MATERION

SAFETY DATA SHEET

1. Product and company identification

Product name **Copper Beryllium Master Alloy**

Other name Copper Beryllium Alloy

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

Recommended use and Limitations on use

Recommended use Manufacture of fabricated metal products, except machinery and equipment
Manufacture of computer, electronic and optical products, electrical equipment

SDS number A17

2. Hazards identification

GHS classification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 3
	Acute toxicity, inhalation	Category 2
	Sensitization, skin	Category 1
	Carcinogenicity	Category 1
	Specific target organ toxicity following single exposure	Category 2
Environmental hazards	Not classified.	

Label elements

Symbols

Signal word Danger

Hazard statement Toxic if swallowed. May cause allergic skin reaction. Causes serious eye irritation. Fatal if inhaled May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause cancer by inhalation. Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. 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 exposed or concerned: Call a poison center/doctor. If inhaled: Remove person to fresh air and keep comfortable for breathing. If skin irritation or rash occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a poison center/doctor.

Storage Store locked up.

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

3. Composition/information on ingredients

Substance or mixture Mixture

Chemical property	CAS Number	Concentration (%)
Beryllium	7440-41-7	3.5 - < 4.5
Other components below reportable levels		90 - 100

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.

Potential delayed effects

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. 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 individua 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 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.

5. Fire-fighting measures

Extinguishing media

The product is non-combustible. Use extinguishing measures that are appropriate to loca 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.

HAZCHEM Code Number

None.

Specific hazards during fire fighting

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.

Hazards from combustion products

None.

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. Accidental release measures

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

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.

Spill cleanup methods Clean up in accordance with all applicable regulations.

7. Handling and storage

Handling

Precautions Obtain special instructions before use. Minimise dust generation and accumulation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not taste or swallow. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Safe handling advice Do not handle until all safety precautions have been read and understood. Do not breathe dust. Avoid contact with skin. Avoid prolonged exposure. Avoid contact during pregnancy/while nursing. Use personal protection recommended in Section 8 of the SDS.

Prevention of fire and explosion No specific recommendations.

Local and general ventilation Use only outdoors or in a well-ventilated area. In case of insufficient ventilation, wear suitable respiratory equipment.

Storage

Suitable storage conditions Store locked up. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Keep out of the reach of children.

Incompatible materials For further information, please refer to section 10.

Safe packaging materials Keep in original container.

8. Exposure controls/personal protection

Exposure limits

New Zealand. WES. (Workplace Exposure Standards)

Components	Type	Value
Beryllium (CAS 7440-41-7)	TWA	0.002 mg/m3

US. ACGIH Threshold Limit Values

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

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Beryllium (CAS 7440-41-7)	TWA	0.002 mg/m3

Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Components	Type	Value
Beryllium (CAS 7440-41-7)	TWA	0.002 mg/m3

Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)

Components	Type	Value
Beryllium (CAS 7440-41-7)	TWA	0.002 mg/m3

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

Engineering controls

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.

Skin 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.
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.
Radioactive or thermal hazards	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.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practices.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Various shapes.
Colour	Copper
Odour	Not applicable.
Odour threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	871.11 - 1071.11 °C (1600 - 1960 °F) / Not applicable.
Boiling point, initial boiling point, and boiling range	Not applicable.
Flash point	Not applicable.
Auto-ignition temperature	Not applicable.
Flammability (solid, gas)	Not applicable.
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit – upper (%)	Not applicable.
Vapour pressure	0.72 hPa estimated
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Relative density	Not applicable.

Density	8.86 g/cm3 estimated
Solubility(ies)	
Solubility (water)	Not applicable.
Partition coefficient (n-octanol/water)	Not available.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.
Other data	
Flammability	Not applicable.
Specific gravity	8.86 estimated

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.
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.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Not likely, due to the form of the product.
Inhalation	May cause sensitisation by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause damage to organs (respiratory system) through prolonged or repeated exposure.
Skin contact	May cause an allergic skin reaction.
Eye contact	Not likely, due to the form of the product.
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	Not likely, due to the form of the product.
Serious eye damage/eye irritation	Harmful in contact with eyes.
Respiratory sensitiser	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitiser	May cause an allergic skin reaction.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	Cancer hazard.

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	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	Hazardous by OSHA criteria. May cause damage to organs through prolonged or repeated exposure.
Relevant negative data	Not available.
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.

Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
Mobility	Not available.
Other hazardous effects	Not available.

13. Disposal considerations

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	Not available.

14. Transport information

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

Applicable regulations

New Zealand Inventory of Chemicals (NZIoC): Registration status

Beryllium (CAS 7440-41-7)	HSNO Approved

16. Other information

References	Not available.

Issued by

Not available.

Prepared by

Not available.

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