



THE INTERNATIONAL EPD® SYSTEM

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 EN

Alumina Zirconia AZ25

From: Saint-Gobain Ceramic Materials
Programme: The international EPD System, www.environdec.com
Programme operator: EPD International AB
Date of issue: 2022-12-19
Validity: 5 years
Valid until: 2027-12-19
Version 1



Scope of the EPD®: Global

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.



The **environmental impacts** of this product have been assessed over its **whole life cycle**. Its Environmental Product Declaration has been verified by an **independent third party**.

Registration number
The International EPD® System:
S-P-07334



GENERAL INFORMATION

PROGRAM OPERATOR AND EPD INFORMATION

EPD® program operator	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
Product category rules (PCR)	Basic chemicals 2021:03, Version 1.1 UN CPC Group : 342 – Basic inorganic chemicals
PCR review was conducted by	Bekir Çetin, Semtrio Sustainability Consulting bekircetin@semtrio.com
EPD® prepared by	Simeng WANG – Saint-Gobain Specialty Grains&Powders (simeng.wang@saint-gobain.com)
EPD registration number	S-P-07334
Declaration issued	2022-12-19, valid until: 2027-12-19
Difference versus the previous version of the EPD	This is the first version of the EPD.
Independent verification of the declaration, according to EN ISO 14025:2006	Internal <input type="checkbox"/> External <input checked="" type="checkbox"/>
Third party verifier	Marcel Gómez Ferrer, https://www.marcelgomez.com/
Accredited or approved by	The International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

The EPD owner has the sole ownership, liability, and responsibility for the EPD.
EPDs within the same product category but from different programs may not be comparable.
For further information about comparability, see ISO 14025.

Product information

COMPANY INFORMATION

Owner of the EPD	Saint-Gobain Ceramic Materials (Zhengzhou) Co., Ltd. Gaocheng Town Dengfeng Zhengzhou 450007 China +86 371 6777 0405
Description of the organisation	Saint-Gobain Abrasive Materials is a world's leading manufacturer of specialty grains and powders and is the market leader in premium abrasive grains for Bonded and Coated abrasives. It offers highly engineered abrasive materials for demanding industries such as aerospace, automotive, construction, electronics, energy, semiconductor and steel that maximize performance and promote process efficiencies. Saint-Gobain produces Seeded Gel ceramic grain, Alumina Zirconia grains, and value-added Aluminum Oxide grains. Saint-Gobain also serves blast finishing, lapping and polishing, and other industrial applications with value-added fused and sintered abrasive grains.
Name and location of production site	Saint-Gobain Ceramic Materials (Zhengzhou) Co., Ltd. Gaocheng Town Dengfeng Zhengzhou 450007 China +86 371 6777 0405
Plant certification	ISO 9001 (valid until 2024/10/12) ISO 45001 (valid until 2024/10/12) ISO 14001 (valid until 2024/10/12)
Contact	Simeng WANG (simeng.wang@saint-gobain.com)

Product description and use:

Trade name	Alumina Zirconia
Product identification	AZ25
UN CPC code	UN CPC Group:342 – Basic inorganic chemicals Class 3422
Product description	Alumina Zirconia grains are abrasive grains. They are produced by fusing zircon sand and alumina at temperatures of 1950°C. After that, the fused material is quenched and crushed to each grit size. After crushing, the product is sieved and packaged.
Potential intended uses	AZ25 grains are primarily used for steel conditioning wheels, snagging wheels, large diameter cut-offs and other grinding applications that require high speed and pressure.

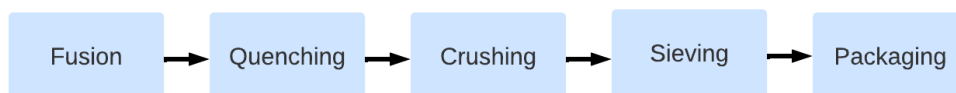


Figure 1 Production processes

LCA calculation information

Declared unit	1 kg of AZ25 and its packaging
Reference service life (RSL)	Not applicable for this product
Time representativeness	Data collected representative of the year 2020 for production data Representative of 2021 for energy source
Geographical coverage	The geographical scope of this EPD is global. It is valid for product manufactured in Deng Feng plant (China)
Database (s) and LCA software used	Ecoinvent 3.8 and GaBi 2022 databases GaBi software version 10.6.2.9
Calculation methods	Potential environmental impacts are calculated following EN 15804:2012 +A2:2019. The characterization models and factors correspond to the latest update of the default list, referred to as Version 2.0.
Data quality	Data quality assessment made based on the Product Environmental Footprint Category Rules Through an arithmetic average, the total score of the LCA is 6,64 which is considered good.
Allocation procedures	Physical allocation based on mass has been used for packaging quantification. Due to the production of by-product, we used an economical allocation based on 2021 revenue for allocation of materials, energy and water consumption and waste production. The economical allocation factor is 100% for AZ25 and 0% the by-product. The polluter pays principle and the modularity principle have been followed.
Cut-off rules	Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impact have been included.
System boundaries	Cradle-to-gate (modules A1 – A3) Upstream processes include raw materials and consumable production as well as distribution packaging's production. Core processes include transportation of the raw materials, consumable and packaging to the plant and the production and consumption of energy during the manufacturing of the product
Excluded lifecycles stages	The product fulfills the requirement for not considering all life cycle stages but just A1-A3. Indeed, downstream processes are excluded as the product is intermediate BtB product whose life cycle and disposal depend to a large extent on further processing. Thus, it is not possible to make appropriate assumptions for downstream processes in this respect

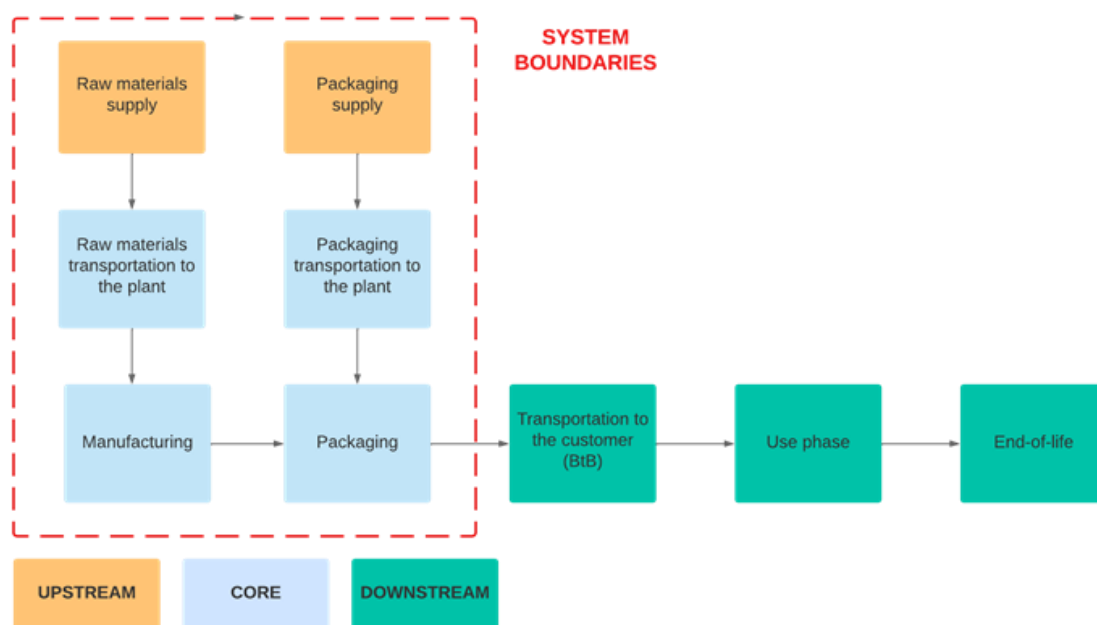


Figure 2 System boundaries

CONTENT DECLARATION

Product composition

DESCRIPTION	%	CAS N°
Aluminium oxide (Al ₂ O ₃)	74%	1344-28-1
Zirconium dioxide (ZrO ₂)	25%	1314-23-4

Table 1 Product composition

AZ25 is not classified as hazardous according to:

- the Globally Harmonized system (GHS)
- OSHA GHS regulations within the United States
- The CPL regulation

AZ25 does not contain any materials / substance hazardous to health and the environment (carcinogenic, mutagenic or toxic to reproduction, allergic, PBT, vPvB)

AZ25 production and product are in line with the Regulation (EC) No 1907/2006 of the European parliament and of the council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

The verifier and the program operator do not make any claim nor have any responsibility of the legality of the product.

Recycled materials

The product uses secondary raw materials in the raw materials recipe. The secondary raw materials are pre-consumer waste recovered different plants such as ceramic production plant.

The quantity of recycled content per DU is 8,75 %.

Note: The secondary raw materials used (type,sourcing) may change each year depending of availability.

Packaging

Distribution packaging

Packaging designed for the purposes of transport, handling and/or distribution.

The distribution packaging of AZ25 are:

- Big Bag (1000kg) and paper bags packaging (20 kg and 25 kg) materials
- Wooden pallets and PE film for handling of packaged products.

No re-use of the packaging.

Consumer packaging

There is no consumer packaging

LCA results

As specified in EN 15804:2012+A2:2019 the environmental impacts are declared and reported using the baseline characterization factors are from the ILCD.

Specific data has been supplied by the plant, and generic data come from GaBi 2022 and Ecoinvent 3.8 databases. All emissions to air, water, and soil, and all materials and energy used have been included.

LCA data results are detailed on the following tables and they refer to a declared unit of 1kg of AZ25 plus its delivery packaging.

As per the PCR Basic Chemicals 2013:03, version 1.1 requirements, the potential environmental impact of the packaging is separated from those of the product.








Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Description of the system boundary (X = Included in LCA, MNA = Module Not Assessed)

UPSTREAM	CORE	DOWNSTREAM
Raw material supply Consumable supply Distribution packaging supply	Transportation Manufacturing	Transportation Use End-of-life
A1	A1-A2	B-C-D
X	X	MNA

Table 2 System boundaries








Environmental Impacts – AZ25 product without packaging¹

	Environmental indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Climate Change [kg CO2 eq.]	6,00E+00	7,13E-01	INA	6,71E+00
	Climate Change (fossil) [kg CO2 eq.]	6,03E+00	7,13E-01	INA	6,74E+00
	Climate Change (biogenic) [kg CO2 eq.]	-3,32E-02	-2,69E-04	INA	-3,35E-02
	Climate Change (land use change) [kg CO2 eq.]	1,73E-03	3,07E-04	INA	2,04E-03
	Ozone depletion [kg CFC-11 eq.]	1,38E-07	3,84E-09	INA	1,42E-07
	Acidification terrestrial and freshwater [Mole of H+ eq.]	4,30E-02	2,40E-03	INA	4,54E-02
	Eutrophication freshwater [kg P eq.]	1,70E-03	4,03E-05	INA	1,74E-03
	Eutrophication marine [kg N eq.]	6,70E-03	4,25E-04	INA	7,12E-03
	Eutrophication terrestrial [Mole of N eq.]	7,19E-02	4,57E-03	INA	7,65E-02
	Photochemical ozone formation - human health [kg NMVOC eq.]	2,14E-02	1,58E-03	INA	2,30E-02
	Resource use, mineral and metals [kg Sb eq.] ²	3,71E-06	1,31E-06	INA	5,02E-06
	Resource use, energy carriers [MJ] ²	6,87E+01	5,77E+00	INA	7,45E+01
	Water scarcity [m³ world equiv.] ²	1,45E+00	2,92E-01	INA	1,74E+00

¹ As per the PCR requirement, the potential environmental impacts of the packaging are reported separately from those of the product.

² **Disclaimer** : 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 Impacts – Big bag packaging without the product ¹

	Environmental indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Climate Change [kg CO2 eq.]	-1,69E-02	3,64E-04	INA	-1,66E-02
	Climate Change (fossil) [kg CO2 eq.]	2,94E-02	3,78E-04	INA	2,98E-02
	Climate Change (biogenic) [kg CO2 eq.]	-4,64E-02	-1,65E-05	INA	-4,64E-02
	Climate Change (land use change) [kg CO2 eq.]	4,17E-05	2,01E-06	INA	4,37E-05
	Ozone depletion [kg CFC-11 eq.]	1,12E-09	2,16E-17	INA	1,12E-09
	Acidification terrestrial and freshwater [Mole of H+ eq.]	1,32E-04	4,44E-07	INA	1,33E-04
	Eutrophication freshwater [kg P eq.]	6,49E-06	1,08E-09	INA	6,49E-06
	Eutrophication marine [kg N eq.]	3,00E-05	1,60E-07	INA	3,02E-05
	Eutrophication terrestrial [Mole of N eq.]	3,13E-04	1,87E-06	INA	3,14E-04
	Photochemical ozone formation - human health [kg NMVOC eq.]	1,21E-04	3,92E-07	INA	1,22E-04
	Resource use, mineral and metals [kg Sb eq.] ²	1,60E-07	3,01E-11	INA	1,60E-07
	Resource use, energy carriers [MJ] ²	7,81E-01	4,82E-03	INA	7,86E-01
	Water scarcity [m³ world equiv.] ²	1,76E-02	3,23E-06	INA	1,76E-02

¹ As per the PCR requirement, the potential environmental impacts of the packaging are reported separately from those of the product.

² **Disclaimer:** 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 Impacts – 20 kg paper bag packaging without the product ¹

	Environmental indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Climate Change [kg CO2 eq.]	-1,90E-02	4,12E-04	INA	-1,86E-02
	Climate Change (fossil) [kg CO2 eq.]	2,72E-02	4,28E-04	INA	2,76E-02
	Climate Change (biogenic) [kg CO2 eq.]	-4,63E-02	-1,87E-05	INA	-4,63E-02
	Climate Change (land use change) [kg CO2 eq.]	7,27E-05	2,28E-06	INA	7,50E-05
	Ozone depletion [kg CFC-11 eq.]	1,40E-09	2,45E-17	INA	1,40E-09
	Acidification terrestrial and freshwater [Mole of H+ eq.]	1,45E-04	5,03E-07	INA	1,46E-04
	Eutrophication freshwater [kg P eq.]	9,10E-06	1,22E-09	INA	9,10E-06
	Eutrophication marine [kg N eq.]	3,68E-05	1,81E-07	INA	3,70E-05
	Eutrophication terrestrial [Mole of N eq.]	3,55E-04	2,11E-06	INA	3,57E-04
	Photochemical ozone formation - human health [kg NMVOC eq.]	1,28E-04	4,44E-07	INA	1,29E-04
	Resource use, mineral and metals [kg Sb eq.] ²	1,57E-07	3,41E-11	INA	1,57E-07
	Resource use, energy carriers [MJ] ²	6,30E-01	5,46E-03	INA	6,35E-01
	Water scarcity [m³ world equiv.] ²	1,85E-02	3,66E-06	INA	1,85E-02

¹ As per the PCR requirement, the potential environmental impacts of the packaging are reported separately from those of the product.

² **Disclaimer** : 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 Impacts – 25 kg paper bag packaging without the product¹

	Environmental indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Climate Change [kg CO2 eq.]	-1,97E-02	4,03E-04	INA	-1,93E-02
	Climate Change (fossil) [kg CO2 eq.]	2,65E-02	4,19E-04	INA	2,69E-02
	Climate Change (biogenic) [kg CO2 eq.]	-4,63E-02	-1,83E-05	INA	-4,63E-02
	Climate Change (land use change) [kg CO2 eq.]	6,78E-05	2,23E-06	INA	7,00E-05
	Ozone depletion [kg CFC-11 eq.]	1,35E-09	2,39E-17	INA	1,35E-09
	Acidification terrestrial and freshwater [Mole of H+ eq.]	1,41E-04	4,92E-07	INA	1,41E-04
	Eutrophication freshwater [kg P eq.]	8,62E-06	1,19E-09	INA	8,62E-06
	Eutrophication marine [kg N eq.]	3,52E-05	1,77E-07	INA	3,54E-05
	Eutrophication terrestrial [Mole of N eq.]	3,43E-04	2,07E-06	INA	3,45E-04
	Photochemical ozone formation - human health [kg NMVOC eq.]	1,25E-04	4,34E-07	INA	1,25E-04
	Resource use, mineral and metals [kg Sb eq.] ²	1,53E-07	3,34E-11	INA	1,53E-07
	Resource use, energy carriers [MJ] ²	6,20E-01	5,34E-03	INA	6,25E-01
	Water scarcity [m³ world equiv.] ²	1,81E-02	3,58E-06	INA	1,81E-02

¹ As per the PCR requirement, the potential environmental impacts of the packaging are reported separately from those of the product.











² **Disclaimer** : 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

Resources Use – AZ25 product without packaging¹

	Resources Use indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Use of renewable primary energy (PERE) [MJ]	5,39E+00	4,55E+01	INA	5,09E+01
	Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Total use of renewable primary energy resources (PERT) [MJ]	5,39E+00	4,55E+01	INA	5,09E+01
	Use of non-renewable primary energy (PENRE) [MJ]	6,62E+01	5,77E+00	INA	7,20E+01
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	2,47E+00	0,00E+00	INA	2,47E+00
	Total use of non-renewable primary energy resources (PENRT) [MJ]	6,87E+01	5,77E+00	INA	7,45E+01
	Input of secondary material (SM) [kg]	1,50E-01	0,00E+00	INA	1,50E-01
	Use of renewable secondary fuels (RSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of non-renewable secondary fuels (NRSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of net fresh water (FW) [m3]	3,41E-02	7,01E-03	INA	4,11E-02











¹ As per the PCR requirement, the use of resources indicators of the packaging are reported separately from those of the product.

Resources Use – Big bag packaging without the product ¹

	Resources Use indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Use of renewable primary energy (PERE) [MJ]	2,27E-01	2,74E-04	INA	2,28E-01
	Primary energy resources used as raw materials (PERM) [MJ]	2,89E-01	0,00E+00	INA	2,89E-01
	Total use of renewable primary energy resources (PERT) [MJ]	5,16E-01	2,74E-04	INA	5,17E-01
	Use of non-renewable primary energy (PENRE) [MJ]	6,70E-01	4,83E-03	INA	6,75E-01
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	1,12E-01	0,00E+00	INA	1,12E-01
	Total use of non-renewable primary energy resources (PENRT) [MJ]	7,82E-01	4,83E-03	INA	7,86E-01
	Input of secondary material (SM) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of renewable secondary fuels (RSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of non-renewable secondary fuels (NRSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of net fresh water (FW) [m3]	4,16E-04	3,10E-07	INA	4,16E-04











¹ As per the PCR requirement, the use of resources indicators of the packaging are reported separately from those of the product.

Resources Use – 20 kg paper bag packaging without the product ¹

	Resources Use indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Use of renewable primary energy (PERE) [MJ]	2,49E-01	3,10E-04	INA	2,49E-01
	Primary energy resources used as raw materials (PERM) [MJ]	4,08E-01	0,00E+00	INA	4,08E-01
	Total use of renewable primary energy resources (PERT) [MJ]	6,57E-01	3,10E-04	INA	6,57E-01
	Use of non-renewable primary energy (PENRE) [MJ]	3,99E-01	5,47E-03	INA	4,04E-01
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	2,31E-01	0,00E+00	INA	2,31E-01
	Total use of non-renewable primary energy resources (PENRT) [MJ]	6,30E-01	5,47E-03	INA	6,35E-01
	Input of secondary material (SM) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of renewable secondary fuels (RSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of nonrenewable secondary fuels (NRSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of net fresh water (FW) [m3]	4,30E-04	3,51E-07	INA	4,31E-04









¹ As per the PCR requirement, the use of resources indicators of the packaging are reported separately from those of the product.

Resources Use – 25 kg paper bag packaging without the product ¹

	Resources Use indicators	UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Use of renewable primary energy (PERE) [MJ]	2,44E-01	3,03E-04	INA	2,44E-01
	Primary energy resources used as raw materials (PERM) [MJ]	3,91E-01	0,00E+00	INA	3,91E-01
	Total use of renewable primary energy resources (PERT) [MJ]	6,35E-01	3,03E-04	INA	6,35E-01
	Use of non-renewable primary energy (PENRE) [MJ]	4,22E-01	5,35E-03	INA	4,27E-01
	Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	1,98E-01	0,00E+00	INA	1,98E-01
	Total use of non-renewable primary energy resources (PENRT) [MJ]	6,20E-01	5,35E-03	INA	6,25E-01
	Input of secondary material (SM) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of renewable secondary fuels (RSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of non-renewable secondary fuels (NRSF) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Use of net fresh water (FW) [m3]	4,22E-04	3,43E-07	INA	4,23E-04









¹ As per the PCR requirement, the use of resources indicators of the packaging are reported separately from those of the product.

Waste Category & Output flows – AZ25 product without packaging ¹

Waste Category & Output Flows		UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Hazardous waste disposed (HWD) [kg]	6,47E-06	1,72E-05	INA	2,37E-05
	Non-hazardous waste disposed (NHWD) [kg]	6,55E+00	1,33E-01	INA	6,68E+00
	Radioactive waste disposed (RWD) [kg]	3,59E-04	9,01E-05	INA	4,49E-04
	Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Materials for Recycling (MFR) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Material for Energy Recovery (MER) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported electrical energy (EEE) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported thermal energy (EET) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00









¹ As per the PCR requirement, the waste production and output flows of the packaging are reported separately than those of the product.

Waste Category & Output flows – Big bag packaging without the product ¹

Waste Category & Output Flows		UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Hazardous waste disposed (HWD) [kg]	1,07E-11	2,31E-14	INA	1,07E-11
	Non-hazardous waste disposed (NHWD) [kg]	1,40E-02	6,92E-07	INA	1,40E-02
	Radioactive waste disposed (RWD) [kg]	3,05E-06	5,95E-09	INA	3,06E-06
	Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Materials for Recycling (MFR) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Material for Energy Recovery (MER) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported electrical energy (EEE) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported thermal energy (EET) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00









¹ As per the PCR requirement, the waste production and output flows of the packaging are reported separately than those of the product.

Waste Category & Output flows – 20 kg paper bag packaging without the product¹

Waste Category & Output Flows		UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Hazardous waste disposed (HWD) [kg]	0,00E+00	2,62E-14	INA	2,62E-14
	Non-hazardous waste disposed (NHWD) [kg]	1,61E-02	7,84E-07	INA	1,61E-02
	Radioactive waste disposed (RWD) [kg]	0,00E+00	6,74E-09	INA	6,74E-09
	Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Materials for Recycling (MFR) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Material for Energy Recovery (MER) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported electrical energy (EEE) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported thermal energy (EET) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00





¹ As per the PCR requirement, the waste production and output flows of the packaging are reported separately than those of the product.

Waste Category & Output flows – 25 kg paper bag packaging without the product ¹

Waste Category & Output Flows		UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Hazardous waste disposed (HWD) [kg]	0,00E+00	2,56E-14	INA	2,56E-14
	Non-hazardous waste disposed (NHWD) [kg]	1,56E-02	7,67E-07	INA	1,56E-02
	Radioactive waste disposed (RWD) [kg]	0,00E+00	6,59E-09	INA	6,59E-09
	Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Materials for Recycling (MFR) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Material for Energy Recovery (MER) [kg]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported electrical energy (EEE) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00
	Exported thermal energy (EET) [MJ]	0,00E+00	0,00E+00	INA	0,00E+00

¹ As per the PCR requirement, the waste production and output flows of the packaging are reported separately than those of the product.

Information on biogenic carbon content

		UPSTREAM	CORE	DOWNSTREAM	TOTAL
	Biogenic carbon content in product [kg]	0,00E+00	0	INA	0,00E+00
	Biogenic carbon content in packaging [kg] Big Bag	7,06E-03	0	INA	7,06E-03
	Biogenic carbon content in packaging [kg] 20 kg paper bag	1,02E-02	0	INA	1,02E-02
	Biogenic carbon content in packaging [kg] 25 kg paper bag	9,72E-03	0	INA	9,72E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂.

Appendix

Electricity description

TYPE OF INFORMATION	DESCRIPTION																						
Location	Representative of Saint-Gobain Abrasive Grains Deng Feng plant (China) for 2021																						
Geographical representativeness description	<div><div>- Wind power: 92% CN: Electricity from wind power</div><div>- Grid mix: 8% CN: Electricity grid mix</div></div>																						
	<table><tr><th>Source</th><th>%</th></tr><tr><td>Hard coal</td><td>65,04</td></tr><tr><td>Hydro</td><td>17,16</td></tr><tr><td>Wind</td><td>5,09</td></tr><tr><td>Nuclear</td><td>4,11</td></tr><tr><td>Natural gas</td><td>3,12</td></tr><tr><td>photovoltaic</td><td>2,46</td></tr><tr><td>Coal gases</td><td>1,42</td></tr><tr><td>Biomass</td><td>1,26</td></tr><tr><td>Waste (Waste-to-Energy)</td><td>0,19</td></tr><tr><td>Fuel oil</td><td>0,15</td></tr></table>	Source	%	Hard coal	65,04	Hydro	17,16	Wind	5,09	Nuclear	4,11	Natural gas	3,12	photovoltaic	2,46	Coal gases	1,42	Biomass	1,26	Waste (Waste-to-Energy)	0,19	Fuel oil	0,15
	Source	%																					
	Hard coal	65,04																					
Hydro	17,16																						
Wind	5,09																						
Nuclear	4,11																						
Natural gas	3,12																						
photovoltaic	2,46																						
Coal gases	1,42																						
Biomass	1,26																						
Waste (Waste-to-Energy)	0,19																						
Fuel oil	0,15																						
	<div><div>Electricity source</div><div><div>Biomass</div><div>Coal gases</div><div>Fuel oil</div><div>Hard coal</div><div>Hydro</div><div>Natural gas</div><div>Nuclear</div><div>photovoltaic</div><div>Waste (Waste-to-Energy)</div><div>Wind</div></div></div>																						
Reference year	2018 for dataset 2021 for energy source split																						
Type of data set	Cradle to gate																						
Source	GaBi 2022 database																						
GWP (kg CO2 eq./kWh)	CN: Electricity from wind power: 0,011 kgCO2eq./kWh CN: Electricity grid mix : 0,811 kgCO2eq./kWh																						

Bibliography

1. EPD International (2017) General Program Instructions for the International EPD® System. Version 3.0, dated 2019-09-18. www.environdec.com.
2. The International EPD® System PCR 2021:03 Basic Chemicals version 1.1, dated 2022-01-14
3. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures
4. ISO 14040:2006 Environmental management. Life cycle assessment. Principles and framework
5. ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines
6. European Chemical Agency, Candidate List of substances of very high concern for Authorization. http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp
7. LCA report AZ25 2020-2021 version 1, dated 2022-09-22