

1. IDENTIFICATION**1.1 Product identifier**

Product Name Micronized Iron Powder
Item number EID600

Other means of identification**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses Powder metallurgical use.

1.3 Details of the supplier of the safety data sheet

Chemical Store Inc.
1059 Main Avenue,
Clifton, NJ 07011
Tel: (973) 405-6248

Contact Information E-Mail
info@ChemicalStore.com

1.4 Emergency telephone number

Emergency telephone at the company
+1 973-420-4972 (available 24 hours)

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Combustible dust Classified

2.2 Label Elements

Signal Word
Warning

Hazard Statements

May form combustible dust concentrations in air. (Dust explosion hazard is significant for micron and nano-scale particles; implement stringent dust control.)

Precautionary Statements

Avoid dust formation

Hazards not otherwise classified (HNOC)

Skin contact: Skin contact with nanoparticles may present a risk if skin barrier is compromised; gloves are strongly recommended.

Inhalation: Inhalation of fine and ultrafine particles may cause siderosis (iron deposition in lungs). While generally considered benign pneumoconiosis, it can impair lung clearance and increase susceptibility to other lung conditions.

2.3 Other hazards

Not classified as PBT or vPvB.

The product contains no substances which at their given concentration, are considered to be hazardous to health

Physical state Powder

Appearance Light grey , Fine-grained , metal, Powder.

Odor Odorless

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances/Mixtures**

Chemical Name	CAS-No	Content (%)	Trade Secret
Iron	7439-89-6	>98.5	-

4. FIRST AID MEASURES**4.1 Description of first-aid measures**

Inhalation	Move to fresh air. If symptoms persist, call a physician. (If dust exposure is suspected, remove to fresh air and monitor breathing. Provide oxygen if necessary.)
Skin contact	Take off contaminated clothing. Wash skin with soap and water. Nanoparticles adhere strongly but can be removed by washing (85–90% removal shown in studies).
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician. Flush with water for 15 minutes. Seek medical attention if irritation persists.
Ingestion	Drink 1 or 2 glasses of water. If possible drink milk afterwards. Get medical attention. Rinse mouth. Do not induce vomiting. Seek medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	Main symptoms: Cough and shortness of breath. May cause irritation of respiratory tract.
Skin contact	Long term contact can cause irritation.
Eye contact	May cause mechanical irritation.
Ingestion:	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Keep containers and surroundings cool with water spray. Use: Dry powder.

Extinguishing media which shall not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire. Fine iron dust can be pyrophoric. Class D extinguishers (e.g., sodium chloride, graphite powder) are required for fires involving iron dust.

5.2 Special hazards arising from the substance or mixture

Special Hazard

Iron dust clouds may cause explosion; prevent dispersal of dust.

5.3 Advice for firefighters

As in any fire, wear self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Remove all sources of ignition. For personal protection equipment see section 8.

6.2 Environmental precautions

Try to prevent the material from entering drains or water sources. Potential environmental hazard.

6.3 Methods and materials for containment and cleaning up

Contain spillage. Avoid dry sweeping. Collect with an electrically protected, HEPA-filtered vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

Refer to protective measures listed in section 8 and 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures

Use only in well-ventilated areas with local exhaust ventilation and HEPA filtration. Use sufficient dust extraction. Keep workplace clean from dust. Accumulated dust dispersed in air may cause dust explosion if ignited.

Advice on general occupational hygiene

Avoid inhalation, ingestion and contact with skin and eyes. General occupational hygiene measures are required to ensure safe handling of the substance. The measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no drinking, eating and smoking at the workplace. Shower and change clothes at end of work shift.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Make sure the product does not come in contact with acids or strong oxidizers. Keep away from open flames, hot surfaces and sources of ignition.

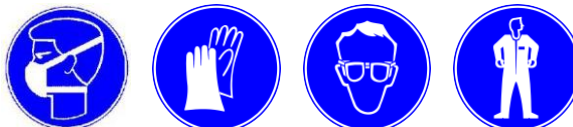
7.3 Specific end uses

No information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limits



8.2 Exposure controls

Engineering Measures

Use local exhaust ventilation if the dust concentration is high. If occupational exposure limit value is suspected to be reached or dust levels are high, exposure measurement is recommended.

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Avoid eye contact. Use ANSI-approved chemical safety goggles. Face shield recommended for bulk handling.

Skin protection

Avoid skin contact. Wear protective clothing (lab coat or coverall) to avoid contamination of personal clothes.

Hand Protection

Wear chemical-resistant nitrile gloves. Canvas or latex gloves may not be sufficient for nanoparticle protection.

Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations. Minimum N95 and preferably P100 masks are recommended.

Thermal hazards

The substance does not represent a thermal hazard, thus special consideration is not required.

Environmental Exposure Controls

Dust from exhaust ventilation should be separated out in order to avoid release to the natural environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Powder	
Appearance	Light grey Fine-grained metal Powder.	
Odor	Odorless	
Odor Threshold	Not applicable	
Particle size	$x_{90} < 300 \mu\text{m}$	
Property	Values	Note
pH	Not applicable	
Melting/freezing point	1538°C @ 1013hPa	Iron
Boiling point/boiling range	2861°C @ 1013hPa	Iron
Flash Point	Not applicable	Not relevant for inorganic substances.
Evaporation rate	Not determined	Solid with a melting point >300°C
Flammability (solid, gas)	Not flammable.	According to Method A10, EU- Regulation 440/2008
Flammability Limits in Air		
Upper flammability or explosive limit	No information available	
Lower flammability or explosive limit	No information available	
Vapor pressure	No information available	Solid with a melting point >300°C
Vapor density	No information available	Solid with a melting point >300°C
Relative density	7,87g/cm ³ @ 20°C	Iron
Water Solubility	0,015 mg/l @ 22°C	Iron
Solubility in other solvents	No information available	
Partition coefficient: n-octanol/water	Not determined	Not relevant for inorganic substances.
Autoignition temperature	Not classified.	UN test N.4
Decomposition temperature	No information available	Not relevant for inorganic substances.
Viscosity	No information available	Solid with a melting point >1500°C
Explosive properties	Not explosive	The substance contains no chemical groups associated with explosive properties.
Oxidizing Properties	Not oxidizing	The substance is incapable of reacting exothermically with combustible materials on the basis of the chemical structure.

9.2 Other information

VOC Content(%)	Not applicable
Bulk Density	2,0-4,0 g/cm ³
Fines fraction	No information available
Dust explosion class	St 1

10. STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under normal handling and storage conditions.

10.3 Possibility of hazardous reactions

None under normal use.

10.4 Conditions to Avoid

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

10.5 Incompatible Materials

Strong oxidizing agents and strong acids.

10.6 Hazardous decomposition products

No information available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of exposure

General	The principal risk to human health presented by metal dust is related to the concentration of dust in the air acting as a nuisance dust. The higher the concentration of dust the greater the risk of irritation to the respiratory system and mechanical irritation to the eyes.
Acute Toxicity	There is no data available for this product
Skin corrosion/irritation	Nanoparticles may induce oxidative stress within cells if absorbed, particularly through damaged skin or lungs.
Serious Eye Damage/Eye Irritation	OECD 405: Not irritating. Dust contact with the eyes can lead to mechanical irritation.
Respiratory or skin sensitization	Chronic inhalation may result in siderosis. Although considered benign, it may still impair respiratory clearance.
Germ Cell Mutagenicity	Ames test OECD 471 negative.
Reproductive Toxicity	Testing of metallic iron for reproductive toxicity is not appropriate due to a lack of systemic exposure.
STOT-single exposure	Not classified according to the criteria of the Globally Harmonized System (GHS).
STOT-repeated exposure	Not classified according to the criteria of the Globally Harmonized System (GHS).
Aspiration hazard	Not classified according to the criteria of the Globally Harmonized System (GHS).
Carcinogenicity	No evidence of carcinogenicity for elemental iron.

Legend:**ACGIH: (American Conference of Governmental Industrial Hygienists)** A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

A4 - Not Classifiable as a Human Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

Group 3 - Not Classifiable as to Carcinogenicity in Humans

NTP: (National Toxicity Program) Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration) X - Present**12. ECOLOGICAL INFORMATION****12.1 Toxicity****Ecotoxicity effects**

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Iron	-	LC50 96 h = 13.6 mg/L (Morone saxatilis - static) LC50 96 h = 0.56 mg/L (Cyprinus carpio - semi-static)	-	-

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Iron and its compounds are essential compounds. Iron is an essential trace element, well regulated in all living organisms. The available evidence shows the absence of iron biomagnification across the trophic chain both in the aquatic and terrestrial food chains. The existing information suggests not only that iron does not biomagnify, but rather that it tends to exhibit biodelution.

12.4 Mobility in soil

Iron and its compounds are found in the form of hydroxides in the environment. They are stabilized in the form of oxides in the long term.

12.5 Results of PBT and vPvB assessment

As iron is not bio-available, owing to its extreme insolubility in water, it is not systematically available or bio-accumulative, and hence it does not fulfil either of the PBT or vPvB criteria for classification.

12.6 Other adverse effects

Spillage into aquatic environments may cause localized oxygen depletion and oxidative stress in aquatic organisms. Iron nanoparticles may agglomerate but can still pose risks to microorganisms.

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product disposal**

Recycle where possible. Dispose of in accordance with all applicable national environmental laws and regulations.

Packaging disposal

Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION**DOT**

UN/ID No	Not applicable
Proper shipping name	Not applicable
Transport hazard class(es)	Not applicable
Packaging group	Not applicable

ICAO/IATA

UN/ID No	Not applicable
Proper shipping name	Not applicable
Transport hazard class(es)	Not applicable
Packing Group	Not applicable

IMDG / IMO

UN/ID No	Not applicable
Proper shipping name	Not applicable
Transport hazard class(es)	Not applicable
Packing Group	Not applicable

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****International Inventories**

All of the components in the product are on the following Inventory lists:

TSCA	Complies
EINECS/ELINCS	Complies
DSL/NDL	Complies
ENCS	-
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:*TSCA - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**ENCS - Japan Existing and New Chemical Substances**IECSC - China Inventory of Existing Chemical Substances**KECL - Korean Existing and Evaluated Chemical Substances**PICCS - Philippines Inventory of Chemicals and Chemical Substances**AICS - Australian Inventory of Chemical Substances***U.S. Federal Regulations****U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)**

This product contains no substance listed TSCA Section 5(a)(2)

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

This product does not contain any substances regulated by state right-to-know regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

16. OTHER INFORMATION INCLUDING DATE OF PREPARATION OR LAST REVISION

<u>NFPA</u>	Health Hazard 1	Flammability 1	Instability 0	Physical and chemical hazards
<u>HMIS</u>	Health Hazard 1	Flammability 1	Physical Hazard 0	Personal protection E

Abbreviations

EC50: median effective concentration

LC50: median lethal concentration.

LD50: median lethal dose.

NIOSH: The National Institute for Occupational Safety and Health

NOEC: no observable effect concentration

OEL: occupational exposure limit

OSHA Occupational Safety & Health Administration

PBT: Persistent, bioaccumulative, and toxic chemicals

PNEC: Predicted no effect concentration (PNEC)

STEL: short-term exposure limit

TLV: Substance with TLV-values

TWA: Time weighted average

vPvB: very persistent, very bioaccumulative chemical

Version 2

Revision Date 8/8/2025

Revision Notes On file.

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End