

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/15/2009

1 Identification of substance:**Product details:****Product name:** Bis(pentamethylcyclopentadienyl)barium**Stock number:** 38573**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#)**

Bis(pentamethylcyclopentadienyl)barium
 (CAS# 112379-49-4), 100%

Identification number(s):**Index number:** 056-002-00-7**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.

Classification system**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2

Flammability = 1

Reactivity = 1

GHS label elements

Danger

3.1/3 - Toxic if inhaled.

3.1/4 - Harmful if swallowed.

Prevention:

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Response:

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Call a POISON CENTER or doctor/physician.

Specific treatment (see label).

Rinse mouth.

Storage:

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

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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 CO₂, sand, extinguishing powder. Do not use water.

For safety reasons unsuitable extinguishing agents Water

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

In case of fire, the following can be released:

Barium oxide

Carbon monoxide and carbon dioxide

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:**

Handle under dry protective gas.

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.

Protect from heat.

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.

Store away from water/moisture.

Store away from air.

Further information about storage conditions:

Store under dry inert gas.

Avoid contact with air/oxygen.

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:

Barium, and soluble compounds, as Ba

mg/m³

ACGIH TLV

0.5; Not classified as a human carcinogen

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Austria MAK 0.5
 Belgium TWA 0.5
 Denmark TWA 0.5
 Finland TWA 0.5
 Germany MAK 0.5 (total dust)
 Hungary 0.5-STEEL
 Ireland TWA 0.5
 Korea TLV 0.5
 Netherlands MAC-TGG 0.5
 Norway TWA 0.5
 Poland TWA 0.5; 1.5-STEEL
 Sweden TWA 0.5
 Switzerland MAK-W 0.5
 United Kingdom LTEL 0.5
 USA PEL 0.5

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:** Impervious gloves**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

Form: Powder
Odor: Odorless

Change in condition

Melting point/Melting range: Not determined
Boiling point/Boiling range: 280-290°C (536-554°F)
Sublimation temperature / start: 135-140°C (275-284°F) ((0.1mm Hg))

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 at 0°C (32°F):** 588 g/l**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:

Water/moisture

Oxidizing agents

Air

Dangerous reactions No dangerous reactions known**Dangerous products of decomposition:**

Barium oxide

Carbon monoxide and carbon dioxide

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11 Toxicological information**Acute toxicity:****Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:**

Barium compounds may cause severe gastroenteritis, including abdominal pain, vomiting and diarrhea, tremors, faintness, paralysis of the arms and legs, and slow or irregular heartbeat. Severe cases may produce collapse and death due to respiratory failure. Soluble barium compounds are more likely to cause these effects than insoluble compounds. Inhalation of fumes may cause sore throat, coughing, labored breathing, and irritation of the respiratory tract as well as the above symptoms.

Additional toxicological information:

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

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

12 Ecological information:**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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**DOT regulations:****Hazard class:**

6.1

Identification number:

UN1564

Packing group:

III

Proper shipping name (technical name): BARIUM COMPOUND, N.O.S.

Label

6.1

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

6.1 (T5) Toxic substances

Danger code (Kemler):

60

UN-Number:

1564

Packaging group:

III

Description of goods:

1564 BARIUM COMPOUND, N.O.S.
(bis(pentamethylcyclopentadienyl)barium)

Maritime transport IMDG:**IMDG Class:**

6.1

UN Number:

1564

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Label	6.1
Packaging group:	III
Proper shipping name:	BARIUM COMPOUND, N.O.S.

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class:	6.1
UN/ID Number:	1564
Label	6.1
Packaging group:	III
Proper shipping name:	BARIUM COMPOUND, N.O.S.

UN "Model Regulation": UN1564, BARIUM COMPOUND, N.O.S., 6.1, III**15 Regulations****Product related hazard informations:****Hazard symbols:**

Xn Harmful

Risk phrases:

20/22 Harmful by inhalation and if swallowed.

Safety phrases:

28 After contact with skin, wash immediately with plenty of water

National regulations

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.

Information about limitation of use:

For use only by technically qualified individuals.

This product contains barium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

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:** Zachariah Holt**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

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