

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 11/10/2008

Reviewed on 11/10/2008

## 1 Identification of substance:

### Product details:

**Product name:** Cadmium rod

**Stock number:** 39727

### 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#)

Cadmium (CAS# 7440-43-9): 100%

#### Identification number(s):

**EINECS Number:** 231-152-8

**Index number:** 048-002-00-0

## 3 Hazards identification

### Hazard description:



T+ Very toxic

N Dangerous for the environment

### Information pertaining to particular dangers for man and environment

R 45 May cause cancer.

R 26 Also very toxic by inhalation.

R 48/23/25 Also toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

R 62 Possible risk of impaired fertility

R 68 Possible risk of irreversible effects.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

R 63 Possible risk of harm to the unborn child

### Classification system

#### HMIS ratings (scale 0-4)

#### (Hazardous Materials Identification System)

HEALTH	1
FIRE	0
REACTIVITY	0

Health (acute effects) = 1

Flammability = 0

Reactivity = 0

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## 4 First aid measures

### General information

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

### 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:

Toxic 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.

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Ensure good ventilation at the workplace.

Open and handle container with care.

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

The product is not flammable

**Storage****Requirements to be met by storerooms and receptacles:**

No special requirements.

**Information about storage in one common storage facility:**

Do not store together with acids.

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:**

Cadmium and compounds, as Cd

mg/m<sup>3</sup>

ACGIH TLV 0.01; Suspected human carcinogen

Austria Carcinogen

Belgium TWA 0.05

Denmark TWA 0.01

Finland TWA 0.02; Carcinogen

France VME 0.05

Germany Carcinogen

Ireland TWA 0.025; Carcinogen

Japan OEL 0.05; Group 1 carcinogen

Korea TLV 0.01; Suspected human carcinogen

Netherlands MAC-TGG 0.02; 0.1-MAC-K

Norway TWA 0.05

Poland TWA 0.02; 0.05-STEL (fume)

Poland TWA 0.04; 0.2-STEL (dust)

Russia 0.01; 0.05-STEL

Sweden NGV 0.05 (total dust)

Sweden TWA 0.01 (resp. dust)

Switzerland MAK-W 0.05; Carcinogen

United Kingdom TWA 0.025

USA PEL 0.005

**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.

Store protective clothing separately.

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**Breathing equipment:**

Use suitable respirator when high concentrations are present.

Refer to 29CFR1910.1027 for regulations on respiratory protection required during exposure to cadmium and cadmium compounds.

**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**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Rod
<b>Color:</b>	Silver grey
<b>Odor:</b>	Odorless

**Change in condition**

<b>Melting point/Melting range:</b>	320.9°C (610°F)
<b>Boiling point/Boiling range:</b>	765°C (1409°F)
<b>Sublimation temperature / start:</b>	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:**

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

**Vapor pressure:** Not determined**Density at 20°C (68°F):** 8.65 g/cm<sup>3</sup>**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:**

Acids

Oxidizing agents

**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:** Toxic metal oxide fume

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## 11 Toxicological information

### Acute toxicity:

#### LD/LC50 values that are relevant for classification:

Oral	LD50	890 mg/kg (mouse) 2330 mg/kg (rat)
	LDLo	70 mg/kg (rabbit)
Inhalative	LC50/30M	25 mg/m <sup>3</sup> (rat)
	LCLo/20M	39 mg/m <sup>3</sup> /20 (human)

### Primary irritant effect:

**on the skin:** Powder: irritant effect

**on the eye:** Powder: irritant effect

**Sensitization:** No sensitizing effects known.

### Other information (about experimental toxicology):

Tumorigenic effects have been observed on tests with laboratory animals.

Reproductive effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with laboratory animals.

### Subacute to chronic toxicity:

Cadmium and cadmium compounds are highly toxic and experimental carcinogens. Exposure affects the respiratory tract, kidneys, and liver.

Ingestion may cause nausea, salivation, vomiting and diarrhea. Ingestion or inhalation of cadmium/cadmium compounds may be fatal.

### Subacute to chronic toxicity:

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

Kidney, Ureter, Bladder - proteinuria.

Kidney, Ureter, Bladder - other changes.

Cardiac - other changes.

Vascular - thrombosis distant from injection site.

Vascular - BP elevation not characterized in autonomic section.

Lungs, Thorax, or Respiration - respiratory depression.

Lungs, Thorax, or Respiration - tumors.

Blood - changes in serum composition.

Blood - lymphoma, including Hodgkin's disease.

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

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - transaminases.

Liver - other changes.

Nutritional and Gross Metabolic - changes in metals, not otherwise specified.

Musculoskeletal - tumors.

Reproductive - Tumorigenic effects - testicular tumors.

Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain).

Reproductive - Effects on Newborn - behavioral.

Reproductive - Effects on Embryo or Fetus - other effects to embryo.

Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue).

Reproductive - Fertility - pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea)

Reproductive - Specific Developmental Abnormalities - blood and lymphatic systems.

Reproductive - Paternal Effects - spermatogenesis.

Reproductive - Effects on Newborn - biochemical and metabolic.

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Reproductive - Specific Developmental Abnormalities - body wall.  
 Reproductive - Specific Developmental Abnormalities - urogenital system.  
 Reproductive - Specific Developmental Abnormalities - Central Nervous System.  
 Reproductive - Specific Developmental Abnormalities - eye/ear.  
 Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).  
 Reproductive - Effects on Embryo or Fetus - fetal death.  
 Reproductive - Effects on Newborn - viability index (e.g., # alive at day 4 per # born live).  
 Reproductive - Effects on Newborn - germ cell effects (in offspring)  
 Tumorigenic - carcinogenic by RTECS criteria.  
 Tumorigenic - equivocal tumorigenic agent by RTECS criteria.  
 Tumorigenic - tumors at site of application.  
 Tumorigenic - neoplastic by RTECS criteria.

**Additional toxicological information:**

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

EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies.

IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.

NTP-1: Known to be carcinogenic: sufficient evidence from human studies.

Carcinogen as defined by OSHA.

ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

**12 Ecological information:****Ecotoxicological effects:**

**Remark:** Very toxic for fish

**General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

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

Very toxic for aquatic organisms

**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.

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**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:**

T+ Very toxic

N Dangerous for the environment

**Risk phrases:**

45 May cause cancer.

26 Also very toxic by inhalation.

48/23/25 Also toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

62 Possible risk of impaired fertility

68 Possible risk of irreversible effects.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

63 Possible risk of harm to the unborn child

**Safety phrases:**

53 Avoid exposure - obtain special instructions before use.

45 In case of accident or if you feel unwell, seek medical advice immediately.

60 This material and its container must be disposed of as hazardous waste.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

**Special labeling of certain preparations:**

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

**National regulations**

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

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

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**Information about limitation of use:**

For use only by technically qualified individuals.

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

**Other regulations, limitations and prohibitive regulations**

Refer to 29CFR1910.1027 for regulations concerning cadmium and cadmium compounds.

**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:** Paul V. Connolly

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