

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 03/07/2001

Reviewed on 01/11/2001

1 Identification of substance:**○ Product details:****○ Trade name:** Cesium**○ Stock number:** 10146**○ 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#)**

Cesium (CAS# 7440-46-2); 100%

○ Identification number(s):**○ EINECS Number:** 231-155-4**○ Additional information:** Ampouled under argon

● 3 Hazards identification**○ Hazard description:**

C Corrosive

F Highly flammable

○ Information pertaining to particular dangers for man and environment

R 14/15 Reacts violently with water, liberating extremely flammable gases.

R 34 Causes burns.

● 4 First aid measures**○ General information**

Immediately remove any clothing soiled by the product.

○ 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**

Special powder for metal fires. Do not use water.

○ For safety reasons unsuitable extinguishing agents Water**○ Special hazards caused by the material, its products of combustion or****resulting gases:**

Contact with water releases hydrogen (explosive).

○ 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
Keep away from ignition sources

○ **Measures for environmental protection:**

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

○ **Measures for cleaning/collecting:**

Pick up mechanically.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Keep away from ignition sources.

○ **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:**

Protect from humidity and water.
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 water/moisture.
Store away from oxidizing agents.

○ **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.
Store under lock and key and with access restricted to technical experts or their assistants only.

● **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:

Not required.

○ **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.

Avoid contact with the eyes and skin.

○ **Breathing equipment:**

Use suitable respirator when high concentrations are present.

○ **Protection of hands:** Impervious gloves

○ **Eye protection:**

Safety glasses

Tightly sealed goggles

Full face protection

○ **Body protection:** Protective work clothing.

● **9 Physical and chemical properties:**

○ **Form:** Solid

○ **Color:** Silver-colored

○ **Odor:** Odorless

	<u>Value/Range</u>	<u>Unit</u>	<u>Method</u>
○ Change in condition			
○ Melting point/Melting range:	28.64	° C	
○ Boiling point/Boiling range:	690	° C	
○ Sublimation temperature / start:	Not determined		
○ Flash point:	Not applicable		
○ Flammability (solid, gaseous) Contact with water liberates extremely flammable gases.			
○ Ignition temperature:	Not determined		
○ Decomposition temperature:	Not determined		
○ Explosion limits:			
○ Lower:	Not determined		
○ Upper:	Not determined		
○ Vapor pressure:	at 279	° C	1.33 hPa
○ Density:	at 18	° C	1.892 g/cm ³
○ Solubility in / Miscibility with			
○ Water:	Reacts violently		

○ **Change in condition**

○ **Melting point/Melting range:** 28.64 ° C

○ **Boiling point/Boiling range:** 690 ° C

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

○ **Flash point:** Not applicable

○ **Flammability (solid, gaseous)**

Contact with water liberates extremely flammable gases.

○ **Ignition temperature:** Not determined

○ **Decomposition temperature:** Not determined

○ **Explosion limits:**

○ **Lower:** Not determined

○ **Upper:** Not determined

○ **Vapor pressure:** at 279 ° C 1.33 hPa

○ **Density:** at 18 ° C 1.892 g/cm³

○ **Solubility in / Miscibility with**

○ **Water:** Reacts violently

● 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

Acids

Halogens

○ Dangerous reactions

Explosive reaction with water

Contact with water releases flammable gases

Reacts with oxidizing agents

Reacts with alcohols

Reacts with oxygen

Reacts with carbon dioxide

Self igniting on contact with air and dry surfaces

○ Dangerous products of decomposition: Hydrogen**● 11 Toxicological information****○ Acute toxicity:****○ Primary irritant effect:**

○ **on the skin:** Corrosive effect on skin and mucous membranes.

○ **on the eye:** Strong corrosive effect.

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

○ Subacute to chronic toxicity:

Cesium compounds may cause hyper-irritability, including spasms, dizziness, abdominal cramps, vomiting, diarrhea, convulsions and collapse. Chronic ingestion of cesium has been fatal to laboratory animals, possibly due to the replacement of potassium. Chronic exposure also can have blood and neuromuscular effects.

○ Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

○ **Additional toxicological information:**

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. 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 for proper disposal.

○ **Uncleaned packagings:**

○ **Recommendation:**

Disposal must be made according to official regulations.

● **14 Transport information**

○ **DOT regulations:**

○ **Hazard class:** 4.3

○ **Identification number:** UN1407

○ **Packing group:** I

○ **Proper shipping name (technical name):**
Caesium (Cesium)

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

○ **ADR/RID class:** 4.3 Substances which, in contact with water,
emit flammable gases

○ **Item:** 11a

○ **Danger code (Kemler):** x423

○ **UN-Number:** 1407

○ **Description of goods:** Caesium (Cesium)

- **Maritime transport IMDG:**
- **IMDG Class:** 4.3
- **UN Number:** 1407
- **Packaging group:** I
- **Proper shipping name:** Caesium (Cesium)

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** 4.3
- **UN/ID Number:** 2813
- **Packaging group:** I
- **Proper shipping name:** Water-reactive solid, n.o.s., caesium (Cesium)

● **15 Regulations**

- **Product related hazard informations:**

- **Hazard symbols:**
C Corrosive F Highly flammable

- **Risk phrases:**
14/15 Reacts violently with water, liberating extremely flammable gases.
34 Causes burns.

- **Safety phrases:**
8 Keep container dry.
20 When using do not eat or drink.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
30 Never add water to this product.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately.

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

- **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