CEMENTOS
TUDELA VEGUÍN

GROUND GRANULATED BLAST FURNACE SLAG SAFETY DATA SHEET

(According with REACH Regulation (EC) No. 1907/2006 as amended)

Rev. 05: January 2024

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1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1. DESIGNATION OF THE SUBSTANCE

Slag, ferrous metal, blast furnace

Trade Name: Ground Granulated Blast Furnace Slag (GBS)

CAS Number: 65996-69-2
EINECS Number: 266-002-0

Reach status: UVCB (Unknown or variable composition complex reaction product of biological origin)

Notification reference number REACH Regulation (EC) No. 1907/2006

01-2119487456-25-0019

1.2. USE OF THE SUBSTANCE

Cement or clinker production; road construction; earth works; as gravel for roads, places, railway; hydraulic engineering; constituent/additive for cement, concrete and other hydraulic binders; wastewater treatment/water treatment; fertilizer and soil conditioner; stone-wool and building material production. PROC codes are listed in annex.

Uses advised against: None known.

1.3. IDENTIFICATION OF THE SUPPLIER

CEMENTOS TUDELA VEGUÍN S.A.U.
ARGÜELLES 25, 33003 OVIEDO, ASTURIAS
+34985981100
fds@ctv.masaveu.com

1.4. EMERGENCY PHONE NUMBER

Phone: 112 (Europe)

Service hours: 24X7

The service is available in the language of the EU country where the call is made.

2. IDENTIFICATION OF HAZARDS

2.1. CLASSIFICATION OF THE SUBSTANCE

Classification according to Regulation (EC) No 1272/2008 as amended

This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Not classified for health hazards**.**
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	Slightly alkaline material. Dusts may irritate the respiratory tract, skin and eyes
Main symptoms	Symptoms include itching, burning, redness and tearing.

(*) In the sense of European Directive 67/548/EEC on Dangerous Substances and Regulation 1272/2008/EC.

Naturally and environmentally harmlessly, granulated blast furnace slag produces an inhibitory effect on germination in the areas where it is applied. This must be taken into account in areas where natural flora and fauna are protected.

Risk of environmental pH modification (pH>7). When used in stagnant or slow flow water, it is recommended that water is oxygenated and speed of work execution is adapted so that water pH does not adversely affect fauna and flora.

2.2. LABEL ELEMENTS

Label according to Regulation (EC) No. 1272/2008 as amended

Identification number	65996-69-2
Hazard pictograms	None.
Signal words	None.

Hazard statements The substance does not meet the criteria for classification.

Prevention	Not assigned.
Response	Not assigned.
Storage	Not assigned.
Disposal	Not assigned.

Supplemental label information None.

2.3. OTHER HAZARDS

Not assigned.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. CHEMICAL COMPOSITION

Description: Granulated blast furnace slags are by-products of the manufacture of iron by thermochemical reduction in the blast furnace. Blast furnace slag is formed in a continuous process by the fusion of limestone (and/or dolomite) and other fluxes with the residues of the carbon source and non-metallic components of the iron bearing materials (e.g. iron ore, iron sinter). Blast furnace slag is generated at temperature above 1500°C. The granulated blast furnace slags are water-cooled which give hydraulic properties related to vitrification. The structure of the granulated slag depends on the temperature during cooling. The substance is prominently glassy.

Granulated blast furnace slag contains the following in different compositions:

Calcium Oxides
Aluminium Oxides
Silicon Oxides
Magnesium Oxides
Sulphur Compound
Carbonates of some of the related oxides

4. FIRST AID

General information: Get medical attention if symptoms occur.

4.1. DESCRIPTION OF FIRST AID MEASURES

Specific hazards

Alkaline dust. Risk of irritant dust formation.

After inhalation

In the event of accidental inhalation, take the casualty away from the contaminated area, where he can breathe fresh air, taking all necessary precautions, and let him rest. Dust in the throat and nasal cavities should vanish spontaneously.

Seek medical assistance if irritation persists or arises later on, or in case discomfort, cough or other symptoms continue.

In the event of conscience disorders, put the victim on his side in the safety position while waiting for the medical help.

In the event of respiratory disorders, provide respiratory assistance while waiting for themedical help. Seek medical advice.

After contact with the eyes

Do not rub the eyes to avoid damaging the cornea by mechanical stress.

Eliminate as much material as possible, remove contact lenses, if applicable, and immediately

rinse with a neutralising solution. Wash thoroughly with water keeping, also under the eyelid, for at least 20 minutes to eliminate all particles. Seek advice from an ophthalmologist or a specialist in occupational medicine.

After contact with the skin

If the dust is dry, eliminate as much of it as possible, then wash thoroughly with water.

If the dust is wet, wash thoroughly with water. Remove and thoroughly clean stained clothes, shoes, watch, etc. before using them again.

Use a neutralising solution. Wash thoroughly with water. Do not use solvents.

Always seek medical aid in case of irritation or chemical burn.

After accidental ingestion.

Do **not** induce vomiting.

If the person is conscious, rinse his mouth out to eliminate the material or dust. Let him drink plenty of water and get medical advice/attention.

In case of trouble regarding consciousness, place the casualty lying on his side in the recovery position awaiting medical aid.

In the event of respiratory trouble, provide breathe assistance while waiting for medical aid.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Dust may irritate the eyes and the respiratory system. Prolonged exposure may cause skin irritation.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Provide general supportive measures and treat symptomatically.

When contacting a physician, take this safety data sheet with you.

5. FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

The substance is non-flammable or combustible.

Use the extinguishing media appropriate for contained products.

Use fire-extinguishing media appropriate for surrounding materials

Appropriate extinguishing media are: water, gas and sand.

Unsuitable extinguishing media: None known.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

None known.

5.3. ADVICE FOR FIREFIGHTERS

None known.

5.4. OTHER INFORMATION

In all cases, self-contained breathing equipment must be available, do not breathe vapours and keep opposite from clouds and fumes. Use the extinguishing media appropriate for contained products. Use fire-extinguishing media appropriate for surrounding materials

6. ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Wear the protective equipment described in section 8 and follow the handling advice provided in section 7.

For non-emergency personnel	Ensure adequate ventilation. Avoid generation and spreading of dust. Keep unnecessary personnel away. Use personal protection as recommended in section 8 of the SDS.
For emergency responders	Avoid inhalation of dust. In case of inadequate ventilation, use respiratory protection. Avoid contact with skin and eyes. Use personal protection as recommended in section 8 of the SDS. Keep unprotected personnel away.

6.2. ENVIRONMENTAL PRECAUTIONS

Prevent further leakage or spillage if safe to do so. Do not allow to enter drains, sewers or watercourses. Contact local authorities in case of spillage to drain/aquatic environment. Retain and dispose of contaminated wash water.

Do not dump slag into sewers, surface waters or the natural environment.

Seal sewers if possible.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Collect the dumped material and, if possible, reuse it.

The presence of great quantities of dust may result in a slippy floor.

Use dry cleaning means that do not raise dust, such as exhaust or extraction systems (portable industrial vacuum cleaners equipped with high efficiency particulate filters - HEPA filters or equivalent technique). Never use compressed air.

It is necessary to ensure that all workers wear the appropriate protective equipment and prevent dust spreading.

Avoid inhalation and contact with the eyes and skin. Place the collected material in a container for reuse if possible.

6.4 REFERENCE TO OTHER SECTIONS

For personal protection, see section 8. For waste disposal, see section 13.

7. HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

7.1.1 Protection measures

Avoid handling which leads to dust formation. Avoid contact with skin and eyes. Use Personal Protective Equipment recommended in section 8 of the SDS. Handle in accordance with good

industrial hygiene and safety practices.

Use this product with adequate ventilation.

Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Remove and wash contaminated clothing promptly.

7.1.2 Advice on general occupational hygiene

Do not handle or store near food, drinks or tobacco.

In dust-producing environments, wear a mask and protecting goggles.

Use protecting gloves to avoid contact with the skin.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Bulk storage must be in an airtight area with a water retaining system.

Long storage may cause product hardening.

Keep away from food, drinks or tobacco.

Burial hazard: slag can accumulate or stick to walls of contained spaces, and can release, collapse or fall down unexpectedly. In order to prevent the risk of burial or suffocation, do not enter contained spaces such as silos, containers, tanks or any other receptacles used to store or containing furnace slag without previously adopting the appropriate safety measures.

In storage by stocking, unstable walls or slopes can also be developed involving the risk of falling down.

Do not use aluminium containers as these two materials are incompatible.

7.3 SPECIFIC END USES

PROC codes are listed in annex.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. EXPOSURE LIMIT VALUES

Components/decomposition	Type	Value	Form
Dust(CAS -)	TWA	3 mg/m³	Respirable fraction
		10 mg/m³	Inhalable Fraction
Aluminium oxides (CAS 1344-28-1)	TWA	4 mg/m³	Respirable fraction
		10 mg/m³	Inhalable Fraction
Óxido de Magnesio (CAS 1309-48-4)	TWA	4 mg/m³	Respirable fraction as Mg
		10 mg/m³	Inhalable Fraction as Mg
Calcium oxide (CAS 1305-78-8)	TWA	2 mg/m³	-
Silica, amorphous -fused	TWA	0,08 mg/m³	Respirable fraction
Manganese (CAS 7439-96-5) and its inorganic compounds	TWA	0,2 mg/m³	as Mn
Sulphur dioxide (CAS 7446-09-5)	TWA	1,3 mg/m³, 0,5ppm	-
	STEL	2,6 mg/m³, 1ppm	-

Europe - 2008: Value for calcium oxide according Scientific Committee on Occupational Exposure Limits (SCOEL):

- TWA: 1m g/m³ respirable dust
- STEL: 4 mg/m³ respirable dust

Recommended monitoring procedures: Follow standard monitoring procedures

DN(M)EL for general population

No DN(M)ELs were generated, but available data suggests that ferrous slag has no effects.

PREDICTED NO EFFECT CONCENTRATION (PNEC)

SUBSTANCE	TYPE	VALUE
Granulated blast furnace slag (GBS) (CAS 65996-69-2)	Aqua (marine water)	0,5 g/l
	Aqua (freshwater)	5 g/l
	Aqua (intermittent releases)	5g/l
	Sewage Treatment Plant	10 g/l
	Soil	1000mg/kg

8.2. EXPOSURE CONTROLS

8.2.1. Appropriate engineering controls

Observe occupational exposure limits and minimise the risk of inhalation of dust. Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits. Provide eyewash station and safety shower.

Measures to reduce particulate matter formation and dust release into the air, such as: dust removal, exhaust systems, and dry cleaning methods that do not raise dust.

8.2.2. Individual protection measures, such as personal protective equipment

General: Do not eat, drink or smoke while working with the substance in order to avoid contact with the skin or mouth.

Once work is finished, workers must wash or have a shower, or apply moisturising skin cream.

Take off any stained garments (clothing, shoes, watch, etc.) and clean them before reuse.

Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Personal protective equipment should be suitable for use with alkaline materials.

Eye/face protection:

When handling slag, either wet or dry, use approved goggles or certified integral (with side shields) protective glasses/goggles.

Skin protection:

Use water-proof abrasion- and alkalis-resistant gloves with cotton liner (made of materials not containing soluble Cr (VI)), boots, long-sleeved clothes as well as skin care products (including protective creams) to protect the skin against prolonged contact with the substance. Special care must be taken to avoid the substance entering the safety footwear. Chemical resistant gloves (conform to 89/686/EEC). Suitable gloves can be recommended by the glove supplier.

Chemical resistant clothing is recommended. Protective shoes or boots.

Respiratory protection:

When a person is potentially exposed to dust concentrations above allowable limits, respiratory protection must be used suitable for the present particle concentration and compliant with standards set forth in the harmonised CEN regulations. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2).

Hygiene measures:

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

8.2.3 Environmental exposure controls

Control to avoid releasing particulate into the environment must be in accordance with the available technology and the regulations on particulate matter emissions.

Control of environmental exposure is important for the marine environment, since particulate emissions at the different stages of its lifecycle (production and utilization) mainly affect the soil and surface waters. The assessment of risk and its effects on the aquatic environment includes the effect on organisms/ecosystems due to possible variations of pH relating to hydroxide discharges. Toxicity caused by other dissolved organic ions is considered insignificant compared to potential effect on pH.

Do not discharge into natural environment or sewers. It is expected that any effects that may arise during the manufacturing and utilization process are at a local level. The pH value of the effluent and surface water must not be greater than 9; otherwise, it could affect the local and industrial waste water treatment plants. To assess exposure, a stepped approach is recommended.

Step 1: gather information on the effluent's pH and contribution of dust to total pH. If pH is above 9 and mostly caused by dust, actions showing the safe use of the substance must be taken.

Step 2: gather information on the receiving aquatic environment's pH downstream the discharge point. The pH value of water where discharge is made must not be above 9.

Step 3: measure pH of the receiving aquatic environment downstream the discharge point. A pH value below 9 shows a reasonably safe use. If pH value is above 9, risk management measures must be taken: the effluent must be neutralised, thus ensuring safe use of the substance during its production or utilization phase.

Emission control measures are not necessary for exposure to the terrestrial environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

a) Appearance: Granulated inorganic solid material. In case the material is ground, it will be like fine dust of inorganic solid.
b) Colour: grey - yellow
c) Odour: odourless
d) Odour threshold: Not available..
e) pH: basic between 9 and 12.5
f) Melting point: 1100 - 1400 °C (2012 - 2552 °F). Value used for the chemical safety assessment (CSA): 1400 °C at 1013 hPa
g) Initial boiling point and boiling range: > 2000 °C (> 3632 °F)
h) Flash point: Not applicable.
i) Evaporation rate: Not applicable since it is not a liquid.
j) Flammability (solid, gas): Not applicable as it is a non-flammable solid and cannot cause or contribute to cause fire by friction.
k) Upper/lower flammability or explosive limits: Not applicable since it is not a flammable gas.
l) Oxidising properties: No oxidising properties.
m) Vapour pressure: Extremely low vapour pressure at ambient temperature. (Value used for CSA 0,000000001 Pa at 20 ºC)
n) Surface tension: slag leachates contain minimal concentrations of organic ions, which shows that there is no particular influence on water surface tension.
o) Vapour density: Not applicable as its boiling point is >2000 ºC.
p) Relative density: 2.4 - 3 g/cm^3 at 20 °C; (value used for CSA 3g/cm^3)
q) Solubility in organic solvents and identification of significant product degradation: it is not soluble in organic solvents.
r) Solubility(ies) in water: (T 20 ºC): very low (soluble fraction <1%) (Value used for CSA 0.01 mg/l at 20 ºC)
s) Partition coefficient: n-octanol/water: log K_{ow} (P_{ow}): -9 at 20 ºC
t) Auto-ignition temperature: Auto-ignition is not possible.
u) Decomposition temperature: Not applicable as no organic peroxides are present.
v) Viscosity: 150 - 1500 cP (1100 - 1400°C) (Krajewski and Krueger 1984)
w) Explosive properties: Not applicable as it does not have any explosive or pyrotechnic effects nor the capacity (spontaneously, by chemical reaction) to release gases at such a temperature, pressure and speed that may damage the environment. It cannot produce a self-sustaining exothermic chemical reaction.
x) Oxidising properties: Not applicable as it does not cause or facilitate the combustion of other substances.

9.2. OTHER INFORMATION

Not applicable.

10. STABILITY AND REACTIVITY

10.1. REACTIVITY

When mixed with water, the slag hardens becoming a stable rock mass resistant to normal ambient conditions.

Stable at normal conditions.

10.2. CHEMICAL STABILITY

As long as slag is properly stored (see section 7). Contact with incompatible materials must be avoided.

The slag is alkaline and incompatible with acids, ammonium salts, aluminium or other non-noble metals. The slag can dissolve in hydrofluoric acid, producing silicon tetrafluoride corrosive gas. It can react to water, resulting in silicates and calcium hydroxide. Slag silicates react to powerful oxidising agents such as fluorine; boron trifluoride; chlorine trifluoride; manganese trifluoride; oxygen difluoride.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

Contact with acids liberates toxic gas. Hydrogen sulfide.

10.4. CONDITIONS TO AVOID

Humidity during storage may cause hardening and loss of product quality.

10.5 INCOMPATIBLE MATERIALS

Acids, ammonium salts, aluminium and other non-noble metals.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

Emission of hazardous gases (H_2S) when the product is in contact with acids.

11. TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Effects on human health

Slightly alkaline substance. Risk of irritant dust formation.

Contact with the skin:	Acute effects: Risk of irritation in case of prolonged contact with the skin. Must wear clothes suitable for dealing with alkaline products. Must wear gloves suitable for dealing with alkaline products.
Contact with the eyes:	Acute effects: Risk of irritation and/or burns. Must wear safety goggles.
Inhalation:	Acute effects: in case of dust inhalation, risk of irritation of respiratory tract, burning sensation, cough, sore throat, breathlessness.
Ingestion:	Risk of irritation, burning sensation, abdominal pain. Expected to be a low ingestion hazard.

Overall hazard data

Type of hazard	Dose indicators	Qualitative assessment
Acute skin toxicity	-	No acute skin toxicity based on other data for other types of slag.
Acute toxicity by inhalation	LC_{50}: 5235 mg/m^3 (test. Substance GGBS) OECD Guideline 403, Wistar rat.	No acute toxicity by inhalation.
Acute oral toxicity	LC_{50}: 2000 mg/kg bw OECD Guideline 403, Wistar rat.	No acute oral toxicity
Skin corrosion/ irritation	OECD 404, New Zealand White rabbit.	Not irritant
Eye damage/ irritation	OECD 405, New Zealand White rabbit.	Not irritant
Sensitisation	OECD 406, Dunkin-Hartley guinea pig	No sensitising
Toxicity by repeated dose: sub-acute / sub-chronic / chronic by inhalation	Research in progress NOAEC: 200 mg/m^3 (subacute; rat)	

Mutagenicity	Reversed mutation tests, EU method B 13/14, Salmonella typhimurium. Maman cell gene mutation test, EU method B.17, Chinese hamster lung fibroblast (V79).	No mutagenic effect No mutagenic effect

Aggravation of pre-existing illnesses due to exposure

Exposure to slag dust may aggravate the symptoms of pre-existing illnesses, such as respiratory pathologies, emphysema, asthma, eye pathologies and skin pathologies.

11.2. INFORMATION ABOUT OTHER HAZARDS

No known endocrine disrupting effects.

12. ECOLOGICAL INFORMATION

12.1. TOXICITY

The substance is not classified as dangerous in the sense of European Directive 67/548/EEC on Dangerous Substances and Regulation 1272/2008/EC on CLP.

12.2. PERSISTENCE AND DEGRADABILITY

Not significant as it is an inorganic material.

12.3. BIOACCUMULATIVE POTENTIAL

Partition coefficient (n-octanol/water): Value used for the chemical safety assessment (CSA): Log Kow (Pow): -9 at 20 °C.

Bioconcentration factor (BCF): Not available.

12.4. MOBILITY IN SOIL

Not significant as it is an inorganic material.

12.5 RESULTS OF PBT AND VPVB ASSESSMENT

Not significant as it is an inorganic material.

12.6 ENDOCRINE DISRUPTING PROPERTIES

No known endocrine disrupting propierties.

12.7 OTHER ADVERSE EFFECTS

No negative ecological effects are expected based on current knowledge.

In a natural and environmentally harmless manner the substance displays a germination inhibiting effect at the site of application. This should be taken into account especially when used in areas where natural fauna and flora are protected.

Due to the risk of increasing the pH of the environment, when used in slow flowing or still waters oxygenation is recommended and application rates should be adapted to avoid detrimental effects.

No negative ecological effects are expected based on current knowledge.

Type of hazard	Dose indicators	Values used for CSA
Short-term toxicity to fish	OECD 203, Leuciscusidus LC_0 (96 h) > 1000 g/l LC_{50} (96 h) > 1000 g/l	LC_{50} fish fw: 100 g/l LC_{50} fish sw: 10 g/l
Short-term toxicity to aquatic invertebrates	OECD 202, Daphnia magna LC_0 (48 h) > 1000 g/l LC_{50} (48 h) > 1000 g/l	EC_{50}/ LC_{50} for invertebrates fw: 50 g/l EC_{50}/ LC_{50} for invertebrates sw: 5 g/l
Toxicity to seaweeds	OECD 201, Scenedesmus subspicalus IC_{10} (72 h) > 100 g/l IC_{50} (72 h) > 100 g/l	EC_{50}/ LC_{50} for seaweeds fw: 50 g/l EC_{50}/ LC_{50} for seaweeds sw: 5 g/l EC_{10}/ LC_{10} or NOEC for seaweeds fw: 32 g/l EC_{10}/ LC_{10} or NOEC for seaweeds sw: 3.2 g/l
Toxicity to microorganisms	OECD 209, activated sludge EC_{10} (3 h) > 10 g/l EC_{50} (3 h) > 10 g/l	EC_{50}/ LC_{50} aquatic microorganisms: 80 g/l EC_{10}/ LC_{10} or NOEC aquatic microorganisms: 80 g/l
Long-term toxicity to aquatic invertebrates	OECD 209, Daphnia magna EC_{10} (21 d) > 5 g/l	EC_{10}/ LC_{10} or NOEC for invertebrates fw: 5 g/l EC_{10}/ LC_{10} or NOEC for invertebrates sw: 0.5 g/l
Long-term toxicity to fish	-	EC_{10}/ LC_{10} or NOEC for fish fw: 500 g/l EC_{10}/ LC_{10} or NOEC for fish sw: 50 g/l
Sediment organisms	-	EC_{10}/ LC_{10} or NOEC for sediment fw: 100 g/kg EC_{10}/ LC_{10} or NOEC for sediment sw: 100 g/kg

Long term, soil arthropods	-	EC_{10}/ LC_{10} or NOEC: 10 g/kg
Long term, terrestrial plants	-	EC_{10}/ LC_{10} or NOEC: 100 g/kg
Long term, soil microorganisms	-	EC_{10}/ LC_{10} or NOEC: 100 g/kg

fw: fresh water sw: salt water.

13. DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Dispose in accordance with applicable federal, state, and local regulations. Dispose of empty containers according to applicable federal, state/provincial and/or local regulations.

Blast furnace slag must always be reused except in case of mixing or contamination from other substances or mixtures preventing reuse.

In the event that disposal is required when reuse is not possible, the substance must be disposed of according to the current laws. From a safety perspective, long periods of storage do not alter the product characteristics.

Do not discharge into sewers or surface waters.

Hardened slag is a non-hazardous waste according to Decision 955/2014/EC modifying relating to the list of wastes.

EWC codes: 10 02 01 Wastes from the processing of slag

Cross-border consignment code (if the waste is considered as waste in the originating State or destination State):

According to EC Regulation 1013/2006, the code for a cross-border waste consignment depends on treatment (disposal or recovery) but also on the State affected by the shipment.
The information process only affects the transport of non-hazardous waste intended to be recovered in an EU State, in a State member of the OECD, or in case of specific agreement between the competent authorities of the destination State.

Slag is not considered as a hazardous waste according to the Basel Convention. Annex IX. List B. B1200.

14. TRANSPORT INFORMATION

Slag is not considered as hazardous according to the following transport regulations:

- ADR/RID/CDG Road / CDG Rail.
- Inland waterway transport (ADN/ADNR)
- Sea transport (IMO/ IMDG)
- Air transport (ICAO/IATA)

No special precautions are required except for those mentioned in section 8.

14.1 UN NUMBER

not applicable

14.2 UN PROPER SHIPPING NAME

not applicable

14.3 TRANSPORT HAZARD CLASS(ES)

not applicable

14.4 PACKING GROUP

not applicable

14.5 ENVIRONMENTAL HAZARDS

not applicable

14.6 SPECIAL PRECAUTIONS FOR USER

not applicable

14.7 TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE

not applicable

15. REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

There is no specific regulation or legislation for the substance

European Social Dialogue Agreement on Crystalline Silica

The "Good Practice Guide", which contains recommendations on safe handling, may be found at http://www.nepsi.eu/agreement-good-practice-guide/good-practice-guide.aspx. European trade union organizations and industry sector associations, including Cembureau, adopted these best practices through a European Social Dialogue Agreement, "Agreement on Workers Health Protection through the Good Handling and Use of Crystalline Silica and Products containing it."

The Spanish cement industry voluntarily adopted the terms of this Agreement and made a protocol which specifically applies that document to the Spanish cement sector. (http://www.oficemen.com/reportajePag.asp?id_rep=139)

15.2 CHEMICAL SAFETY ASSESSMENT

A chemical safety assessment has been carried out.

16. OTHER INFORMATION

16.1 CHANGE HISTORY

Created: November 2008
Revision 1: May 2009
Revision 2: November 2011
Revision 3: December 2011
Revision 4: November 2017
Revisión 5: January 2024

16.2 ABREVIATIONS AND ACRONYMS

ADR/RID	European Agreement concerning the International Carriage of Dangerous Goods by Road / Regulation concerning the International Carriage of Dangerous Goods by Rail.
CAS	Chemical Abstracts Service, a division of the American Chemical Society
CLP	Classification, labelling and packaging of substances and mixtures (European Regulation No. 1272/2008)
DNEL	Derived No Effect Level
ECHA	European Chemicals Agency
EINECS	European Inventory of Existing Chemical Substances
EPA	Efficient particulate air filter
SDS	Safety Data Sheet
FFP	Self-filtering anti-particle mask
GGBS	Ground Granulated Blast Furnace Slag
HEPA	High-Efficiency Particulate Air filter
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
IC_{50}	Inhibitory Concentration. Concentration that is expected to produce an inhibitory effect defined in 50% of a population of organisms in specific conditions.
LC_{50}	Lethal Concentration of a compound on air or water killing 50% of organisms under study in specific conditions.
EC_{50}	Statistically calculated concentration that is expected to produce a non-lethal effect defined in 50% of a population of organisms in specific conditions.
MS	Member State
NOAEC	No Observed Adverse Effect Concentration .
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
PROC	Process Category
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Regulation (EC) No. 1907/2006).
STOT	Specific Target Organ Toxicity
UVCB	Substance of Unknown or Variable composition, Complex reaction products or Biological materials
vPvB	Very persistent and very bioaccumulative
VLA/ED	Valor límite ambiental de exposición profesional diaria (Daily limit value for hazardous substances).

16.3 REFERENCES

https://echa.europa.eu/es/registration-dossier/-/registered-dossier/16142/1

16.4 TRAINING

As an add-on to the training programmes for workers on environment as well as health and safety, companies shall ensure that workers read, understand and apply the requirements in this safety data sheet (SDS).

16.5 OTHER INFORMATION

This Safety Data Sheet complies with article 31 of REACH Regulation 1907/2006 and its modifications as amended.

The information herein supplied is based on the available data as of the date of release and for a correct use of the product according to guidance on the instructions shown on the package or in technical guides. Any other unspecified uses of the product, including its use in conjunction with other products or in other processes, shall be at the user's sole risk and liability.

The user is responsible for taking the appropriate protection measures when using the product and comply with all legal requirements that are applicable to his activity.

The user assumes all responsibility to know and take all precautions relating to the use of the substance. References to regulatory provisions are provided to help the user comply with the obligations concerning the people using a hazardous substance or mixture.

The users are warned about the potential existence of other provisions completing these rules.

The contents of this Data Sheet must not be regarded as absolute and it is possible that other rules or regulations complete the information given in this document. This Data Sheet does not release the user from ensuring that obligations derived from other referenced texts are applied to the storage and use of the substance, so the user is the sole responsible.

Type	IU number	Identified Use (IU)name	Substance supplied to that use	Use descriptors
Manufacture	M-1	Manufacture of slag	-	**Environmental release category (ERC):** ERC 1: Manufacture of substances **Process category (PROC):** PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles PROC 26: Handling of solid inorganic substances at ambient temperature
Formulation	F-2	Generic formulation in closed continues processes	- As such - In a mixture	**Environmental release category (ERC):** ERC 2: Formulation of preparations **Process category (PROC):** PROC 1: Use in closed process, no likelihood of exposure PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category formulated:** PC 9b: Fillers, putties, plasters, modelling clay
Formulation	F-3	Generic formulation in closed batch processes	- As such - In a mixture	**Environmental release category (ERC):** ERC 2: Formulation of preparations **Process category (PROC):** PROC 3: Use in closed batch process (synthesis or formulation) PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

				PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category formulated:** PC 9b: Fillers, putties, plasters, modelling clay
Formulation	F-4	Generic formulation in batch processes	As such	**Environmental release category (ERC):** ERC 2: Formulation of preparations **Process category (PROC):** PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category formulated:** PC 9b: Fillers, putties, plasters, modelling clay
Formulation	F-5	Generic formulation in open batch processes	- As such - In a mixture	**Environmental release category (ERC):** ERC 2: Formulation of preparations **Process category (PROC):** PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 19: Hand-mixing with intimate contact and only PPE available. PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category formulated:** PC 9b: Fillers, putties, plasters, modelling clay
Uses at industrial sites	IW-16	Raw material for glass making	As such	**Environmental release category (ERC):**

				ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) **Process category (PROC):** PROC 1: Use in closed process, no likelihood of exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature **Product Category used:** PC 0: Other: glass **Sector of end use:** SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU 19: Building and construction work **Subsequent service life relevant for that use:** no
Uses at industrial sites	IW-18	Raw material for formed (building) material	- As such - In a mixture	**Environmental release category (ERC):** ERC 5: Industrial use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 1: Use in closed process, no likelihood of exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting **Product Category used:**

				PC 0: Other: Building and construction preparations not covered elsewhere PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-1: Road A-3: Formed (building) material A-6: Gabion
Uses at industrial sites	IW-15	Raw material for stone-wool (rock -wool)	- As such - In a mixture	**Environmental release category (ERC):** ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) **Process category (PROC):** PROC 3: Use in closed batch process (synthesis or formulation) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:** PC 0: Other: building and construction preparations not covered elsewere **Sector of end use:** SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement **Subsequent service life relevant for that use:** no
Uses at industrial sites	IW-6:	Classifying and sieving of slag	- As such	**Environmental release category (ERC):** ERC 7: Industrial use of substances in closed systems **Process category (PROC):** PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles PROC 26: Handling of solid inorganic substances at ambient temperature PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

				Product Category used: PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU 19: Building and construction work **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-1: Road A-2: Cement articles A-3: Formed (building) material A-4: Fire seal products A-6: Gabion
Uses at industrial sites	IW-10	Use of concrete grout, mortar, self levelling compounds	- In a mixture	**Environmental release category (ERC):** ERC 5: Industrial use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 1: Use in closed process, no likelihood of exposure PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 7: Industrial spraying PROC 10: Roller application or brushing PROC 12: Use of blowing agents in manufacture of foam PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 26: Handling of solid inorganic substances at ambient temperature PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU 19: Building and construction work **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-2: Cement articles

				A-3: Formed (building) material
Uses at industrial sites	IW-12	clinker	- As such	**Environmental release category (ERC):** ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) **Process category (PROC):** PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 19: Building and construction work **Subsequent service life relevant for that use:** no
Professional uses	PW-7:	Road, place, gravel covering layer (also Paddock, Roofing) construction	- As such - In a mixture	**Environmental release category (ERC):** ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 19: Building and construction work **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:**

				A-1: Road
Professional uses	PW-8	Embankments fill; Earth work constructions	- As such	**Environmental release category (ERC):** ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 19: Building and construction work **Subsequent service life relevant for that use:** no
Professional uses	PW-9	Railway ballast	- As such	**Environmental release category (ERC):** ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 19: Building and construction work **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-1: Road
Professional uses	PW-11	Wastewater treatment / Water treatment	- As such	**Environmental release category (ERC):** ERC 8b: Wide dispersive indoor use of reactive substances in open systems ERC 8e: Wide dispersive outdoor use of reactive substances in open systems **Process category (PROC):** PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:**

				PC 2: Adsorbents PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents PC 37: Water treatment chemicals **Sector of end use:** SU 23: Electricity, steam, gas water supply and sewage treatment **Subsequent service life relevant for that use:** no
Professional uses	PW-10	Use of concrete grout, mortar, self levelling compounds	- In a mixture	**Environmental release category (ERC):** ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 10: Roller application or brushing PROC 11: Non industrial spraying PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 19: Hand-mixing with intimate contact and only PPE available. PROC 26: Handling of solid inorganic substances at ambient temperature PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay PC 15: Non-metal-surface treatment products **Sector of end use:** SU 19: Building and construction work **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-2: Cement articles A-3: Formed (building) material
Professional uses	PW-13	Fertilizer and soil conditioner	- As such - In a mixture	**Environmental release category (ERC):** ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

				PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 19: Hand-mixing with intimate contact and only PPE available. PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:** PC 12: Fertilisers **Sector of end use:** SU 1: Agriculture, forestry and fishing **Subsequent service life relevant for that use: no**
Professional uses	PW-14	Sandblasting	- As such	**Environmental release category (ERC):** ERC 8a: Wide dispersive indoor use of processing aids in open systems ERC 8d: Wide dispersive outdoor use of processing aids in open systems **Process category (PROC):** PROC 7: Industrial spraying PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 11: Non industrial spraying PROC 19: Hand-mixing with intimate contact and only PPE available. PROC 26: Handling of solid inorganic substances at ambient temperature **Product Category used:** PC 14: Metal surface treatment products, including galvanic and electroplating products PC 15: Non-metal-surface treatment products **Sector of end use:** SU 17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment **Subsequent service life relevant for that use: no**
Professional uses	PW-17	Use as fire seal products	- In a mixture	**Environmental release category (ERC):** ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 23: Open processing and transfer operations with minerals/metals at

				elevated temperature **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU 19: Building and construction work **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-4: Fire seal products
Professional uses	PW-18	Raw material for formed (building) material	- As such - In a mixture	**Environmental release category (ERC):** ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix **Process category (PROC):** PROC 1: Use in closed process, no likelihood of exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting **Product Category used:** PC 0: Other: Building and construction preparations not covered elsewhere PC 9b: Fillers, putties, plasters, modelling clay **Sector of end use:** SU 13: Manufacture of other non-metallic mineral products, e.g. plasters, cement **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-1: Road A-3: Formed (building) material A-6: Gabion
Consumer uses	C-7	Road, place, gravel covering layer (also Paddock, Roofing) construction	- As such	**Environmental release category (ERC):** ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

				Product Category used: PC 9b: Fillers, putties, plasters, modelling clay **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-1: Road
Consumer uses	C-11	Wastewater treatment / Water treatment	- As such	**Environmental release category (ERC):** ERC 8b: Wide dispersive indoor use of reactive substances in open systems ERC 8e: Wide dispersive outdoor use of reactive substances in open systems **Product Category used:** PC 2: Adsorbents PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents PC 37: Water treatment chemicals **Subsequent service life relevant for that use:** no
Consumer uses	C-10	Use of concrete grout, mortar, self levelling compounds	- In a mixture	**Environmental release category (ERC):** ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Subsequent service life relevant for that use:** yes **Link to the subsequent service life:** A-2: Cement articles A-3: Formed (building) material
Consumer uses	C-13	Fertilizer and soil conditioner	- As such - In a mixture	**Environmental release category (ERC):** ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix **Product Category used:** PC 12: Fertilisers **Subsequent service life relevant for that use:** no
Consumer uses	C-18	Raw material for building material: Addition to fire seal products	- As such - In a mixture	**Environmental release category (ERC):** ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix **Product Category used:** PC 9b: Fillers, putties, plasters, modelling clay **Subsequent service life relevant for that use:** yes

				Link to the subsequent service life: A-3: Formed (building) material

Type	SL number	Identified SL name	Article used by	Use descriptors
Service Life	SL-2	Cement articles	- workers - consumers	**Article category related to subsequent service life (AC):** AC 4: Stone, plaster, cement, glass and ceramic articles **Environmental release category (ERC):** ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC 11a: Wide dispersive indoor use of long-life articles and materials with low release **Process category (PROC):** PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation
Service Life	SL-4	Fire seal products	- workers	**Article category related to subsequent service life (AC):** AC 4: Stone, plaster, cement, glass and ceramic articles **Environmental release category (ERC):** ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC 11a: Wide dispersive indoor use of long-life articles and materials with low release **Process category (PROC):** PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature
Service Life	SL-3	Formed (building) material	- workers	**Article category related to subsequent service life (AC):** AC 4: Stone, plaster, cement, glass and ceramic articles **Environmental release category (ERC):** ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC 11a: Wide dispersive indoor use of long-life articles and materials with low release **Process category (PROC):** PROC 21: Low energy manipulation of substances bound in materials

				and/or articles PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature
Service Life	SL-1	Road	- workers - consumers	**Article category related to subsequent service life (AC):** AC 4: Stone, plaster, cement, glass and ceramic articles **Environmental release category (ERC):** ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release **Process category (PROC):** PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 23: Open processing and transfer operations with minerals/metals at elevated temperature PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles
Service Life	SL-6	Gabion	- workers - consumers	**Article category related to subsequent service life (AC):** AC 4: Stone, plaster, cement, glass and ceramic articles **Environmental release category (ERC):** ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release **Process category (PROC):** PROC 21: Low energy manipulation of substances bound in materials and/or articles

Technical function of the substance during formulation
- Processing aid, not otherwise listed
- pH-regulating agents
- Fillers