



# PRODUCT INFORMATION SHEET

**MATERION**

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Trade name or designation of the mixture** Manganese Germanium Product  
**Registration number** -  
**Document number** 392  
**Synonyms** None.  
**Issue date** 28-August-2019  
**Version number** 01

### 1.3. Details of the supplier of the product information sheet

#### Supplier

**Company name** Materion Advanced Materials Group  
**Address** 42 Mt. Ebo Road South  
Brewster, NY 10509  
United States

#### Division

**Telephone** 1+845.279.0900

**e-mail** Not available.

**Contact person** Not available.

**1.4. Emergency telephone number** Chemtrec 1+703.527.3887

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Identified uses** Not available.

**Uses advised against** None known.

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### Classification according to Regulation (EC) No 1272/2008 as amended

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

**Hazard summary** Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.

### 2.2. Label elements

#### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** Germanium, Manganese

**Hazard pictograms** None.

**Signal word** None.

**Hazard statements** 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 statements

**Prevention** Observe good industrial hygiene practices.

**Response** Wash hands after handling.

**Storage** Store away from incompatible materials.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

#### Supplemental label information

100 % of the mixture consists of component(s) of unknown acute oral toxicity. 100 % of the mixture consists of component(s) of unknown acute dermal toxicity. 100 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

**2.3. Other hazards** Not a PBT or vPvB substance or mixture.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Germanium	40 - 60	7440-56-4 231-164-3	-	-	
<b>Classification:</b>	-				
Manganese	40 - 60	7439-96-5 231-105-1	-	-	#
<b>Classification:</b>	-				

#### List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## SECTION 4: First aid measures

#### General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

#### 4.1. Description of first aid measures

##### Inhalation

Move to fresh air. Call a physician if symptoms develop or persist.

##### Skin contact

Wash off with soap and water. Get medical attention if irritation develops and persists.

##### Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

##### Ingestion

Rinse mouth. Get medical attention if symptoms occur.

#### 4.2. Most important symptoms and effects, both acute and delayed

Nausea, vomiting. Coughing.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

#### General fire hazards

No unusual fire or explosion hazards noted.

#### 5.1. Extinguishing media

##### Suitable extinguishing media

Powder. Dry sand.

##### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

#### 5.2. Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

#### 5.3. Advice for firefighters

##### Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

##### Special firefighting procedures

Use water spray to cool unopened containers.

#### Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

## SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### For non-emergency personnel

Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.

##### For emergency responders

Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

#### 6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

**6.3. Methods and material for containment and cleaning up** Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

**6.4. Reference to other sections** For personal protection, see section 8. For waste disposal, see section 13.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling** Avoid prolonged exposure. Observe good industrial hygiene practices.

**7.2. Conditions for safe storage, including any incompatibilities** Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

**7.3. Specific end use(s)** Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	MAK	0,5 mg/m <sup>3</sup>	Inhalable fraction.
	STEL	2 mg/m <sup>3</sup>	Inhalable fraction.

##### Belgium. Exposure Limit Values.

Components	Type	Value
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m <sup>3</sup>

##### Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
Manganese (CAS 7439-96-5)	STEL	3 mg/m <sup>3</sup>
	TWA	0,3 mg/m <sup>3</sup>

##### Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value
Manganese (CAS 7439-96-5)	MAC	0,5 mg/m <sup>3</sup>

##### Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

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

##### Czech Republic. OELs. Government Decree 361

Components	Type	Value
Manganese (CAS 7439-96-5)	Ceiling	2 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

##### Denmark. Exposure Limit Values

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TLV	0,2 mg/m <sup>3</sup>	Dust.
		0,2 mg/m <sup>3</sup>	Fume.
		0,1 mg/m <sup>3</sup>	Respirable.

##### Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m <sup>3</sup>	Total dust.
		0,1 mg/m <sup>3</sup>	Respirable dust.

**Finland. Workplace Exposure Limits Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m <sup>3</sup>	Inhalable dust.
		0,02 mg/m <sup>3</sup>	Respirable.

**France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984 Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	VME	1 mg/m <sup>3</sup>	Fume.

**Regulatory status:** Indicative limit (VL)

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG) Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m <sup>3</sup>	Inhalable fraction.
		0,02 mg/m <sup>3</sup>	Respirable fraction.

**Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	AGW	0,2 mg/m <sup>3</sup>	Inhalable fraction.
		0,02 mg/m <sup>3</sup>	Respirable fraction.

**Hungary. OELs. Joint Decree on Chemical Safety of Workplaces Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	STEL	20 mg/m <sup>3</sup>	
	TWA	5 mg/m <sup>3</sup>	

**Iceland. OELs. Regulation 154/1999 on occupational exposure limits Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	STEL	5 mg/m <sup>3</sup>	Total dust.
	TWA	2,5 mg/m <sup>3</sup>	Total dust.
		1 mg/m <sup>3</sup>	Respirable dust.

**Ireland. Occupational Exposure Limits Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	STEL	3 mg/m <sup>3</sup>	Inhalable fume.
		0,2 mg/m <sup>3</sup>	
		0,02 mg/m <sup>3</sup>	Inhalable fume. Respirable fume.

**Italy. Occupational Exposure Limits Components**

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.

**Latvia. OELs. Occupational exposure limit values of chemical substances in work environment Components**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,1 mg/m <sup>3</sup>	Welding fume.

**Lithuania. OELs. Limit Values for Chemical Substances, General Requirements Components**

Components	Type	Value	Form
Germanium (CAS 7440-56-4)	TWA	2 mg/m <sup>3</sup>	
Manganese (CAS 7439-96-5)	TWA	1 mg/m <sup>3</sup>	Inhalable fraction.

**Lithuania. OELs. Limit Values for Chemical Substances, General Requirements**

Components	Type	Value	Form
		0,5 mg/m <sup>3</sup>	Respirable fraction.

**Norway. Administrative Norms for Contaminants in the Workplace**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TLV	1 mg/m <sup>3</sup>	Inhalable fraction.
		0,1 mg/m <sup>3</sup>	Respirable fraction.

**Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m <sup>3</sup>	Inhalable fraction.
		0,05 mg/m <sup>3</sup>	Respirable fraction.

**Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)**

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.

**Romania. OELs. Protection of workers from exposure to chemical agents at the workplace**

Components	Type	Value	Form
Germanium (CAS 7440-56-4)	STEL	5 mg/m <sup>3</sup>	
	TWA	2 mg/m <sup>3</sup>	
Manganese (CAS 7439-96-5)	STEL	3 mg/m <sup>3</sup>	
	TWA	0,5 mg/m <sup>3</sup>	

**Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m <sup>3</sup>	

**Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.

**Spain. Occupational Exposure Limits**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m <sup>3</sup>	Inhalable fraction.
		0,05 mg/m <sup>3</sup>	Respirable fraction.

**Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m <sup>3</sup>	Inhalable dust.
		0,05 mg/m <sup>3</sup>	Respirable dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.

**UK. EH40 Workplace Exposure Limits (WELs)**

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m <sup>3</sup>	

**EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU Components**

Type	Value	Form
Manganese (CAS 7439-96-5)	0,2 mg/m <sup>3</sup>	Inhalable fraction.
	0,05 mg/m <sup>3</sup>	Respirable fraction.

**Biological limit values****Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)**

Components	Value	Determinant	Specimen	Sampling Time
Manganese (CAS 7439-96-5)	20 µg/l	Mangan	Blood	*

\* - For sampling details, please see the source document.

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

**8.2. Exposure controls**

**Appropriate engineering controls** Good general ventilation 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.

**Individual protection measures, such as personal protective equipment**

**General information** Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Skin protection**

- **Hand protection** Wear appropriate chemical resistant gloves.

- **Other** Wear suitable protective clothing.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Environmental exposure controls** Good general ventilation 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.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties****Appearance**

**Physical state** Solid.

**Form** Solid.

**Colour** Not available.

**Odour** Not available.

**Odour threshold** Not available.

**pH** Not available.

**Melting point/freezing point** 937,2 °C (1718,96 °F) estimated

**Initial boiling point and boiling range** 2061 °C (3741,8 °F) estimated

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not available.

**Upper/lower flammability or explosive limits**

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

<b>Flammability limit - upper (%)</b>	Not available.
<b>Vapour pressure</b>	0,00001 hPa estimated
<b>Vapour density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not explosive.
<b>Oxidising properties</b>	Not oxidising.
<b>9.2. Other information</b>	
<b>Density</b>	6,38 g/cm <sup>3</sup> estimated
<b>Specific gravity</b>	6,38 estimated

## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>10.2. Chemical stability</b>	Material is stable under normal conditions.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Strong oxidising agents.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11: Toxicological information

<b>General information</b>	Occupational exposure to the substance or mixture may cause adverse effects.
<b>Information on likely routes of exposure</b>	
<b>Inhalation</b>	Prolonged inhalation may be harmful.
<b>Skin contact</b>	No adverse effects due to skin contact are expected.
<b>Eye contact</b>	Direct contact with eyes may cause temporary irritation.
<b>Ingestion</b>	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
<b>Symptoms</b>	Nausea, vomiting. Coughing.
<b>11.1. Information on toxicological effects</b>	
<b>Acute toxicity</b>	Not known.
<b>Skin corrosion/irritation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Serious eye damage/eye irritation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Respiratory sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Skin sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Germ cell mutagenicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Carcinogenicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)</b>	
Not listed.	
<b>Reproductive toxicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - single exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - repeated exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Aspiration hazard</b>	Due to partial or complete lack of data the classification is not possible.

**Mixture versus substance information** No information available.

**Other information** Not available.

## SECTION 12: Ecological information

**12.1. Toxicity** Due to partial or complete lack of data the classification for hazardous to the aquatic environment, is not possible.

**12.2. Persistence and degradability** No data is available on the degradability of any ingredients in the mixture.

**12.3. Bioaccumulative potential** No data available.

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

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

**12.4. Mobility in soil** No data available.

**12.5. Results of PBT and vPvB assessment** Not a PBT or vPvB substance or mixture.

**12.6. Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**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.

**EU waste code** The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Disposal methods/information** Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

**Special precautions** Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

14.1. - 14.6.: Not regulated as dangerous goods.

### RID

14.1. - 14.6.: Not regulated as dangerous goods.

### ADN

14.1. - 14.6.: Not regulated as dangerous goods.

### IATA

14.1. - 14.6.: Not regulated as dangerous goods.

### IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU regulations

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.



**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

**Authorisations**

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

**Restrictions on use**

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**

Not listed.

**Other EU regulations**

**Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended**

Not listed.

**Other regulations**

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

**National regulations**

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

**15.2. Chemical safety assessment**

No Chemical Safety Assessment has been carried out.

**SECTION 16: Other information**

**List of abbreviations**

Not available.

**References**

Not available.

**Training information**

Follow training instructions when handling this material.

**Disclaimer**

Materion Advanced Materials Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. To avoid any misunderstandings or incorrect assumptions by the receiver of the safety information, it should be made clear that the supplied information is not in the form of a Safety Data Sheet (SDS), but is actually a voluntary Product Information Sheet closely following the guidelines of the Safety Data Sheet – COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 (REACH/SDS).