

**MATERION****1. Chemical and company identification**

<b>Name of chemical (Product name)</b>	<b>Bismuth Manganese Targets</b>
<b>Company name</b>	Materion Advanced Materials Germany GmbH
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<b>Emergency telephone number</b>	49.60.23.91.82.0
<b>Reference number</b>	G13

**2. Hazards identification****GHS classification**

The product is not classified according to GHS.

**GHS label elements**

<b>Symbols</b>	None.
<b>Signal words</b>	None.
<b>Hazard statement</b>	The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

**Precautionary statement**

<b>Prevention</b>	Observe good industrial hygiene practices.
<b>Response</b>	Wash hands after handling.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	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 +1.800.862.4118.

**Main symptoms and emergency overview**

<b>Main symptoms</b>	None known.
<b>Emergency overview</b>	The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

**3. Composition/information on ingredients**

**Substance or mixture** Mixture

<b>Components</b>	<b>CAS Number</b>	<b>Gazette notification</b>		<b>Concentration (%)</b>
		<b>ENCS no.</b>	<b>ISHL no.</b>	
Bismuth	7440-69-9			90 - 99.5
Manganese	7439-96-5			10

**Chemical formula** Bi (7440-69-9), Mn (7439-96-5)

**4. First aid measures**

<b>If inhaled</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>If on skin</b>	Wash off with soap and water. Get medical attention if irritation develops and persists.
<b>If in eyes</b>	Rinse with water. Get medical attention if irritation develops and persists.
<b>If swallowed</b>	Rinse mouth. Get medical attention if symptoms occur.
<b>Most important symptoms/effects, acute and delayed</b>	Exposure may cause temporary irritation, redness, or discomfort.
<b>Protection of first-aid responders</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Notes to physician Treat symptomatically.

## 5. Fire-fighting measures

**Extinguishing media** Powder. Dry sand.  
**Extinguishing media to avoid** Do not use water jet as an extinguisher, as this will spread the fire.  
**Specific hazards** None known.  
**Special fire fighting procedures** Use water spray to cool unopened containers.  
**Protection of fire-fighters** Wear suitable protective equipment.  
**General fire hazards** No unusual fire or explosion hazards noted.  
**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency measures** Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.  
**Environmental precautions** Collect spillage. Prevent further leakage or spillage if safe to do so.  
**Methods or materials for containment and cleaning up** Stop the flow of material, if this is without risk. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

## 7. Handling and storage

### Handling

**Technical measures (e.g. Local and general ventilation)** Provide adequate ventilation.  
**Safe handling advice** Observe good industrial hygiene practices. Wash hands thoroughly after handling. Use personal protection recommended in Section 8 of the SDS.  
**Contact avoidance measures** For further information, please refer to section 10 of the SDS.  
**Hygiene measures** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

### Storage

**Safe storage conditions** Store locked up. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).  
**Safe packaging materials** Follow precautions for safe handling described in this safety data sheet.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### Japan. OELs - ISHL. (Workplace Environment Assessment Standards)

Components	Type	Value
Manganese (CAS 7439-96-5)	TLV	0.2 mg/m <sup>3</sup>

#### Japan. OELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits)

Components	Type	Value
Manganese (CAS 7439-96-5)	TWA	0.2 mg/m <sup>3</sup>

#### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0.1 mg/m <sup>3</sup>	Inhalable fraction.
		0.02 mg/m <sup>3</sup>	Respirable fraction.

**Engineering measures** 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. Provide eyewash station.

### Personal protective equipment

**Respiratory protection** Wear positive pressure self-contained breathing apparatus (SCBA).  
**Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.  
**Eye protection** Wear safety glasses with side shields (or goggles).  
**Skin and body protection** Wear suitable protective clothing.

## 9. Physical and chemical properties

### Appearance

Physical state	Solid.
Form	Solid.
Color	Silver.

**Odor** None.

**Odor threshold** Not applicable.

**pH** Not applicable.

**Melting point/Freezing point** 519.8 °F (271 °C) estimated / Not applicable.

**Boiling point, initial boiling point, and boiling range** Not applicable.

**Flash point** Not applicable.

**Combustion characteristics (solid, gas)** None known.

### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** Not applicable.

**Flammability limit - upper (%)** Not applicable.

**Explosive limit - lower (%)** Not applicable.

**Explosive limit - lower (%) temperature** Not applicable.

**Explosive limit - upper (%)** Not applicable.

**Explosive limit - upper (%) temperature** Not applicable.

**Vapor pressure** Not applicable.

**Vapor density** Not applicable.

**Evaporation rate** Not applicable.

**Specific gravity** Not applicable.

### Solubility(ies)

**Solubility (water)** Insoluble.

**Partition coefficient (n-octanol/water)** Not applicable.

**Auto-ignition temperature** Not applicable.

**Decomposition temperature** Not applicable.

**Viscosity (Coefficient of viscosity)** Not applicable.

### Other information

**Density** 9.57 g/cm<sup>3</sup> estimated

**Explosive properties** Not explosive.

**Oxidizing properties** Not oxidizing.

**Relative density** Not applicable.

## 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.

**Conditions to avoid** Contact with incompatible materials.

**Incompatible materials** Strong oxidizing agents.

**Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

**Acute toxicity** Not known.

**Skin corrosion/irritation** Not relevant, due to the form of the product.

<b>Serious eye damage/eye irritation</b>	Not likely, due to the form of the product.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	Not a skin sensitizer.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	Not classifiable as to carcinogenicity to humans.

#### ACGIH Carcinogens

Manganese (CAS 7439-96-5) A4 Not classifiable as a human carcinogen.

<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not an aspiration hazard.

## 12. Ecological information

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>Persistence and degradability</b>	
<b>Bioaccumulation</b>	No data available.
<b>Mobility in soil</b>	No data available for this product.
<b>Hazardous to the ozone layer</b>	No data available.
<b>Other hazardous effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

Dispose in accordance with all applicable regulations.

<b>Residual waste</b>	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).
<b>Contaminated packaging</b>	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.
<b>Local disposal regulations</b>	Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Dispose of contents/container in accordance with local/regional/national/international regulations. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

## 14. Transport information

<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.
<b>National regulations</b>	Follow regulation in section 15 for domestic transportation.

## 15. Regulatory information

### Industrial Safety and Health Act

#### Specified substances regulation

##### Class 2 designated chemical substances

MANGANESE AND ITS COMPOUNDS (EXCEPT MANGANESE OXIDE, BASIC)

#### Notifiable substances

MANGANESE Table 9 Ordinance No. 550 0.50 - 10 %

#### Labeling substances

MANGANESE (POWDER) 0.50 - 10 %

### Poisonous and Deleterious Substances Control Act

#### Specified poisonous substances

Not regulated.

**Poisonous substances**

Not regulated.

**Deleterious substances**

Not regulated.

**Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.****Class I specified chemical substances**

Not regulated.

**Class II specified chemical substances**

Not regulated.

**Monitoring chemical substances**

Not regulated.

**Priority Assessment Chemical Substances (PACs)**

Not regulated.

**Reporting Exempted Substances**

Not regulated.

**Law concerning Pollutant Release and Transfer Register****Specified class 1 substances (substance name, ordinance number and content)**

Not regulated.

**Class 1 substances (substance name, ordinance number and content)**

MANGANESE AND ITS COMPOUNDS Ordinance No. 412 10 % (Manganese)

**Class 2 substances (substance name, ordinance number and content)**

Not regulated.

**Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule** Not regulated.**Air Law, Enforcement Rule** Not regulated.**Explosives Control Act**

Not regulated.

**Sewage Act**

MANGANESE AND ITS SOLUBLE COMPOUNDS (AS MN) 10 MG/L

**16. Other information****Bibliography**

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices  
HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
National Toxicology Program (NTP) Report on Carcinogens  
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits  
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012  
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"  
JIS Z 7253:2012 Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS)

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