NORDIA S.A.

ENVIRONMENTAL PRODUCT DECLARATION

of

Aggregates

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

ECO PLATFORM EPD VERIFIED

EPD® THE INTERNATIONAL EPD® SYSTEM

Type of Aggregate Products (mm)

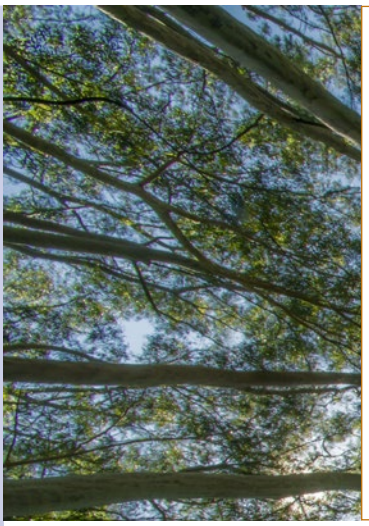
SAND 0/4	FINE GRAVEL 4/10	FINE GRAVEL 8/16	COARSE GRAVEL 16/31.5	COARSE GRAVEL 10/20	COARSE GRAVEL 22.4/63	ALL IN 3A 0/22.4

EPD of multiple products, based on the worst 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

EPD REGISTRATION NUMBER	PUBLICATION DATE	DATE OF VALIDITY	PROGRAM OPERATOR	PROGRAM
IES-0022543	2025-06-06	2030-06-05	EPD International AB	The International EPD® System www.environdec.com

PROGRAM INFORMATION



DETAILS OF PROGRAM OPERATOR

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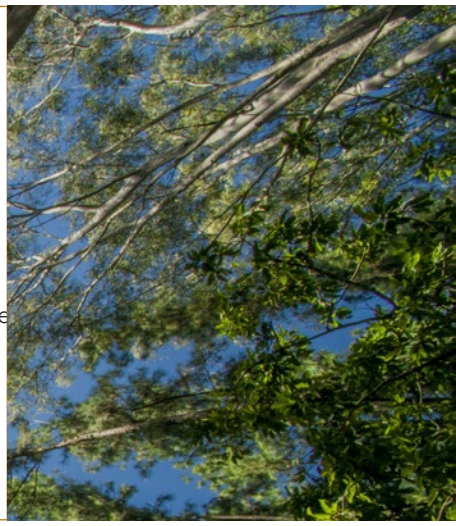


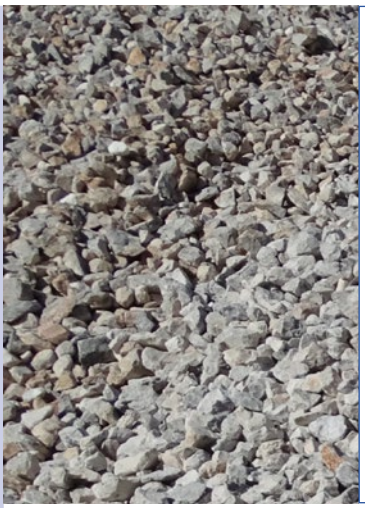
ACCOUNTABILITIES FOR PCR, LCA & INDEPENDENT, THIRD-PARTY VERIFICATION

PRODUCT CATEGORY RULES (PCR)	• CEN Standard EN 15804 serves as the Core Product Category Rules (PCR) • PCR 2019:14 Construction products version 1.3.4 (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	The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/support.
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: TÜV HELLAS (TÜV NORD), Mesogeion Av. 282, 155 62 Cholargos, Greece is an approved certification body accountable for third-party verification info@tuvhellas.gr The certification body is accredited by Hellenic Accreditation System (E.SY.D.). Accreditation No: 31/7
PROCEDURE FOR FOLLOW-UP OF DATA DURING EPD VALIDITY INVOLVED THIRD PARTY VERIFIER	YES ✓ NO

Nordia S.A. 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

NORDIA S.A.

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DESCRIPTION OF THE ORGANIZATION AND THE AGGREGATES QUARRY

VISION

Aggregates Quarry - NORDIA

With extensive experience and expertise in the field of quarrying activities, the company manages its quarry in Ypato /Thebes with responsibility and commitment to quality.

The aggregates which are extracted include various types of high-quality crushed rock, suitable for a wide range of applications such as:

Concrete production

Lime production

Road construction

Asphalt mixture production

Mortar production

Boulders for marine works construction

NORDIA SA has invested in modern equipment, cutting-edge technology and experienced personnel to ensure the efficient extraction and processing of aggregates. The production process conforms to strict procedures, guaranteeing that products meet the specifications declared in their CE marking, and comply with the relevant European standards and/or other relevant national regulations.

Beyond standard products, the quarry can produce customized aggregates, tailored to the specific needs of clients and their projects.

The specific products of the quarry (BACKFILLING SAND 0/4, BACKFILLING MATERIAL (E4) 0/63, BACKFILLING MATERIAL 3AB 0/16) covered by this EPD are CE marked, with Declarations of Performance, and their Factory Production Control (FPC) is being audited and certified by TÜV NORD (TÜV HELLAS) in accordance with Regulation (EU) No. 305/2011.

Environmental Commitment

NORDIA S.A. is committed to environmental sustainability and takes proactive steps in this direction. It has implemented an environmental management system certified according to ISO 14001. Standard practices include waste recycling, efficient use of diesel and electricity, and the rehabilitation of exploited areas. NORDIA also conducts life cycle assessments of its products and publishes verified Environmental Product Declarations (EPDs). Additionally, the company calculates the carbon footprint of its quarry's crushing installation and is planning significant actions to reduce this footprint by 2030, in compliance with European and Greek legislation.

Health and Safety

The health and safety of employees is a top priority for NORDIA S.A. The quarry implements strict safety measures and provides continuous training to its workforce to prevent accidents and promote a safe working environment.

Social Responsibility

NORDIA S.A. actively participates in the local community of Thebes by supporting social and cultural activities and contributing to the local economy through job creation and collaboration with local suppliers.

FACILITY-PRODUCTION SITE & HEADQUARTERS:

The Manufacturing site (quarry and production site) for the products examined in this EPD is located in "Mesovouni", 32200 Ypato, Thebes, Greece.

The headquarters are located in 1st km Malakasas-Markopoulou Road, 19011 Malakasa, Attica, Greece.

PRODUCT INFORMATION

All the mentioned **aggregates** are natural limestone aggregates, sourced from mineral deposits and processed solely through mechanical methods. These products are derived from the same raw material, **limestone**, extracted from the same quarry of Nordia S.A. in Thebes. Each product differs mainly in its grain size and some other technical characteristics, as declared in their Declarations of Performance, which accompany the products as CPR (article 7), and are available on demand from Nordia's personnel. For the products BACKFILLING SAND 0/4, BACKFILLING MATERIAL (E4) 0/63, BACKFILLING MATERIAL 3AB 0/16 under study, their intended use concerns aggregates for hydraulically stabilised or unstabilised materials for use in civil engineering and road construction (EN 13242:2002+A1:2007).

Some of these characteristics are presented in the following table.

Technical Characteristics							
Product	SAND (Ammos)	FINE GRAVEL (Ryzaki)	FINE GRAVEL (Garbili)	COARSE GRAVEL (Chaliki)	COARSE GRAVEL (Chaliki)	COARSE GRAVEL (Skyro)	ALL IN (3A)
Particle size (mm)	0/4	4/10	8/16	16/31.5	10/20	22.4/63	0/22.4
Harmonized Standard	EN 12620 EN 13043 EN 13242 EN 13139	EN 13043	EN 12620 EN 13043 EN 13242	EN 12620 EN 13043 EN 13242	EN 13043	EN 13242	EN 13242
Water absorption	WA_{24} 1.21%	WA_{24} 0.8%	WA_{24} 0.71%	WA_{24} 0.6%	WA_{24} 0.65%	W_{cm} 0.375%	WA_{24} 1.05 %
Fines content	f_{16}	f_{2}	$f_{1.5}$	$f_{1.5}$	f_{1}	f_{2}	f_{22}
Fines quality	$SE_{(4)}$ > 70						$SE_{(4)}$ > 40
Total sulfur	< 0.003%		< 0.003%	< 0.003%			
Soluble chlorides	< 0.002%		< 0.002%	< 0.002%			
Acid soluble sulfate content	$AS_{0,2}$		$AS_{0,2}$	$AS_{0,2}$			
Humus content	No hummus						
Lightweight organic contaminators	m_{LPC} < 0.25%		m_{LPC} < 0.05%	m_{LPC} < 0.05%			
Resistance to fragmentation		LA_{30}	LA_{30}	LA_{30}	LA_{30}	LA_{30}	LA_{30}
Resistance to freezing/thawing	MS_{18}	MS_{18}	MS_{18}	MS_{18}	MS_{18}	MS_{18}	MS_{18}

According to the UN CPC classification system, these products can be classified under UN CPC 15320 & UN CPC 15200

CONTENT DECLARATION

Content Declaration of the worst-case aggregate product expressed in kg per D.U. (kg/tn)			
Product Components	Weight kg/tn	Post-consumer recycled material (%)	Biogenic material, weight % and kg C/kg
Limestone	1000	0%	0

This is an EPD of multiple products, based on the worst-case scenario. This EPD is based on the worst-case results over the production volumes among the included products within the product group. Therefore, the product selected in this EPD is the **SAND 0/4**.

The composition of the product is expressed in mass per declared unit (kg/tn). The table below displays the content declaration for this product along with the range in content for all products within the product group.

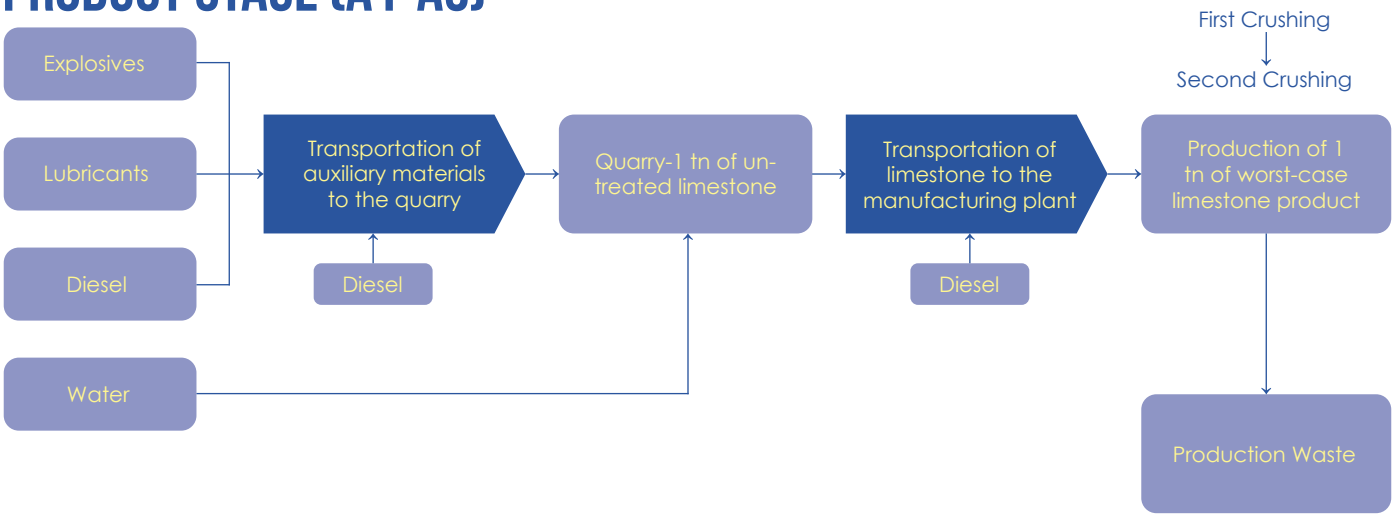
No substances included in the Candidate List of Substances of Very High Concern for authorization under the Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH Regulations) that exceed 0.1% of the total weight are present in the examined systems.

LCA INFORMATION

SYSTEM BOUNDARIES	DECLARED UNIT	TIME REPRESENTATIVENESS	GEOGRAPHICAL SCOPE	DATABASES USED	SOFTWARE USED
This LCA study follows a "cradle-to-gate" approach A1-A3.	The declared unit used in this EPD is one (1) tonne (tn) of **SAND 0/4**.	The data used for the analysis are based on one-year average production data, from 1st of January 2023 to 31st of December 2023.	For Modules A1-A2, the geographic scope is global, while Module A3 focuses on Greece.	Ecoinvent 3.9.1 & Managed LCA Content	LCA for experts provided by Sphera

	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	ND	ND	ND	ND	ND
Geography	GLO	GLO	GR	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Share Of Specific Data	>90%																
Variation - Products	Not relevant																
Variation - Sites	Not relevant																

PRODUCT STAGE (A1-A3)



As shown in the preceding diagram, the study includes specific life cycle stages: Product Stage (A1-A3).

PRODUCT STAGE

MODULE A1

This module encompasses all activities related to the production of input materials (raw and auxiliary), including the extraction of the raw material at the quarry, as well as the supply of utilities, which in this case is limited to electricity. Production begins with the supply of raw materials, the primary one being limestone. The limestone is sourced from Nordia's quarry located in the Thebes area, where it is extracted in its raw form ready for transport to the a processing plant for crushing. The processing plant is located next to the quarry, within the same plot. The auxiliary materials involved in the mining of raw limestone include explosives, small amounts of lubricants, diesel for quarry machinery, and water, which is used to dampen the quarry roads for dust reduction, as well as for watering the plants used for the environmental restoration of the quarry levels where the mining has been completed.

The electricity used in production is sourced from the Greek medium-voltage electricity grid, with a contractual agreement in place with the electricity provider 'Protergia'. For electricity modeling, the residual electricity mix from the provider is considered, based on the latest report from the Greek Renewable Energy and Guarantees of Origin Administrator (DAPEEP), reflecting the 2023 data. The emission intensity of electricity generation, calculated using the LCA software 'LCA for Experts' for the 2023 residual mix, results in a GWP-GHG value of **0.542 kg CO2 eq./kWh**.

MODULE A2

Module A2 covers the transportation of input materials to the quarry, as well as the transportation of limestone from the quarry to the production site for further processing.

Transportation details, including the mode of transport (truck, vessel) and distance, are based on assumptions derived from the actual locations of the producers. The modelled transport route includes transportation from the manufacturer to the retailer, or directly from the manufacturer to the Nordia S.A. quarry when there is no retailer. Transportation modes in Module A2 were modelled using selected LCA datasets from the Managed LCA database (GaBi database), considering the specific technological and temporal factors.

Scenarios for provision of input commodities		
Transportation Route	Type of transferred good	Transportation Mode
Road	Auxiliary materials (explosives, lubricants)	Truck, Euro 6, 12 - 14t gross weight / 9.3t payload capacity/ Fuel type: Diesel
Sea	Auxiliary materials (explosives, lubricants)	Average ship, 3,500t payload capacity / upstream/ Fuel type: Diesel
Road	Limestone	Truck, Euro 4, 12 - 14t gross weight / 9.3t payload capacity/ Fuel type: Diesel
Road	Diesel burned in quarry machinery	Truck - tanker (EPA SmartWay)/ Fuel type: Diesel

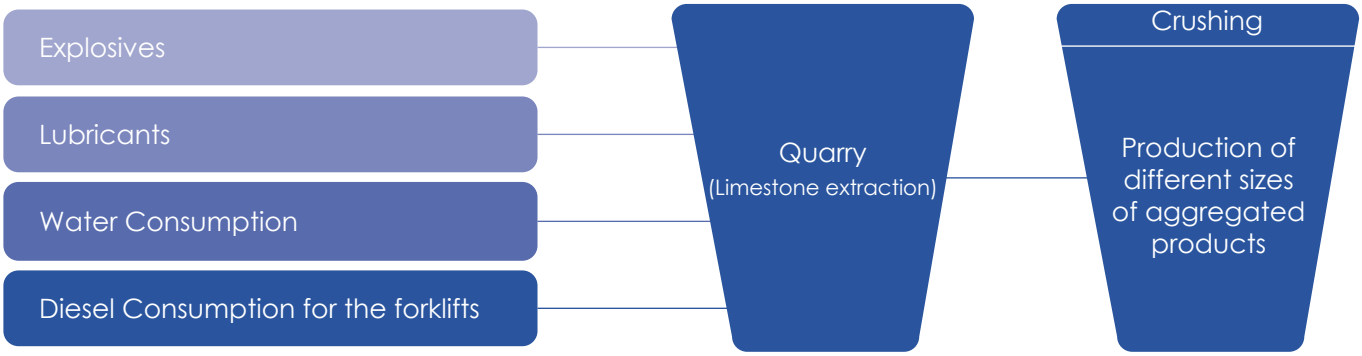
MODULE A3

This Module includes all the related to the manufacturing procedures, specifically the production of packaging materials and the generation of production waste.

Regarding the production of packaging materials for limestone, no packaging is used since the mined stone is transported from the quarry to the manufacturing plant by trucks and the finished products (aggregate) are loaded onto customer trucks and transported in bulk. Therefore, no calculations for packaging material production are included in this study.

Finally, the system boundaries encompass all processes related to the treatment of production waste until the end-of-waste state is achieved. Identified production waste includes non-chlorinated engine oils, packaging materials for auxiliary materials (such as plastics and cardboard), as well as waste from iron and steel, cables, tires, and batteries. The volumes and types of waste generated by manufacturing processes were obtained from the manufacturing company's Electronic Waste Register (EWR). However, due to the very small quantities of waste generated during the study period, these were not considered in the modeling calculations.

PRODUCTION PROCESS OVERVIEW



ADDITIONAL LCA INFORMATION

ALLOCATIONS

The allocation of explosives was based on the total production of limestone, which includes both first- and second-crushing products. This allocation is made in relation to the total production of limestone because the mining processes apply to all inert products, irrespective of whether they are included in the present study. The activities conducted in the quarry pertain to all limestone products.

Similarly, the allocation of lubricants was made to the total production of limestone products, as these are utilized in the process of extracting raw limestone.

Water used for dust suppression on the quarry roads and the watering of plants for environmental restoration, as well as diesel consumption for quarry machinery operations, were allocated across the entire production of limestone products for the same reasons.

The manufacturing company has not installed electricity meters to measure the electricity consumption associated with each of the products during the crushing of raw limestone. Therefore, the electricity consumption associated with the first crushing of raw limestone for the production of the desired products is allocated across the total limestone production, as all products undergo at least one crushing stage. In the case of the second crushing, the allocation is applied exclusively to the production of those products that pass through this second crushing stage.

ASSUMPTIONS

When there is a lack of available data from the company's activity records, one commonly resorts to making assumptions to enable the modeling of the product's life cycle. In this LCA analysis, a summary of the assumptions made is provided below:

- It is assumed that the amount of limestone extracted is directly proportional to the amount sent for crushing. This means that all the limestone extracted from the quarry is considered to be processed through the crushing stages, with no significant losses or material left unprocessed.
- Road transport is carried out by Euro-6 trucks with a total gross weight 12-14 tonnes and an average payload capacity of 9.3 metric tons consuming diesel from the filling station. For the transportation of the raw limestone from the quarry area to the crusher, a Euro-4 truck with a total gross weight 12-14 tonnes and an average payload capacity of 9.3 metric tons consuming diesel from the filling station was used." Given the variability in cargo density and the unspecified volume capacity of trucks, these assumptions are deemed to provide a reasonably accurate approximation of the real-world scenario. For sea transportation as mentioned above in the analysis of Module A2, an Average ship with a payload capacity of 3,500t / upstream with diesel consumption coming from a refinery was used. Finally, for the transportation of diesel for the quarry machinery , it was considered that the transit was achieved via Truck - tanker (EPA SmartWay) consuming diesel from a filling station.

CUT-OFFS

As per PCR "Construction products" section 4.4 and EN15804+A2, section 6.3.6. Life Cycle Inventory data for a minimum of 95% of total inflows (mass and energy) per module are being included. Data for elementary flows to and from the product system contributing to minimum of 99% of the declared environmental impacts are included in the study. In this LCA study, the processes excluded include:

- The waste generated by the production process constitutes a minimal proportion of the overall environmental footprint indicators, specifically less than 1%. Given that the quantities of such waste are considered negligible, they have been excluded from the scope of this study.

LIMITATIONS

Any limitation of the product system arises from the absence of data sets that reflect the production process of the raw materials used in the manufacture of the examined products. In this study, the explosives used are from the ANFO and TOVEX categories. Since no data set could be found for ANFO, but one was available for TOVEX, the quantity of ANFO used was included in the TOVEX data set for the purposes of this analysis.

ENVIRONMENTAL PERFORMANCE

Environmental Results Normalized to 1tn of Worst-Case result of Aggregate(SAND 0/4)

This Environmental Product Declaration (EPD) presents the selected impact categories and their corresponding indicators, as defined by the International EPD System, version 2.0 of the default indicator list, and PCR 2019:14 "Construction Products," version 1.3.4. Additionally, the results of a supplementary indicator for climate impact are provided. It is important to note that the estimated impact results represent relative statements and do not indicate the endpoints of the impact categories, nor do they account for threshold values, safety margins, or associated risks. The Life Cycle Impact Assessment (LCIA) results are normalized to the declared unit of **1 tn of SAND 0/4**.

Potential Environmental Impacts/ 1 tn of SAND 0/4			
Core Environmental Impact Indicators		**Unit**	**A1-A3**
Global Warming Potential – total	GWP-total	kg CO2 eq.	2.70E+00
Global Warming Potential – fossil	GWP-fossil	kg CO2 eq.	2.68E+00
Global Warming Potential – biogenic	GWP-biogenic	kg CO2 eq.	0.00E+00
Global Warming Potential – land use and land use change	GWP-luluc	kg CO2 eq.	1.92E-02
Ozone Depletion Potential	ODP	kg CFC 11 eq.	7.52E-08
Acidification Potential	AP	Mole of H+ eq.	1.18E-02
Eutrophication Potential – freshwater	EP-freshwater	kg P eq.	1.79E-04
Eutrophication Potential – marine	EP-marine	kg N eq.	2.76E-03
Eutrophication Potential – terrestrial	EP-terrestrial	mol N eq.	3.54E-02
Photochemical Oxidant Formation Potential	POCP	kg NMVOC eq.	7.73E-03
Abiotic Depletion Potential – elements[1]	ADPe	kg Sb eq.	1.53E-05
Abiotic Depletion Potential. fossil resources[1]	ADPf	MJ net calorific value	4.44E+01
Water Deprivation Potential[1]	WDP	m^3 world eq. deprived	1.95E+00

[1] 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 Results Normalized to 1tn of Worst-Case result of Aggregate(SAND 0/4)

Potential Environmental Impacts/ 1 tn of SAND 0/4			
Climate Change		**Unit**	**A1-A3**
Global Warming Potential – GHG[2]	GWP-GHG	kg CO2 eq.	2.70E+00

[2] 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 CO2 is set to zero.

Potential Environmental Impacts/ 1 tn of SAND 0/4			
Resource Use Indicators		**Unit**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ. net calorific value	1.70E+01
Use of renewable primary energy resources used as raw materials	PERM	MJ. net calorific value	0.00E+00
Total use of renewable primary energy resources	PERT	MJ. net calorific value	1.70E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ. net calorific value	4.44E+01
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ. net calorific value	0.00E+00
Total use of non-renewable primary energy resources	PENRT	MJ. net calorific value	4.44E+01
Use of secondary material	SM	kg	0.00E+00
Use of renewable secondary fuels	RSF	MJ. net calorific value	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ. net calorific value	0.00E+00
Use of net fresh water	FW	m^3	4.19E-02

Potential Environmental Impacts/ 1 tn of SAND 0/4			
Waste Indicators		**Unit**	**A1-A3**
Hazardous waste disposed	HWD	kg	3.90E-08
Non-hazardous waste disposed	NHWD	kg	1.82E-02
Radioactive waste disposed	RWD	kg	1.55E-04

Potential Environmental Impacts/ 1 tn of SAND 0/4			
Output Flows		**Unit**	**A1-A3**
Components for re-use	CRU	kg	0.00E+00
Material for recycling	MFR	kg	0.00E+00
Materials for energy recovery	MER	kg	0.00E+00
Exported energy. Electricity	EEe	MJ	0.00E+00
Exported energy. Thermal	EEt	MJ	0.00E+00

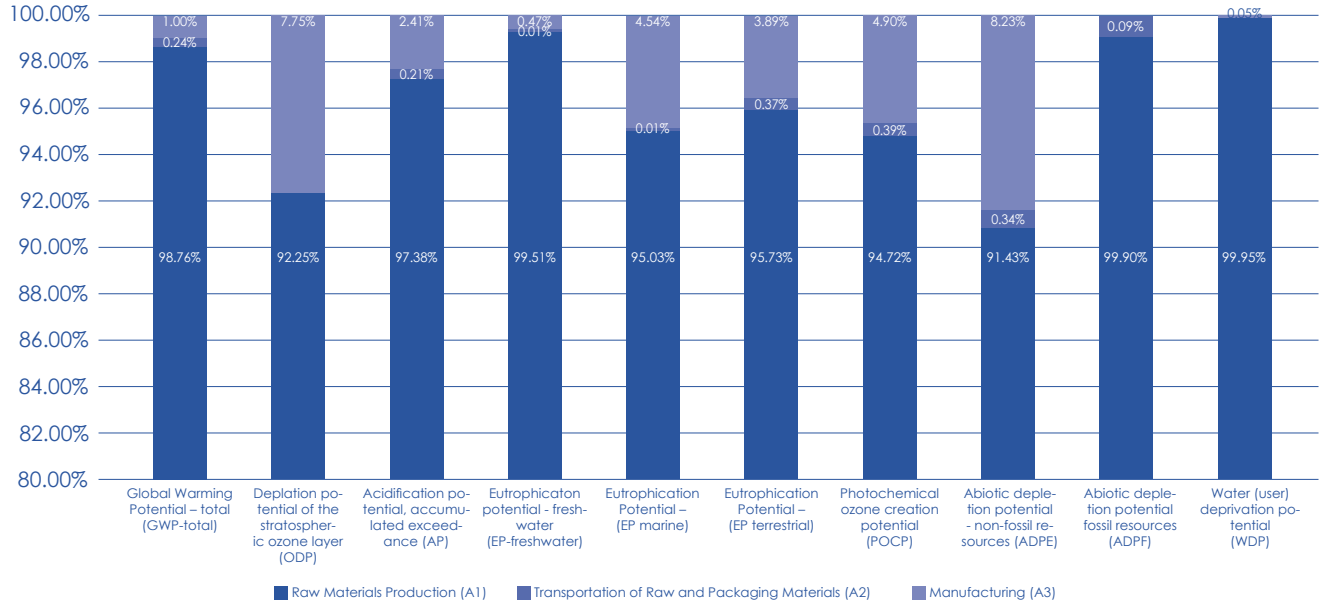
Potential Environmental Impacts/ 1 tn of SAND 0/4			
Additional Environmental Impact Indicators		**Unit**	**A1-A3**
Particulate matter emissions	PM	Disease incidence	9.43E-08
Ionizing radiation human[4]	IRP	kBq U235 eq.	5.55E-02
Eco-toxicity. Freshwater[2]	ETP-fw	CTUe	2.34E+01
Human toxicity. cancer effects[2]	HTP-c	CTUh	1.33E-09
Human toxicity. non-cancer effects[2]	HTP-nc	CTUh	3.11E-08
Land use related impacts/Soil quality[2]	SQP	dimensionless	1.34E+01

[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

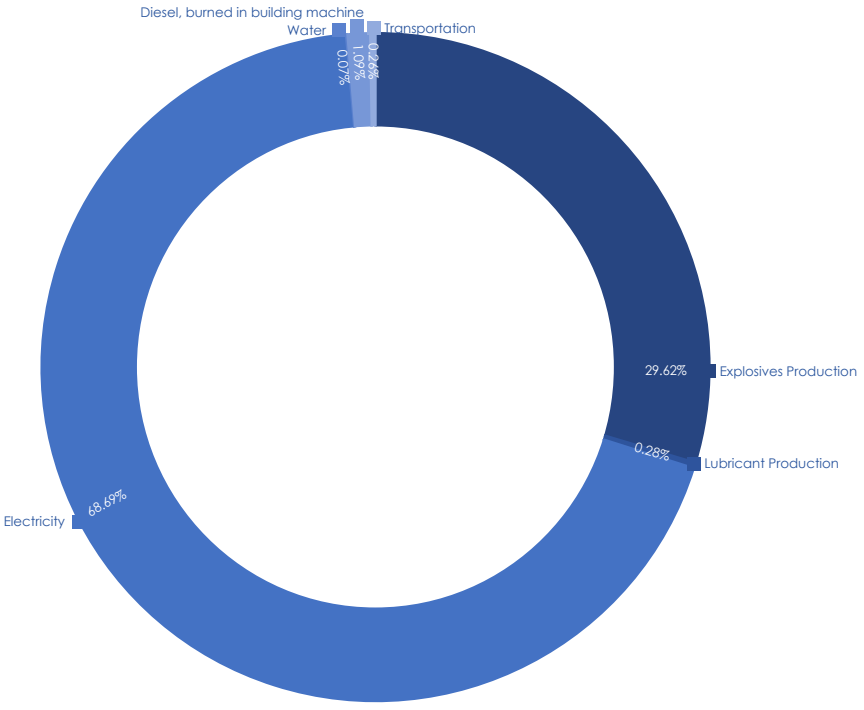
Contribution of each life-cycle stage based on a dominance/contribution analysis to the core environmental impact indicators



As depicted in the diagram, it is evident that the production stage (Modules A1-A3) makes the most significant contribution to the results of each of the impact indicators examined. Specifically, the following observations are noteworthy:

- The total Global Warming Potential (GWP) is predominantly attributed to Module A1, which accounts for over 98% of the overall potential environmental impacts.
- The contributions of the remaining Modules (A2 and A3) are rather negligible.

Process Contribution to GWP-GHG for Modules A1-A3 for the worst-case Aggregate



Specifically, 68.69% of the environmental impacts are attributable to the production and consumption of electricity for the processes taking place at the crushing plant to achieve the desired particle size of the aggregate products. The production of explosives and diesel for the quarry machinery also significantly contribute to the environmental impact results, accounting for 29.62% and 1.09%, respectively.

It is observed that the largest contribution to the environmental footprint comes from processes within Module A1, specifically at the stage of raw and auxiliary material production.

The following tables present the environmental results for the remaining products in this EPD. As previously mentioned, due to the limitation of detailed electricity consumption data, it was assumed that all products consume the same amount of electricity as the product with the highest environmental impact, namely the SAND 0/4, which was selected for analysis as the worst-case scenario product.

Core Environmental Impacts 1tn of Limestone Aggregate Products (A1-A3)

Resource Use Indicators	Unit	Fine Gravel 4/10	Fine Gravel 8/16	Coarse Gravel 16/31.5	Coarse Gravel 10/20	Coarse Gravel 22.4/63	All In 3A 0/22.4
Global warming potential - total (GWP-total)	kg CO2 eq.	2.70E+00	2.70E+00	2.70E+00	2.70E+00	2.70E+00	2.70E+00
Global warming potential - fossil fuels (GWP-fossil)	kg CO2 eq.	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00
Global warming potential - biogenic (GWP-biogenic)	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 change (GWP-luluc)	kg CO2 eq.	1.92E-02	1.92E-02	1.92E-02	1.92E-02	1.92E-02	1.92E-02
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	7.52E-08	7.52E-08	7.52E-08	7.52E-08	7.52E-08	7.52E-08
Acidification potential, accumulated exceedance (AP)	mol H+ eq.	1.18E-02	1.18E-02	1.18E-02	1.18E-02	1.18E-02	1.18E-02
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04
Eutrophication potential - marine (EP-marine)	kg N eq.	2.76E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03	2.76E-03
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.54E-02
Photochemical ozone creation potential (POCP)	kg NMVOC eq.	7.73E-03	7.73E-03	7.73E-03	7.73E-03	7.73E-03	7.73E-03
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	1.53E-05	1.53E-05	1.53E-05	1.53E-05	1.53E-05	1.53E-05
Abiotic depletion potential - fossil resources (ADPF)	MJ, net calorific value	4.44E+01	4.44E+01	4.44E+01	4.44E+01	4.44E+01	4.44E+01
Water (user) deprivation potential (WDP)	m3 world eq. deprived	1.95E+00	1.95E+00	1.95E+00	1.95E+00	1.95E+00	1.95E+00

Core Environmental Impacts 1tn of Limestone Aggregate Products (A1-A3)

Resource Use Indicators	Unit	Fine Gravel 4/10	Fine Gravel 8/16	Coarse Gravel 16/31.5	Coarse Gravel 10/20	Coarse Gravel 22.4/63	All In 3A 0/22.4
Global warming potential - total (GWP-total)	kg CO2 eq.	2.70E+00	2.70E+00	2.70E+00	2.70E+00	2.70E+00	2.70E+00

Core Environmental Impacts 1tn of Limestone Aggregate Products (A1-A3)

Resource Use Indicators	Unit	Fine Gravel 4/10	Fine Gravel 8/16	Coarse Gravel 16/31.5	Coarse Gravel 10/20	Coarse Gravel 22.4/63	All In 3A 0/22.4
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.70E+01
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	MJ, net calorific value	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.70E+01	1.70E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value	4.44E+01	4.44E+01	4.44E+01	4.44E+01	4.44E+01	4.44E+01
Use of non-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 non-renewable primary energy resources	MJ, net calorific value	4.44E+01	4.44E+01	4.44E+01	4.44E+01	4.44E+01	4.44E+01
Use of secondary material	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	m^3	4.19E-02	4.19E-02	4.19E-02	4.19E-02	4.19E-02	4.19E-02

ADDITIONAL ENVIRONMENTAL INFORMATION

Potential Environmental Impacts 1tn of Limestone Aggregate Products (A1-A3)							
Resource Use Indicators	**Unit**	**Fine Gravel 4/10**	**Fine Gravel 8/16**	**Coarse Gravel 16/31.5**	**Coarse Gravel 10/20**	**Coarse Gravel 22.4/63**	**All In 3A 0/22.4**
Components for re-use	kg.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy. Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy. Thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Potential Environmental Impacts 1tn of Limestone Aggregate Products (A1-A3)							
Environmental information describing waste categories	**Unit**	**Fine Gravel 4/10**	**Fine Gravel 8/16**	**Coarse Gravel 16/31.5**	**Coarse Gravel 10/20**	**Coarse Gravel 22.4/63**	**All In 3A 0/22.4**
Hazardous waste disposed (HWD)	kg.	3.90E-08	3.90E-08	3.90E-08	3.90E-08	3.90E-08	3.90E-08
Non-harzardous waste disposed (NHWD)	kg	1.82E-02	1.82E-02	1.82E-02	1.82E-02	1.82E-02	1.82E-02
Radioactive waste disposed (RWD)	kg	1.55E-04	1.55E-04	1.55E-04	1.55E-04	1.55E-04	1.55E-04

Potential Environmental Impacts 1tn of Limestone Aggregate Products (A1-A3)							
Resource Use Indicators	**Unit**	**Fine Gravel 4/10**	**Fine Gravel 8/16**	**Coarse Gravel 16/31.5**	**Coarse Gravel 10/20**	**Coarse Gravel 22.4/63**	**All In 3A 0/22.4**
Particulate matter emissions	Disease incidence	9.43E-08	9.43E-08	9.43E-08	9.43E-08	9.43E-08	9.43E-08
Ionizing radiation human[4]	kBq U235 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eco-toxicity. Freshwater[2]	CTUe	2.34E+01	2.34E+01	2.34E+01	2.34E+01	2.34E+01	2.34E+01
Human toxicity. cancer effects[2]	CTUh	1.33E-09	1.33E-09	1.33E-09	1.33E-09	1.33E-09	1.33E-09
Human toxicity. non-cancer effects[2]	CTUh	3.11E-08	3.11E-08	3.11E-08	3.11E-08	3.11E-08	3.11E-08
Land use related impacts/Soil quality[2]	dimensionless	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01	1.34E+01

[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

REFERENCES

- International EPD® System, PCR 2019:14 Construction Products, version 1.3.4 (EN 15804: A2)
- EN 15804:2012+A2:2019/AC 2021 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.
- International EPD® System, General Program Instructions for the International EPD System, version 4.01
- ISO 14020:2000- Environmental Labels and Declarations – General Principles
- ISO 14025:2006 - Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 14040:2006 - Environmental management – Life Cycle assessment – Principles and framework
- ISO 14044:2006 - Environmental management – Life Cycle assessment – Requirements and guidelines
- The International EPD® System – The International EPD System is a programme for type III environmental declarations, maintaining a system to verify and register EPDs as well as keeping a library of EPDs and PCRs in accordance with ISO 14025. www.environdec.com
- Ecoinvent/ Ecoinvent Centre – www.Eco-invent.org
- Sphera – LCA for Experts Product Sustainability software – www.sphera.com
- Residual Energy Mix 2023 from Renewable Energy Sources Operator & Guarantees of Origin (DAPEEP SA)