

Material Safety Data Sheet

FERROCENE

Section 1: Chemical Product and Company Identification

Product Name: Ferrocene 99.0%
Contact Information: Chemtrade International
Rm. 2-501, Huaxia Zonghe Building, No. 410,
Jingangshan Road, Qingdao Development Zone,
Qingdao, Shandong, China 266555
Chemical Name: Bis(cyclopentadienyl) iron
CAS No.: 102-54-5
EINECS No.: 203-039-3
Customs Tariff No: 29310095
Synonym Name:
Dicyclopentadienyl iron
Chemical Formula: C₁₀H₁₀Fe
International Sales:
Tel: 0086-532-86109530
Fax: 0086-532-86893005

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS No.	EINECS No.	by weight
Ferrocene	102-54-5	203-039-3	99.0% min.

Section 3: Hazards Identification

EMERGENCY OVERVIEW

Warning! Flammable solid. Heat sensitive. The toxicological properties of this material have not been fully investigated. May be harmful if swallowed. May cause liver damage. May cause blood abnormalities. May cause eye, skin, and respiratory tract irritation. Target Organs: Blood, liver.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion:

May cause irritation of the digestive tract. May cause damage to the red blood cells. May cause nausea, vomiting, abdominal pain, and increased salivation.

Inhalation: Inhalation of dust may cause respiratory tract irritation. Can produce delayed pulmonary edema.

Chronic: Prolonged or repeated inhalation may cause kidney and lung damage

Section 4: First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Treat symptomatically and supportively

Section 5: Fire and Explosion Data

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Dust can be an explosion hazard when exposed to heat or flame. Flammable solid. May burn rapidly with flare burning effect. May re-ignite after fire is extinguished.

Extinguishing Media:

In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

Autoignition Temperature:

Not available.

Flash Point: Not available

Explosion Limits:lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: health: 2; flammability: 2; instability: 1;

Section 6: Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Scoop up with a nonsparking tool, then place into a suitable container for disposal.

Avoid generating dusty conditions. Remove all sources of ignition. Provide ventilation

Section 7: Handling and Storage

Handling:

Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage:

Keep away from heat, sparks, and flame. Keep away from sources of ignition.

Section 8: Exposure Controls/Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ferrocene	10 mg/m3 (as Fe)	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

OSHA Vacated PELs: Ferrocene: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits**Personal Protective Equipment****Eyes:**

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.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Section 9: Physical and Chemical Properties

Physical State: Crystalline powder
Color: orange-brown
Odor: camphor
pH: Not available
Vapor Pressure: 0.05 mbar @ 40
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: 249 deg C @ 760 mm Hg (480.20 F)
Freezing/Melting Point: 173 - 176 deg C
Decomposition Temperature:
Solubility in water: Insoluble
Specific Gravity/Density:
Molecular Formula: C₁₀H₁₀Fe
Molecular Weight: 186.04

Section 10: Stability and Reactivity Data

Chemical Stability: Stable under normal temperatures and pressures. Heat sensitive
Conditions to Avoid: Incompatible materials, ignition sources, dust generation, excess heat.
Incompatibilities with Other Materials : Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11: Toxicological Information

RTECS#: CAS# 102-54-5
RTECS:
LD50/LC50:
CAS# 102-54-5: Oral, mouse: LD50 = 832 mg/kg;
Oral, rat: LD50 = 1320 mg/kg;
Carcinogenicity: Ferrocene - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other: The toxicological properties have not been fully investigated.

Section 12: Ecological Information

No ecological problems are to be expected when the products is handled and used with due care and attention.

Section 13: Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations

Section 14: Transport Information

US DOT
Shipping Name: FLAMMABLE SOLIDS, ORGANIC, N.O.S.
Hazard Class: 4.1
UN Number: UN1325
Packing Group: I

Section 15: Other Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F N

Risk Phrases:

R 11 Highly flammable.

R 22 Harmful if swallowed.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 22 Do not breathe dust.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 102-54-5: Not available

Canada

CAS# 102-54-5 is listed on Canada's DSL List

Canadian WHMIS Classifications: D1B, B4

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 102-54-5 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 102-54-5 is listed on the TSCA

Inventory.

Section 16: Other Information

Chemtrade International provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.