14 “Construction products” v.1.3.2 are declared. In addition, the results of a supplementary indicator for climate impact is declared. The characterization factors (CFs) used, are aligned with the EF-JRC package for EN 15804 based on EF reference package 3.0.

- Please note that 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 LCIA results are normalized to the selected declared unit, **1kg of average Easymix Plaster.**

- Please be advised that the inclusion of module C in the Environmental Product Declaration (EPD) mandates a comprehensive consideration of its results alongside modules A1-A3. It is strongly discouraged to utilize the outcomes of modules A1-A3 without duly integrating the results of module C.

Core Environmental Impact Indicators	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential – total	kg CO2 eq.	1.86E-01	6.52E-04	1.23E-02	0.00E+00	5.27E-03	0.00E+00
Global Warming Potential – fossil	kg CO2 eq.	1.86E-01	6.47E-04	1.22E-02	0.00E+00	5.27E-03	0.00E+00
Global Warming Potential – biogenic[1]	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Global Warming Potential – land use and land use transformation	kg CO2 eq.	1.09E-04	5.09E-06	9.96E-05	0.00E+00	5.07E-06	0.00E+00
Ozone Depletion Potential	Kg CFC-11 eq.	4.71E-09	1.23E-19	2.41E-18	0.00E+00	1.28E-03	0.00E+00
Acidification Potential	Mole of H+ eq.	4.06E-04	3.12E-06	1.32E-05	0.00E+00	1.28E-03	0.00E+00
Eutrophication aquatic freshwater	kg P eq.	1.58E-05	1.85E-09	3.62E-08	0.00E+00	1.48E-01	0.00E+00
Eutrophication aquatic marine	kg N eq.	1.18E-04	1.46E-06	4.29E-06	0.00E+00	0.00E+00	0.00E+00
Eutrophication terrestrial	mol N eq.	1.30E-03	1.62E-05	5.11E-05	0.00E+00	1.48E-01	0.00E+00
Photochemical Ozone Formation	kg NMVOC eq.	3.60E-04	4.10E-06	1.15E-05	0.00E+00	1.58E-04	0.00E+00
Depletion of abiotic resources. minerals and metals [2]	kg Sb eq.	1.50E-07	5.51E-11	1.08E-09	0.00E+00	0.00E+00	0.00E+00
Depletion of abiotic resources. fossils [2]	MJ net calorific value	1.18E+00	8.29E-03	1.62E-01	0.00E+00	0.00E+00	0.00E+00
Water Use [2]	m3 world eq. deprived	3.63E-02	5.77E-06	1.13E-04	0.00E+00	0.00E+00	0.00E+00

[1] This indicator has negative value 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. In terms of the biogenic carbon content of the product, the amount of carbon uptake and degradation throughout the life cycle of the product can be found in the table above. This value was calculated and added manually in A1-A3 (uptake) and C4 where degradation of product occurs.

[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.

ENVIRONMENTAL PERFORMANCE

Environmental Results Normalized to 1kg of Average Easymix Plaster

Additional GWP Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential – GWP-GHG[3]	kg CO2 eq.	1.86E-01	6.52E-04	1.23E-02	0.00E+00	5.27E-03	0.00E+00

[3] 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

Use Of Resources	Unit	A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ. net calorific value	5.73E-01	4.77E-04	9.34E-03	0.00E+00	1.28E-03	0.00E+00
Use of renewable primary energy resources used as raw materials	MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ. net calorific value	5.73E-01	4.77E-04	9.34E-03	0.00E+00	1.28E-03	0.00E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ. net calorific value	1.18E+00	8.32E-03	1.63E-01	0.00E+00	1.48E-01	0.00E+00
Use of non-renewable primary energy resources used as raw materials	MJ. net calorific value	2.23E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ. net calorific value	1.18E+00	8.32E-03	1.63E-01	0.00E+00	1.48E-01	0.00E+00
Use of secondary materials	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ. net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m3	8.62E-04	5.46E-07	1.07E-05	0.00E+00	1.58E-04	0.00E+00

ENVIRONMENTAL PERFORMANCE

Environmental Results Normalized to 1kg of Average Easymix Plaster

Waste Indicators	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.12E-05	4.38E-13	8.59E-12	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	2.45E-04	1.31E-06	2.56E-05	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	1.45E-05	1.51E-08	2.96E-07	0.00E+00	0.00E+00	0.00E+00

Output Flows Indicators	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling (MFR)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity (EEe)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal (EEt)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

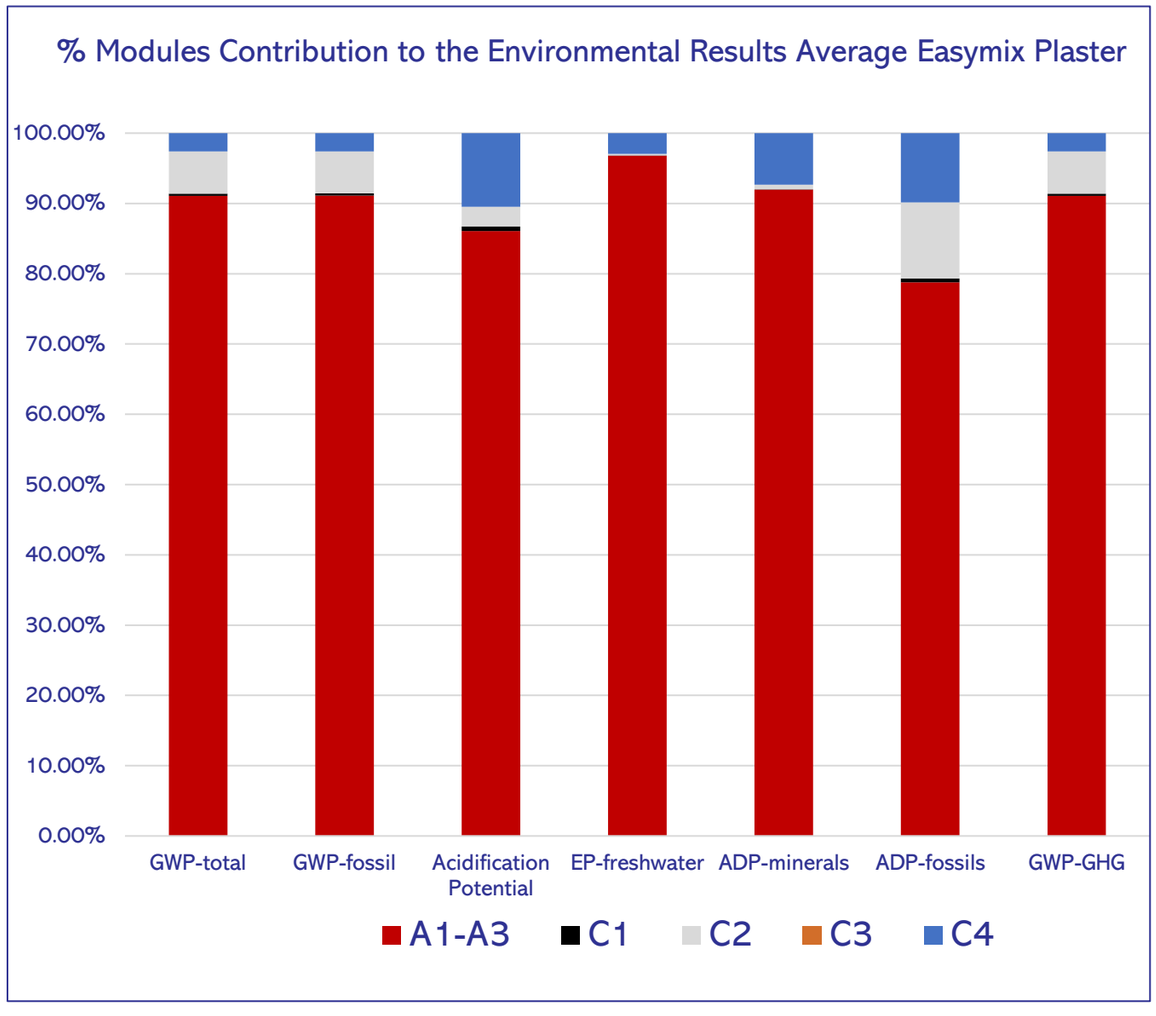
Additional Environmental Impact Indicators	Unit	A1-A3	C1	C2	C3	C4	D
Particulate matter emissions (PM)	Disease incidence	3.54E-09	3.54E-11	8.94E-11	0.00E+00	9.70E-10	0.00E+00
Ionizing radiation human (IRP)[4]	kBq U235 eq.	7.91E-03	2.21E-06	4.32E-05	0.00E+00	6.53E-04	0.00E+00
Eco-toxicity, freshwater (ETP-fw)92]	CTUe	1.15E+00	6.15E-03	1.21E-01	0.00E+00	9.35E-02	0.00E+00
Human toxicity, cancer effects (HTP-c) [2]	CTUh	1.03E-10	1.24E-13	2.44E-12	0.00E+00	2.36E-12	0.00E+00
Human toxicity, non-cancer effects (HTP-nc) [2]	CTUh	1.63E-09	7.46E-12	1.26E-10	0.00E+00	6.10E-11	0.00E+00
Land use related impacts/Soil quality (SQP) [2]	-	2.85E+00	2.85E-03	5.58E-02	0.00E+00	3.09E-01	0.00E+00

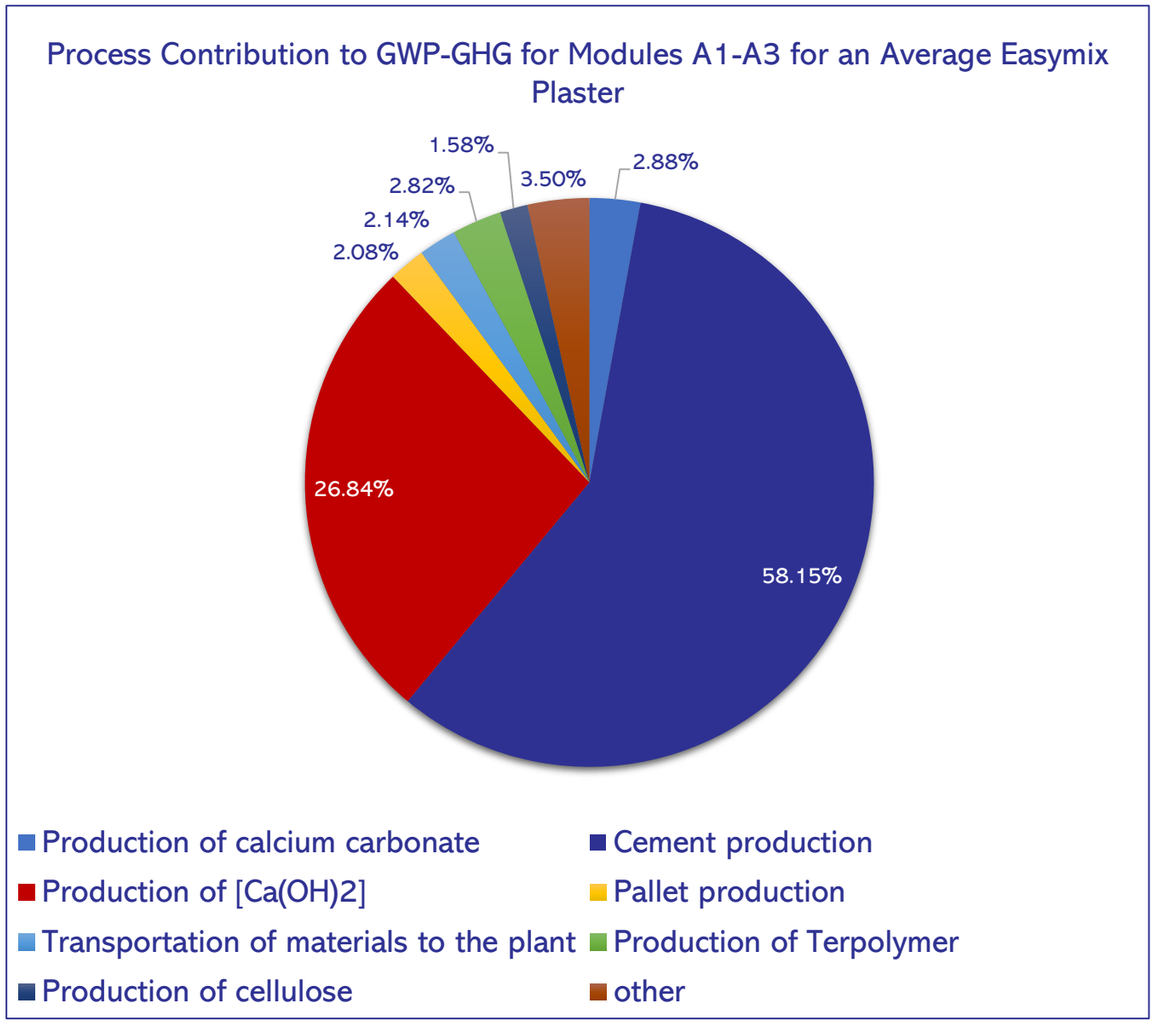
{2] The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

[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

INTERPRETATION

- The accompanying diagram demonstrates the proportional impacts of the assessed modules (A1-A3 & C1-C4) on key environmental indicators. Through a dominance analysis, the evaluation reveals that modules A1-A3 significantly influence the majority of the examined impact categories. Notably, in terms of Global Warming Potential (GWP), modules A1-A3 emerge as the most impactful phases in the lifecycle, collectively contributing to 91.6% of the total impact. While Modules C1, C2, and C4 also contribute to GWP, their roles are comparatively minor, accounting for 0.32%, 6.03%, and 2.59%, respectively. This distribution highlights the hierarchical importance of different phases in influencing GWP throughout the product's lifecycle.





- As the majority of the examined impact indicators, Global Warming Potential (GWP-GHG) is primarily affected by Modules A1-A3. More specifically, production of Portland and Hydrated lime alone represents 85% of the entire GWP-GHG.

ADDITIONAL ENVIRONMENTAL INFORMATION

- The following tables provide a comprehensive overview of the divergences observed across all the products that have been subject to examination. These divergences encompass all the environmental impact aspects that were taken into account. They are juxtaposed against the anticipated environmental impacts associated with an average product. The tables serve to offer an in-depth insight into how each product's environmental footprint deviates from the benchmark represented by an average product.

% Variations From The Average Easy-mix Plaster					
Indicator	**650 Sprayed Mortar**	**750 First Layer Plaster**	**800 Final Coat Plaster**	**840 Final Coat Plaster**	**900 One Coat Plaster**
Climate Change – Total	32.34%	-19.76%	22.60%	15.94%	-24.30%
Climate Change – Fossil	32.38%	-19.77%	22.61%	15.95%	-24.32%
Climate Change – Biogenic	0.00%	0.00%	0.00%	0.00%	0.00%
Climate Change - Land Use and Land Use Change	-7.57%	-12.95%	13.10%	4.41%	-8.04%
Global Warming Potential- GWP-GHG	32.34%	-19.76%	22.60%	15.94%	-24.30%
Ozone Depletion	49.62%	2.44%	-1.24%	1.59%	-3.23%
Acidification	47.74%	-3.07%	8.68%	3.28%	-10.05%
Eutrophication, fresh water	48.66%	-3.92%	3.53%	5.13%	-7.19%
Eutrophication, marine	41.26%	-5.68%	9.89%	6.44%	-12.46%
Eutrophication, terrestrial	43.76%	-4.36%	9.07%	5.69%	-11.84%
Photochemical Ozone Formation, human health	32.23%	-11.09%	15.25%	8.53%	-15.78%
Resource use, mineral and metals	35.30%	-5.04%	8.07%	1.22%	-6.27%
Resource use, fossils	12.00%	-17.07%	26.54%	-0.84%	-12.62%
Water Use	-2.00%	-26.22%	43.41%	-21.11%	-2.49%

% Variations From The Average Easymix Plaster (Modules A-C)					
Indicator	**650 Sprayed Mortar**	**750 First Layer Plaster**	**800 Final Coat Plaster**	**840 Final Coat Plaster**	**900 One Coat Plaster**
Hazardous waste disposed	-61.21%	-61.92%	73.54%	61.86%	-84.36%
Non-hazardous waste disposed	14.60%	12.94%	18.55%	11.60%	-32.73%
Radioactive waste disposed	-12.53%	-9.15%	18.09%	14.74%	-23.42%

ADDITIONAL ENVIRONMENTAL INFORMATION

% Variations From The Average Easy-mix Plaster					
Indicator	**650 Sprayed Mortar**	**750 First Layer Plaster**	**800 Final Coat Plaster**	**840 Final Coat Plaster**	**900 One Coat Plaster**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	-2.94%	-8.50%	4.53%	6.08%	-4.99%
Use of renewable primary energy resources used as raw materials	0.00%	0.00%	0.00%	0.00%	0.00%
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	-2.94%	-8.50%	4.53%	6.08%	-4.99%
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	11.99%	-17.07%	26.54%	-0.84%	-12.62%
Use of non-renewable primary energy resources used as raw materials	-99.20%	-99.24%	157.14%	-96.59%	14.75%
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	11.82%	-17.19%	26.73%	-0.98%	-12.58%
Use of secondary materials	0.00%	0.00%	0.00%	0.00%	0.00%
Use of renewable secondary fuels	0.00%	0.00%	0.00%	0.00%	0.00%
Use of non-renewable secondary fuels	0.00%	0.00%	0.00%	0.00%	0.00%
Use of net fresh water	-3.41%	-26.41%	43.16%	-20.04%	-3.14%

% Variations From The Average Easymix Plaster (Modules A-C)					
Indicator	**650 Sprayed Mortar**	**750 First Layer Plaster**	**800 Final Coat Plaster**	**840 Final Coat Plaster**	**900 One Coat Plaster**
Particulate Matter emissions	16.91%	-8.12%	13.03%	5.66%	-12.31%
Ionizing radiation human	54.58%	19.41%	-0.03%	-8.90%	-3.08%
Eco-toxicity, freshwater	53.53%	8.77%	4.91%	-6.56%	-3.93%
Human toxicity, cancer	-37.19%	-50.45%	47.74%	40.16%	-49.73%
Human toxicity, non-cancer effects	16.31%	-22.57%	28.64%	10.06%	-21.85%
Land use related impacts/Soil quality	-3.73%	-6.54%	0.88%	7.14%	-3.97%

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