



Material: COPPER SLAG

MATERIAL SAFETY DATA SHEET (MSDS)

Section I. Product Identification

Material chemical name:	Copper Slag
Commercial names or synonyms:	Copper Slag, Iron Silicate Abrasives, Iron Silicate Grit
Product description:	Iron Silicate
Main uses:	Blast cleaning abrasive, Concrete filler, Anti-slip screed, Road surface dressing, Construction material, Grout, Colorant

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The substance is not classified as hazardous under the CLP Regulation (1272/2008/EC), is not persistent bio-accumulative and toxic (PBT) or very persistent and very bio-accumulative (vPvB) as defined in Annex XIII of the REACH Regulation, and is not included in the ECHA candidate list of substances of very high concern. Therefore provision of a Safety Data Sheet (SDS) is not mandatory. This Substance Information Sheet (SIS) is a voluntary presentation of certain information that may assist the user in the handling of the substance.

Section II. Composition and information on ingredients

Composition:

SiO₂:	33 - 38% (free silica < 0,1%)
FeO:	51 - 58%
Al₂O₃:	4 - 8%
CaO:	2 - 10%
K₂O:	0 - 2%
MgO	1 - 3%
S:	0,6 - 1,3%
Other:	traces

No. CAS: 67711-92-6

No. EINECS: 266-968-3

Section III. Hazards identification

Classification according to Regulation (EC) No. 1272/2008 (which replaces Directive 67/548/EC(DSD)):

Not classified. Copper slag does not meet the criteria for classification in accordance with the regulations EC1272/2008. No special conditions are therefore needed. Risk management measures due to the potential occurrence of hazardous dusts during use as an abrasive may be needed.

Labelling according to Regulation (EC) No 1272/2008 (which replaces Directive 67/548/EC(DSD))

None.

Other hazards:

The substance does not meet the criteria for a PBT or vPvB substance. Use of this material may generate dust so risk management measures may be needed.

Section IV. First-aid measures

Description of First Aid Measures:

- **Inhalation:** Remove to fresh air. Get medical attention if symptoms occur.
- **Skin:** Substance is not a skin irritant and not a skin sensitizer. Wash with water and soap. Remove contaminated clothing and footwear. Get medical advice if symptoms occur.
- **Eye:** Substance is not an eye irritant. Use general measures if eye irritations occur. Do not rub eyes. Immediately wash with plenty of water. Check for and remove any contact lenses. If irritation persists, get medical attention.
- **Advice to physician:** No specific advice. Treat according to symptoms present.

Most important symptoms and effects, both acute and delayed.

The product may cause temporary mechanical irritation to the eyes, nose, throat and lungs.

Indication of any immediate medical attention and special treatment.

Notes for the doctor. Treat symptomatically.

Section V. Fire-fighting measures

Extinguishing media:	The product is non-combustible. Use an extinguishing agent appropriate to the surrounding materials.
Special hazards arising from the substance or mixture:	Hazardous combustion products: None.
Advice for fire-fighters	Wear self-contained breathing apparatus and protective clothing.

Section VI. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Ensure adequate ventilation. Avoid breathing dust. Use appropriate personal protective equipment.
Environmental precautions:	Make sure spills can be contained. Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.
Methods and material for containment and clean-up	Ventilate the area thoroughly. Vacuum or sweep up material and place in a suitable container for re-cycling or disposal.

Section VII. Handling and storage

Precautions for safe handling:	Copper slag is not classified and no protective measures are needed for safe handling. Prevent formation of dust. Use only in well ventilated areas. Wear personal protective clothing. Wash hands and face before breaks and after work.
Conditions for safe storage including any incompatibilities:	Keep dry. No other special requirements.
Specific end uses	Abrasive blast cleaning may fracture the product and generate dust. Ventilate work area in vicinity of operator.

Section VIII. Exposure controls / Personal protection

Exposure controls:	Risk management measures aimed at the protection of human health are to be considered in cases of inhalation of powder or dusts during use. Process enclosures, local exhaust ventilation or other engineering controls should be employed to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Hand protection:	Wear suitable gloves. Where necessary, gauntlets should be worn to protect against abrasive ricochet.
Respiratory protection:	Use properly fitted respiratory protection, complying with an approved standard, appropriate for the known or anticipated exposure levels and the hazards of the product. Blasters should wear an air-fed blasting helmet complying with approved standards, to afford the correct level of respiratory and eye/face protection.

Eye/face protection:

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to dusts. If operating conditions cause high dust concentrations wear dust goggles.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practices. Wash hands, forearms and face thoroughly before eating or smoking and at the end of the working period. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of the environmental protection legislation.

Personal protective equipment:

Wear suitable protective clothing.

Section IX. Physical and chemical properties

Appearance:

Solid, angular particles. Colour: Black

Odour:

Odourless

pH

Not applicable

Melting point

1027-1341°C

Flash Point

Not applicable

Evaporation rate

Not applicable

Flammability (solid, gas)

Non-flammable

...or explosive limits

Not applicable

Vapour pressure

Not applicable

Vapour density

Not applicable

Relative Density (ref water at 20°C)

3.11 – 4.2

Solubility

Poorly soluble¹

Decomposition temperature

Decomposition and/or melting starts at 1059°C

Viscosity

Not applicable

Explosive properties

Non explosive

Oxidising properties

Non-oxidising

¹Solubilisation and agitation for 14 days at pH 6.3-7.6 resulted in dissolved Cu, Ni, Pb < 0.2 mg/l. Transformation / dissolution (OECD, 2001) is more suitable for metals and sparingly soluble metal compounds (see IUCLID Section 5.6). The outcomes of the transformation / dissolution tests were used for aquatic classification.

Section X. Stability and reactivity

Reactivity::

Not applicable.

Chemical stability:

Under normal conditions of use and storage, the product is stable.

Possibility of hazardous reactions:

No dangerous reactions known.

Conditions to avoid:	Avoid dust formation and contact with acids.
Incompatible materials:	Strong acids.
Hazardous decomposition products:	The substance does not decompose. Trace metals are firmly built in or bonded into the glass/crystal structures of the silicate and other mineral phases. Therefore the release of metals soluble species is very limited.

Section XI. Toxicological information

Acute toxicity:	
▪ <i>Oral:</i>	Not classified as hazardous for acute toxicity by oral route.
▪ <i>Inhalation:</i>	Not classified as hazardous for acute toxicity by inhalation route.
▪ <i>Dermal:</i>	Not classified as hazardous for acute toxicity by dermal route.
Irritation/Corrosion:	
▪ <i>Skin/Eye:</i>	Not irritating.
Sensitizer:	
▪ <i>Skin/Respiratory:</i>	Not sensitizing.
Mutagenicity:	Negative.
Carcinogenicity:	Negative.
Reproductive Toxicity:	Negative.
STOT (repeated exposure):	Not classified by oral or inhalation route.

Section XII. Ecological information

Eco-toxicity	
▪ <i>Environmental bioavailability</i>	The uptake of copper slag by living organisms is related to the degree to which the metal mineral phases in the slag react with water/biological fluids and release soluble, potentially bio-available ionic and other metal bearing species. Other metals lead, nickel, zinc, arsenic and cadmium were below the detection limits.
▪ <i>Acute fresh water toxicity:</i>	Not classified.
▪ <i>Chronic fresh water toxicity and PNEC derivation:</i>	Not classified.
Bio-accumulative potential	Not applicable
Persistence and degradability	Not degraded in classic terms but geochemical cycling leads to removal of the metals from the system.
Results of PBT and vPvB assessment	The PBT and vPvB criteria of Annex XIII to the Regulation do not apply to inorganic substances, such as copper slags. Copper slags are not PBT or vPvB.

Section XIII. Disposal consideration

The spent abrasive must be disposed of in accordance with national legislation.

The material is non-hazardous and, as supplied, may be disposed of under European Waste Catalogue (EWC 2002) entry 10 06 01 (slags from primary and secondary production of copper) a non-hazardous category. However, once used as a shot blast media, the material must be disposed of under 12 01 16 (waste blasting material containing dangerous substances) or 12 01 17 (waste blasting material other than those mentioned in 12 01 16). The waste producer must determine if hazardous substances in the coating being removed are likely to render the waste hazardous. Please note that a metal ion analysis, in isolation, may lead to an incorrect classification.

Section XIV. Transport information

Copper slag is regulated as non-hazardous.

Section XV. Regulatory information

This product is classified as non-hazardous.

Section XVI. Other information

Key literature references and sources of data:

Workplace Exposure Limits -2005. HSE EH40/2005
Workplace Exposure Limits –Supplement 2007. HSE EH40/2005
EC Commission Directive 2001/58/EC
EC Commission Regulation 1907/2006 and amendment EC 987/2008

Disclaimer

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