

Environmental Product Declaration

Specific EPD

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021

Aggregates and Uncemented mix

PREFA invest, a.s.



Programme

EPD Square | www.epdsquare.com

Programme operator

EPD Square, s.r.o.

EPD Registration number

SQ 00-041

Publication date

20.10.2025

Valid until

19.10.2030

General information

Product

Aggregates and Uncemented mix

Program operator

EPD Square, s.r.o.
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Email: info@epdsquare.com

Registration number

SQ 00-041

Publication date

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Valid until date

19.10.2030

Owner of the declaration

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Manufacturer

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Place of production

Podhradská cesta 2
038 52 Sučany
Slovakia

Product Category Rules (PCR)

The CEN standard EN 15804+A2 serves as the core PCR.
In addition, EPD Square PCR v1.0, 2024

Declared unit

1 ton

Mass per DU

1000 kg

UN CPC code

153 - Sands, pebbles, gravel, broken or crushed stone,
natural bitumen and asphalt

Geographical scope

Slovakia

Year of study

2024

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in the context of the building.

EPD author

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Clarity s.r.o.

Verification type

Independent verification of the declaration and data,
according to ISO14025:2006

Internal: ☐

External: ☒

Verified by

Daniel Satola, Daniel Satola Consulting

Satola Daniel

*The owner of the declaration shall be liable for the underlying information and evidence.
EPD Square shall not be liable with respect to manufacturer, life cycle assessment data and evidence.*

System boundaries

This EPD is based on system boundary cradle to gate (A1-A3) with options A4 and modules C1-C4 and D.

Modules declared and geographical scope

	Product stage			Constructi on 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	x	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geography	SK	SK	SK	SK	-	-	-	-	-	-	-	-	SK	SK	SK	SK	SK

MND = Modules not declared.

Description of Organization

Prefa invest, a.s. is a young dynamic company that builds on the traditional foundations of concrete production in the Sučany factory. Since 1948, it has been producing prefabricated products for the construction of industrial buildings, shopping centres, administrative buildings and housing. The company's present-day operations date back to 2012. The production part of PREFA invest, a.s. can be divided into the following basic segments:

- Prefabricated building structures,
- Sewerage program,
- Concrete pavements and blocks,
- Mining and processing of aggregates,
- Demolition works, and
- Transport concrete.

Product information

Product name

Aggregates and Uncemented mix

Additional product label

fr. 0/4, fr.4/8, fr.8/16, fr. 8/32, fr. 0/8, fr. 16/32, fr. 0/125, fr. 31,5/63, fr. 0/63, fr. 0/32, fr. 32/63, fr. UM ŠD 0/31,5

Product description

Aggregate is a granular material of natural origin, intended for construction purposes. It is used in the production of concrete, mortars or other building materials. In the production of concrete, aggregate is the main component (called filler) that has a load-bearing function in the concrete mix. Aggregate occupies 70 to 80 % of the volume of concrete and its function is to form a strong skeleton in the concrete with the lowest possible voids.

Product application

Aggregates for uncemented and hydraulically cemented materials used in civil engineering and road construction according to EN 13242 - aggregates for concrete according to EN 12620

Aggregates for track bedding according to STN EN 13450

Uncemented mixtures used for the construction and maintenance of roads, airfields and other traffic areas according to EN 13285

Product Standards

STN EN 13242, STN EN 12620, STN EN 13450, EN 13285

Geographical scope

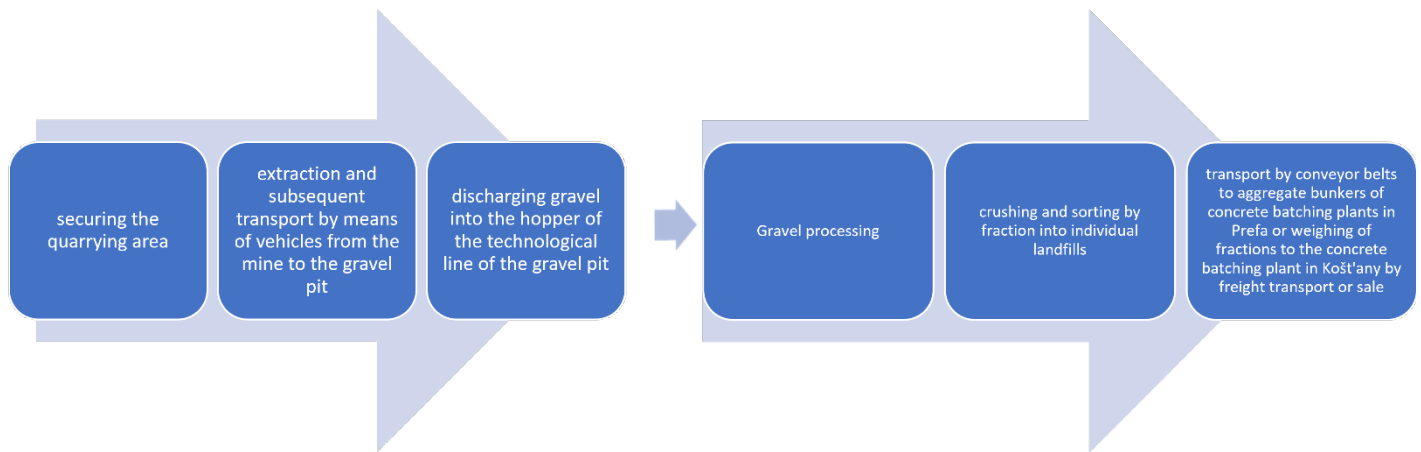
Slovakia

Product contents information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Excavated gravel	1000	-	-
TOTAL	1000	-	-
Packaging materials	Weight, kg	Weight-% (versus the product)	
-	-	-	
TOTAL	-	-	

Material losses	Weight, kg	Weight-% (versus the product)
Residues from gravel washing	31.96	-
TOTAL	31.96	-

Manufacturing process



The production of aggregates begins with securing the quarrying area, including preparatory works to ensure safe and compliant extraction activities.

Following this, extraction and internal transport take place: raw gravel is extracted from the quarry and transported by trucks or loaders from the mining face to the gravel pit.

The extracted material is then discharged into the hopper of the technological processing line, where the gravel processing phase begins. Within the processing plant, the material undergoes crushing and sorting operations, separating it into defined fractions according to size and quality requirements.

Finally, the processed aggregates are transported either by conveyor belts to on-site concrete batching plants or, when sold externally, weighed and delivered by freight transport to the customer or downstream concrete production facilities.

Life cycle assessment

Cut-off criteria

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process that is more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

Allocation, estimations, and assumptions

Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 ton of the product which is used within this study are calculated by considering the total product weight per annual production. The product output is fixed to 1 ton, and the corresponding amount of product is used in the calculations.

At the quarry only aggregates are produced. The annual production percentages are taken into consideration for allocation. According to the annual production of the declared product, the annual total energy consumption and the generated waste per declared product are allocated.

Module A1: This stage considers the extraction and processing of all raw materials. Within the product stage accurate data has been used. In the case of absence in the database, it was modelled as close to reality as possible using proxy, representative datapoint. According to data provided by the manufacturer, material losses were also added.

Module A2: This stage accounts for transport activities.

Module A3: In the plant, electricity is allocated on yearly consumption.

Database(s) and LCA software

This EPD has been created using One Click LCA Pre-Verified EPD Generator. Ecoinvent v3.10.1, One Click LCA and information from European Environment Agency was used as sources of environmental data.

LCA Scenarios and additional technical information

Manufacturing energy scenario

Electricity data source and quality	Electricity, medium voltage, residual mix, Slovak Republic	Ecoinvent 3.10.1
Electricity CO _{2e} / kWh	0.25	
Electricity data source and quality	Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted (Reference product: electricity, low voltage)	Ecoinvent 3.10.1
Electricity kg CO _{2e} / kWh	0.0819	

Transportation scenario (A2)

Vehicle type used for transport	Transport, freight, lorry 16-32 metric ton, EURO6
Distance (km)	3
Capacity utilization	100
Capacity utilization factor	1

Transportation scenario (A4)

Vehicle type used for transport	Transport, freight, lorry 16-32 metric ton, EURO6
Distance (km)	76.8
Capacity utilization	100
Capacity utilization factor	1

End of Life (C1-C4)

The end-of-life stage is included in this EPD. 100% of the gravel is re-used as it is primarily used in uncemented mixes for the construction and maintenance of roads, airfields and other traffic areas as well as track bedding for railway. The material is not demolished. For gravel in construction (concrete and asphalt) we assume that the end of life will be considered in the end of life of the concrete or asphalt itself. The remaining aggregate are relocated, for example at the road where it is located. The material could for instance be used to fill an embankment in the proximity. To maintain mass balance, we still considered 1000 kg in the relocation process. In D module we consider the loads of the transport and benefits of avoided virgin aggregate production.

	Value	Unit
Collected separately	1000	kg
Collected as mixed construction waste	0	kg
Reuse	1000	kg
Recycling	0	kg
Energy recovery	0	kg
To landfill	0	kg

LCA results

Results are presented per 1 ton (Declared Unit) of the product. Estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

Core environmental impact indicators – EN 15804+A2

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	5.1E-01	9.8E-01	1.9E+00	3.4E+00	1.5E+01	0.0E+00	5.8E-01	1.4E+01	0.0E+00	-6.9E+00
GWP-fossil	kg CO ₂ eq.	5.1E-01	9.8E-01	1.8E+00	3.3E+00	1.5E+01	0.0E+00	5.8E-01	1.4E+01	0.0E+00	-6.9E+00
GWP-biogenic	kg CO ₂ eq.	2.1E-03	7.5E-05	1.4E-01	1.4E-01	2.9E-03	0.0E+00	1.2E-04	-1.4E-02	0.0E+00	-9.4E-03
GWP-LULUC	kg CO ₂ eq.	7.7E-04	2.5E-04	1.9E-03	2.9E-03	5.2E-03	0.0E+00	2.1E-04	2.4E-02	0.0E+00	-9.4E-03
ODP	kg CFC11 eq.	4.3E-09	1.8E-08	8.5E-08	1.1E-07	2.9E-07	0.0E+00	1.2E-08	2.0E-07	0.0E+00	-3.3E-08
AP	mol H ⁺ eq.	5.9E-03	4.8E-03	1.4E-02	2.5E-02	3.0E-02	0.0E+00	1.8E-03	9.3E-02	0.0E+00	-3.3E-02
EP-freshwater	kg P eq.	3.5E-04	5.2E-05	1.4E-03	1.8E-03	9.8E-04	0.0E+00	3.9E-05	4.0E-03	0.0E+00	-3.2E-03
EP-marine	kg N eq.	6.9E-04	1.9E-03	8.3E-03	1.1E-02	7.3E-03	0.0E+00	6.1E-04	3.4E-02	0.0E+00	-8.4E-04
EP-terrestrial	mol N eq.	1.1E-02	2.1E-02	2.3E-02	5.5E-02	7.9E-02	0.0E+00	6.7E-03	3.7E-01	0.0E+00	-2.6E-02
POCP	kg NMVOC eq.	2.4E-03	7.4E-03	7.7E-03	1.8E-02	5.1E-02	0.0E+00	2.8E-03	1.2E-01	0.0E+00	-3.7E-03
ADP-M&M	kg Sb eq.	4.2E-05	2.1E-06	2.1E-06	5.2E-05	4.9E-05	0.0E+00	1.9E-06	3.6E-05	0.0E+00	-5.3E-05
ADP-fossil	MJ	5.2E+00	1.3E+01	7.4E+01	9.2E+01	2.1E+02	0.0E+00	8.2E+00	1.9E+02	0.0E+00	-8.2E+01
WDP	m ³	1.7E-01	5.4E-02	1.3E+00	1.5E+00	1.0E+00	0.0E+00	4.0E-02	1.3E+00	0.0E+00	-1.5E+01

GWP-total: Global Warming Potential; **GWP-fossil:** Global Warming Potential fossil fuels; **GWP-biogenic:** Global Warming Potential biogenic; **GWP-LULUC:** Global Warming Potential land use and land use change; **ODP:** Depletion potential of the stratospheric ozone layer; **AP:** Acidification potential, Accumulated Exceedance; **EP-freshwater:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional requirements" for indicator given as PO₄ eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Additional (optional) environmental impact indicators – EN 15804+A2

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
PM	Disease incidence	5.9E-08	1.4E-07	2.5E-06	2.7E-06	1.1E-06	0.0E+00	4.6E-08	9.5E-06	0.0E+00	-8.4E-08
IRP	kBq U235 eq.	1.7E-02	1.3E-02	2.9E+00	2.9E+00	2.7E-01	0.0E+00	1.0E-02	4.8E-01	0.0E+00	-9.8E-01
ETP-fw	CTUe	5.5E+00	4.0E+00	3.4E+01	4.4E+01	2.7E+01	0.0E+00	1.1E+00	6.7E+01	0.0E+00	-4.5E+00
HTP-c	CTUh	7.3E-10	1.4E-10	9.0E-10	1.8E-09	2.5E-09	0.0E+00	9.9E-11	2.9E-09	0.0E+00	-2.4E-09
HTP-nc	CTUh	3.6E-08	5.9E-09	4.0E-08	8.2E-08	1.3E-07	0.0E+00	5.1E-09	1.2E-07	0.0E+00	-7.7E-08
SQP	Dimensionless	1.1E+02	5.3E+00	9.9E+00	1.2E+02	1.2E+02	0.0E+00	4.9E+00	1.5E+02	0.0E+00	-1.1E+02

PM: Particulate matter emissions; *IRP*: Ionising radiation, human health; *ETP-fw*: Ecotoxicity (freshwater); *ETP-c*: Human toxicity, cancer effects; *HTP-nc*: Human toxicity, non-cancer effects; *SQP*: Land use related impacts / soil quality

Use of Natural Resources

Parameter	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
RPEE	MJ	9.9E-01	1.8E-01	3.7E+00	4.9E+00	3.6E+00	0.0E+00	1.4E-01	7.1E+00	0.0E+00	-1.2E+01
RPEM	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TPE	MJ	9.9E-01	1.8E-01	3.7E+00	4.9E+00	3.6E+00	0.0E+00	1.4E-01	7.1E+00	0.0E+00	-1.2E+01
NRPE	MJ	5.2E+00	1.3E+01	7.4E+01	9.2E+01	2.1E+02	0.0E+00	8.2E+00	1.9E+02	0.0E+00	-8.2E+02
NRPM	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TRPE	MJ	5.2E+00	1.3E+01	7.4E+01	9.2E+01	2.1E+02	0.0E+00	8.2E+00	1.9E+02	0.0E+00	-8.2E+02
SM	kg	3.1E-02	6.0E-03	6.4E-03	4.3E-02	9.5E-02	0.0E+00	3.7E-03	7.6E-02	0.0E+00	-1.2E-01
RSF	MJ	2.3E-04	5.4E-05	4.9E-05	3.3E-04	1.2E-03	0.0E+00	4.7E-05	6.9E-04	0.0E+00	-8.8E-04
NRSF	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
W	m ³	4.3E-03	1.5E-03	5.8E-02	6.4E-02	2.8E-02	0.0E+00	1.1E-03	-4.4E-01	0.0E+00	-3.6E-01

RPEE Renewable primary energy resources used as energy carrier; *RPEM* Renewable primary energy resources used as raw materials; *TPE* Total use of renewable primary energy resources; *NRPE* Non-renewable primary energy resources used as energy carrier; *NRPM* Non-renewable primary energy resources used as materials; *TRPE* Total use of non-renewable primary energy resources; *SM* Use of secondary materials; *RSF* Use of renewable secondary fuels; *NRSF* Use of non-renewable secondary fuels; *W* Use of net fresh water

End of life – Waste

Parameter	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
HW	kg	9.5E-02	1.8E-02	9.7E-02	2.1E-01	3.0E-01	0.0E+00	1.2E-02	5.0E-01	0.0E+00	-9.0E-01
NHW	kg	1.9E+00	3.4E-01	3.5E+02	3.5E+02	6.3E+00	0.0E+00	2.5E-01	6.4E+02	0.0E+00	-1.7E+01
RW	kg	4.3E-06	3.2E-06	6.8E-04	6.9E-04	6.6E-05	0.0E+00	2.6E-06	1.2E-04	0.0E+00	-2.5E-04

HW Hazardous waste disposed; *NHW* Non-hazardous waste disposed; *RW* Radioactive waste disposed

End of life – Output flows

Parameter	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
CR	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0,00E+00	0,00E+00	1,00E+03	0,00E+00	0,00E+00
MR	kg	0.0E+00	0.0E+00	3.2E+01	3.2E+01	0.0E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

CR Components for reuse; *MR* Materials for recycling; *MER* Materials for energy recovery; *EEE* Exported electric energy; *ETE* Exported thermal energy

Information describing biogenic carbon content at factory gate

Biogenic carbon content	Value	Unit
Biogenic carbon content in product	0	kg C
Biogenic carbon content in the accompanying packaging	-	kg C

Specific data (GWP-GHG) and data variation for A1-A3

Specific data and data variation	Value-%
Specific data	27.95%
Variation - product	-
Variation - site	-

Hazardous substances

- ☒ The product does not contain any REACH SVHC substances in amounts greater than 0.1 %.

Contact information

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Bibliography

ISO 14020:2000

Environmental labels and declarations – General principles

ISO 14025:2010

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

ISO 14040:2006

Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006

Environmental management - Life cycle assessment - Requirements and guidelines

EN 15804:2012+A2:2019

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

EPD Square PCR v.1.0, 2024

EPD Square, General Programme Instructions v.1, 2024

Ecoinvent database v3.10.1 (2024) and One Click LCA database

Annex

Environmental impacts – EN 15804+A1, CML/ISO 21930

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GWP	kg CO ₂ eq.	5.1E-01	9.8E-01	1.8E+00	3.3E+00	1.5E+01	0.0E+00	5.8E-01	1.3E+01	0.0E+00	-6.9E+00
ODP	kg CFC11 eq.	3.7E-09	1.4E-08	8.0E-08	9.8E-08	2.3E-07	0.0E+00	9.2E-09	1.6E-07	0.0E+00	-3.0E-08
AP	kg SO ₂ eq.	4.7E-03	3.5E-03	1.2E-02	2.0E-02	2.4E-02	0.0E+00	1.4E-03	7.0E-02	0.0E+00	-2.8E-02
EP	kg PO ₄ eq.	9.2E-04	8.3E-04	5.4E-03	7.1E-03	6.2E-03	0.0E+00	3.5E-04	1.7E-02	0.0E+00	-4.4E-03
POCP	kg C ₂ H ₄ eq.	2.8E-04	2.9E-04	6.6E-04	1.2E-03	2.6E-03	0.0E+00	1.3E-04	5.0E-03	0.0E+00	-2.7E-05
ADP-M&M	kg Sb eq.	4.2E-05	2.1E-06	7.1E-06	5.1E-05	4.7E-05	0.0E+00	1.9E-06	3.5E-05	0.0E+00	-5.2E-05
ADP-fossil	MJ	4.9E+00	1.3E+01	2.1E+01	3.9E+01	2.0E+02	0.0E+00	8.0E+00	1.9E+02	0.0E+00	-6.6E+01

Environmental impacts – GWP-GHG

Indicator	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GWP - GHG	kg CO ₂ e	5.1E-01	9.8E-01	1.8E+00	3.3E+00	1.5E+01	0.0E+00	5.8E-01	1.3E+01	0.0E+00	-6.9E+00

GWP- GHG Global Warming Potential, greenhouse gases