

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/19/2007

Reviewed on 01/26/2007

1 Identification of substance:**Product details:****Product name:** Beryllium oxide**Stock number:** 35480**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#)**

Beryllium oxide (CAS# 1304-56-9): 100%

Identification number(s):**EINECS Number:** 215-133-1**EU Number:** 004-003-00-8**3 Hazards identification****Hazard description:**

T+ Very toxic

Information pertaining to particular dangers for man and environment

R 49 May cause cancer by inhalation.

R 25 Toxic if swallowed.

R 26 Very toxic by inhalation.

R 36/37/38 Irritating to eyes, respiratory system and skin.

R 43 May cause sensitization by skin contact.

R 48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.

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

HEALTH	3
FIRE	0
REACTIVITY	0

Health (acute effects) = 3

Flammability = 0

Reactivity = 0

4 First aid measures**General information**

Immediately remove any clothing soiled by the product.

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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

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

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.

Ensure good ventilation at the workplace.

Open and handle container with care.

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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:

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:

Beryllium and compounds, as Be

mg/m3

ACGIH TLV 0.002; 0.01-STEL; Confirmed human carcinogen

Austria Carcinogen

Belgium TWA 0.002; Carcinogen

Denmark TWA 0.001

Finland TWA 0.002; 0.006-STEL; Carcinogen

France VME 0.002; C2 Carcinogen

Germany Carcinogen

Hungary TWA 0.001; Carcinogen

Japan OEL 0.002; 2A Carcinogen

Korea TLV 0.002; 0.01-STEL; Confirmed human carcinogen

Netherlands MAC-TGG 0.002; Carcinogen

Norway TWA 0.001

Poland TWA 0.001; 0.003-STEL

Russia 0.001-STEL; Carcinogen

Sweden NGV 0.002; Carcinogen

Switzerland MAK-W 0.002; Carcinogen

United Kingdom TWA 0.002; Carcinogen

USA PEL 0.002

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.

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.

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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
Color:	White
Odor:	Odorless
Change in condition	
Melting point/Melting range:	2575°C (4667°F)
Boiling point/Boiling range:	ca. 39°C (ca. 102°F)
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 at 20°C (68°F):	3.01 g/cm ³
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:** Toxic metal oxide fume**11 Toxicological information****Acute toxicity:****Primary irritant effect:**

on the skin: Irritant to skin and mucous membranes.

on the eye: Irritating effect.

Sensitization: Sensitization possible through skin contact.**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.

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Subacute to chronic toxicity:

Acute exposure to beryllium may cause dermatitis, chronic skin ulcers, rhinitis, nasopharyngitis, epistaxis, bronchitis, pneumonitis possibly fatal, fever, rales, dyspnea and substernal pain. Chronic exposure causes a delayed form of lung disease which may be delayed for five years or more after exposure stops. Symptoms include coughing, shortness of breath, loss of appetite, weight loss and fatigue. Cyanosis is common with elevated pulse and respiratory rates. This disease may progress to death from cardiac or respiratory failure.

Subacute to chronic toxicity:

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

Tumorigenic - equivocal tumorigenic agent by RTECS criteria.

Lungs, Thorax, or Respiration - tumors.

Lungs, Thorax, or Respiration - chronic pulmonary edema.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - multiple enzyme effects.

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

Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).

Reproductive - Specific Developmental Abnormalities - other developmental abnormalities.

Musculoskeletal - tumors.

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-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.

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.

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14 Transport information**DOT regulations:**

Hazard class: 6.1
Identification number: UN1566
Packing group: II
Proper shipping name (technical name): BERYLLIUM 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: 1566
Packaging group: II
Description of goods: 1566 BERYLLIUM COMPOUND, N.O.S.
 (Beryllium oxide)

Maritime transport IMDG:

IMDG Class: 6.1
UN Number: 1566
Label: 6.1
Packaging group: II
EMS Number: F-A,S-A
Proper shipping name: BERYLLIUM COMPOUND, N.O.S.

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 6.1
UN/ID Number: 1566
Label: 6.1
Packaging group: II
Proper shipping name: BERYLLIUM COMPOUND, N.O.S.

15 Regulations**Product related hazard informations:**

Hazard symbols:
 T+ Very toxic

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Risk phrases:

- 49 May cause cancer by inhalation.
- 25 Toxic if swallowed.
- 26 Very toxic by inhalation.
- 36/37/38 Irritating to eyes, respiratory system and skin.
- 43 May cause sensitization by skin contact.
- 48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.

Safety phrases:

- 53 Avoid exposure - obtain special instructions before use.
- 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.

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

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.

This product contains beryllium 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: Paul V. Connolly