MSDS Material Safety Data Sheet

From: Avantor Performance Materials, Inc.
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3477 Corporate Parkway
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Center Valley, PA 18034

MACRON FINE CHEMICALS™ J.T.Baker®

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service, 1-855-AVANTOR (855-282-6867) for assistance.

IRON REDUCED

1. Product Identification

Synonyms: Iron filings, iron shavings.
CAS No.: 7439-89-6
Molecular Weight: 55.85
Chemical Formula: Fe
Product Codes:
NC-8536, 1381, NC-11395,
NC-12001

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Iron Reduced	7439-89-6	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

CAUTION! MAY BE HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Life)
Flammability Rating: 1 - Slight
Reactivity Rating: 2 - Moderate
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation:
May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath.
Ingestion:
Extremely large oral dosages may produce gastrointestinal disturbances. An overdose of iron may cause vomiting, abdominal pain, bloody diarrhea, vomiting blood, lethargy, and shock. In severe cases, toxicity may progress and develop into an increase in acidity in the blood, bluish skin discoloration, fever, liver damage, and possibly death.
Skin Contact:
No adverse effects expected.
Eye Contact:
May cause irritation, redness and pain. Eye contact may cause conjunctivitis and deposition of iron particles can leave a "rust ring" or brownish stain on the cornea.
Chronic Exposure:
Long-term inhalation exposure to iron has resulted in mottling of the lungs, a condition referred to as siderosis. This is considered a benign pneumoconiosis and does not ordinarily cause significant physiological impairment. Ingestion of greater than 50 to 100 mg of iron per day may result in pathological iron deposition in body tissues. Repeated iron ingestion can produce cardiac toxicity.
Aggravation of Pre-existing Conditions:
Persons with impaired respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.
Ingestion:
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
Skin Contact:
Wash exposed area with soap and water. Get medical advice if irritation develops.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

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

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Avoid dust formation and control ignition sources. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL)
- Iron oxide fume: 10 mg/m3
- ACGIH Threshold Limit Value (TLV) -

Iron oxide dust and fume (Fe2O3) as Fe: 5 mg/m3 (TWA); inhalable particulate: A4 - Not classifiable as a human carcinogen.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece particulate respirator (NIOSH type N100 filters) may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids. glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Maintain eye wash fountain and quick-drench facilities in work area. Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible.

9. Physical and Chemical Properties

Appearance:

Silver white to gray metal granules or shavings.

Odor:

Odorless.

Solubility:

Insoluble, can react with water.

Specific Gravity:

7.86 @ 20C (68F)

pH:

No information found.

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

2750C (4982F)
Melting Point:
1535C (2795F)
Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
1 @ 1787C (3249F)
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable to ignition temperature of 700C (1291F). Stable in dry air but readily oxidizes in moist air forming rust. Ultrafine (ca. 5 microns) powder forms are very unstable and can ignite spontaneously in air.
Hazardous Decomposition Products:
May produce toxic iron oxide fumes when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Strong oxidizers, water (including humid atmospheres), acids, hydrogen peroxide, nitrogen dioxide. Solid or powdered iron ignites or explodes on contact with acetaldehyde, ammonium peroxodisulfate, chloroformamidinium, chloric acid, ammonium nitrate, halogens, dinitrogen tetraoxide, nitryl fluoride, polystyrene, sodium acetylide, potassium dichromate, peroxyformic acid, and nitryl fluoride. Hot iron wire burns in chlorine gas. Chlorine trifluoride reacts with iron with incandescence.
Conditions to Avoid:
Heat, flame, ignition sources, dusting and incompatibles.

11. Toxicological Information

Oral rat LD50: 30 gm/kg; investigated as a tumorigen.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Iron Reduced (7439-89-6)	No	No	None

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\---------------------------------

Ingredient	TSCA	EC	Japan	Australia
Iron Reduced (7439-89-6)	Yes	Yes	No	Yes

--------\Chemical Inventory Status - Part 2\---------------------------------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Iron Reduced (7439-89-6)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Iron Reduced (7439-89-6)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Iron Reduced (7439-89-6)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **1** Reactivity: **1**
Label Hazard Warning:
CAUTION! MAY BE HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.
Label Precautions:
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Avoid breathing dust.

Keep container closed.
Use with adequate ventilation.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Product Use:

Laboratory Reagent.

Revision Information:

No Changes.

Disclaimer:

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