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

1.1 Product identifier

Trade name / Substance name: **Ground Blast Furnace Slag KJ400**

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

Cement or clinker production, road construction, earth works, constituent/additive for cement, concrete and other hydraulic binders, wastewater treatment/water treatment, fertilizer and soil conditioner, sandblasting, stone-wool, fire seal material, building material and glass production.
No uses advised against.

1.3. Details of the supplier of the safety data sheet

Company name: Finnsementti Oy
Full address: Skräbbölentie 18, 21600 Parainen, FINLAND
Telephone number: +358201206200
E-mail address of person responsible for the SDS: info@finnsementti.fi

1.4. Emergency telephone number

Emergency telephone number: Poison Information Centre Tel: +358800147111 (free) or +3589471977
Opening hours: 24h/7 days

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1 According to Regulation (EC) No 1272/2008 (CLP)

In accordance with current regulations, this product has not been classified as hazardous.

2.2. Label elements

According to Regulation (EC) No 1272/2008 (CLP)

No labelling. In accordance with current regulations, this product has not been classified as hazardous.

2.3. Other hazards

Dust can act as an irritant and cause mechanical irritation to the eyes and respiration system.

PBT / vPvB
The Annex XIII of the REACH Regulation No. 1907/2006 is not applicable to inorganic substances.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance name	CAS-, EC- or index number	REACH Registration No.	Concentration	Classification Regulation 1272/2008	
				Hazard class, category	Hazard statement
Blast Furnace Slag	65 996-69-2	01-2119487456-25-xxxx	100 %	Not applicable	Not applicable

UVCB substance.
Blast furnace slag is a liquid fused rock, which is formed during iron production in a blast furnace. Fast cooling on granulation results in mainly glassy blast furnace slag (GBS).

3.2. Mixtures

Not relevant.

SECTION 4: First aid measures

4.1. Description of first aid measures

General notes
No personal protective equipment is needed for first aid responders. Change contaminated clothing

Following inhalation
Provide fresh air. Seek medical attention if irritation persists.

Following skin contact
Wash with plenty of soap and water.

Following eye contact
After eye contact with dust or powder rinse opened eye for several minutes under running water. Seek medical attention if irritation persists.

Following ingestion
Rinse mouth immediately and drink plenty of water. Do not induce vomiting. Get medical advice/attention if symptoms persist.

4.2. Most important symptoms and effects, both acute and delayed

Temporary mechanical irritation to the eyes and respiration system caused by dust.

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

When contacting a physician, take this SDS with you.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Foam (alcohol-resistant), carbon dioxide-powder, spray (water).
Product itself does not burn. Coordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

None

5.3. Advice for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust generation and dispersion. Provide adequate ventilation. Wear appropriate personal protective equipment (see section 8.2).

6.2. Environmental precautions

No special environmental measures are necessary.

6.3. Methods and material for containment and cleaning up

Pick up mechanically, avoid generation of dust. Use dust reducing cleaning method.

6.4. Reference to other sections

Safe handling: see point 7.
Personal protective equipment: see point 8.
Waste disposal: see point 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

7.1.1 Protective measures

Avoid dust dispersion. Keep dust wet when applicable. In closed areas provide adequate ventilation to prevent dust inhalation.
In case of further handling with foreseeable high dust dispersion, use for example exhaust ventilation with filter or a closed system.
In dusty conditions personal protection equipment must be used.
Do not eat, drink, smoke or take snuff while working. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

May be stored in piles, does not require covered storage. If stored in stockpile at dry and windy weather keep slags moist to avoid dust formation.
Incompatible materials: see point 10.5.

7.3. Specific end use(s)

Use of concrete grout, mortar (self levelling compounds), Cement or clinker production, wastewater treatment/water treatment, fertilizer and soil conditioner.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure limit values

Country in EU with OEL for the relevant substance	Substance			
	Dust inhalable		Dust respirable	
	Limit value, 8 h (mg/m^3)	Limit value, short term (mg/m^3)	Limit value, 8 h (mg/m^3)	Limit value, short term (mg/m^3)
Finland (*	10.0	---	---	---
Germany (AGS)	10.0	20.0	3.0	6.0

*) inorganic dust

The user should consult the appropriate literature to determine the relevant national standards.

Other limit values
Not applicable

DNEL/PNEC values

DN(M)EL (Derived No (or Minimal) Effect Level)	Occupational exposure Other exposure	4 mg/m^3 (inhalable dust) Not relevant (not classified as hazardous)
PNEC (Predicted No Effect Concentration):	Freshwater Marine water STP (sewage treatment plant) Soil	5 g/L 0.5mg/L 10 g/L 1000 mg/kg soil dw

8.2. Exposure controls

8.2.1 Appropriate engineering controls

Good general ventilation is usually sufficient to keep the concentrations of the substance and dust in the air at the level causing no adverse impacts. Suitable dust extraction and control measurements can be applied, if dust is formed during handling. The results should be compared with the limit values given in section 8.1.

8.2.2 Individual protection measures such as personal protection equipment

General
Personal protection equipment shall comply with the recommended standards. Check the compliance with the supplier or producer of the equipment. The equipment shall be maintained regularly and checked for effectiveness where needed.

Eye/face protection

Wear approved glasses or safety goggles according to EN 166.

Skin protection

Use usual working clothes.

Hand protection

Wear protective gloves (fabric gloves coated with nitrile rubber).

Wear duration at permanent or occasional contact:
Breakthrough time (maximal wear duration): > 480 min

Respiratory protection

In the case of high dust concentration: EN149 FFP2 filter

Thermal hazards

Not applicable.

Environmental exposure controls

Do not wash spilled materials into drainage system or water bodies.
Dust emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

This information applies to the whole mixture.

a) Physical state: Solid, grey-brown, granulated powder
b) Odour: Odourless
c) Melting point/freezing point: Melting point >1100-1400 °C
d) Boiling point or initial boiling point and boiling range: >2000°C
e) Flammability (solid, gas): Not flammable
f) Upper/lower explosive limits: Not explosive
g) Flash point: Not relevant. Ferrous slags are inert inorganics with all relevant analytes in their most stable oxidation state, further oxidation will not occur spontaneously. Even if oxidizable material is present (graphite, traces of metal), it is not possible to generate a flammable gas phase from slag.
h) Auto-ignition temperature: Not relevant
i) Decomposition temperature: Not applicable, melting point >300°C
j) pH: 9 -12 (DEV-S4-eluate according EN 12457-4)
k) Kinematic viscosity: Not applicable, as not a liquid
l) Solubility: <100 mg/L in water; not soluble in organic solvents
m) Partition coefficient: n-octanol/water: Not applicable: Slags are solid UVCB which consist almost exclusively of inorganic ions in vitreous matrix or crystal lattice. These ions are insoluble in organic solvents including octanol
n) Vapour pressure: Not applicable (melting point >300 °C)
o) Density and/or relative density: ca. 2.4 - 3 g/cm3 (20 °C)
p) Relative vapour density: Not applicable (melting point >300 °C)
q) Oxidising properties: Not classified as oxidising

9.2. Other information

Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity

The substance has normally low reactivity, but it can react fiercely with certain materials (see section 10.5).

10.2. Chemical stability

The substance is stable under normal conditions.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Avoid generation of dust.

10.5. Incompatible materials

When the product contains a low concentration of sulphur, it is possible that toxic hydrogen sulphide is formed in contact with strong acid.

10.6. Hazardous decomposition products

None under normal conditions.
When the product contains a low concentration of sulphur, it is possible that toxic hydrogen sulphide is formed in contact with strong acid.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulatoin (EC) No 1272/2008

Acute toxicity
The product is not classified as acutely toxic.
Oral (rat) (OECD 401): LD50 (14d) > 2000 mg/kg bw
Dermal (rat) OECD 402, tested substance ABS/GBS): LD50 (14d) > 4000 mg/kg bw Inhalation (rat) (OECD 403 tested substance GGBS powder): LC50 (4h) > 5234 mg/m³
Inhalation (rat) (OECD 412 tested substance GGBS aerosol): NOAEL (Repeated Dose Inhalation Toxicity: 28 d) > 24,9 µg/L

Skin corrosion/irritation
The product is not classified as irritant or corrosive to skin. Skin (rabbit) (OECD 404, tested substance ABS): Not irritant

Serious eye damage/irritation
The product is not classified as damaging or irritating to eyes. Eye (rabbit) (OECD 405, tested substance ABS): Not irritant

Respiratory or skin sensitisation
The product is not classified as a respiratory or skin sensitiser.
Skin (guinea pig) (OECD 406, tested substance ABS): No sensitisation

Germ cell mutagenicity
The product is not classified as a mutagen.

Mutagenicity (Salmonella typhimurium) (EU B.13/14, tested substance ABS): No mutagenic effect
Mutagenicity (chinese hamster lung fibroblast V79) (EU B.17, tested substance ABS): No mutagenic effect

Carcinogenicity
The product is not classified as a carcinogen.
There are no specific and reliable animal studies on carcinogenicity. But one assessed study gives some hints towards a not existing carcinogenic potential of ferrous slags.

Reproductive toxicity
The product is not classified as toxic to reproduction.
No evidence from acute tests or other data for any reproductive effects. No data available from studies dedicated especially to reproduction toxicity. As slags are similar to natural rocks, no reproductive effects have to be expected.

STOT-single exposure
The product is not classified as toxic to specific target organs at a single exposure. The results from acute toxicity test give no hint towards a STOT potential of slags.

STOT-repeated exposure
The product is not classified as toxic to specific target organs at repeated exposure. The results from acute toxicity test give no hint towards a STOT potential of slags.

Aspiration hazard
The product is not classified as an aspiration hazard.
Slags are solids and fulfil not the requirements for aspiration hazard classification according to CLP Regulation Annex I.

Other information
Based on “read-across”, results from other slag types (ABS, GGBS) are referred to.

SECTION 12: Ecological information

12.1. Toxicity

The product is not classified as hazardous to the environment.

Short-term toxicity	Fish (Leuciscus idus) (OECD 203): LC0 (96 h) > 1000 g/l LC50 (96 h) > 1000 g/l
Short-term toxicity	Aquatic invertebrate (Daphnia magna) (OECD 202): EC0 (48 h) > 1000 g/l EC50 (48 h) > 1000 g/l
Short-term toxicity	Algae (Scenedesmus subspicatus) (OECD 201): IC10 (72 h) > 100 g/l IC50 (72 h) > 100 g/l
Short-term toxicity	Micro-organisms (Activated sludge) (OECD 209, tested substance ABS): EC10 (3 h) > 10 g/l EC50 (3 h) > 10 g/l EC100 (3 h) > 10 g/l
Long-term toxicity	Aquatic invertebrates (Daphnia magna) (OECD 211, tested substance ABS): EC10 (21 d) 5 g/l EC20 (21 d) > 5 g/l EC50 (21 d) > 5 g/l

Based on to “read-across”, results from other slag types (ABS) are referred to.

12.2. Persistence and degradability

Not applicable for inorganic substances.

12.3. Bioaccumulative potential

No evidence for bioaccumulation potential.

12.4. Mobility in soil

Ferrous slags are inorganic UVCB similar to natural rock. Biodegradation is of no relevance.

12.5. Results of PBT and vPvB assessment

The Annex XIII of the REACH Regulation No. 1907/2006 is not applicable to inorganic substances.

12.6 Endocrine disrupting properties

Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Slags should always be recycled. Recycling possible without special treatment. May be disposed on landfill sites according to European and/or local regulations. Any packaging materials should be disposed of in accordance with local waste handling regulations.

EWC-Code: 10 02 01: waste from the processing of slags.
Product classified as hazardous waste
No

SECTION 14: Transport information

14.1. UN number or ID number

The product is not classified for transportation. (UN, ADR, RID, IMO, IATA/ICAO).

14.2. UN proper shipping name

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

No specific regulations.

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

16.1 Abbreviations and acronyms

ABS	Air-cooled Blast furnace Slag
GBS	Granulated Blast furnace Slag
GGBS	Ground Granulated Blast furnace Slag
BCF	Bio Concentration Factor
bw	body weight
DNEL	Derived No-Effect Level
EC50	Effective Concentration, causing 50% (or given %) effect
IC50	Inhibitive Concentration, causing 50% (or given %) inhibition in growth
LD50	Lethal Dose, causing 50% (or given %) lethality
LC50	Lethal Concentration, causing 50% (or given %) lethality
NOAEC	No Observed Adverse Effect Concentration. The highest concentrations that does not have adverse impacts on test organisms
NOAEL	No Observed Adverse Effect Level. The highest dose that does not have adverse impacts on test organisms.
NOEC	No Observed Effect Concentration. The highest concentrations that does not have a specified adverse impact on test organisms.
NOEL	No Observed Effect Level. The highest dose that does not have a specified adverse impact on test organisms.
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
UVCB	Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials
STOT	Specific Target Organ Toxicity
vPvB	very Persistent very Bioaccumulative

16.2 Key literature references and sources of data

Safety data sheet from SSAB Granulated Blast Furnace Slag (GBS) dated 26.1.2024
REACH registration dossier
Decree of Ministry of Social Affairs and Health on Concentrations Known to be Hazardous 538/2018 (HTP- arvot 2018)
OELs in Germany: Occupational Exposure Limits, GESTIS Substance Database

16.3 Training advice

In addition to health, safety and environmental training programs for their workers, companies must ensure that workers read, understand and apply the requirements of this SDS.

16.4 Disclaimer

The information on this data sheet reflects the currently available knowledge and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product, including the use of the product in combination with any other product or any other process, is the responsibility of the user.
It is implicit that the user is responsible for determining appropriate safety measures and for applying the legislation covering his/her own activities.