SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name
Swecem Merit

Name of the chemical
Freshwater granulated blast furnace slag

CAS number
65996-69-2

EC number
266-002-0

REACH registration number
01-2119487456-25-0029
01-2119487456-25-0025

1.2. Relevant identified uses of the substance or mixture and uses advised against

Product type
As a raw material for cement, clinker, concrete, glass and mineral wool.
Used as light ballast in the construction sector.
Used as a phosphorus trap in purification from catchment areas, mainly agriculture and private drains.
Used as a soil improver and as a blasting material.

Not suitable for use in
The product should only be used in accordance with the area of use specified above. If the product is still used outside the specified area of use, contact should be made with the supplier.

1.3. Details of the supplier of the safety data sheet

Supplier
Swecem AB

Street address
Box 1291
262 24 Ängelholm
Sweden

Telephone
+46 43 18 90 00 (7 am - 4 pm)

Email
info.sdb@peabindustri.se

Web site
https://swecem.se/

1.4. Emergency telephone number

112 - Request poison information

Available outside office hours
Yes

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
The product is not classified as hazardous according to Regulation (EC) No 1272/2008.

2.2. Label elements
The product does not require labelling in accordance with Regulation (EC) No 1272/2008.

2.3. Other hazards
Exposure to dust in the eyes and respiratory tract can cause transient mechanical irritation.

This substance does not fullfil the PBT/vPvB- criteria according to the REACH-regulations, Annex XIII.
Not applicable for inorganic substances.
The substance is not considered to have endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
Blast furnace slag	65996-69-2 266-002-0 01-2119487456-25-0029 -	100%	-	- - -	-

Substance additional information
Swecem Merit is the name for ground freshwater granulated blast furnace slag. Blast furnace slag is a by-product in the production of pig iron in blast furnaces. Raw materials in the blast furnace are iron ore, coke/coal and slag former (lime). The slag mainly consists of thermally modified natural rocks. When manufacturing the product, the molten slag is rapidly cooled in fresh water, which results in the slag forming granules and acquiring an amorphous (glassy) structure of complex Ca-/Mg-/Al-silicates.

SECTION 4: First aid measures

4.1. Description of first aid measures
Show this safety data sheet to the doctor in attendance.

Inhalation
Fresh air and rest. If symptoms persist, call a physician.

Skin contact
Wash off with soap and water. Remove and wash contaminated clothing before re-use. However, the exposure does not pose a danger to either the victim or to people providing first aid.

Eye contact
To prevent irritation, flush immediately with a soft stream of water or eyewash for at least 5 minutes. If problems persist (smarting, pain, sensitivity to light, impaired vision), continue rinsing and contact/visit a hospital or doctor.

Ingestion
Drink a couple of glasses of water. Contact a doctor if more than an insignificant amount has been swallowed.

Information for doctors
Exposure to the substance does not normally pose a health hazard.

4.2. Most important symptoms and effects, both acute and delayed
Exposure to dust in the eyes and respiratory tract can cause transient mechanical irritation.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire. The product is not flammable.

5.2. Special hazards arising from the substance or mixture
None.

5.3. Advice for firefighters
Special protective equipment for fire-fighters
Wear necessary protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid formation of dust. Avoid contact with spilled or released material. Avoid contact with skin and eyes. Avoid breathing dust. Use personal protective equipment.

6.2. Environmental precautions
None.

6.3. Methods and material for containment and cleaning up

Pick up mechanically. Spills can be cleaned with a vacuum cleaner. Wetting the product may be relevant to reduce dust formation.

6.4. Reference to other sections

For personal protection see section 8 and for disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

Avoid dust formation. Wetting the product may be relevant to reduce dust formation. Handle in accordance with good industrial hygiene. The product is not flammable. The product does not maintain fire.

General hygiene

Always wash before eating, smoking or using toilet facilities. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage can take place outdoors.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure limits

Ingredient	CAS No. EC No.	Exposure limit ppm / mg/m³	Source	Remark	Year
Dust, inorganic	- -	- 5	AFS 2018:1	Inhalable fraction	2018
Dust, inorganic	- -	- 2.5	AFS 2018:1	Respirable fraction	2018

8.2. Exposure controls

Eye / face protection

Wear dust resistant safety goggles where there is danger of eye contact.

Hand protection

Ordinary work glove in leather or similar (EN 388), thickness as required.

Other skin protection

Wear suitable protective clothing.

Respiratory protection
Use breathing protection mask with filter in case of dust formation.
Use particle filter P3 (EN 140 (half or quarter mask), EN 143 (particle filter), EN 149 (filtering half mask against particles)).

Thermal hazards
None.

Environmental exposure controls
No special measures required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state
Solid – Dusty

Colour
Off white

Odour
Odourless

Melting point / freezing point
1200 - 1350 °C

Boiling point or initial boiling point and boiling range
No data available

Flammability
Nonflammable

Lower and upper explosion limit
Not explosive

Flash point
No data available

Auto-ignition temperature
No data available

Decomposition temperature
No data available

pH
11 - 11.5

Kinematic viscosity
Not applicable (solid form)

Solubility
Solubility in water
As <0.002
Cd <0.0005
Co <0.005
Cr (total) <0.03
Cu <0.005
Fe <0.01
Hg <0.0002
Mn <0.001
Mo <0.4
Ni <0.01
Pb <0.004
See <0.001
V <0.002
Zn <0.02

Partition coefficient n-octanol/water
No data available

Vapour pressure
No data available

Density and/or relative density
No data available

Relative vapour density
No data available

Particle characteristics
No data available

9.2. Other information
Grain density = 2900 kg/m3
Bulk density = 900-1100 kg/m3
Glass content = 98-100%
Specific surface = 400-450 Blaine, SS-EN 196-6

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions.

10.2. Chemical stability
This product is stable under normal conditions of handling and use.

10.3. Possibility of hazardous reactions
None.

10.4. Conditions to avoid
None.

10.5. Incompatible materials
As the product contains a low weight concentration of sulphur, hydrogen sulphide can develop if the product is allowed to react with a strong acid. Hydrogen sulphide is highly toxic and can cause shortness of breath in asthmatics already at concentrations below 3 mg/m3.

10.6. Hazardous decomposition products
None known.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity
Based on available data, the classification criteria are not met.

Oral: tested substance ABS (air-cooled blast furnace slag), OECD 401, Wistar rat, LD50 > 2000 mg/kg. Inhalation: tested substance GGBS (ground granulated blast furnace slag), OECD 403, Wistar rat, LC50 (powder) (4h) > 5234 mg/m³; OECD 412, repeated dose, 28 days, Wistar rat, NOAEL > 24.9 µg/l (aerosol). Dermal: tested substance ABS, OECD 402, 14 days, Wistar rat, LD50 > 4000 mg/kg body weight.

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Validated animal studies on ABS confirm that the substance does not have corrosive or irritating properties. The substance is not soluble in water. Skin: tested substance ABS, acute irritant effect, OECD 404, New Zealand White rabbit. Result: Not irritating.

Serious eye damage/irritation
Based on available data, the classification criteria are not met.

Validated animal studies on air-cooled blast furnace slag [ICCVAM test method (NIH 06-4515) and OECD 405], confirm that the substance has no corrosive or irritating properties. The substance is not soluble in water. Eyes: tested substance ABS, acute irritant effect, OECD 404, New Zealand White rabbit. Result: Not irritating.

Respiratory or skin sensitisation
Based on available data, the classification criteria are not met.

Based on available animal studies on skin sensitization, GBS (OECD 406 and NF EN ISO 10993-10) as well as human exposure experience and the insolubility of the substance, the substance is not assumed to be sensitizing. Skin: tested substance ABS, OECD 406, Dunkin-Hartley guinea pig. Result: Not sensitizing.

Germ cell mutagenicity
Based on available data, the classification criteria are not met.

Negative results in the Ames test, on air-cooled blast furnace slag (OECD 471 and EU B.13/14), as well as negative results in tests of mutations in animal cells on air-cooled blast furnace slag (EU B.17).

Carcinogenicity
Based on available data, the classification criteria are not met.

There are no validated studies on carcinogenicity. However, there is strong evidence that the substance is not assumed to have mutagenic properties. Other data also show that the substance is relatively inert. Although the substance is manufactured in large quantities with widespread use, the use is not considered to involve frequent or long-term exposure to humans.

Reproductive toxicity
Based on available data, the classification criteria are not met.

There are no studies on reproductive toxicity. Present acute toxicity studies do not give any indication that the substance has reproductive toxic effects. Other data also show that the substance is relatively inert.

STOT-single exposure
Based on available data, the classification criteria are not met.

No clinical effects have been observed in the acute toxicity studies available for the substance. As the substance is also inert, no specific organ toxicity is considered to exist.

STOT-repeated exposure
Based on available data, the classification criteria are not met.

Based on available acute toxicity data and experience from human exposure, the substance's physicochemical properties and that the substance has a half-life in the lungs of approximately 60 days, the substance is not considered to meet the criteria in CLP to classify the substance as dangerous. It cannot be excluded that long-term and very strong exposure to dust from the product can cause siderosis (benign dust lung). However, few or no clinical changes have been noted in workers with siderosis. The 28-day repeated dose inhalation study above gave no such indications either.

Aspiration hazard
Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties
The product does not contain any known or suspected endocrine disruptors.

SECTION 12: Ecological information

12.1. Toxicity

Acute toxicity

Microorganism test (activated sludge), 3h, OECD 209:
EC10 = > 10 g/l
EC20 = > 10 g/l
EC50 = > 10 g/l

Toxicity

A large number of short-term and long-term exposure studies are the basis for the classification. The slags are not expected to pose any danger to the aquatic or terrestrial environment in the short or long term.

In light of the product's structure and results from leaching tests, the risk of damage to the environment is unlikely. Depending on the nature of the land, hydrological conditions, etc. c. in case of major construction work with the product, it cannot be ruled out that it leads to initial and temporary pH increases in the environment, such as e.g. in nearby wells or in small bodies of water with low flow.
The substance is not expected to have any negative effects on sewage treatment plants.

Acute fish toxicity

LC50/96h/fish = > 1000 g/l, Leuciscus idus, OECD 203, GBS
LC0/96h/fisk = > 1000 g/l, Leuciscus idus, OECD 203, GBS

Acute algae toxicity

IC50/72h/Algiers = > 100 g/l, Scenedesmus subspicatus, OECD 201, GBS
IC10/72h/Alger = > 100 g/l, Scenedesmus subspicatus, OECD 201, GBS

Acute crustacean toxicity

EC50/48h/daphnia = > 1000 g/l, Daphnia magna, OECD 202, GBS
EC0/48h/Daphnia = > 1000 g/l, Daphnia magna, OECD 202, GBS

Chronical toxicity

Daphnia magna, 21 days, OECD 211, ABS:
EC10 = > 5 g/l
EC20 = > 5 g/l
EC50 = > 5 g/l

12.2. Persistence and degradability

Biotic degradability: Not applicable to inorganic substances.
Abiotic degradability: Photolysis not applicable to inorganic substances. Slags are practically insoluble in water, so no hydrolysis takes place. An estimated half-life in water and in soil is about 1000 years at 20 °C.

12.3. Bioaccumulative potential

Some of the metals included in the slags, see section 12.4, may have toxicological and ecotoxicological relevance. It is well known that metals, like organic substances, can bioaccumulate. Determining the degree to which a metal bioaccumulates in organisms is, however, complicated as metals can partly be essential, partly have properties similar to essential metals and partly taken up in the same way as essential metals. This means that organisms to a certain extent actively take up various metals and strive to maintain a certain concentration of the substance in the organism. At low concentrations in the environment, bioaccumulation can therefore appear high, while at high concentrations in the environment it can correspondingly be low and even very low.

12.4. Mobility in soil

Mobility

The metals included in the slag (e.g. iron, cobalt, copper, chromium, nickel, lead, vanadium and zinc) are very tightly bound to the material. This is confirmed by results from leakage studies [DIN 38414-S4 (ratio between liquid phase and solid phase = 10/1)], which show that the metals are present in very low concentrations in the liquid phase.

12.5. Results of PBT and vPvB assessment

Not applicable for inorganic substances.

12.6. Endocrine disrupting properties

The product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Not classified as hazardous waste.

It cannot be ruled out that the product is contaminated with dangerous substances during use, which is why the properties of the waste do not fully correspond to the properties of the original product. It is therefore always the user's responsibility to classify the waste. Hazardous waste must be transported to an approved waste facility by an approved carrier.

Management of residual product:
Non-hazardous waste. Smaller amounts can be flushed down the drain. Larger quantities should be handled so that it does not expose the aquatic environment.

Packaging

Well-cleaned packaging can be handled in the recycling stage for each type of material.

SECTION 14: Transport information

14.1. UN number
Not classified as dangerous goods according to transport regulations.

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. Maritime transport in bulk according to IMO instruments
Bulk Cargo Shipping Name, BCSN: GRANULATED SLAG
Class: Not Applicable
Group: C
Size: Up to 5 mm
Page: 213 in Appendix 1

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (CLP).
Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Directive 2008/98/EC of the European Parliament and of the Council on waste.

National regulations

Control of Substances Hazardous to Health Regulations 2002 (as amended) (COSHH).
EH40/2005 Workplace exposure limit (2018, 3rd edition).
Swedish Waste Regulation (2020:614).

Other regulations, limitations and legal regulations

The employer and/or business operator is obliged to continuously keep up-to-date on the current regulations that are applicable to the current business being conducted. It can be both national regulations and EU regulations. The legislation is e.g. freely available on the authorities' websites. The employer and/or operator must take the necessary measures to meet the requirements of the legislation. Please note that in addition to the regulations listed above, there may be additional Community and national regulations applicable to the business.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations

PBT: Persistent, Bioaccumulative and Toxic.
vPvB: very Persistent and very Bioaccumulative.

References to key literature and data sources

Information also retrieved from the supplier's safety data sheet. Issued 2019-10-28.

Other

Additional information

General training: The employer must inform affected employees about the health and accident risks with dangerous chemical substances and any hygienic limit values that occur in the workplace, and about how these risks are avoided. The employer must make sure that affected workers understand the information. Special training: No special training is necessary for this product.