



MATERIAL SAFETY DATA SHEET

MATERION

1. Product and company identification

Product name	Beryllium Hydroxide
Manufacturer/Supplier	Materion Brush Inc.
Address	6070 Parkland Boulevard Mayfield Heights OH 44124 United States
Telephone	1.216.383.4019
E-mail	ehs@materion.com
Contact person	Theodore Knudson
Emergency telephone number	1.216.383.4019
MSDS No.	D03

2. Hazards identification

Hazard classification		
Physical hazards	Not classified.	
Health hazards	Sensitization, respiratory	Classified
	Sensitization, skin	Classified
	Carcinogenicity	Category 1
	Specific target organ toxicity, repeated exposure	Category 1 (Respiratory system)
Environmental hazards	Not classified.	

Label elements



Signal word Danger

Hazard statement

H350i	May cause cancer by inhalation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H372	Causes damage to organs (respiratory system) through prolonged or repeated exposure.

Precautionary statement

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.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory protection.

Response

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

Storage

P405 Store locked up.

Disposal

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

Other hazards

None known.

Supplemental information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

3. Composition/information on ingredients**Substance or mixture**

Substance

Chemical property**CAS Number****Concentration (%)**

Beryllium Hydroxide

13327-32-7

100

4. First aid measures**First aid measures for different exposure routes****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.

Most important symptoms and effects

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

Notes to physician

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. These latter agents remain investigational. Further, 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. In general, these medications should be reserved for cases with significant symptoms and/or significant loss of lung function. Other symptomatic treatment, such as oxygen, inhaled steroids or bronchodilators, may be prescribed by some physicians and can be effective in selected cases.

The decision about when and with what medication to treat is a judgment situation for individual physicians. For the most part, treatment is reserved for those persons with symptoms and measurable loss of lung function. The value of starting oral steroid treatment, before signs or symptoms are evident, remains a medically unresolved issue.

The effects of continued low exposure to beryllium are unknown for individuals who are sensitized 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.

General advice

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

5. Fire-fighting measures**General fire hazards**

No unusual fire or explosion hazards noted.

Suitable extinguishing mediaWater fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards during fire fighting	During fire, gases hazardous to health may be formed.
Special fire fighting procedures	Use water spray to cool unopened containers.
Personal protective equipment for fire-fighting	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.
Environmental precautions	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. Inform appropriate managerial or supervisory personnel of all environmental releases.
Clean-up methods and materials and containment measures	Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Stop the flow of material, if this is without risk. Absorb in vermiculite, dry sand or earth and place into containers. Collect dust using a vacuum cleaner equipped with HEPA filter. Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Minimize dust generation and accumulation. Prevent product from entering drains. Following product recovery, flush area with water. Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the MSDS.

7. Handling and storage

Handling	
Precautions	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Do not breathe dust. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. When using, do not eat, drink or smoke. Avoid release to the environment.
Safe handling advice	Avoid prolonged exposure. Should be handled in closed systems, if possible. Wash hands thoroughly after handling. Observe good industrial hygiene practices. Use personal protection recommended in Section 8 of the MSDS.
Technical measures	No specific recommendations.
Local and general ventilation	Use only outdoors or in a well-ventilated area.
Storage	
Technical measures	No specific recommendations.
Suitable storage conditions	Store locked up. Keep container tightly closed. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS).
Incompatible materials	For further information, please refer to section 10 of the MSDS.
Safe packaging materials	Store in original tightly closed container.

8. Exposure controls/personal protection

Occupational exposure limits

Russian Federation. Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended.

Material	Type	Value	Form
Beryllium Hydroxide (CAS 13327-32-7)	Ceiling	0,003 mg/m ³	Aerosol.

Russian Federation. Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended.

Material	Type	Value	Form
	TWA	0,001 mg/m ³	Aerosol.
Engineering measures	<p data-bbox="480 315 1522 465">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.</p> <p data-bbox="480 506 1522 723">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.</p> <p data-bbox="480 763 1538 1010">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.</p> <p data-bbox="480 1050 1517 1171">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.</p> <p data-bbox="480 1211 1522 1395">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.</p>		
Personal protective equipment			
Respiratory protection	<p data-bbox="480 1447 1533 1693">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.</p>		
Hand protection	<p data-bbox="480 1711 1493 1767">Wear gloves to prevent contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling.</p>		
Eye protection	<p data-bbox="480 1785 1530 1841">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.</p>		
Skin and body protection	<p data-bbox="480 1859 1538 2036">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.</p>		
Hygiene measures	<p data-bbox="480 2054 1235 2076">Handle in accordance with good industrial hygiene and safety practice.</p>		

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Wet cake
Color	White.
Odor	Not applicable.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Combustion temperature	Not available.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Flammability (solid, gas)	Flammable solid.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Density	1,92 g/cm ³ estimated
Viscosity	Not applicable.
Solubility(ies)	
Solubility (water)	Not applicable.
Solubility (other)	Soluble in acids and strong bases.

Partition coefficient (n-octanol/water)	Not available.
Evaporation rate	Not applicable.
Relative density	Not applicable.
Molecular weight	43,03 g/mol
Molecular formula	Be.H ₂ -O ₂

Other data

Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	1,92

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid dust formation. Contact with acids. Contact with alkalis.
Incompatible materials	Strong acids, alkalies and oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction.
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Symptoms	Respiratory disorder.
Skin corrosion/irritation	May cause allergic skin reaction.
Serious eye damage/eye irritation	Harmful in contact with eyes.
Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization	May cause an allergic skin reaction.
Russian Federation. Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended.	
	Beryllium Hydroxide (CAS 13327-32-7) Allergenic.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	Cancer hazard.
Hygiene Norm GN 2.2.5.2439-09. Maximum allowable concentration (MAC) of harmful substances in the air of working zones. Executive No.76 of 30 april 2006. Including Appendixes No. 1, 2, 3 and 4.	
	Beryllium Hydroxide (CAS 13327-32-7) Carcinogen.
IARC Monographs. Overall Evaluation of Carcinogenicity	
	Beryllium Hydroxide (CAS 13327-32-7) 1 Carcinogenic to humans.
Russian Federation. Sanitary-Epidemiological Rules,1.2.2353-08, Chemical substances, mixtures and products which are carcinogenic factors, 21 April 2008	
	Beryllium Hydroxide (CAS 13327-32-7) Inhalation
Toxic to reproduction	Not classified.
Specific target organ toxicity - single exposure	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Specific target organ toxicity - repeated exposure	May cause damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.
Aspiration hazard	Due to lack of data the classification is not possible.
Chronic effects	May cause damage to organs through prolonged or repeated exposure.
Other information	Symptoms may be delayed.

12. Ecological information

Ecotoxicity	Not available.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation	Not available.
Mobility in soil	Not available.
Other hazardous effects	Not available.

13. Disposal considerations

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	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
Local disposal regulations	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

ADR

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

IATA

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

IMDG

UN number	UN1566
UN proper shipping name	BERYLLIUM COMPOUND, N.O.S.
Transport hazard class(es)	
Class	6.1(PGI, II)
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-A
Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

ADR; IATA; IMDG



15. Regulatory information

Applicable regulations

Russian Federation. Sanitary-Epidemiological Rules, 1.2.2353-08, Chemical substances, mixtures and products which are carcinogenic factors, 21 April 2008

Beryllium Hydroxide (CAS 13327-32-7)

Inhalation

Ministry of Health and Social Development of Russian Federation. Order № 83 of 16.08.2004. List of hazardous and/or dangerous production factors and work under which preliminary and periodic medical examinations are conducted, methods of the examinations.

Beryllium Hydroxide (CAS 13327-32-7) 1,2,6.

Russian Federation. Hygiene Norm GN 2.2.5.1313-03. Executive No. 76 of 30 April 2003. Maximum allowable concentration (MAC) of harmful substances in the air of working zones, as amended.

Beryllium Hydroxide (CAS 13327-32-7) Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

References

GOST 30333-2007 Chemical production safety passport. General requirements.
 GOST 31340-2013 Labeling of chemicals. General requirements.
 GOST 32419-2013 Classification of chemical products. General requirements.
 GOST 32424-2013 Classification of chemicals for environmental hazards. General principles.
 GOST 12.1.007-76 Occupational safety standard system. Noxious substances. Classification and general safety requirements.
 GOST 12.1.044-89. Occupational safety standards system. Fire and explosion hazard of substances and materials. Nomenclature of substances and materials. Nomenclature of indices and methods of their determination.
 GOST 19433-88. Dangerous goods. Classification and marking.
 GOST 12.1.004-91. Occupational safety standards system. Fire safety. General requirements.

Disclaimer

This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

Issue date

11-11-2015