



Alfa Aesar
A Johnson Matthey Company

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Item Details

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/14/2004

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1 Identification of substance:

○ Product details:

○ Product name: Ferrocene

○ Stock number: B25007

○ Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

○ Information Department: Health, Safety and Environmental Department

○ Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

○ Chemical characterization:

Description: (CAS#)

Dicyclopentadienyl iron (CAS# 102-54-5): 100%

○ Identification number(s):

○ EINECS Number: 203-039-3

3 Hazards identification

○ Hazard description: Xn Harmful

○ Information pertaining to particular dangers for man and environment

R 20/22 Harmful by inhalation and if swallowed.

R 68 Possible risk of irreversible effects.

○ Classification system

○ HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 2

Flammability = 1

Reactivity = 1

• **4 First aid measures**

○ **After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

○ **After skin contact**

Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.

○ **After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

○ **After swallowing** Seek immediate medical advice.

• **5 Fire fighting measures**

○ **Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

○ **Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:
Carbon monoxide and carbon dioxide
Metal oxide fume

○ **Protective equipment:**

Wear self-contained respirator.
Wear fully protective impervious suit.

• **6 Accidental release measures**

○ **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

○ **Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

○ **Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

○ **Additional information:**

See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

• **7 Handling and storage**

○ **Handling**

○ **Information for safe handling:**

Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

○ **Information about protection against explosions and fires:**

Keep ignition sources away.

- **Storage**
- **Requirements to be met by storerooms and receptacles:**
No special requirements.
- **Information about storage in one common storage facility:**
Store away from oxidizing agents.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

• **8 Exposure controls and personal protection**

- **Additional information about design of technical systems:**
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
- **Components with limit values that require monitoring at the workplace:**

Ferrocene	mg/m3
ACGIH TLV	10
Belgium TWA	10
Finland TWA	10; 20-STEL (skin)
France VME	10
Korea TLV	10
Netherlands MAC-TGG	10
Switzerland MAK-W	10
United Kingdom TWA	10; 20-STEL
USA PEL	15 (total dust); 5 (respirable fraction)

Components with limit values that require monitoring at the workplace:

- **Additional information:** No data
- **Personal protective equipment**
- **General protective and hygienic measures**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
- **Breathing equipment:**
Use suitable respirator when high concentrations are present.
- **Protection of hands:**
Check protective gloves prior to each use for their proper condition.
Impervious gloves
- **Material of gloves**
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

• **9 Physical and chemical properties:**

- **General Information**
- **Form:**
Powder
Chunks
- **Color:** Red-brown

○ **Odor:** Not determined

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
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○ **Change in condition**

○ **Melting point/Melting range:** 174-176 ° C

○ **Boiling point/Boiling range:** 249 ° C

○ **Sublimation temperature / start:** Not determined

○ **Flash point:** Not applicable

○ **Ignition temperature:** Not determined

○ **Decomposition temperature:** Not determined

○ **Danger of explosion:**

Product does not present an explosion hazard.

○ **Explosion limits:**

○ **Lower:** Not determined

○ **Upper:** Not determined

○ **Vapor pressure:** Not determined

○ **Density:** Not determined

○ **Solubility in / Miscibility with**

○ **Water:** Insoluble

• **10 Stability and reactivity**

○ **Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

○ **Materials to be avoided:** Oxidizing agents

○ **Dangerous reactions** No dangerous reactions known

○ **Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Metal oxide fume

• **11 Toxicological information**

○ **Acute toxicity:**

LD/LC50 values that are relevant for classification:

Oral: LD50: 832 mg/kg (mus)

LD50: 1320 mg/kg (rat)

Inhalative: LC: >21700 µg/m³ (mam)

○ **Primary irritant effect:**

○ **on the skin:** Irritant to skin and mucous membranes.

○ **on the eye:** Irritating effect.

○ **Sensitization:** No sensitizing effects known.

○ **Other information (about experimental toxicology):**

Tumorigenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Mutagenic effects have been observed on tests with insects.

Mutagenic effects have been observed on tests with laboratory animals.

- **Subacute to chronic toxicity:**

- **Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Liver - changes in liver weight.

Liver - hepatitis, fibrous (cirrhosis, post-necrotic scarring)

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Nutritional and Gross Metabolic - changes in iron.

Lung, Thorax, or Respiration - structural or functional change in trachea or bronchi.

Kidney, Ureter, Bladder - other changes in urine composition.

Endocrine - changes in spleen weight.

Endocrine - other changes.

Tumorigenic - equivocal tumorigenic agent by RTECS criteria.

Tumorigenic - tumors at site of application.

- **Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

- **12 Ecological information:**

- **General notes:**

Do not allow material to be released to the environment without proper governmental permits.

- **13 Disposal considerations**

- **Product:**

- **Recommendation**

Consult state, local or national regulations to ensure proper disposal.

- **Uncleaned packagings:**

- **Recommendation:**

Disposal must be made according to official regulations.

- **14 Transport information**

Not a hazardous material for transportation.

- **DOT regulations:**

- **Hazard class:** None

- **Land transport ADR/RID (cross-border)**

- **ADR/RID class:** None

- **Maritime transport IMDG:**

- **IMDG Class:** None

- **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** None

- **Transport/Additional information:**

Not dangerous according to the above specifications.

- **15 Regulations**

- **Product related hazard informations:**

- **Hazard symbols:** Xn Harmful

- **Risk phrases:**

- 20/22 Harmful by inhalation and if swallowed.

- 68 Possible risk of irreversible effects.

- **Safety phrases:**

- 9 Keep container in a well-ventilated place.

- 36/37 Wear suitable protective clothing and gloves.

- **National regulations**

- All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

- All components of this product are listed on the Canadian Domestic Substances List (DSL).

- **Information about limitation of use:**

- For use only by technically qualified individuals.

- **16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees.

This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

- **Department issuing MSDS:** Health, Safety and Environmental Department.

- **Contact:** Darrell R. Sanders

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