

Safety Data Sheet

Ferric Oxide Pigment

Section 1: Identification

Product identifier	Ferric Oxide (Pigment)
Chemical name	Iron(III) oxide; ferric oxide; red iron oxide
CAS number	1309-37-1
Chemical formula	Fe ₂ O ₃
Recommended use	Industrial inorganic pigment/colorant for coatings, paints, plastics, rubber, concrete, ceramics, polishing compounds and related industrial applications.
Use restrictions	Not intended or represented for food, pharmaceutical, medical, cosmetic, or other applications requiring a specifically approved or qualified grade.
Supplier / Distributor	Chemical Store Inc.
Address	1059 Main Avenue, Clifton, NJ 07011, United States
Telephone / Website / Email	+1 (973) 405-6248 ChemicalStore.com info@ChemicalStore.com
Emergency telephone	+1 (973) 420-4972 (United States)

Section 2: Hazards Identification

United States (US) — OSHA 29 CFR 1910.1200 Hazard Communication Standard.

OSHA HCS classification	Ferric oxide pigment, as supplied without hazardous impurities/additives, is generally not classified as a hazardous chemical under OSHA HCS classification criteria.
Signal word	None required for the unmodified pigment as classified.
Hazard pictograms	None required for the unmodified pigment as classified.
Hazard statements	None required for the unmodified pigment as classified.
Other hazards	Dust may mechanically irritate the eyes, skin, nose, throat and respiratory tract. Repeated excessive inhalation of iron oxide dust may result in pulmonary deposition of iron oxide (siderosis).
Important grade qualification	Hazard classification can change if a commercial pigment contains hazardous impurities, additives, surface treatments, or crystalline silica. Verify the current supplier specification/COA before release.

- Avoid generating and breathing dust.
- Use adequate ventilation and dust collection.
- Wear eye protection and suitable work gloves.
- Use appropriate respiratory protection when airborne exposure cannot be adequately controlled.

Section 3: Composition / Information on Ingredients

Chemical Name	CAS Number	% by Weight	Comments
Iron(III) oxide / Ferric oxide	1309-37-1	Typically 95–100% for pigment grades; verify product COA	Industrial pigment basis. Exact assay and any additives/surface treatments must be confirmed for the sold grade.

This SDS is written for ferric oxide pigment without hazardous additives. Product-specific composition should supersede this provisional range.

Section 4: First Aid Measures

Inhalation	Move person to fresh air. If coughing, irritation, breathing difficulty, or other symptoms persist, obtain medical attention.
Skin contact	Wash with soap and water. Remove contaminated clothing. Obtain medical advice if irritation persists.
Eye contact	Immediately rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.
Ingestion	Rinse mouth. Do not induce vomiting unless directed by medical personnel. Obtain medical advice if a large quantity is swallowed or symptoms occur.
Most important symptoms/effects	Mechanical irritation of eyes, skin and respiratory tract may occur from dust. Long-term excessive inhalation may produce siderosis.
Notes to physician	Treat symptomatically and according to the circumstances of exposure.

Section 5: Fire Fighting Measures

Suitable extinguishing media	Ferric oxide is noncombustible. Use extinguishing media appropriate for the surrounding fire.
Specific hazards	The product itself does not burn. Packaging and surrounding materials may burn.
Hazardous combustion products	No specific hazardous combustion products are expected from ferric oxide itself under ordinary fire conditions.
Firefighter protection	Use protective equipment and positive-pressure SCBA as appropriate for the surrounding fire and other materials present.

Section 6: Accidental Release Measures

Personal precautions	Avoid breathing dust and contact with eyes. Keep unnecessary personnel away. Wear PPE appropriate to the exposure.
Environmental precautions	Prevent large uncontrolled releases to drains and waterways.
Cleanup methods	Avoid dry sweeping or compressed air that disperses dust. Use HEPA-filtered vacuuming, damp cleanup, or careful collection into suitable containers. Minimize airborne dust.

Section 7: Handling and Storage

Handling	Avoid generating or breathing dust. Provide adequate ventilation. Avoid eye contact. Wash after handling. Do not eat, drink, or smoke in work areas.
Storage	Keep container tightly closed in a dry, well-ventilated area. Protect from contamination and moisture.
Incompatible materials	NIOSH lists calcium hypochlorite, carbon monoxide, and hydrogen peroxide as incompatibilities/reactivities for rouge/red iron oxide.
Specific end use	Industrial pigment/colorant. Not intended for food or pharmaceutical use.

Section 8: Exposure Controls / Personal Protection

Substance / Fraction	Exposure Limit	Authority / Basis
Iron oxide dust and fume, as Fe	5 mg/m3 TWA	NIOSH REL
Iron oxide dust and fume, as Fe	10 mg/m3 TWA	OSHA PEL
Rouge / red iron oxide — total particulate	15 mg/m3 TWA	OSHA PEL listed by NIOSH for rouge
Rouge / red iron oxide — respirable particulate	5 mg/m3 TWA	OSHA PEL listed by NIOSH for rouge

Engineering controls: Use enclosure, local exhaust ventilation, dust collection, or other controls to maintain airborne exposure below applicable limits.

Eye protection	Safety glasses with side shields; use dust goggles where airborne powder may cause significant exposure.
Skin protection	Work gloves and protective clothing suitable for the task.
Respiratory protection	If engineering controls are insufficient, use a NIOSH-approved particulate respirator selected under a workplace respiratory protection program compliant with 29 CFR 1910.134.
Hygiene	Wash hands and exposed skin after handling. Remove contaminated clothing before leaving dusty work areas.

Section 9: Physical and Chemical Properties

Property	Value	Property	Value
Physical state	Solid powder	Appearance / color	Typically red to reddish-brown; shade is grade-dependent
Odor	Odorless	Molecular weight	159.69 g/mol
Melting point	Approx. 1565 °C (2849 °F), NIOSH rouge entry	Boiling point	No reliable applicable value established
Solubility in water	Insoluble	Specific gravity	Approx. 5.24
Vapor pressure	Approx. 0 mmHg	Vapor density	Not applicable
Flash point	Not applicable	Flammability	Noncombustible solid
Explosive limits	Not applicable	Autoignition	Not applicable
pH	Not applicable to dry solid; suspension pH is grade-dependent	Bulk density	Grade- and packing-dependent
Particle characteristics	Fine pigment powder; distribution is grade-specific	VOC	Not applicable / essentially none

Section 10: Stability and Reactivity

Reactivity	Stable under normal conditions of use. Observe listed incompatibilities.
Chemical stability	Stable under normal ambient storage conditions.
Hazardous reactions	Hazardous polymerization will not occur.
Conditions to avoid	Avoid dust generation, contamination, and contact with incompatible materials.
Incompatible materials	Calcium hypochlorite, carbon monoxide, hydrogen peroxide (NIOSH rouge entry).
Hazardous decomposition products	None expected under normal conditions; products from surrounding materials or packaging may be hazardous in a fire.

Section 11: Toxicological Information

Likely routes of exposure	Inhalation of airborne dust; eye and skin contact; incidental ingestion.
Acute effects	Dust may irritate eyes, skin, and respiratory tract.
Chronic inhalation	Repeated high-level inhalation of iron oxide dust/fume can produce pulmonary deposition known as siderosis. Available occupational literature generally describes siderosis from iron oxide alone as a benign pneumoconiosis, although excessive dust exposure should be prevented.
Carcinogenicity	IARC has evaluated ferric oxide as Group 3 — not classifiable as to its carcinogenicity to humans. PubChem/HSDB reports inadequate evidence in humans and evidence suggesting lack of carcinogenicity in animals.
Acute oral toxicity	Published data summarized by PubChem include rat oral LD50 >10,000 mg/kg.
Target organs	Eyes, skin, respiratory system.

Section 12: Ecological Information

Ecotoxicity	Ferric oxide is a poorly soluble inorganic solid. Product-specific ecological classification may depend on impurities/additives.
Persistence / degradability	Biodegradation concepts are not directly applicable to an inorganic mineral pigment.
Bioaccumulation	Not expected to bioaccumulate in the conventional organic-chemical sense.
Mobility	Expected to have low mobility as an insoluble particulate; environmental behavior depends on particle size and local conditions.
Other effects	Avoid uncontrolled large releases to the environment.

Section 13: Disposal Considerations

Product waste	Recover or recycle where practical. Dispose in accordance with applicable federal, state, and local requirements. Waste classification depends on contamination and process use.
Packaging	Empty containers may retain dust. Clean before recycling or disposal. Do not reuse contaminated packaging for food, pharmaceutical, or household applications.

Section 14: Transport Information

Mode	UN Number	Proper Shipping Name	Hazard Class	Packing Group
U.S. DOT	Not regulated for ordinary ferric oxide pigment	Not applicable	Not applicable	Not applicable
TDG	Not regulated for ordinary ferric oxide pigment	Not applicable	Not applicable	Not applicable
IMDG	Not regulated for ordinary ferric oxide pigment	Not applicable	Not applicable	Not applicable
IATA/ICAO	Not regulated for ordinary ferric oxide pigment	Not applicable	Not applicable	Not applicable

Note: NIOSH lists DOT ID 1376 for spent iron oxide. That entry does not mean ordinary unused ferric oxide pigment is automatically shipped under that description. Verify transport status for contaminated/spent material separately.

Section 15: Regulatory Information

OSHA Hazard Communication	This SDS is prepared for ferric oxide pigment without hazardous additives. Product-specific impurities may affect classification.
TSCA	Verify inventory status for the specific commercial grade and any additives before commercial release.
SARA / CERCLA	Evaluate reporting obligations based on the actual grade, impurities, additives, facility inventory, and waste stream.
State / local requirements	Users must determine applicability of state and local requirements to their workplace and product use.

Section 16: Other Information

Revision date	2026-09-30
Initial preparation date	2026-09-30
SDS version	1.0
Supersedes	No previous version

Version	Date	Description
1.0	2026-09-30	Initial SDS creation for Ferric Oxide Pigment — industrial applications excluding food and pharmaceuticals.

Key literature and data sources

- NIOSH Pocket Guide to Chemical Hazards: Iron oxide dust and fume (as Fe), CAS 1309-37-1.
- NIOSH Pocket Guide to Chemical Hazards: Rouge / red iron oxide, CAS 1309-37-1.
- OSHA historical/current exposure-limit documentation for iron oxide fume.
- PubChem: Iron oxide (Fe₂O₃), CID 518696, including aggregated hazard and toxicology information.

Hazard classification method

Literature and regulatory-source review. The classification assumes ferric oxide pigment without hazardous impurities or additives. Supplier specification and COA should be checked before commercial release.

Training advice

- Hazard communication and SDS use.
- Dust-control and housekeeping practices.
- PPE and respiratory protection where required.
- Spill response and waste handling.

Disclaimer

The information in this Safety Data Sheet is believed to be accurate and represents the best information currently available from the cited sources. No warranty, express or implied, is made regarding completeness or suitability for a particular purpose. The user is responsible for confirming the actual commercial grade, impurities, additives, particle characteristics, workplace conditions, and all applicable legal requirements before use or distribution.

Prepared By

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