CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

MATERION

Product name: Beryllium Oxide Ceramic Product

Issue date: 03-23-2017
Revision date: 01-03-2020
Version #: 03
SDS No: C10

SECTION 1 Chemical product and company identification

Chinese name of chemical	**Not available.**
English name of chemical	**Beryllium Oxide Ceramic Product**
Synonyms	Beryllium Oxide, Beryllia, Thermalox® 995, BW 1000®, BW3250®, Thermalox® CR
Manufacturer/Supplier	Materion Brush Inc.
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States
Contact person	Theodore Knudson
Telephone	+1.216.383.4019
e-mail	ehs@materion.com
Emergency telephone number	+1.216.383.4019
Issue date	03-23-2017
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SECTION 2 Hazards identification

Emergency overview

Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Hazard categories

Physical hazards	Not classified.	
Health hazards	Carcinogenicity	Category 1
	Specific target organ toxicity, repeated exposure	Category 1 (Respiratory system)
Environmental hazards	Not classified.	

Label elements

Pictograms

Signal word

Danger

Hazard statement

H350	May cause cancer.
H372	Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

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.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.

P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
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/doctor.

Storage

P405	Store locked up.

Disposal

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

Physical and chemical hazards The product is stable and non-reactive under normal conditions of use, storage and transport. No unusual fire or explosion hazards noted.

Health hazards Not available.

Environmental hazards The product is not expected to be hazardous to the environment.

Supplemental information Exposure to the elements listed in Section 3 by inhalation, ingestion, and skin contact can occur when melting, casting, dross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulate.

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

SECTION 3 Composition/information on ingredients

Substance/mixture Substance

Chemical name	Concentration (%)	CAS Number
Beryllium Oxide	100	1304-56-9

SECTION 4 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.

Most important symptoms and health effects The beryllium oxide in the product is not known to cause acute health effects. Inhaling particulate containing beryllium oxide can cause a serious, chronic lung disease called Chronic Beryllium Disease (CBD) in some individuals. Inhaling particulate containing beryllium oxide can cause a serious, chronic lung disease called Chronic Beryllium Disease (CBD) in some individuals.

Personal protection for first-aid responders If exposed or concerned: get medical attention/advice. Get medical attention if symptoms occur. Wash contaminated clothing before reuse. As supplied, there is no immediate medical risk with beryllium oxide ceramic products in article form. First aid measures provided are related to particulate containing beryllium oxide.

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. 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.”

SECTION 5 Fire-fighting measures

Extinguishing media

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

Extinguishing media to avoid

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

Specific hazards

None.

Special fire fighting procedures

Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage.

Protection of fire-fighters

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

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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

In solid form this material poses no special clean-up problems. Wear appropriate protective equipment and clothing during clean-up.

For emergency responders

Not available.

Environmental precautions

Avoid release to the environment. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Clean-up methods and materials and containment measures

Clean up in accordance with all applicable regulations.

Prevention of secondary hazards

Not available.

SECTION 7 Handling and storage

Handling

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/fume. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. Wash thoroughly after handling. When using, do not eat, drink or smoke. Contaminated work clothing must not be allowed out of the workplace.

Storage

Keep locked-up. Avoid contact with acids and alkalies. Avoid contact with oxidizing agents.

SECTION 8 Exposure controls/personal protection

Exposure limits

China OELs. Occupational Exposure Limits for Hazardous Agents in the Workplace, Chemical Hazardous Agents (GBZ 2.1-2007)

Material	Type	Value
Beryllium Oxide Ceramic Product	PC-STEL	0.001 mg/m3
	PC-TWA	0.0005 mg/m3

Components	Type	Value
Beryllium Oxide (CAS 1304-56-9)	PC-STEL	0.001 mg/m3
	PC-TWA	0.0005 mg/m3

Biological limit values

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

Monitoring methods

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.

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.

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.

Engineering measures

Follow standard monitoring procedures.

Personal protective equipment

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.
Hand protection	Wear gloves to prevent contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling.
Eye 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 and body protection	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.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 Physical and chemical properties

Appearance

Physical state	Solid.
Form	Various shapes.
Color	White.
Odor	Not applicable.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	4586 °F (2530 °C)
Boiling point, initial boiling point, and boiling range	7052 °F (3900 °C)
Flash point	Not applicable.
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
Vapor pressure	6.67 kPa at 25°C estimated
Vapor density	Not applicable.
Relative density	Not applicable.
Density	3.01 g/cm3 estimated

Solubility(ies)

Solubility (water)	Not applicable.
Solubility (other)	Not applicable.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.

Other data

Explosivity	Not applicable.

Molecular formula	Be-O
Molecular weight	25.01 g/mol
Specific gravity	1.85 estimated
Viscosity	Not applicable.

SECTION 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	No dangerous reaction known under conditions of normal use. 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.

SECTION 11 Toxicological information

Acute toxicity	Based on available data, the classification criteria are not met.
Routes of exposure	Inhalation.
Symptoms	Respiratory disorder.
Skin corrosion/irritation	Not likely, due to the form of the product.
Serious eye damage/eye irritation	Not likely, due to the form of the product.
Respiratory or skin sensitization	
Respiratory sensitization	May cause damage to organs (respiratory system) through prolonged or repeated exposure.
Skin sensitizer	Not a skin sensitizer.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	Cancer hazard.

China OELs for hazardous agents in the workplace: Carcinogen Category

BERYLLIUM AND COMPOUNDS, AS BE (CAS 1304-56-9)	Carcinogenic to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Beryllium Oxide (CAS 1304-56-9)	1 Carcinogenic to humans.

Toxic to reproduction	Not classified.
Specific target organ toxicity following single exposure	Not classified.
Specific target organ toxicity following 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.

SECTION 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.

SECTION 13 Disposal considerations

Residual waste	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.

Local disposal regulations 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.

SECTION 14 Transport information

CNDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

SECTION 15 Regulatory information

Law of the People's Republic of China on Prevention and Control of Occupational Diseases

Classification of occupational disease hazards

Beryllium Oxide (CAS 1304-56-9)

Regulations on the Control over Safety of Dangerous Chemicals

Catalog of Hazardous Chemicals

beryllium oxide (CAS 1304-56-9)

Regulations on Labor Protection in Workplaces Where Toxic Substances Are Used

Directory of Highly Toxic Substances

Beryllium Oxide (CAS 1304-56-9)

Provision on the Environmental Administration of New Chemical Substances

China Inventory of Existing Chemical Substances

Country(s) or region	Inventory name	On inventory (yes/no)*
China	Inventory of Existing Chemical Substances in China (IECSC)	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).

Other regulations This safety data sheet conforms to the following laws, regulations and standards:
Regulations on the Control over Safety of Dangerous Chemicals
Regulations on Labor Protection in Workplaces Where Toxic Products Are Used
Measures for the Safe Use of Chemicals in Workplaces
Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/T 16483-2008)
General Rules for Preparation of Precautionary Labels for Chemicals (GB15258-2009)
Packing Symbol of Dangerous Goods(GB190-2009)
Packing - Pictorial Marking for Handling of Goods (GB/T191-2009)

China. National Catalogue of Hazardous Wastes

Beryllium Oxide (CAS 1304-56-9)

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

SECTION 16 Other information

Further information

Transportation Emergency
Call Chemtrec at:
Domestic: 800.424.9300
International: 703.527.3887

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Other information

Date change.

Revision information

SECTION 16 Other information: Other information
GHS: Classification