

1. **PRODUCT AND COMPANY IDENTIFICATION**

Product Name	Iron, Enriched Iron
CAS No.	7439-89-6
Synonyms	Iron Dust; Iron Metal; Metallic Iron; Elemental Iron
Chemical Formula	Fe
Molecular Weight	55.847
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. **HAZARDS IDENTIFICATION**

Emergency Overview:

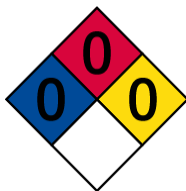
Appearance: Black to gray

Warning! Flammable solid. May cause liver damage. May cause cardiac disturbances. May cause lung damage. May cause mechanical eye and skin irritation. Inhalation of fumes may cause metal-fume fever. May cause blood abnormalities.

Target Organs: Liver, respiratory system, cardiovascular system, pancreas.

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 0



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Physical Hazard = 0

HEALTH HAZARD	0
FLAMMABILITY	0
PHYSICAL HAZARD	0

Potential Health Effects

<i>Eye</i>	Exposure to particulate or solution may cause conjunctivitis, ulceration, and corneal abnormalities.
<i>Skin</i>	May cause skin irritation.
<i>Ingestion</i>	May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Acute toxicity may include weakness, shock, cyamopsis and acidosis. Delayed symptoms may include liver damage.
<i>Inhalation</i>	Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May cause lung damage.
<i>Chronic</i>	Chronic exposure may lead to liver and lung damage. Repeated exposure may cause pancreatic damage, diabetes, and cardiac abnormalities.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Iron
CAS No.:	7439-89-6
Chemical Formula:	Fe
Molecular Weight:	55.847

4. FIRST AID MEASURES

<i>Eyes</i>	Flush eyes immediately with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical aid immediately.
<i>Skin</i>	Flush skin immediately with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical aid if irritation develops or persists.
<i>Ingestion</i>	If victim is conscious and alert, give 2-4 cupfuls of milk or water. Seek medical aid immediately.
<i>Inhalation</i>	Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical aid if cough or other symptoms appear.
<i>Notes to Physician</i>	Treat symptomatically and supportively.
<i>Antidote</i>	The use of Deferoxamine as a chelating agent should be determined only by qualified medical personnel.

5. FIREFIGHTING MEASURES

<i>Fire</i>	Moderate fire hazard in the form of a dust when exposed to heat or flame. Can react with water to liberate flammable hydrogen gas. Minimum ignition temperature, iron dust cloud: 430 °C (805 °F). Ultrafine iron powder (ca. 5 microns) is pyrophoric and can ignite spontaneously in air.
<i>Explosion</i>	Moderate explosion hazard in the form of a dust when exposed to heat or flame.
<i>Suitable Extinguishing Media</i>	Use powdered graphite, powdered salt, or powdered limestone. DO NOT use water, carbon dioxide or dry chemical.
<i>Special Information</i>	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

<i>General Information</i>	Use proper personal protective equipment as indicated in Section 8.
<i>Spills/Leaks</i>	Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Remove all sources of ignition.

7. HANDLING AND STORAGE

<i>Handling</i>	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.
<i>Storage</i>	Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<i>Engineering Controls</i>	Use process enclosure, local exhaust ventilation, or engineering controls to control airborne levels.
-----------------------------	---

Airborne Exposure Limits:

<i>OSHA Permissible</i>	Iron oxide fume: 10 mg/m ³ <i>Exposure Limit (PEL)</i>
<i>ACGIH Threshold</i>	Iron oxide dust and fume (Fe ₂ O ₃) as Fe: 5 mg/m ³ (TWA); inhalable
<i>Limit Value (TLV)</i>	Particulate: A4 - not classifiable as a human carcinogen

Personal Protective Equipment

<i>Eye</i>	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
<i>Hand</i>	Wear impervious gloves.
<i>Body</i>	Wear appropriate protective clothing to prevent skin exposure.
<i>Respirators</i>	Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH- or European Standard EN 149-approved respirator when necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

<i>Form</i>	Solid
<i>Color</i>	Black to gray
<i>Odor</i>	None reported

Safety Data

pH:	Not available
Vapor Pressure:	1 mm Hg @ 1787 °C
Vapor Density:	Not available
Evaporation Rate:	Negligible
Viscosity:	Not available
Boiling Point:	4982 °F
Freezing/Melting Point:	2795 °F
Autoignition Temperature:	Not applicable
Flash Point:	Not applicable
Explosion Limits	
Lower:	Not available
Upper:	Not available
Decomposition Temperature:	Not available
Solubility:	Insoluble in water
Specific Gravity/Density:	7.86 @ 20 °C
Molecular Formula:	Fe
Molecular Weight:	55.847

10. STABILITY AND REACTIVITY

<i>Chemical Stability</i>	Decomposes when heated. Oxidizes when exposed to air.
<i>Conditions to Avoid</i>	Incompatible materials, moisture, exposure to air, excess heat.
<i>Incompatible Materials</i>	Acetaldehyde, ammonium peroxodisulfate, chloroformamidinium, chloric acid, ammonium nitrate, halogens, dinitrogen tetroxide, nitryl fluoride, polystyrene, sodium acetylide, potassium dichromate, peroxyformic acid, nitryl fluoride, sulfuric acid, sodium carbide
<i>Hazardous Decomposition Products</i>	Oxides of iron
<i>Hazardous Polymerization</i>	Has not been reported

11. TOXICOLOGICAL INFORMATION

<i>RTECS No.</i>	NO4565500
<i>CAS No.</i>	7439-89-6
LD50/LC50	
<i>Oral LD50</i>	30 gm/kg (rat)
Carcinogenicity	
<i>ACGIH</i>	Not listed
<i>IARC</i>	Not listed
<i>NIOSH</i>	Not listed
<i>NTP</i>	Not listed
<i>OSHA</i>	Not listed

<i>Epidemiology</i>	No information available
<i>Teratogenicity</i>	No information available
<i>Reproductive Effects</i>	No information available
<i>Neurotoxicity</i>	No information available
<i>Mutagenicity</i>	No information available
<i>Other Studies</i>	None

12. ECOLOGICAL INFORMATION

<i>Toxicity</i>	Toxicity to fish static test - <i>Morone saxatilis</i> - 13.6 mg/l - 96 h
<i>Persistence and Degradability</i>	Not applicable
<i>Bioaccumulative Potential</i>	No data available
<i>Mobility in Soil</i>	No data available
<i>Results of PBT and vPvB Assessment</i>	PBT/vPvB assessment not available, as chemical safety assessment not required/not conducted
<i>Other Adverse Effects</i>	No data available

13. DISPOSAL CONSIDERATIONS

Product	Offer surplus and non-recyclable solutions to a licensed disposal company. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part. Additionally, waste generators must consult state and local hazardous waste regulators to ensure complete and accurate classification. RCRA P-Series: None listed. RCRA U-Series: None listed.
Contaminated Packaging	Dispose of as unused product.

14. TRANSPORT INFORMATION

Non-hazardous for air, sea and road freight.

15. REGULATORY INFORMATION

None available

16. OTHER INFORMATION

<i>Prepared By</i>	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
<i>Issuing Date</i>	November 17, 2014
<i>Revision Date</i>	October 16, 2024
<i>Revision Number</i>	4
<i>Revision Note</i>	Update supplier address

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances

SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

General Disclaimer

For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between ISOFLEX USA (or any of its affiliates and subsidiaries) and the purchaser.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. ISOFLEX shall not be held liable for any damage resulting from handling or from contact with the above product.



ISOFLEX