

ENVIRONMENTAL PRODUCT DECLARATION

no. 03-05/2025

Dolomite and limestone aggregate

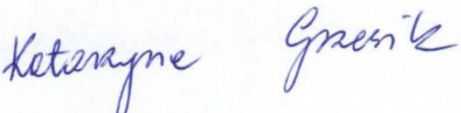
Kopalnie Dolomitu S.A.

w Sandomierzu



Owner of the declaration:	Kopalnie Dolomitu S.A. w Sandomierzu
Programm owner:	Łukasiewicz Research Network– Institute of Ceramics and Building Materials
Program name:	Environmental product declaration
Data of issue:	21.05.2025
Declaration valid until:	21.05.2030

1. GENERAL INFORMATION

Product of declaration:	Dolomite and limestone aggregate
Program owner: Łukasiewicz Research Network – Institute of Ceramics and Building Materials Environmental Engineering Center in Opole. http://www.icimb.pl/opole/	Declaration owner: Kopalnie Dolomitu S.A. w Sandomierzu, Błonie 8 street, 27-600 Sandomierz Telephone: +48 15 833 17 00 Address: biuro@grupapbi.eu https://grupapbi.eu/kopalnie-dolomitu/
Declared unit:	1 tonne
Date of issue:	21.05.2025
Declaration valid until:	21.05.2030
Life Cycle Analysis (LCA):	A1-A3, C1-C4 and D according to PN-EN 15804+A2 (Cradle-to-Gate with options)
Product Categorization (PCR) Rules	PN-EN 15804+A2:2020-03 Sustainability of construction works. Environmental Product Declarations. Basic principles of categorization of construction products, ICIMB-PCR A.
Representatives:	Polish product, year 2024
Declared durability:	No declared product durability
Reasons for performing LCA:	B2B
Standard of product	EN 13043; EN 13242; EN 12620; EN 13383
Declarations that are the result of different programs or are not performed in accordance with the standard may not be comparable.	
The Łukasiewicz – Institute of Ceramics and Building Materials Environmental Engineering Center provides access to the Type III environmental declaration for dolomite and limestone aggregate to interested parties.	
The declaration owner is responsible for the information and the base evidence. Łukasiewicz Research Network - Institute of Ceramics and Building Materials Center for Environmental Engineering is not responsible for the manufacturer's information and data and evidence regarding the life cycle assessment.	
Authors' team: Katarzyna Kiprian, M.Sc. Ewa Głodek-Bucyk, Ph.D. Patrik Okoń, M.Sc. Approved:  Joanna Poluszyńska, PhD Director of the Environmental Engineering Center  Ewa Głodek-Bucyk, Ph.D. Leader of the Process Engineering Research Group	Review: CEN standard PN-EN 15804+A2 serves as the main PCR document. Independent verification of declarations and data according to EN ISO 14025:2010 ☐ Internal ☒ External  Katarzyna Grzesik, PhD, DSc

2. MANUFACTURER AND PRODUCT INFORMATION

Kopalnie Dolomitu S.A. w Sandomierzu operate two open-pit mines: Budy and Janczyce. These facilities produce aggregates and fertilizers for the PBI Group. Their operations play a key role in the construction sector by supplying raw materials essential for various construction projects. Thanks to high standards in extraction and production, Kopalnie Dolomitu S.A. w Sandomierzu ensure not only reliable deliveries but also meet quality requirements, which translates into trust from customers and business partners.



Budy Mine

At the Budy mine, high-quality Devonian dolomite and limestone deposits are extracted and processed.

Janczyce Mine

At the Janczyce mine, high-quality Devonian dolomite and limestone deposits are extracted and processed.



The product group covered by the declaration includes dolomite and limestone aggregates:

- fine aggregates,
- coarse aggregates,
- continuously graded aggregates,
- stone for hydraulic engineering works.

The aggregate extracted at the Budy and Janczyce mines can be used in:

- infrastructure construction,
- general construction,
- hydraulic engineering,
- agriculture,
- other industries – including rail and manufacturing.

Table 1. Classification of aggregates fractions assortment offered by Kopalnie Dolomitu S.A. w Sandomierzu



Fine Aggregate 0-2 mm



Coarse Aggregate 2-8 mm



Coarse Aggregate 8-11,2



Coarse Aggregate 8-16 mm



Coarse Aggregate 11,2-16 mm



Coarse Aggregate 16-22,4



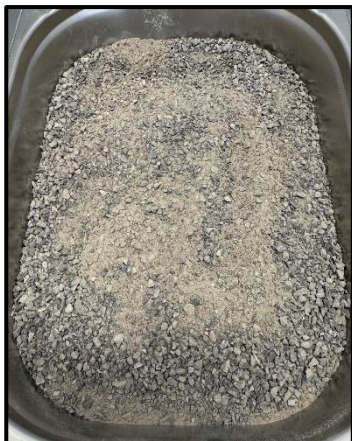
Coarse Aggregate 31,5-63



Continuously Graded
Aggregate 0-31,5 mm



Continuously Graded
Aggregate 0-63 mm



Fine Aggregate 0-4 mm



Continuously Graded
Aggregate 0-16 mm



Continuously Graded
Aggregate 0-22,4 mm



Coarse Aggregate 4-31,5 mm

The first stage of production involves detaching the rock from the deposit using explosives loaded into blast holes drilled by percussion-rotary drills. The resulting rock material is then loaded by an excavator or loader onto haul trucks and transported to the feed hoppers of stationary processing plants. Using a steel apron feeder, the rock material is conveyed to a scalper (roller grate), where it is cleaned. The cleaned rock material then goes to a jaw crusher for initial crushing. In the next stage, the material is fed into an impact crusher for further fragmentation and screening on vibrating screens, where the final aggregate fractions are obtained. The finished material, sorted into the desired fractions, is then loaded onto trucks and sold to customers.

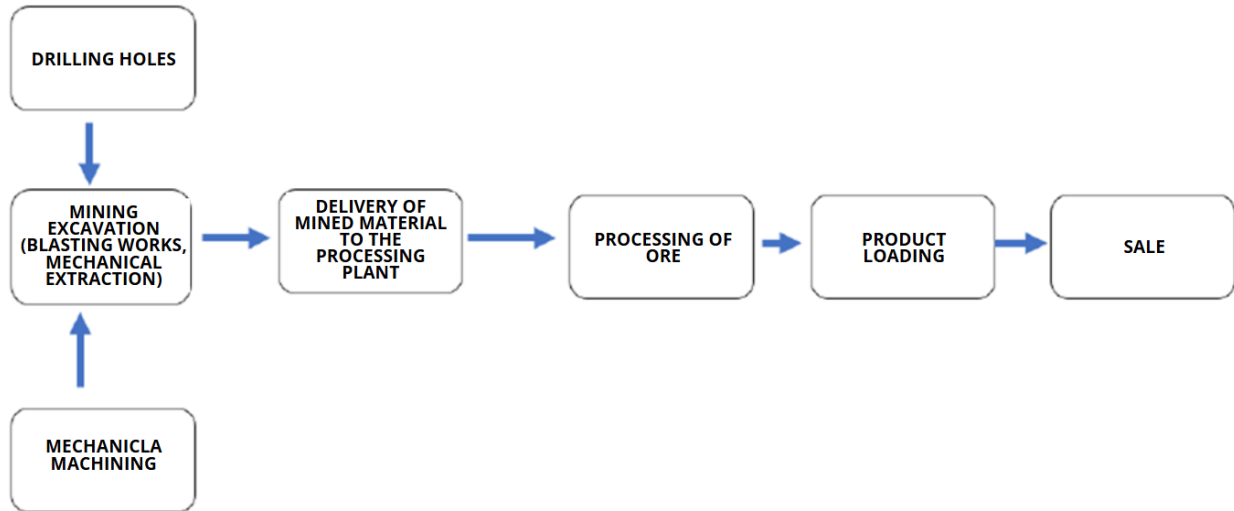


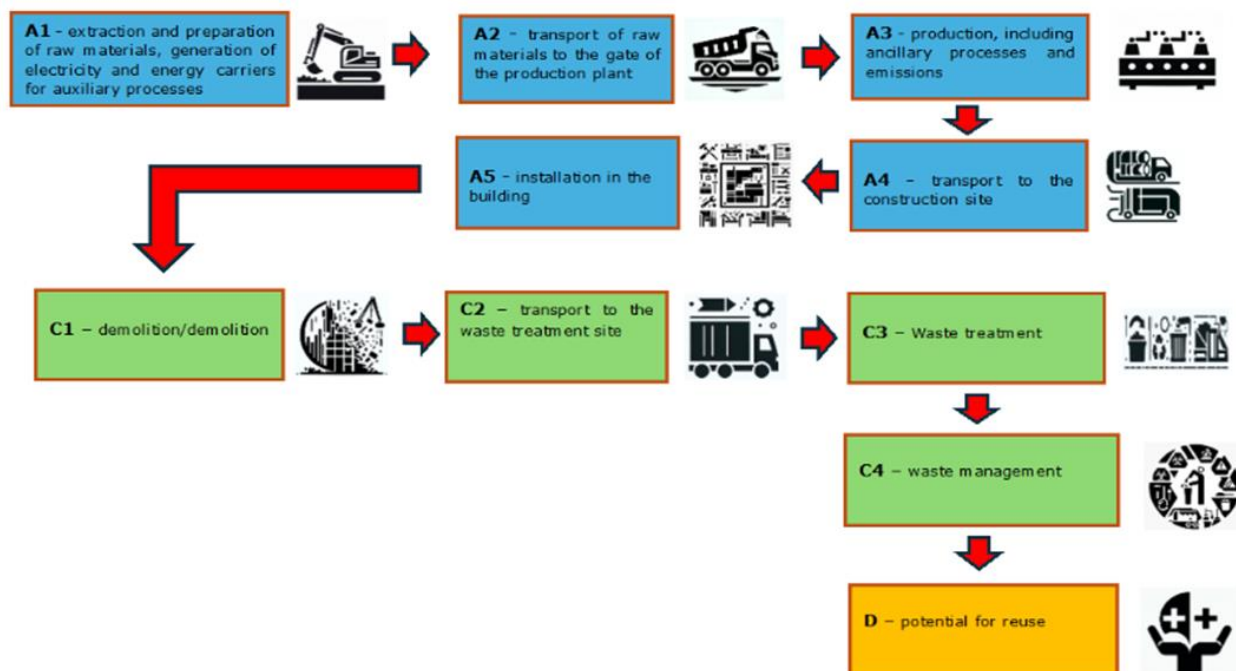
Figure 1: Production diagram of dolomite and limestone aggregates manufactured by Kopalnie Dolomitu S.A. w Sandomierzu at the production mine in Budy and Janczyce.

3. LCA: CALCULATION RULES

The environmental declaration is based on averaged data provided by the declaration owner, Kopalnie Dolomitu S.A w Sandomierzu., for two production sites located in Budy and Janczyce. The average values of input and output flows were calculated based on data supplied by the manufacturer from both production sites for the period from 01.01.2024 to 31.12.2024 (12 months).

System limitations

The life cycle analysis of the tested products includes modules A1-A3, C1-C4 and D (Cradle to Gate with options) in accordance with PN-EN 15804.



Data colleration period

Data on the production process were provided in 2025 for the period 01.01.2024 - 31.12.2024 (12 months) and correspond to the production technology of the time.

Declared unit

1 tonne

Assumptions

A1 – extraction and consumption of raw materials refers to specific mass shares in the production process, per unit declared of the product,

A2 – distances from the place of obtaining raw materials to the production plant individual for each raw material, means of transport differentiated due to the method of delivery of raw materials,

A3 – CO₂, NO_x, SO₂ and dust emission values from the production process obtained as a result of estimation based on fuel consumption,

C1 – Describes the handling of the aggregate during dismantling/demolition. Calculations are based on a developed scenario.

C2 – Refers to the transport of waste from the construction site to a recovery or disposal facility. Calculations are based on a developed scenario.

C3 – Accounts for the environmental impact of processing demolition waste containing aggregate components at a recovery facility. Calculations are based on a developed scenario.

C4 – Covers the environmental impact of landfilling and recycling aggregate components. Calculations are based on a developed scenario.

D – Relates to the impacts and benefits of using secondary material. Calculations are based on a developed scenario.

Cut-off criteria

99% of all bulk streams involved in the production process were taken into account. All the energy used in the process was taken into account in the environmental declaration.

General data

The emission factor for electricity in Poland (based on Ecoinvent v. 3.10, supplemented with up-to-date data from the electricity supplier ENEA Obrót S.A.) is 0.656 kg CO₂/kWh. A detailed quality analysis of the data was part of the external audit.

Allocation

All unit process data from the two production sites was obtained through data collection questionnaires, completed and verified by the declaration owner – Kopalnie Dolomitu S.A w Sandomierzu. Primary data was related to the declared unit of the product, i.e. 1 tonne. The allocation principles applied are compliant with EN 15804+A2 and ICIMB-PCR Part A. All data has been normalized to the declared unit level and calculated according to the representativeness of the technological process in the analyzed plant.

4. LCA: SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The life cycle assessment has been developed in accordance with the requirements of PN-EN ISO 15804+A2:2020, PN-EN ISO 14025 and PN-EN ISO 14040. The rules for product categorization have been adopted in accordance with the PN-EN 15804 standard. The data selected for the Life Cycle Assessment (LCA) analysis comes from Data Collection Questionnaires completed by Kopalnie Dolomitu S.A. w Sandomierzu and verified during a data audit. The data is no older than five years, and none of the generic datasets used is older than ten years. The completeness, representativeness, and consistency of the data are assessed as good. The quality analysis of specific data (LCI) was part of the data verification process.

In accordance with the "cradle to gate with options" scope, this environmental declaration includes scenarios for the end-of-life phase of the product (modules C1–C4) and potential benefits and burdens beyond the system boundaries (module D).

For the analyzed product – aggregates used as road subbase – no dismantling, transport, or processing is expected after the end of the road's service life. The aggregates remain permanently embedded in the ground, acting as a passive part of the infrastructure with no further environmental impact. Therefore, the scenarios for the following modules:

- **C1 – Demolition/Demolition,**
- **C2 – transport to the processing or disposal site**
- **C3 – Waste treatment,**
- **C4 –final disposal / landfilling of waste**

are included for informational purposes only and have been assigned zero values for all environmental indicators. This means that while these stages are formally covered in the analysis, they do not generate any measurable environmental impact.

Module D – Benefits and burdens beyond the system boundary Due to the impossibility of recovering, recycling, or reusing the aggregate after the end of its primary functional use, Module D shows no benefits or burdens associated with processes occurring beyond the system boundaries. Consequently, the environmental values in this module are also zero.

5. LCA: RESULTS

The table below shows the LCA modules taken into account in the calculation of the environmental impact categories for the products covered by the declaration.

SYSTEM BOUNDARIES (X –MODULE INCLUDED IN LCA, MND – MODULE NOT DECLARED)																
Products stage			Construction process stage		Use stage							End-of-life stage				Benefits and loads beyond the system boundary
Raw material supply	Transport	Production	Transport	Construction process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

The following tables present the results of the LCA analysis for dolomite and limestone aggregate. Explanations of the abbreviations used to describe the impact category are provided below:

GWP-total	Global warming potential
GWP-fossil	Global warming potential fossil fuel
GWP-biogenic	Global warming potential biogenic
GWP-luluc	Global warming potential land use and land change
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential of land and water
EP-freshwater	Eutrophication potential, fraction of nutrients reaching freshwater end compartment
EP-marine	Eutrophication potential, fraction of nutrients reaching marine end compartment
EP-terrestrial	Eutrophication potential, Accumulated Exceedance
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals	Abiotic depletion potential for nonfossil resources
ADP-fossil	Abiotic depletion potential for fossil resources
WDP	Water (user) deprivation potential
PM	Potential incidence of disease due to PM emissions
IRP	Potential Human exposure efficiency relative to U235
ETP-fw	Potential comparative Toxic Unit for ecosystems
HTP-c	Potential comparative Toxic Unit for humans (cancerogenic)
HTP-nc	Potential comparative Toxic Unit for humans (non-cancerogenic)
SQP	Potential soil quality index
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials
PERT	Total use of renewable primary energy resources
PEN-RE	Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials
RE	Use of non-renewable primary energy resources used as raw materials

PENRT
SM
RSF
NRSF
FW

Total use of non-renewable primary energy resources
Use of secondary material
Use of renewable fuels
Use of non-renewable secondary fuels
Use of net fresh water

MAIN IMPACT INDICATORS: 1 tonne of dolomite and limestone aggregate									
	Life Cycle Stage								
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	3,75E-01	2,02E-02	3,51E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP-fossil	kg CO ₂ eq.	3,75E-01	2,02E-02	3,44E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP-biogenic	kg CO ₂ eq.	-4,38E-04	1,40E-05	7,13E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP-luluc	kg CO ₂ eq.	1,22E-04	6,71E-06	1,05E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ODP	kg CFC11 eq.	7,07E-09	4,02E-10	4,21E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
AP	mol H ⁺ eq.	2,36E-03	4,21E-05	2,59E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EP-freshwater	kg PO ₄ eq.	6,88E-05	1,37E-06	8,59E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EP-marine	kg N eq.	2,27E-04	1,01E-05	1,11E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EP-terrestrial	mol N eq.	7,70E-03	1,09E-04	1,20E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
POCP	kg NMVOC eq.	8,44E-04	7,00E-05	3,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP-minerals & metals	kg Sb eq.	7,59E-06	6,58E-08	3,78E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP-fossil	MJ	4,02E+00	2,84E-01	4,28E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
WDP	WDP (m ³) świat. ekw	1,89E-01	1,18E-03	1,28E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADDITIONAL IMPACT INDICATORS: 1 tonne of dolomite and limestone aggregate									
	Life Cycle Stage								
Indicator	Unit	A1	A2	A3	C1	C2	C3	C4	D
PM	Disease incidence	3,61E-07	1,49E-09	6,49E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
IRP	kBq U235 eq.	1,24E-02	3,69E-04	2,69E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETP-fw	CTUe	4,28E-05	8,53E-07	5,35E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
HTP-c	CTUh	1,43E-09	1,44E-10	1,09E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
HTP-nc	CTUh	5,10E-09	1,79E-10	1,51E-08	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
SQP	-	3,97E+01	1,72E-01	4,32E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
INDICATORS DESCRIPTIONS RESOURCE CONSUMPTION: 1 tonne of dolomite and limestone aggregate									
	Life Cycle Stage								
Wskaźnik	Jednostka	A1	A2	A3	C1	C2	C3	C4	D
PERE	MJ	2,38E-01	4,88E-03	2,36E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,38E-01	4,88E-03	2,36E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PEN-RE	MJ	4,39E+00	3,02E-01	4,55E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,39E+00	3,02E-01	4,55E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	2,27E-03	5,18E-05	9,90E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

INDICATORS DESCRIBING OUTPUT STREAMS AND WASTE: 1 tonne of dolomite and limestone aggregate

Indicator	Unit (expressed per DU)	Life Cycle Stage							
		A1	A2	A3	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	2,98E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	1,15E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,15E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

BIOGENIC CARBON

Contents organic carbon in product (kg C_{org})	0,00E+00
Contents organic carbon in packaging (kg C_{org})	0,00E+00

6. INTERPRETATION OF LCA

Figures 2 present diagrams of the shares of individual life cycle modules on the basic impact categories for dolomite and limestone aggregate:

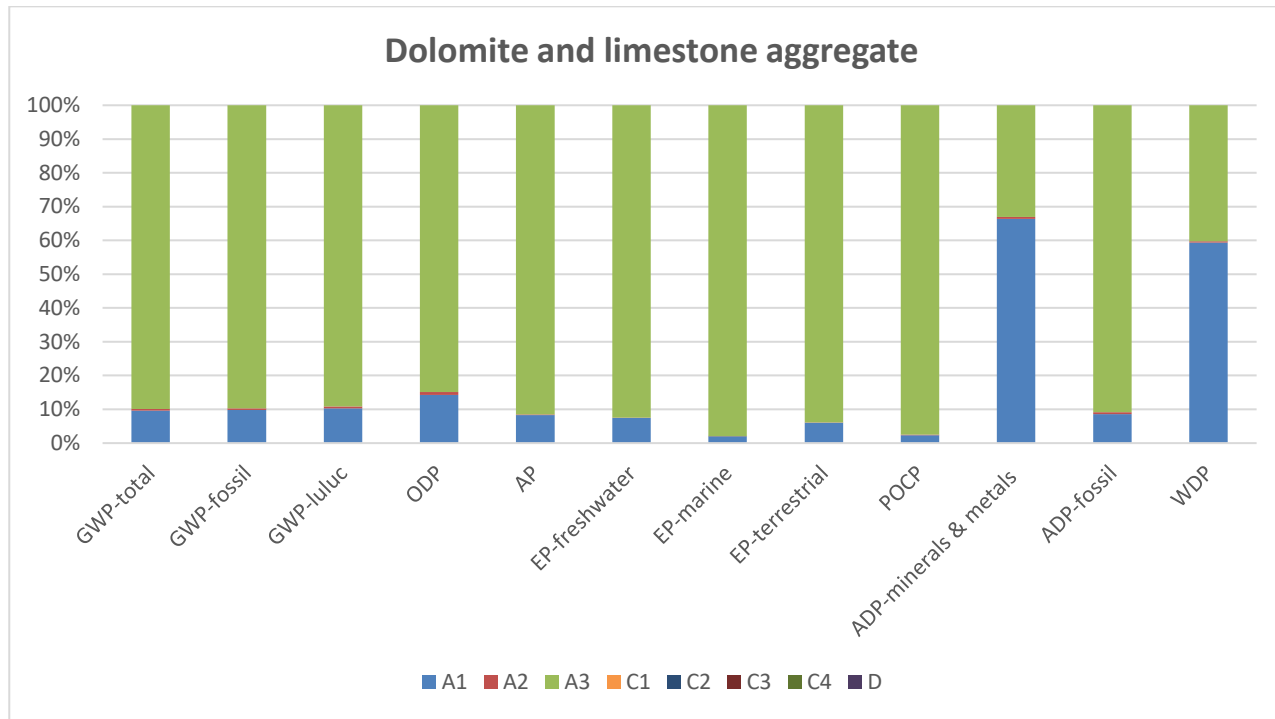


Figure 2 Shares of life cycle modules in the main categories of impacts – dolomite and limestone aggregate.

LITERATURE

- ✓ ICIMB-PCR A. General Product Category Rules for Construction Products.
- ✓ PN-EN ISO 14025:2014-04, Environmental labels and declarations -- Type III environmental declarations -- Rules and procedures.
- ✓ PN-EN 15804+A2:2020, Sustainability of building structures -- Environmental product declarations -Basic principles of categorization of construction products.
- ✓ PN-EN ISO 14040:2009 Environmental management. Life Cycle Assessment. Principles and structure.
- ✓ PN-EN ISO 14044:2009, Environmental management. Life Cycle Assessment. Requirements and guidelines.
- ✓ EN 15942:2012, Sustainability of construction works – Environmental product declarations – Communication format business-to-business.
- ✓ Additional explanatory material can be obtained from the company page of the declaration owner: <https://grupapbi.eu//>

PROCESS ENGINEERING RESEARCH GROUP

TYPE III ENVIRONMENTAL DECLARATION CERTIFICATE

no. 03-05/2025

Products:

Dolomite and limestone aggregate

Owner:

Kopalnie Dolomitu S.A. w Sandomierzu

27-600 Sandomierz, Błonie 8 str.

The declaration was developed in accordance with the requirements of the standard:

PN-EN 15804+A2: 2020-03

Sustainability of construction works
Environmental product declarations
Core rules for the product category of construction products

The declaration was verified in accordance with the requirements of the standard:

PN-EN ISO 14025:2010

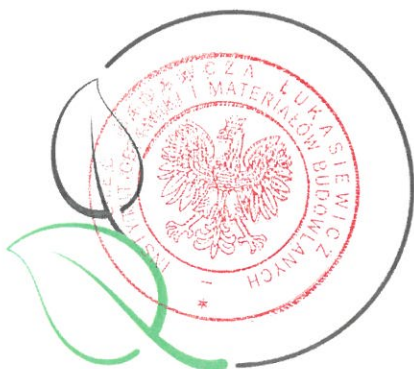
Environmental labels and declarations
Type III environmental declarations. Principles and procedures

The certificate was issued for the first time on **May 21, 2025** and is valid for 5 years or until the said EPD is amended.

**Process Engineering
Research Group Leader**



Ewa Głodek-Bucyk,
PhD Eng.



**Director of
Environmental
Engineering Center**



Joanna Poluszyńska, PhD

Opole, may 2025