

Iron Oxide Nanoparticles (Fe₃O₄)

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Material Safety Data Sheet

1 Identification of substance:

Product details:

Trade name: Fe₃O₄

Manufacturer/Supplier:

SAT nano Technology Material Co., Ltd.

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Version Date: 2/04/2016

3 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

Iron (II,III) oxide (CAS# 1317-61-9), 99.8%

Identification number(s):

EINECS Number: 215-277-5

4 Hazards identification

Hazard description: Xi Irritant

Information pertaining to particular dangers for man and environment

R 36/37/38 Irritating to eyes, respiratory system and skin.

5 First aid measures

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

- After swallowing** Seek immediate medical advice.

6 Fire fighting measures

- Suitable extinguishing agents**
Product is not flammable. Use fire fighting measures that suit the surrounding fire.
- Protective equipment:**
Wear self-contained respirator.
Wear fully protective impervious suit.

7 Accidental release measures

- Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation
- Measures for environmental protection:**
Do not allow material to be released to the environment without proper governmental permits.
- Measures for cleaning/collecting:** Ensure adequate ventilation.
- Additional information:**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

8 Handling and storage

- Handling**
- Information for safe handling:**
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
- Information about protection against explosions and fires:**
The product is not flammable

- Storage**
- Requirements to be met by storerooms and receptacles:**
No special requirements.
- Information about storage in one common storage facility:**
Do not store together with oxidizing and acidic materials.
- Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

9 Exposure controls and personal protection

- Additional information about design of technical systems:**
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Components with limit values that require monitoring at the workplace:
OSHA PEL: 10 mg/m³ (fume)
- Additional information:** No data
- Personal protective equipment**
- General protective and hygienic measures**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- Breathing equipment:**
Use suitable respirator when high concentrations are present.
- Protection of hands:** Impervious gloves
- Eye protection:** Safety glasses
- Body protection:** Protective work clothing.

10 Physical and chemical properties:

General Information

Form: Powder

Color: Black

Odor: Odorless

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
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Change in condition

Melting point/Melting range: 1538 ° C

Boiling point/Boiling range: Not determined

Sublimation temperature / start: Not determined

Flash point: Not applicable

Flammability (solid, gaseous) Product is not flammable.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Danger of explosion:
Product does not present an explosion hazard.

Explosion limits:

Lower: Not determined

Upper: Not determined

Vapor pressure: Not determined

Density: at 20 ° C 4.8-5.1 g/cm³

Solubility in / Miscibility with

Water: Insoluble
Not determined

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according

to specifications.

- Decomposition will begin at:** 60°C
- Materials to be avoided:**
Acids
Oxidizing agents
- Dangerous reactions** No dangerous reactions known
- Dangerous products of decomposition:** Metal oxide fume

12 Toxicological information

- Acute toxicity:**
- Primary irritant effect:**
 - on the skin:** Irritant to skin and mucous membranes.
 - on the eye:** Irritating effect.
- Sensitization:** No sensitizing effects known.
- Subacute to chronic toxicity:**
Iron compounds may cause vomiting, diarrhea, pink urine, black stool, and liver damage. May cause damage to the kidneys. Irritating to the respiratory tract, they may cause pulmonary fibrosis if dusts are inhaled.
- Additional toxicological information:**
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

13 Ecological information:

- General notes:**
Do not allow material to be released to the environment without proper governmental permits.

14 Disposal considerations

- Product:**
- Recommendation**
Consult state, local or national regulations to ensure

proper disposal.

Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

15 Transport information

Not a hazardous material for transportation.

DOT regulations:

Hazard class: None

Land transport ADR/RID (cross-border)

ADR/RID class: None

Maritime transport IMDG:

IMDG Class: None

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: None

Transport/Additional information:

Not dangerous according to the above specifications.

16 Regulations

Product related hazard informations:

Hazard symbols: Xi Irritant

Risk phrases:

36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

37/39 Wear suitable gloves and eye/face protection.

National regulations

All components of this product are listed in the U.S.

~~Environmental Protection Agency Toxic Substances Control~~

Act Chemical Substance Inventory.

Information about limitation of use:

For use only by technically qualified individuals.

17 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

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