

MATERIAL SAFETY DATA SHEET (MSDS)

Product Name: Iron Oxide Nanoparticles

Product Series: Fe₂O₃

1. Identification of the substance and the company

1.1 Product Identifiers

Product name: Iron Oxide (Fe₂O₃)

Brand: Techinstro

CAS-No.: 1309-37-1

1.2 Relevant identified uses of the substance & uses advised against

Identified uses: Laboratory chemicals, Research, and development.

1.3 Details of the Supplier

Company: M/s. Techinstro

Plot No. - 463, Yadav Nagar

Nagpur, Maharashtra, India

Pin Code- 440026

Emergency Contact: +91(0) 8007799090

Emergency Contact Email: info@techinstro.com

2. Hazards Identification

2.1 Classification of the substance or mixture

This substance or mixture is not considered hazardous under Regulation (EC) No 1272/2008.

2.2 Label Elements

This substance or mixture is not hazardous under Regulation (EC) No 1272/2008.

2.3 Other Hazards (Dangers)

This mixture or substance does not contain any components deemed persistent, bioaccumulative, toxic (PBT), or very persistent & very bioaccumulative (vPvB) at a level of 0.1% or more.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms: Ferric oxide

Formula: Fe₂O₃

Molecular weight: 159,69 g/mol

CAS-No.: 1309-37-1

EC-No.: 215-168-2

There are no components that require disclosure under the relevant regulations.

4. First Aid Measures

4.1 Description of first-aid measures

If inhaled, move out into fresh air.

In case of skin contact: Take off contaminated clothes immediately. Rinse skin with water or take a shower.

In case of eye contact: Rinse out with water. Remove contact lenses.

If Swallowed: Make the victim drink water (at most two glasses). Consult a doctor if feeling unwell.

4.2 Most important symptoms & effects, both (acute and delayed)

The most known symptoms and effects are described in the labelling (see section 2.2) and section 11

4.3 Indication of any immediate medical attention & special treatment needed

No data available

5. Firefighting Measures

5.1 Extinguishing media Suitable extinguishing media

Use extinguishing measures that are proper to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For the mentioned substance, no limitations of extinguishing agents are mentioned.

5.2 Special hazards (dangers) arising from the substance

The nature of decomposition products has yet to be discovered.

Not combustible.

Ambient fire may liberate hazardous vapors.

5.3 Advice for Firefighters

In case of fire, always wear self-contained breathing apparatus.

5.4 Further Information

Suppress (knock down) gases or vapors or mists with a water spray jet

6. Accidental Release Measures

6.1 Personal precautions, protective equipment & emergency procedures

Advice for non-emergency personnel: Avoid inhalation of any dust. Evacuate the dangerous area and, observe emergency procedures, consult an expert. For personal protection, see section 8.

6.2 Environmental precautions

No special precautionary measures are necessary.

6.3 Methods & materials for containment as well as cleaning up

Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of it properly.

Clean up the affected area. Avoid the generation of dust.

6.4 Reference to other sections

For disposal, see section 13.

7. Handling and Storage

7.1 Precautions for safe handling

For precautions, refer to section 2.2.

7.2 Conditions/ Precautions for safe storage, including any incompatibilities

Tightly closed. Dry.

7.3 Specific End Uses

Apart from the mentioned uses in section 1.2, no other specific uses are mentioned.

8. Exposure Controls/Personal Protection

8.1 Control Parameters

Ingredients with workplace control parameters

8.2 Exposure Controls

Appropriate Engineering Controls

Change contaminated clothes. Wash hands after working with the substance.

Personal Protective Equipment

Eye/face Protection

Use equipment for eye protection tested & approved under proper government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Respiratory Protection is required when dust is produced.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387, and other accompanying standards relating to the respiratory protection system used.

Control of Environmental Exposure

No special precautionary measures are necessary.

9. Chemical and Physical Properties

9.1 Details on basic physical and chemical properties

- a) Appearance Form: Powder
- b) Color: Red-brown
- c) Odor: Odorless
- d) Odor Threshold: Not applicable
- e) pH: No data available
- f) Melting point: 1,565°C
- g) Initial boiling point: No data available
- h) Flash point: Not applicable
- i) Evaporation rate: No data available
- j) Flammability solid & gas: No data available
- k) Upper/lower: No data available on flammability or explosive limits
- l) Vapor pressure: No data available
- m) Vapor density: No data available
- n) Relative density 5,25 g/cm³ at 25 °C & 0.001 g/l at 20 °C - OECD Test Guideline
- o) Water solubility: 105
- p) Partition coefficient: Not applicable for inorganic substances n-octanol/water
- q) Autoignition temperature: No data available
- r) Decomposition temperature: No data available
- s) Viscosity: No data available
- t) Explosive properties: No data available
- u) Oxidizing properties: No data available

9.2 Other Safety Information

No data available

10. Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical Stability

This product remains chemically stable when under normal room temperature and environmental conditions.

10.3 Possibility of hazardous (dangerous) reactions

No data available.

10.4 Conditions to avoid

No information available

10.5 Incompatible materials

Chloroformates, Peroxides, Strong acids, Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products – No data available

Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

In case of fire: see section 5

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 5.000 mg/kg

(EC Directive 92/69/EEC B.1 Acute Toxicity (Oral))

Remarks: (ECHA)

LC50 Inhalation - Rat - male & female - 4 h - > 5,05 mg/l (OECD Test Guideline 403)

Skin corrosion/Irritation

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

Severe eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

Respiratory or skin sensitization

Maurer optimization test - Guinea pig

Result: negative

Remarks: (ECHA)

Germ cell mutagenicity

No data available

Ames test typhimurium Result: negative (ECHA) in vitro test

Chinese hamster fibroblasts Result: negative

Rat - female - Bone marrow

Result: negative

(ECHA)

Carcinogenicity This product is a component that is not classifiable to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No ingredient of the mentioned product is present at levels greater than or equal to 0.1% and is stated as probable or possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: NO7400000

If someone inhales iron oxide fumes or dust for a long, it can lead to siderosis. Siderosis is generally a harmless form of pneumoconiosis that doesn't usually cause any significant physical problems. However, x-rays may show a mottled lung pattern due to siderosis. As far as we know, the chemical, physical, and toxicological characteristics have yet to be extensively studied.

After uptake of large quantities: CNS disorders, shock

Other information

Inhalation of the dust should always be avoided as even inert dust may impair respiratory organ functions.

Handle following with good industrial hygiene and safety practices.

12. Ecological Information

12.1 Toxicity

No data available

Toxicity to daphnia and Other aquatic Invertebrates - static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202) Remarks: (ECHA)

Toxicity to bacteria - static test EC50 - activated sludge - > 10.000 mg/l (ISO 8192) - 3 h

12.2 Persistence & Degradability

The techniques used to determine the biodegradability of substances cannot be applied to inorganic materials.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT & vPvB Assessment

This substance contains no components considered to be either persistent or Substances that are bioaccumulative and toxic (PBT) or very persistent & very bioaccumulative (vPvB) are present at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

13. Disposal Considerations

13.1 Waste treatment methods

Product

See www.techinstro.com for processes of the return of the chemicals & containers, or contact us there if you have further questions.

14. Transport Information

14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

Further Details

Not classified as hazardous in the meaning of transport regulations.

15. Regulatory Information

15.1 Safety, Health & Environmental Regulations/Legislation Specific for the Substance

This safety data sheet meets the standards outlined in Regulation (EC) No. 1907/2006.

15.2 Chemical Safety Assessment

A chemical safety assessment was not conducted for this particular product. A chemical safety assessment still needs to be completed for this specific product.

16. Other Information

The details herein are presented in good faith and are believed to be accurate as of the date shown above. However, no warranty, express or implied, is given. The client's responsible for ensuring that its activities comply with the relevant laws.