

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 08/20/2010

Reviewed on 08/19/2010

**1 Identification of substance:****Product details:****Product name:** Cesium**Stock number:** 43005**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 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.

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

HEALTH	3
FIRE	4
REACTIVITY	3

Health (acute effects) = 3

Flammability = 4

Reactivity = 3

**GHS label elements****Danger**

2.12/1 - In contact with water releases flammable gases which may ignite spontaneously.

**Danger**

3.2/1B - Causes severe skin burns and eye damage.

**Prevention:**

Handle under inert gas. Protect from moisture.

Do not breathe dust/fume/gas/mist/vapours/spray.

**Response:**

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Storage:**

Store locked up.

**Disposal:**

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

**3 Composition/Data on components:****Chemical characterization:****Description: (CAS#)**

Cesium (CAS# 7440-46-2)

**Identification number(s):****EINECS Number:** 231-155-4

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**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:**

In case of fire, the following can be released:

Metal oxide fume

Reacts violently with water

**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:**

Use neutralizing agent.

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:**

Keep ignition sources away.

Protect against electrostatic charges.

**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from air.

Store away from water/moisture.

Do not store together with oxidizing and acidic materials.

**Further information about storage conditions:**

Store under dry inert gas.

Protect from humidity and water.

This product is moisture sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

This product is air sensitive.

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**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

Check protective gloves prior to each use for their proper condition.

**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

Tightly sealed goggles

Full face protection

**Body protection:** Protective work clothing.

**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Solid
<b>Color:</b>	Silver-colored
<b>Odor:</b>	Odorless

**Change in condition**

<b>Melting point/Melting range:</b>	28.64°C (84°F)
<b>Boiling point/Boiling range:</b>	690°C (1274°F)
<b>Sublimation temperature / start:</b>	Not determined

**Flammability (solid, gaseous)** Contact with water liberates extremely flammable gases.

**Ignition temperature:** Not determined

**Decomposition temperature:** Not determined

**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

**Vapor pressure at 279°C (534°F):** 1.33 hPa (1 mm Hg)

**Density at 20°C (68°F):** 1.892 g/cm<sup>3</sup>

**Solubility in / Miscibility with**

<b>Water:</b>	Reacts violently
	Contact with water releases flammable gases

**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:**

Air

Water/moisture

Acids

Oxidizing agents

**Dangerous reactions**

Contact with water releases flammable gases

Reacts violently with water

**Dangerous products of decomposition:** Metal oxide fume

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**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 hyperirritability including spasms. Chronic ingestion of cesium has been fatal to laboratory animals.

**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:**

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

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

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

**12 Ecological information:****Additional 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:**

<b>Hazard class:</b>	4.3
<b>Identification number:</b>	UN1407
<b>Packing group:</b>	I
<b>Proper shipping name (technical name):</b>	CAESIUM
<b>Label</b>	4.3

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

<b>ADR/RID class:</b>	4.3 (W2) Substances which, in contact with water, emit flammable gases
<b>Danger code (Kemler):</b>	X423
<b>UN-Number:</b>	1407
<b>Packaging group:</b>	I
<b>Description of goods:</b>	1407 CAESIUM

**Maritime transport IMDG:**

<b>IMDG Class:</b>	4.3
<b>UN Number:</b>	1407

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<b>Packaging group:</b>	I
<b>Marine pollutant:</b>	No
<b>Proper shipping name:</b>	CAESIUM

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

<b>ICAO/IATA Class:</b>	4.3
<b>UN/ID Number:</b>	1407
<b>Label</b>	4.3
<b>Packaging group:</b>	I
<b>Proper shipping name:</b>	CAESIUM

UN "Model Regulation": UN1407, CAESIUM, 4.3, I

**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:**

7/8 Keep container tightly closed and dry.  
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
43 In case of fire, use metallic extinguishing powder. Never use water.  
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.

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

**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:** 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

EINECS: European Inventory of Existing Commercial Chemical Substances

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

HMIS: Hazardous Materials Identification System (USA)