



SAFETY DATA SHEET

MATERION

1. Identification

Name of the substance or mixture (trade name)	Beryllium Solid
Synonyms	Metallic Beryllium, Be, Glucinium * Metallic Beryllium, Glucinium, I220H, IF-1®, S200F, S200FH, S200FC, SR200, S65, PS-200®, PF10, PF-60®, O-30, O-30H, I-70, I-70H, UHP Beryllium, .9999 Beryllium, B-26D, Be, IS-50M®
SDS No.	M10
Major recommended uses for the substance or mixture	Not applicable.
Specific restrictions for use of the substance or mixture	Not available.
Manufacturer/Importer/Distributor information	
Manufacturer	
Company name	Materion Brush Inc.
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States
Telephone	+1.216.383.4019
Website	www.materion.com
E-mail	ehs@materion.com
Emergency telephone number	+1.216.383.4019

2. Hazards identification

Classification of the substance or mixture

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

GHS labeling elements, including precautionary statements

Hazard symbol(s)



Signal word

Danger

Hazard statement(s)

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

Precautionary statement(s)

Prevention

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. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response

If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a poison center/doctor. Wash contaminated clothing before reuse.

Storage

Store locked up.

Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards which do not result in classification	None known.
Supplemental information	For further information, please contact the Product Stewardship Department at +1.216.383.4019.

3. Composition/information on ingredients

Substance

Common chemical name or technical name	CAS number	Concentration or concentration range
Beryllium	7440-41-7	100
Metallic Beryllium, Be, Glucinium		
Metallic Beryllium, Glucinium, I220H, IF-1®, S200F, S200FH, S200FC, SR200, S65, PS-200®, PF10, PF-60®, O-30, O-30H, I-70, I-70H, UHP Beryllium, .9999 Beryllium, B-26D, Be, IS-50M®		

4. First-aid measures

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/effects, acute and delayed	May cause allergic skin reaction. May cause allergic respiratory reaction. Prolonged exposure may cause chronic effects.
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 products in article form. First aid measures provided are related to particulate containing beryllium.

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."

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.

5. Fire-fighting measures

Means of fire extinguishing

Suitable extinguishing media

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

Unsuitable extinguishing media

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

Specific hazards arising from the chemical

Not available.

Special fire fighting procedures

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

Protective measures taken by firefighting crews

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.

6. Control measures for spills and leaks

Personal precautions, protective equipment and emergency procedures

To be taken by those who are not involved in rendering emergency services

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

To be taken by those who are involved in rendering emergency services

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.

Methods and materials for containment and cleaning up

Clean up in accordance with all applicable regulations.

Other issues relating to spills and releases

Clean up in accordance with all applicable regulations.

7. Handling and storage

Precautions for safe 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.

Conditions for safe storage, including any incompatibilities

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

8. Exposure controls/personal protection

Control parameters

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.

Occupational exposure limits

Brazil. OELs (Ordinance No. 3214, 6/8/78, NR-15, Annex 11 (amended through ACGIH))

Material	Type	Value	Form
Beryllium (CAS 7440-41-7)	TWA	0.00005 mg/m3	Inhalable fraction.

Biological limit values

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

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.
Personal protective measures	
Eyes and 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	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	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Various shapes.
Color	Grey
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable
Melting point/freezing point	2348.6 °F (1287 °C)
Initial boiling point and boiling temperature range	5378 °F (2970 °C)
Flash point	Not applicable
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not applicable.
Explosive limit - upper (%)	Not applicable.
Vapor pressure	6.67 hPa estimated
Vapor density	Not applicable
Relative density	Not applicable.
Solubility(ies)	
Solubility (water)	Not applicable.
Partition coefficient (n-octanol/water)	Not available.

Auto-ignition temperature Not applicable.

Decomposition temperature Not applicable.

Viscosity Not applicable.

Other physical and chemical parameters

Density 1.85 g/cm³ 2 estimated

Molecular formula Be

Molecular weight 9.01 g/mol

Specific gravity 1.85 estimated

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical 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.

11. Toxicological information

Information on likely routes of exposure

Inhalation May cause damage to organs (respiratory system) through prolonged or repeated exposure.

Skin contact Not likely, due to the form of the product.

Eye contact Not likely, due to the form of the product.

Ingestion Not likely, due to the form of the product.

Symptoms Respiratory disorder.

Acute toxicity Based on available data, the classification criteria are not met.

Skin irritation and corrosion 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 sensitization Not a skin sensitizer.

Germ cell mutagenicity Due to lack of data the classification is not possible.

Carcinogenicity Cancer hazard.

Brazil. OELs (Ordinance No. 3214, 6/8/78, NR-15, Annex 11 (amended through ACGIH))

Beryllium (CAS 7440-41-7) Group A1 Confirmed human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Beryllium (CAS 7440-41-7) 1 Carcinogenic to humans.

Toxic to reproduction Not classified.

Specific target organ toxicity - single exposure Not classified.

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 No ecotoxicity data noted for the ingredient(s).

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

Bioaccumulative potential

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

**Bioconcentration factor
(BCF)** Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Considerations on final disposal

Recommended methods for final destination

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.

14. Transport information

National regulations

ANTT

Not regulated as dangerous goods.

International regulations

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.

15. Regulatory information

Federal regulations

This chemical product safety data sheet was prepared in accordance with the Brazilian Standard (ABNT NBR 14725-4: (Safety data sheet for chemicals (SDS))).

Brazil. Controlled products that must be reported to the Army (Decree No. 3655, Annex 1, as amended)

Not applicable.

Brazil. Drug precursors (Ordinance No. 1.274)

Not applicable.

Brazil. Ozone depleting substances (Decree No. 99.280, Annexes A, B, C and E, as amended)

Not applicable.

Brazil. Use and physiological effects of chemical products (Decree No. 3665, Annex 3)

Not applicable.

POPs (Decree No. 5.472 promulgates the Stockholm Convention on persistent organic pollutants)

Not listed.

International regulations

Montreal Protocol

Not applicable.

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

16. Other information

Significant information, yet not specifically related to the previous sections Transportation Emergency
Call Chemtrec at:
Domestic: 800.424.9300
International: 703.527.3887

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.

Legends and abbreviations Not available.

Other information Revised information in Section 2.
Revised information in Section 11.