



SIGMA-ALDRICH

Material Safety Data Sheet

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Version 1.20

Section 1 - Product and Company Information

Product Name Ferrocene, 98%
Product Number F408
Brand Aldrich Chemical
Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052
Emergency Phone: 414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex Index Number
FERROCENE	102-54-5	No	203-039-3	

Formula C₁₀H₁₀Fe
Synonyms Biscyclopentadienyliron, Catane, Di-2,4-cyclopentadien-1-yliron, Dicyclopentadienyl iron (ACGIH/OSHA), Ferrotsen, Iron bis(cyclopentadiene), Iron dicyclopentadienyl

Section 3 - Hazards Identification

Emergency Overview
Harmful
Harmful if swallowed.
Target organ(s): Liver.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of contact, immediately wash skin with soap and copious amounts of water.

Eye Exposure
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A

Extinguishing Media
Suitable
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting
Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)
Emits toxic fumes under fire conditions.

Exposure Hazard(s)
Material
Harmful solid.

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling
User Exposure
Avoid inhalation. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

Storage
Suitable
Keep tightly closed. Store in a cool dry place.

Special Requirements
Heat sensitive.

Section 8 - Exposure Controls / PPE

Engineering Controls
Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment
Respiratory
Government approved respirator.

Hand
Rubber gloves.

Eye
Chemical safety goggles.

General Hygiene Measures
Wash thoroughly after handling. Wash contaminated clothing before reuse.

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	10 MG/M3
USA	ACGIH	TWA	10 MG/M3
USA	OSHA	PEL	8H TWA 15 MG/M3, TOTAL DUST
USA	OSHA	PEL	8H TWA 15 MG/M3, TOTAL DUST
New Zealand	OEL		
Remarks: check ACGIH TLV			
New Zealand	OEL		
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	10 MG/M3
USA	NIOSH	TWA	10 MG/M3

Section 9 - Physical/Chemical Properties

Appearance	Form	
	Fine crystals	
Molecular Weight:	186.04 AMU	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	249 °C	760 mmHg
MP/MP Range	172 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point °F	N/A	
Flash Point °C	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Solubility	N/A	
N/A = not available		

Section 10 - Stability and Reactivity

Stability	
Conditions of Instability	
Sensitive to heat.	

Materials to Avoid
Strong oxidizing agents.

Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide.

Section 11 - Toxicological Information

Route of Exposure	
Skin Absorption	May be harmful if absorbed through the skin.
Inhalation	May be harmful if inhaled.
Ingestion	May be harmful if swallowed.
Multiple Routes	May cause irritation.
Target Organ(s) or System(s)	Damage to the liver.

Signs and Symptoms of Exposure
Damage to the liver. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: LK0700000

Toxicity Data

Oral - Rat: 1320 mg/kg (LD50)	
Oral - Rat: 1320 mg/kg (LD50)	
Intraperitoneal - Rat: 500 MG/KG (LD50)	
Intraperitoneal - Rat: 500 MG/KG (LD50)	
Oral - Mouse: 832 mg/kg (LD50)	
Oral - Mouse: 832 mg/kg (LD50)	
Intraperitoneal - Mouse: 335 MG/KG (LD50)	
Intraperitoneal - Mouse: 335 MG/KG (LD50)	
Intravenous - Mouse: 178 MG/KG (LD50)	
Intravenous - Mouse: 178 MG/KG (LD50)	

Chronic Exposure - Carcinogen

Rat - Intramuscular: 5175 MG/KG, 2Y 1
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site or application.

Rat - Intramuscular: 5175 MG/KG, 2Y 1
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site or application.

Chronic Exposure - Mutagen

Species	Dose	Cell Type	Mutation test
Hamster	130 UGL	ovary	Sister chromatid exchange
Hamster	130 UGL	ovary	Sister chromatid exchange

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Flammable solids, organic, n.o.s.

UN#: 1325

Class: 4.1

Packing Group: Packing Group II

Hazard Label: Flammable solid

PH: Not PH

IATA

Proper Shipping Name: Flammable solid, organic, n.o.s.

IATA UN Number: 1325

Hazard Class: 4.1

Packing Group: II

Section 15 - Regulatory Information

EU Additional Classification

Symbol of Danger: F Xn

Indication of Danger

Highly Flammable. Harmful.

Risk Statements

R: 11 22

Highly flammable. Harmful if swallowed.

Safety Statements

S: 16

Keep away from sources of ignition - no smoking.

US Classification and Label Text

Indication of Danger

Harmful.

Risk Statements

Harmful if swallowed.

Safety Statements

Wear suitable protective clothing.

US Statements

Target organ(s): Liver.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.