SAFETY DATA SHEET

MATERION

Version #: 04
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

Registration number 01-2119487134370000

Synonyms Beryllium Oxide * BeO * UOX * GCHF

1.1. Product identifier

Name of the substance Beryllium Oxide Powder

Identification number 004-003-00-8 (Index number)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Scientific research and development

Uses advised against Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Consumer uses: Private households (= general public = consumers)

1.3. Details of the supplier of the safety data sheet

Materion Brush Inc.
6070 Parkland Boulevard
Mayfield Heights, OH 44124
United States
ehs@materion.com
www.materion.com
+1.216.383.4019

Document number M02

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classificatior applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Acute toxicity, oral	Category 3	H301 - Toxic if swallowed.
Acute toxicity, inhalation	Category 2	H330 - Fatal if inhaled.
Skin corrosion/irritation	Category 2	H315 - Causes skin irritation.
Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Carcinogenicity (inhalation)	Category 1B	H350i - May cause cancer by inhalation.
Specific target organ toxicity - single exposure	Category 3 respiratory tract irritation	H335 - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Category 1 (Respiratory system)	H372 - Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: beryllium oxide

Hazard pictograms

Signal word Danger

Hazard statements

H301	Toxic if swallowed.
H350i	May cause cancer by inhalation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H372	Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.

Precautionary statements

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume.
P272	Contaminated work clothing must not be allowed out of the workplace.

Response

P302 + P350	If on skin: Wash with plenty of water.
P363	Wash contaminated clothing before reuse.
P304 + P340	If inhaled: Remove person to fresh air and keep comfortable for breathing.
P308 + P311	If exposed or concerned: Call a poison centre/doctor.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a poison centre/doctor.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information Restricted to professional users.
For further information, please contact the Product Stewardship Department at +1.216.383.4019.

2.3. Other hazards This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII. The substance is not included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
beryllium oxide	100	1304-56-9 215-133-1	01-211948713437-0000	004-003-00-8	#

Classification: Acute Tox. 3;H301;(ATE: 100 mg/kg bw), Acute Tox. 2;H330;(ATE: 0,05 mg/l), Skin Irrit. 2;H315, Eye Irrit. 2;H319, Skin Sens. 1;H317, Carc. 1B;H350i, STOT SE 3;H335, STOT RE 1;H372

List of abbreviations and symbols that may be used above

ATE: Acute toxicity estimate.
M: M-factor
vPvB: very persistent and very bioaccumulative substance.
PBT: persistent, bioaccumulative and toxic substance.
#: This substance has been assigned Union workplace exposure limit(s).
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information If exposed or concerned: get medical attention/advice. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

4.1. Description of first aid measures

Inhalation

If symptoms develop move victim to fresh air. For breathing difficulties, oxygen may be necessary. Breathing difficulty caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help.

Skin contact

Take off contaminated clothing and wash before reuse. Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be thoroughly cleansed. Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if symptoms persist.

Ingestion

If swallowed, seek medical advice immediately and show this container or label. Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

May cause allergic skin reaction. Prolonged exposure may cause chronic effects.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment of Chronic Beryllium Disease: There is no known treatment which will cure chronic beryllium disease. Prednisone or other corticosteroids are the most specific treatment currently available. They are directed at suppressing the immunological reaction and can be effective in diminishing signs and symptoms of chronic beryllium disease. In cases where steroid therapy has had only partial or minimal effectiveness, other immunosuppressive agents, such as cyclophosphamide, cyclosporine, or methotrexate, have been used. In view of the potential side effects of all the immunosuppressive medications, including steroids such as prednisone, they should be used only under the direct care of a physician. Other treatment, such as oxygen, inhaled steroids or bronchodilators, may be prescribed by some physicians and can be effective in selected cases. In general, treatment is reserved for cases with significant symptoms and/or significant loss of lung function. The decision about when and with what medication to treat is a judgment situation for individual physicians.

In their 2014 official statement on the Diagnosis and Management of Beryllium Sensitivity and Chronic Beryllium Disease, the American Thoracic Society states that "it seems prudent for workers with BeS to avoid all future occupational exposure to beryllium."

The effects of continued low exposure to beryllium are unknown for individuals who are sensitizec to beryllium or who have a diagnosis of chronic beryllium disease. It is generally recommended that persons who are sensitized to beryllium or who have CBD terminate their occupational exposure to beryllium.

SECTION 5: Firefighting measures

General fire hazards

No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product is non-combustible.

Unsuitable extinguishing media

Do not use water to extinguish fires around operations involving molten metal due to the potential for steam explosions.

5.2. Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus.

Special firefighting procedures

Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. Water runoff can cause environmental damage.

Specific methods

Pressure-demand self-contained breathing apparatus must be worn by firefighters or any other persons potentially exposed to the particulate released during or after a fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Do not breathe dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not touch or walk through spilled material. Wear appropriate personal protective equipment.

For emergency responders	Keep unnecessary personnel away. Ensure adequate ventilation. Do not breathe dust. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.
6.2. Environmental precautions	In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
6.3. Methods and material for containment and cleaning up	Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Minimise dust generation and accumulation. Collect dust using a vacuum cleaner equipped with HEPA filter. Clean up in accordance with all applicable regulations. Stop the flow of material, if this is without risk. Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water. Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers.
6.4. Reference to other sections	For personal protection, see section 8 of the SDS. For waste disposal, see section 13. For personal protection, see section 8 of the PIS. For waste disposal, see section 13 of the PIS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimise dust generation and accumulation. Do not breathe dust/fume. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. Do not breathe dust. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash thoroughly after handling. Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Keep locked-up. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended ANNEX 1, PART 1 Categories of dangerous substances Hazard categories in accordance with Regulation (EC) No 1272/2008 - E2 Hazardous to the Aquatic Environment Chronic (Lower-tier requirements = 200 tonnes; Upper-tier requirements = 500 tonnes) Avoid contact with acids and alkalies. Avoid contact with oxidising agents.
7.3. Specific end use(s)	Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001, as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	MAK	0,00002 mg/m3	Inhalable fraction.
	STEL	0,0002 mg/m3	Inhalable fraction.

Belgium. OEL. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1 - Chemical agents, as amended

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	STEL	0,01 mg/m3
	TWA	0,00005 mg/m3

Bulgaria. OEL values of carcinogens and mutagens at work (Reg. 10/2003 on prot. from carcinogens and mutagens at work, Ann. 1), as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Croatia. OELs (GVI). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and Biological Limit Values, Annex I (NN 91/2018), as amended

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	MAC	0,002 mg/m3

Czech Republic. Occupational exposure limit values of chemicals at work (Decree on protection of health at work, 361/2007, Annex 2, Part A & Annex 3, Part A, as amended)

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	Ceiling	0,002 mg/m3	Aerosol, inhalable.
		0,002 mg/m3	
	TWA	0,0006 mg/m3	Aerosol, inhalable.
		0,0002 mg/m3	

Denmark. Work Environment Authority. Exposure Limits for Substances & Materials, Annex 2

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	TLV	0,00002 mg/m3

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Finland. HTP-arvot, App 3., Binding Limit Values, Social Affairs and Ministry of Health

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	STEL	0,0004 mg/m3
	TWA	0,0001 mg/m3

France. OELs. Occupational Exposure Limits as Prescribed by Art. R.4412-149 of Labor Code, as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	VME	0,0002 mg/m3	Inhalable fraction.

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	VME	0,0002 mg/m3	Inhalable fraction.

Regulatory status: Regulatory binding (VRC)

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	AGW	0,00014 mg/m3	Inhalable fraction.
		0,00006 mg/m3	Respirable fraction.

Hungary. OELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 1&2, as amended

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3

Iceland. OELs. Regulation 390/2009 on Pollution Limits and Measures to Reduce Pollution at the Workplace, as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Italy. OELs (Legislative Decree n.81, 9 April 2008), as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,00005 mg/m3	Inhalable fraction.

Latvia. OELs. Occupational Exposure Limits of Chemical Substances at Workplace (Reg. No. 325/ 2007, L.V. 80, Annex 1), as amended

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3

Netherlands. OELs per Annex XIII of Working Conditions Regulation (Staatscourant no. 252, 29 December 2006), as amended

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3

Norway. Regulation No. 1358 on Measures and Limit Values for Physical and Chemical Factors in Work Environment and Infection Groups for Biological Factors, as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	STEL	0,0002 mg/m3	Inhalable
	TLV	0,00002 mg/m3	Inhalable

Poland. Maximum permissible concentrations and intensities of harmful factors in the work environment (Dz.U.Poz. 1286/2018, Annex 1)

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796-2014)

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,00005 mg/m3	Inhalable fraction.

Romania. OELs. Limit Values of Chemical Agents at Workplace (Regulation 1.218/2006, M.O 845, Annex 1, 3&4, as amended)

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Slovakia. OELs for carcinogens and mutagens. Regulation No. 356/2006 on carcinogenic and mutagenic substances, as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Spain. OELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 1-Valores Límites Ambientales (VLAs)

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3

Sweden. OELs (Annex 1). Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2018:1), as amended

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle MAK-Werte

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,002 mg/m3	Inhalable fraction.

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

Material	Type	Value
beryllium oxide (CAS 1304-56-9)	TWA	0,002 mg/m3

EU. OELs, Directive 2004/37/EC on carcinogen and mutagens from Annex III, Part A

Material	Type	Value	Form
beryllium oxide (CAS 1304-56-9)	TWA	0,0002 mg/m3	Inhalable fraction.

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures VENTILATION: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Whenever possible, the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne particulate. Where utilized, exhaust inlets to the ventilation system must be positioned as close as possible to the source of airborne generation. Avoid disruption of the airflow in the area of a local exhaust inlet by equipment such as a man-cooling fan. Check ventilation equipment regularly to ensure it is functioning properly. Provide training on the use and operation of ventilation to all users. Use qualified professionals to design and install ventilation systems.

WET METHODS: Machining operations are usually performed under a liquid lubricant/coolant flood which assists in reducing airborne particulate. However, the cycling through of machine coolant containing finely divided particulate in suspension can result in the concentration building to a point where the particulate may become airborne during use. Certain processes such as sanding and grinding may require complete hooded containment and local exhaust ventilation. Prevent coolant from splashing onto floor areas, external structures or operators' clothing. Utilize a coolant filtering system to remove particulate from the coolant.

WORK PRACTICES: Develop work practices and procedures that prevent particulate from coming in contact with worker skin, hair, or personal clothing. If work practices and/or procedures are ineffective in controlling airborne exposure or visual particulate from deposition on skin, hair, or clothing, provide appropriate cleaning/washing facilities. Procedures should be written that clearly communicate the facility's requirements for protective clothing and personal hygiene. These clothing and personal hygiene requirements help keep particulate from being spread to non-production areas or from being taken home by the worker. Never use compressed air to clean work clothing or other surfaces.

Fabrication processes may leave a residue of particulate on the surface of parts, products or equipment that could result in employee exposure during subsequent material handling activities. As necessary, clean loose particulate from parts between processing steps. As a standard hygiene practice, wash hands before eating or smoking.

HOUSEKEEPING: Use vacuum and wet cleaning methods for particulate removal from surfaces. Be certain to de-energize electrical systems, as necessary, before beginning wet cleaning. Use vacuum cleaners with high efficiency particulate air (HEPA). Do not use compressed air, brooms, or conventional vacuum cleaners to remove particulate from surfaces as this activity can result in elevated exposures to airborne particulate. Follow the manufacturer's instructions when performing maintenance on HEPA filtered vacuums used to clean hazardous materials.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

Exposure guidelines

Belgium OELs: Skin designation

beryllium oxide (CAS 1304-56-9) Can be absorbed through the skin.

Croatia ELVs: Skin designation

beryllium oxide (CAS 1304-56-9) Can be absorbed through the skin.

Finland Exposure Limit Values: Skin designation

beryllium oxide (CAS 1304-56-9) Can be absorbed through the skin.

Hungary OELs: Skin designation

beryllium oxide (CAS 1304-56-9) Can be absorbed through the skin.

Iceland OELs: Skin designation

beryllium oxide (CAS 1304-56-9) Can be absorbed through the skin.

Latvia OELs: Skin designation

beryllium oxide (CAS 1304-56-9) Can be absorbed through the skin.

Romania OELs: Skin designation

beryllium oxide (CAS 1304-56-9)	Can be absorbed through the skin.

8.2. Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas.
Whenever possible, the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne particulate. Where utilized, exhaust inlets to the ventilation system must be positioned as close as possible to the source of airborne generation. Avoid disruption of the airflow in the area of a local exhaust inlet by equipment such as a man-cooling fan. Check ventilation equipment regularly to ensure it is functioning properly. Provide training on the use and operation of ventilation to all users. Use qualified professionals to design and install ventilation systems.

Individual protection measures, such as personal protective equipment

General information

Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection

Wear approved safety glasses, goggles, face shield and/or welder's helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume.

Skin protection

- Hand protection

Wear gloves to prevent contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling.

- Other

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Protective overgarments or work clothing must be worn by persons who may become contaminated with particulate during activities. Skin contact with this material may cause, in some sensitive individuals, an allergic dermal response. Particulate that becomes lodged under the skin has the potential to induce sensitization and skin lesions.

Respiratory protection

When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.

Thermal hazards

Not applicable.

Hygiene measures

Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

Environmental exposure controls

Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Form	Powder.
Colour	Clear. Off-white.
Odour	Not applicable.
Odour threshold	Not applicable.
Melting point/freezing point	2530 °C (4586 °F)
Boiling point or initial boiling point and boiling range	3787 °C (6848,6 °F)
Flammability	Not applicable.

Upper/lower flammability or explosive limits

Explosive limit - lower (%)	Not applicable.
Explosive limit – upper (%)	Not applicable.
Flash point	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.

pH	Not applicable.
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	Not applicable.
Solubility (other)	Not applicable.
Partition coefficient (n-octanol/water) (log value)	Not applicable.
Vapour pressure	<0,0000001 kPa (25 °C (77 °F))
Density and/or relative density	
Density	3,01 g/cm3 3,01 g/cm3 estimated
Relative density	Not applicable.
Vapour density	Not applicable.
Particle characteristics	Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes	No relevant additional information available.

9.2.2. Other safety characteristics

Evaporation rate	Not applicable.
Molecular formula	Be-O
Molecular weight	25,01 g/mol
Specific gravity	3,01 estimated 3,01 estimated
Viscosity	Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	Hazardous polymerisation does not occur.
10.4. Conditions to avoid	Contact with incompatible materials. Avoid dust formation. Contact with acids. Contact with alkalis.
10.5. Incompatible materials	Strong acids, alkalies and oxidizing agents.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Fatal if inhaled. May cause cancer by inhalation. May cause damage to organs (respiratory system) through prolonged or repeated exposure.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Ingestion	Toxic if swallowed.
Symptoms	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Respiratory disorder.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	Fatal if inhaled. Toxic if swallowed.
Skin corrosion/irritation	Causes skin irritation. May cause allergic skin reaction.
Serious eye damage/eye irritation	Harmful in contact with eyes. Causes serious eye irritation.
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible. May cause damage to organs (respiratory system) through prolonged or repeated exposure.
Skin sensitisation	May cause an allergic skin reaction.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.

Carcinogenicity Cancer hazard.

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

beryllium oxide (CAS 1304-56-9)

IARC Monographs. Overall Evaluation of Carcinogenicity

beryllium oxide (CAS 1304-56-9) 1 Carcinogenic to humans.

Slovenia. CMR. Protection of workers from exposure to carcinogen and mutagen agents (ULRS 101/2005, as amended)

beryllium oxide (CAS 1304-56-9) Carcinogenic, Category 1B.

Reproductive toxicity Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure May cause damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Aspiration hazard Due to partial or complete lack of data the classification is not possible.

Mixture versus substance information No information available.

11.2. Information on other hazards

Endocrine disrupting properties This substance does not have endocrine disrupting properties with respect to human health, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.

Other information Symptoms may be delayed.

SECTION 12: Ecological information

12.1. Toxicity Due to partial or complete lack of data the classification for hazardous to the aquatic environment, acute hazard, is not possible.

12.2. Persistence and degradability No data is available on the degradability of this product.

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

12.6. Endocrine disrupting properties This substance does not have endocrine disrupting properties with respect to the environment, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.

12.7. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

12.8. Additional information

Estonia Dangerous substances in soil Data

beryllium oxide (CAS 1304-56-9) Beryllium (Be) 10 mg/kg
Beryllium (Be) 2 mg/kg
Beryllium (Be) 50 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

EU waste code The Waste code should be assigned in discussion between the user, the producer and the waste disposal company. Waste codes should be assigned by the user based on the application for which the product was used.

Disposal methods/information	Material should be recycled if possible. Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN1566
14.2. UN proper shipping name	BERYLLIUM COMPOUND, N.O.S.
14.3. Transport hazard class(es)	
Class	6.1
Subsidiary risk	6.1
Label(s)	6.1
Hazard No. (ADR)	60
Tunnel restriction code	D/E
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1566
14.2. UN proper shipping name	BERYLLIUM COMPOUND, N.O.S.
14.3. Transport hazard class(es)	
Class	6.1
Subsidiary risk	6.1
Label(s)	6.1
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1566
14.2. UN proper shipping name	Beryllium compound, n.o.s.
14.3. Transport hazard class(es)	
Class	6.1
Subsidiary risk	6.1
Label(s)	6.1
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

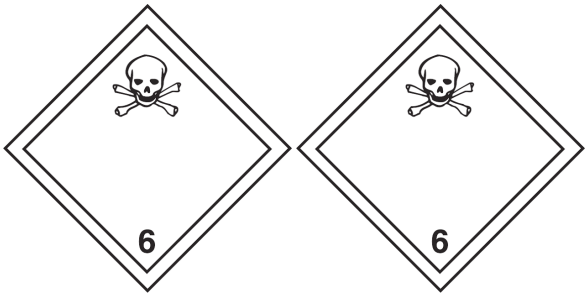
IATA

14.1. UN number	UN1566
14.2. UN proper shipping name	Beryllium compound, n.o.s.
14.3. Transport hazard class(es)	
Class	6.1
Subsidiary risk	-
14.4. Packing group	II
14.5. Environmental hazards	No.
ERG Code	6L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

14.1. UN number	UN1566
14.2. UN proper shipping name	BERYLLIUM COMPOUND, N.O.S.
14.3. Transport hazard class(es)	
Class	6.1
Subsidiary risk	-
14.4. Packing group	II
14.5. Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-A
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN; ADR; RID



IATA; IMDG

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended - Conditions of restriction given for the associated entry number should be considered

beryllium oxide (CAS 1304-56-9)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

beryllium oxide (CAS 1304-56-9)

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

ANNEX 1, PART 1 Categories of dangerous substances
Hazard categories in accordance with Regulation (EC) No 1272/2008
- E2 Hazardous to the Aquatic Environment Chronic

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws
The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work.
According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended Use of this product by young persons under the age of 18 is not allowed in accordance with the Management of Health and Safety at Work Regulations 1999 [SI 1999/3242], as amended. Follow national regulation on the protection of workers from the risks of exposure to carcinogens and mutagens at work, in accordance with Directive 2004/37/EC, as amended.

France regulations

France INRS Table of Occupational Diseases

beryllium oxide (CAS 1304-56-9)	Maladies professionnelles dues au béryllium et à ses composés 33

15.2. Chemical safety assessment

Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).
CAS: Chemical Abstract Service.
CEN: European Committee for Standardization.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
MAC: Maximum Allowed Concentration.
MARPOL: International Convention for the Prevention of Pollution from Ships.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TLV: Threshold Limit Value.
TWA: Time Weighted Average.
VLE: Exposure Limit Value.
VME: Exposure Average Value.
vPvB: Very persistent and very bioaccumulative.

References

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculatior methods and test data, if available. Not applicable.

Full text of any statements, which are not written out in full under sections 2 to 15

H301 Toxic if swallowed.

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H350i May cause cancer by inhalation.
H372 Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Revision information This document has undergone significant changes and should be reviewed in its entirety.

Training information Follow training instructions when handling this material.

Further information Transportation Emergency
Call Chemtrec at:
US: 800.424.9300
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059
South Korea Toll-free Number – 080-880-0468

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