OCHNOLOGY SOLUTION PVT. LTD
Website: www.ochnology.com
Tel: +91 9286823642/43
Address: B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
E-Mail: projects@ochnology.com, bd@ochnology.com

Material Safety Data Sheet (MSDS)

Mill Scale (Iron Oxide)

Material: Mill Scale (Iron Oxides – FeO / Fe_2O_3 / Fe_3O_4) | Iron Oxide CAS No. 1309-37-1

1. Identification of the Substance and Supplier

Product Name	Mill Scale (Iron Oxide)
Material Type	Iron-oxide by-product of hot steel rolling
Composition	Mixed iron oxides (FeO, Fe_2O_3, Fe_3O_4)
CAS No.	1309-37-1 (iron(III) oxide); 1345-25-1 (iron(II) oxide)
Synonyms	Mill scale, iron mill scale, rolling scale, iron oxide scale
Product Use	Steelmaking charge, cement, refractories, iron-oxide pigments
Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
Contact	projects@ochnology.com | bd@ochnology.com

2. Hazards Identification

GHS Classification: Mill scale (iron oxide) is generally not classified as hazardous under GHS. Dust may cause mechanical irritation. Lower grades may contain higher contamination (sulphur, silica, other metals). Signal word: not classified / WARNING (dust).

- Mill scale (iron oxide) is generally not classified as a hazardous substance under GHS
- Dust may cause mechanical irritation to eyes, skin, and respiratory tract
- Prolonged inhalation of iron-oxide dust may cause siderosis (benign pneumoconiosis)
- Lower grades may contain higher levels of sulphur, silica, and other metal contamination
- May contain trace free crystalline silica depending on source / contamination

3. Composition / Information on Ingredients

Component	CAS No.	Concentration
Iron Oxides (FeO / Fe_2O_3 / Fe_3O_4)	1309-37-1 / 1345-25-1 / 1317-61-9	Fe approx. 55 – 72% (grade dependent)
Silica / Free Crystalline Silica	14808-60-7	Variable (higher in low

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		grade)
Other metals / contamination	Various	Balance (grade dependent)

4. First-Aid Measures

Inhalation: Move to fresh air. Seek medical attention if respiratory irritation persists.

Skin Contact: Wash with soap and water. Generally non-irritating; remove dust.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses if present. Seek medical attention if irritation persists.

Ingestion: Rinse mouth with water. Iron oxide is of low toxicity; seek medical attention if discomfort occurs.

5. Fire-Fighting Measures

- Non-combustible material; does not present a fire hazard
- Use extinguishing media appropriate to the surrounding fire
- No special protective equipment required for the material itself
- Firefighters should wear standard protective gear for the surrounding fire

6. Accidental Release Measures

- Avoid generating airborne dust during clean-up
- Collect mechanically (sweep or vacuum) into suitable containers
- Wear appropriate PPE (dust mask, goggles, gloves) during clean-up
- Prevent large quantities from entering drains or waterways

7. Handling and Storage

- Avoid dust generation; provide adequate ventilation
- Use appropriate PPE when handling
- Store in a dry, covered area protected from moisture
- Keep away from strong acids (iron oxide reacts with acids)

8. Exposure Controls / Personal Protection

- Iron oxide (as Fe, respirable / dust): 5 mg/m^3 (8-hr TWA) – typical reference value
- Respirable crystalline silica (if present) OEL: 0.05 mg/m^3 (8-hr TWA) – typical reference
- Provide local exhaust ventilation where dust is generated
- Respiratory protection (N95/P2), safety goggles, gloves, and suitable work clothing

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9. Physical and Chemical Properties

Property	Value
Appearance	Black / dark grey flaky or granular solid / powder
Odour	Odourless
pH	Approx. neutral (insoluble)
Melting Point	High (iron oxides, >1,300°C)
Solubility in Water	Insoluble
Bulk Density	Approx. 2.0 – 3.5 g/cm^3 (form dependent)

10. Stability and Reactivity

- Stable under normal conditions of storage and use
- Chemically stable iron oxide
- Reacts with strong acids; incompatible with strong acids
- No hazardous polymerization occurs

11. Toxicological Information

- Low acute toxicity; iron oxide is of low toxicity
- Prolonged inhalation of iron-oxide dust may cause siderosis (benign pneumoconiosis)
- Respirable crystalline silica (if present in contamination) – repeated inhalation can cause silicosis
- Dust may cause mechanical irritation to eyes and respiratory tract

12. Ecological Information

- Not classified as hazardous to the aquatic environment
- Iron oxide is naturally abundant; low ecological concern
- Lower grades with contamination should be prevented from large-scale environmental release
- Avoid release of large quantities of dust into the environment

13. Disposal Considerations

- Recover and reuse as iron units where possible
- Dispose of in accordance with local, state, and national regulations
- Lower grades / contaminated material: assess contamination before disposal

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14. Transport Information

UN Number	Not regulated
Proper Shipping Name	Not classified as dangerous goods
Hazard Class	Not applicable
Packing Group	Not applicable
Remarks	Not regulated for transport by road, rail, sea, or air

15. Regulatory Information

- Mill scale (iron oxide) not classified as hazardous under GHS
- Iron-oxide dust and any crystalline silica subject to occupational exposure regulations
- Iron oxide listed on major chemical inventories (CAS 1309-37-1)

16. Other Information

This MSDS has been prepared in accordance with the GHS 16-section format and covers high, medium, and low grade mill scale. Mill scale is essentially iron oxide and is low-hazard; lower grades carry higher and more variable contamination. Appropriate dust controls should be used. Information relates to the specific material designated.