

Environmental Product Declaration

Average EPD

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

Natural Aggregates

ALAS SLOVAKIA, s.r.o.



Programme

EPD Square | www.epdsquare.com

Programme operator

EPD Square, s.r.o.

EPD Registration number

SQ 00-061

Publication date

26.03.2026

Valid until

25.03.2030

General information

Product

Natural Aggregates, Bratislava - Petržalka

Program operator

EPD Square, s.r.o.
Lermontovova 3, 811 05,
Bratislava, Slovak Republic
Email: info@epdsquare.com

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SQ 00-061

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Owner of the declaration

ALAS SLOVAKIA, s.r.o.
Contact person: Ing. Monika Jančígová
Email: m.jancigova@alas.sk

Manufacturer

ALAS SLOVAKIA, s.r.o.
Polianky 23
841 01 Bratislava
Slovakia
Telephone: + 421 2 6920 4092
Email: m.jancigova@alas.sk

Place of production

Gravel pit, Petržalka
Dolnozemska 11
851 04 Bratislava, Slovakia

Product Category Rules (PCR)

The CEN standard EN 15804+A2 serves as the core PCR.
In addition, EPD Square Version v1.0.1, 2025 is used.

Declared/Functional 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, Europe

Year of study

Calendar year 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

Sarah Curpen, Silvia Vilčeková, EPD Clarity s.r.o.

Verification type

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

Internal: ☐

External: ☒

Verified by

Stanislava Borisová, dotEnvironment AB



*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), modules C1-C4 and D.

Modules declared and geographical scope

	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x
Geographic scope	SK	SK	SK	-	-	-	-	-	-	-	-	-	SK	SK	SK	SK	SK

MND = Modules not declared.

Description of organization

ALAS SLOVAKIA, s.r.o. has long been one of the largest producers of aggregates in the Slovak Republic and the most important suppliers of concrete in western Slovakia. In terms of sales of production, our company's area of interest is Bratislava and its surroundings, as well as the Bratislava, Trnava, Nitra and Trenčín regions.

ALAS SLOVAKIA, s.r.o. has an established quality management system that meets the requirements of the STN EN ISO 9001 standard for the extraction and processing of aggregates and the production of ready-mix concrete, as well as the ISO 14001 environmental management system. The goal is to maintain the high quality of our products for customers by constantly optimizing work procedures, production processes, and by investing in modern technologies and strategies with minimal impact on the environment. At all operations, we apply a gentle approach to nature and the environment. At the same time, safety is important to us, which is why we emphasize the protection of our employees, partners and people moving around our workplaces.

Product information

Product name

Natural Aggregates, Bratislava - Petržalka

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.

Aggregate consists of various types of fractions: 0/4, 4/8, 8/16, 16/22 according to the client's requirements.

Technical properties	
Bulk Density (mg/m ³)	2,58±0,1
Petrographic Description	Homogeneous gravel and gravel-sand with a dominant presence of quartz - alluvium of the Danube River
Humidity	Lighter than standard
Chloride content	Max. 0,01
Sulfate content	AS _{0,2}
Total Sulfur content	S ₁
Mass activity index	Max.1

Product application

Aggregate for concrete, Aggregate for unbound materials and hydraulically bound materials for road construction, Aggregate for mortar, drainage and ornamental aggregate, aggregate for backfilling.

Product standards

The products comply with Regulation (EU) No. 305/2011 of the European Parliament and of the Council (Construction Products Regulation - CPR). The products meet the requirements of the harmonised European standards: EN 12620, EN 13242. The quality of the products is ensured by an effective quality management system EN ISO 9001 and an environmental management system ISO 14001 in operation.

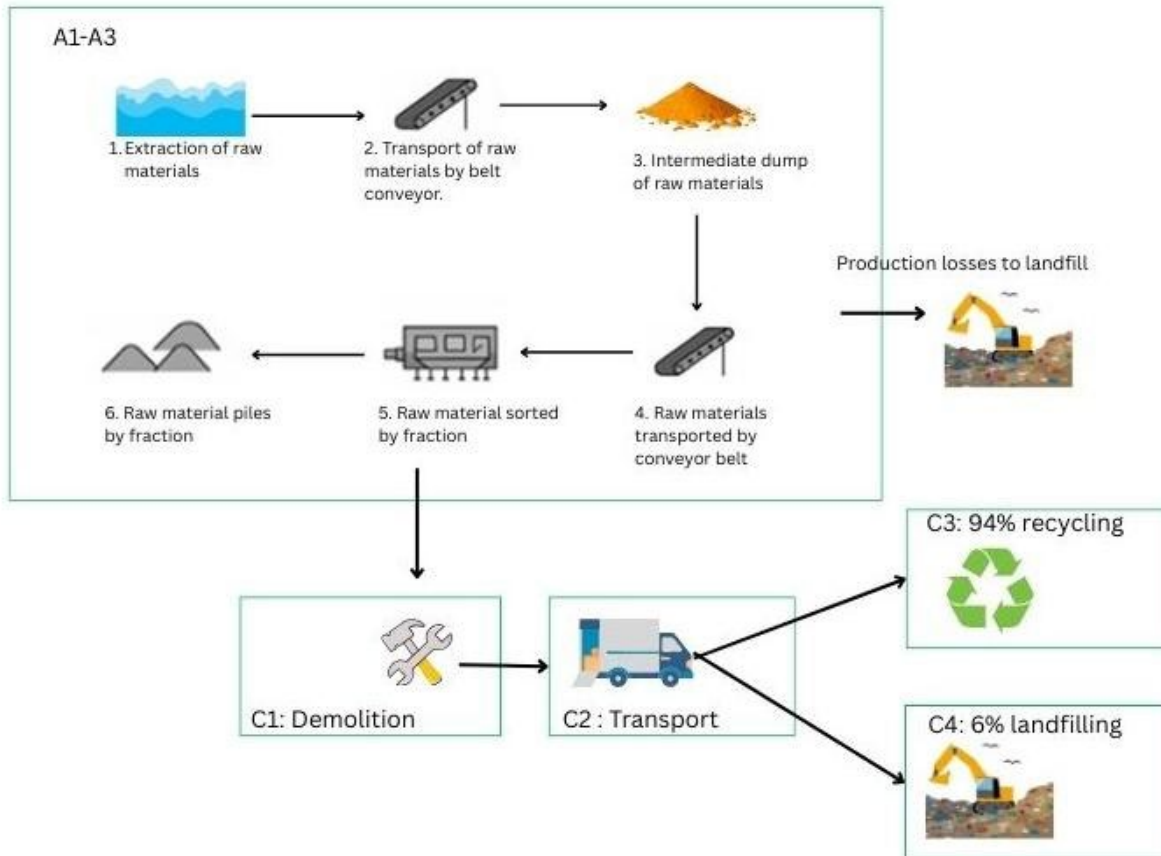
Geographical scope

Slovakia, Europe

Product contents information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Excavated gravel	1000	-	-
TOTAL	1000	-	-

Manufacturing process



The production process begins with the purchase of gravel extracted from the Danube riverbed by the Slovak Water Management Company. The raw gravel is first placed in a temporary dump before being transported by a belt conveyor to the washing stage. After washing, the material continues along the conveyor system to the sorting equipment, where it is graded into individual fractions using different sieves. The sorted gravel is then temporarily stored in designated piles according to each fraction size, ready for further handling or dispatch.

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.

The assumptions made were related to the distances to disposal and recycling facilities for waste treatment which was estimated as 50km.

Only aggregates are produced at the gravel pit. 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.

Module A2: This stage accounts for transport activities.

Module A3: In the plant, electricity and diesel 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/v3.11, One Click LCA and information from European Environment Agency were used as sources of environmental data.

LCA scenarios and additional technical information

Module A1

This module includes the extraction and processing of all raw materials which occur upstream to the manufacturing site. Data on the quarries were provided directly by the manufacturer. Specific data were collected to reflect the actual inputs and sourcing.

Module A2

The considered transportation impacts include exhaust emissions resulting from transportation of all raw materials from suppliers to production plant as well as the environmental impacts of production of the used fuel. Transport modes and distances were based on the manufacturer's logistics records covering the period from November 2024 to October 2025. The fuel consumption of the diesel excavator was accounted for in A2.

Transportation scenario (A2)

Vehicle type used for transport	Transport, freight, sea, container ship
Distance	10 km
Vehicle type used for transport	Transport, freight, conveyor belt
Distance	0,65 km
Vehicle type used for transport	Transport, freight, lorry 16-32 metric ton, EURO6
Distance	44 km
Capacity utilization	100
Capacity utilization factor	1

Module A3

The environmental impacts considered for the production stage cover the manufacturing of the production materials and fuels used by machines. The environmental impacts of this stage have been calculated using the most recent data in regard to what was applied in the factory. The data is from the period from November 2024 to October 2025. The study considers the losses (1%) of main raw materials occurring during the manufacturing process. The waste is considered to transfer to the landfill. Electricity data were collected directly from the manufacturer, reflecting actual process energy use on-site.

Manufacturing energy scenario (A3)

Electricity data source and quality	Electricity, residual mix, Slovak Republic	Ecoinvent 3.10.1
Electricity CO _{2e} / kWh	0,360	
Diesel	Diesel, burned in building machine	Ecoinvent 3.10.1
Diesel kg CO _{2e} / kWh	0,100	

Module C1

Electricity consumption for deconstruction is estimated to be 10 kWh/ton. It is assumed that 100% of waste is collected.

Module C2

Transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed as lorry (Transport freight lorry 16-32 metric ton) which is the most common.

Module C3

93,6 % recycling rate is assumed in the study.

Module C4

6,4 % landfill rate is assumed in the study.

End of life (C1, C2, C3, C4)

	Value	Unit
Collected separately	1000	kg
Considered distance to the place of recycling	50	km
Transport to the place of recovery	Truck EURO6, 16-32 t, consumption 35 l / 100 km	-
Recycling	936	kg
To landfill	64	kg

Benefits and Loads (D)

The loads and benefits of recycled aggregates are considered.

Data quality

Data quality assessment was performed in accordance with EN 15941 and applicable PCR requirements. The assessment covers geographical, technical and temporal representativeness of the data. Primary data from the production process (including raw materials, auxiliary materials and energy consumption), secondary data as well as proxy data from databases (Ecoinvent 3.10.1/3.11 and OneClickLCA) were used. Based on this assessment, the overall quality of the data is considered very good. Data quality rating procedure has been performed using a rating system where "1" means Very good quality, and "5" means Very poor quality. No fair, poor or very poor data was found during the assessment of relevant data.

Geographical rating	Technology Rating	Time-related rating
1,6 Very Good	1,5 Very Good	1,1 Very Good

Additional environmental information

Declared unit is 1 ton of the aggregates. If it is necessary to quantify the results to a product weight of 1 kg, the conversion factor is 0,001.

LCA results

Results are presented per 1 ton (DU) 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-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	2,36E+00	MND	MND	3,61E+00	9,68E+00	1,27E+01	4,00E-01	-8,77E+00
GWP-fossil	kg CO ₂ eq.	2,35E+00	MND	MND	3,60E+00	9,67E+00	1,26E+01	4,00E-01	-8,73E+00
GWP-biogenic	kg CO ₂ eq.	0,00E+00	MND	MND	3,68E-04	1,92E-03	-1,30E-02	-1,27E-04	-2,99E-02
GWP-LULUC	kg CO ₂ eq.	9,91E-03	MND	MND	3,69E-04	3,42E-03	2,24E-02	2,28E-04	-8,32E-03
ODP	kg CFC-11 eq.	3,80E-08	MND	MND	5,52E-08	1,92E-07	1,91E-07	1,16E-08	-7,16E-08
AP	mol H ⁺ eq.	1,96E-02	MND	MND	3,25E-02	3,02E-02	8,71E-02	2,83E-03	-5,51E-02
EP-freshwater	kg P eq.	9,40E-04	MND	MND	1,04E-04	6,41E-04	3,72E-03	3,28E-05	-3,10E-03
EP-marine	kg N eq.	6,07E-03	MND	MND	1,51E-02	1,02E-02	3,21E-02	1,08E-03	-1,32E-02
EP-terrestrial	mol N eq.	6,53E-02	MND	MND	1,65E-01	1,11E-01	3,47E-01	1,18E-02	-1,60E-01
POCP	kg NMVOC eq.	1,99E-02	MND	MND	4,93E-02	4,74E-02	1,09E-01	4,22E-03	-4,42E-02
ADP-M&M	kg Sb eq.	1,53E-05	MND	MND	1,29E-06	3,16E-05	3,37E-05	6,35E-07	-5,44E-05
ADP-fossil	MJ	6,24E+01	MND	MND	4,72E+01	1,36E+02	1,82E+02	9,80E+00	-1,11E+02
WDP	m ³	1,05E+00	MND	MND	1,18E-01	6,67E-01	1,25E+00	2,83E-02	-1,42E+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-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	3,49E-07	MND	MND	9,25E-07	7,60E-07	8,85E-06	6,45E-08	-8,71E-07
IRP	kBq U235 eq.	1,80E+00	MND	MND	2,09E-02	1,73E-01	4,50E-01	6,16E-03	-8,72E-01
ETP-fw	CTUe	2,66E+01	MND	MND	2,60E+00	1,78E+01	6,29E+01	8,22E-01	-2,71E+02
HTP-c	CTUh	5,22E-10	MND	MND	3,71E-10	1,65E-09	2,74E-09	7,37E-11	-2,46E-09
HTP-nc	CTUh	2,08E-08	MND	MND	5,87E-09	8,53E-08	1,15E-07	1,69E-09	-7,17E-08
SQP	Dimensionless	7,36E+01	MND	MND	3,30E+00	8,08E+01	1,42E+02	1,93E+01	-1,04E+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-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	4,33E+00	MND	MND	2,99E-01	2,35E+00	6,68E+00	9,46E-02	-1,07E+01
RPEM	MJ	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	4,33E+00	MND	MND	2,99E-01	2,35E+00	6,68E+00	9,46E-02	-1,07E+01
NRPE	MJ	6,23E+01	MND	MND	4,72E+01	1,36E+02	1,82E+02	9,81E+00	-1,11E+02
NRPM	MJ	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	6,23E+01	MND	MND	4,72E+01	1,36E+02	1,82E+02	9,81E+00	-1,11E+02
SM	kg	1,87E-02	MND	MND	1,96E-02	6,22E-02	7,08E-02	2,46E-03	-1,25E-01
RSF	MJ	1,12E-04	MND	MND	5,12E-05	7,85E-04	6,48E-04	5,10E-05	-9,16E-04
NRSF	MJ	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m ³	2,88E-02	MND	MND	3,12E-03	1,83E-02	-4,07E-01	1,02E-02	-3,27E-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-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	1,00E-01	MND	MND	5,25E-02	1,95E-01	4,65E-01	1,08E-02	-8,71E-01
NHW	kg	4,84E+00	MND	MND	7,15E-01	4,11E+00	5,99E+02	2,48E-01	-1,71E+01
RW	kg	4,28E-04	MND	MND	5,12E-06	4,30E-05	1,10E-04	1,50E-06	-2,12E-04

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

End of life – Output flows

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	1,09E-05	MND	MND	0,00E+00	0,00E+00	9,36E+02	0,00E+00	0,00E+00
MER	kg	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	MND	MND	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	n/a	kg C

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

Specific data and data variation	Value-%
Specific data	75,4%
Variation - product	-1,64%; 1,3%
Variation - site	-

Hazardous substances

☒ / ☐ The product does not contain any REACH SVHC substances in amounts greater than 0,1 %.

Contact information

Programme operator

EPD Square, s.r.o.
Lermontovova 3, 811 05
Bratislava, Slovak Republic
Email: info@epdsquare.com

EPD owner

ALAS SLOVAKIA, s.r.o.
Email: m.jancigova@alas.sk
Website: www.alas.sk

Author of Life Cycle Assessment (LCA)

Sarah Curpen, Silvia Vilčeková, EPD Clarity, s.r.o.
Email: curpen@epdclarity.com; vilcekova@epdclarity.com
Website: www.epdclarity.com

EPD verifier

Stanislava Borisová, dotEnvironment AB
Email: stani.borisova@dotenvironment.se

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 framework

ISO 14044:2006

Environmental management - Life cycle assessment - Requirements and guidelines

EN 15804:2012+A2:2019/AC:2021

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

EN 15941:2024

Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data

EPD Square PCR v.1.0.1, 2025

EPD Square, General Programme Instructions v.1, 2024

Ecoinvent database v3.10.1/v3.11 (2024) and One Click LCA database

Annex

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

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ eq.	2,35E+00	MND	MND	3,59E+00	9,61E+00	1,26E+01	3,96E-01	-8,71E+00
ODP	kg CFC-11 eq.	3,17E-08	MND	MND	4,37E-08	1,53E-07	1,53E-07	9,19E-09	-6,07E-08
AP	kg SO ₂ eq.	1,52E-02	MND	MND	2,29E-02	2,30E-02	6,52E-02	2,10E-03	-4,27E-02
EP	kg PO ₄ eq.	2,67E-03	MND	MND	5,34E-03	5,84E-03	1,54E-02	6,66E-04	-8,80E-03
POCP	kg C ₂ H ₄ eq.	9,82E-04	MND	MND	1,71E-03	2,19E-03	4,71E-03	1,98E-04	-3,76E-03
ADP-M&M	kg Sb eq.	1,53E-05	MND	MND	1,26E-06	3,09E-05	3,31E-05	6,22E-07	-5,36E-05
ADP-fossil	MJ	2,97E+01	MND	MND	4,68E+01	1,33E+02	1,75E+02	9,71E+00	-9,69E+01

Environmental impacts – GWP-GHG

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - GHG	kg CO ₂ eq.	2,35E+00	MND	MND	3,60E+00	9,67E+00	1,26E+01	4,00E-01	-8,73E+00

GWP- GHG: Global Warming Potential, greenhouse gases