



# SAFETY DATA 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** Copper 182 Product  
**Registration number** -  
**Document number** 015  
**Synonyms** None.  
**Issue date** 31-July-2019

### 1.3. Details of the supplier of the safety data 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

**Version number** 01

### 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

##### Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard Category 1 H400 - Very toxic to aquatic life.  
Hazardous to the aquatic environment, long-term aquatic hazard Category 1 H410 - Very toxic to aquatic life with long lasting effects.

#### Hazard summary

Dangerous for the environment if discharged into watercourses. Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects. 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.

### 2.2. Label elements

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

**Contains:** Chromium, Copper

#### Hazard pictograms



**Signal word** Warning

#### Hazard statements

H400 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.  
Very toxic to aquatic life.

H410

Very toxic to aquatic life with long lasting effects.

**Precautionary statements****Prevention**

P273

Avoid release to the environment.

**Response**

P391

Collect spillage.

**Storage**

Store away from incompatible materials.

**Disposal**

P501

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

**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.  
For further information, please contact the Product Stewardship Department at +1.800.862.4118.

**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
Copper	98,8 - 99,2	7440-50-8 231-159-6	-	-	
<b>Classification:</b>	Aquatic Chronic 1;H410(M=100)				
Chromium	0,8 - 1,2	7440-47-3 231-157-5	-	-	#
<b>Classification:</b>	Aquatic Chronic 3;H412				

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

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

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

#: This substance has been assigned Community 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.

**Composition comments**

The full text for all R- and H-phrases is displayed in section 16. The full text for all H-statements is displayed in section 16.

**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**

Direct contact with eyes may cause temporary irritation.

**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.

<b>5.2. Special hazards arising from the substance or mixture</b>	During fire, gases hazardous to health may be formed.
<b>5.3. Advice for firefighters</b>	
<b>Special protective equipment for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Special firefighting procedures</b>	Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	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. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. 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 release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**6.3. Methods and material for containment and cleaning up** The product is immiscible with water and will spread on the water surface. Prevent product from entering drains. 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. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. 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

Material	Type	Value	Form
Copper 182 Product	MAK	1 mg/m <sup>3</sup>	Inhalable fraction.
		0,1 mg/m <sup>3</sup>	Fume and respirable dust.
	STEL	4 mg/m <sup>3</sup>	Inhalable fraction.
		0,4 mg/m <sup>3</sup>	Fume and respirable dust.

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	MAK	2 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	MAK	1 mg/m <sup>3</sup>	Inhalable fraction.
		0,1 mg/m <sup>3</sup>	Fume and respirable dust.
	STEL	4 mg/m <sup>3</sup>	Inhalable fraction.
		0,4 mg/m <sup>3</sup>	Fume and respirable dust.

##### Belgium. Exposure Limit Values.

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m <sup>3</sup>	Dust and mist.
		0,2 mg/m <sup>3</sup>	Fume.
Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist.

**Belgium. Exposure Limit Values.  
Components**

Type	Value	Form
	0,2 mg/m3	Fume.

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

Type	Value
Copper 182 Product	0,1 mg/m3

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	2 mg/m3
Copper (CAS 7440-50-8)	TWA	0,1 mg/m3

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

Material	Type	Value	Form
Copper 182 Product	MAC	0,21 mg/m3	Dust and fume.
	STEL	2 mg/m3	Dust and fume.

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	MAC	2 mg/m3	
Copper (CAS 7440-50-8)	MAC	0,21 mg/m3	Dust and fume.
	STEL	2 mg/m3	Dust and fume.

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

Material	Type	Value	Form
Copper 182 Product	TWA	0,2 mg/m3	Fume.

Components	Type	Value	Form
Copper (CAS 7440-50-8)	TWA	0,2 mg/m3	Fume.

**Czech Republic. OELs. Government Decree 361  
Material**

Type	Value	Form	
Copper 182 Product	Ceiling	2 mg/m3	Dust.
		0,2 mg/m3	Fume.
	TWA	1 mg/m3	Dust.
		0,1 mg/m3	Fume.

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	Ceiling	1,5 mg/m3	
	TWA	0,5 mg/m3	Dust.
		0,5 mg/m3	
Copper (CAS 7440-50-8)	Ceiling	2 mg/m3	Dust.
		0,2 mg/m3	Fume.
	TWA	1 mg/m3	Dust.
		0,1 mg/m3	Fume.

**Denmark. Exposure Limit Values  
Material**

Type	Value	Form	
Copper 182 Product	TLV	1 mg/m3	Dust.
		0,1 mg/m3	Fume.

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m3	Dust.
Copper (CAS 7440-50-8)	TLV	1 mg/m3	Dust.
		0,1 mg/m3	Fume.

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

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m3	Total dust.

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

Material	Type	Value	Form
		0,2 mg/m <sup>3</sup>	Respirable dust.
Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Total dust.
		0,2 mg/m <sup>3</sup>	Respirable dust.

**Finland. Workplace Exposure Limits**

Material	Type	Value	Form
Copper 182 Product	TWA	0,1 mg/m <sup>3</sup>	Respirable dust and/or fume.
		0,02 mg/m <sup>3</sup>	Respirable.
Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	
		0,1 mg/m <sup>3</sup>	Respirable dust and/or fume.

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

Material	Type	Value	Form
Copper 182 Product	VLE	2 mg/m <sup>3</sup>	Dust.
<b>Regulatory status:</b> Indicative limit (VL)	VME	1 mg/m <sup>3</sup>	Dust.
<b>Regulatory status:</b> Indicative limit (VL)		0,2 mg/m <sup>3</sup>	Fume.
<b>Regulatory status:</b> Indicative limit (VL)			
Components	Type	Value	Form
Chromium (CAS 7440-47-3)	VME	2 mg/m <sup>3</sup>	
<b>Regulatory status:</b> Regulatory indicative (VRI)			
Copper (CAS 7440-50-8)	VLE	2 mg/m <sup>3</sup>	Dust.
	VME	1 mg/m <sup>3</sup>	Dust.
		0,2 mg/m <sup>3</sup>	Fume.

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

Material	Type	Value	Form
Copper 182 Product	TWA	0,01 mg/m <sup>3</sup>	Respirable fraction.
Components	Type	Value	Form
Copper (CAS 7440-50-8)	TWA	0,01 mg/m <sup>3</sup>	Respirable fraction.

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	AGW	2 mg/m <sup>3</sup>	Inhalable fraction.

**Greece. OELs (Decree No. 90/1999, as amended)**

Material	Type	Value	Form
Copper 182 Product	STEL	2 mg/m <sup>3</sup>	Dust.
	TWA	1 mg/m <sup>3</sup>	Dust.
		0,2 mg/m <sup>3</sup>	Fume.
Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	1 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	STEL	2 mg/m <sup>3</sup>	Dust.
	TWA	1 mg/m <sup>3</sup>	Dust.
		0,2 mg/m <sup>3</sup>	Fume.

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

Material	Type	Value	Form
Copper 182 Product	STEL	4 mg/m3	
	TWA	0,4 mg/m3	Smoke.
<b>Components</b>		1 mg/m3	
		0,1 mg/m3	Smoke.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
Copper (CAS 7440-50-8)	STEL	4 mg/m3	
		0,4 mg/m3	Smoke.
	TWA	1 mg/m3	
		0,1 mg/m3	Smoke.

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

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m3	Total dust.
		0,1 mg/m3	Respirable dust.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	Dust.
Copper (CAS 7440-50-8)	TWA	1 mg/m3	Total dust.
		0,1 mg/m3	Respirable dust.

**Ireland. Occupational Exposure Limits**

Material	Type	Value	Form
Copper 182 Product	STEL	2 mg/m3	Dust and mist.
	TWA	1 mg/m3	Dust and mist.
		0,2 mg/m3	Fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
Copper (CAS 7440-50-8)	STEL	2 mg/m3	Dust and mist.
	TWA	1 mg/m3	Dust and mist.
		0,2 mg/m3	Fume.

**Italy. Occupational Exposure Limits**

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m3	Dust and mist.
		0,2 mg/m3	Fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	

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

Material	Type	Value	Form
Copper 182 Product	STEL	1 mg/m3	
	TWA	0,5 mg/m3	
<b>Components</b>	<b>Type</b>	<b>Value</b>	
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
Copper (CAS 7440-50-8)	STEL	1 mg/m3	
	TWA	0,5 mg/m3	

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

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m3	Inhalable fraction.
		0,2 mg/m3	Respirable fraction.

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
Copper (CAS 7440-50-8)	TWA	1 mg/m3 0,2 mg/m3	Inhalable fraction. Respirable fraction.

**Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A**

Components	Type	Value	
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	

**Netherlands. OELs (binding)**

Material	Type	Value	Form
Copper 182 Product	TWA	0,1 mg/m3	Inhalable fraction.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	
Copper (CAS 7440-50-8)	TWA	0,1 mg/m3	Inhalable fraction.

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

Material	Type	Value	Form
Copper 182 Product	TLV	1 mg/m3 0,1 mg/m3	Dust. Fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m3	
Copper (CAS 7440-50-8)	TLV	1 mg/m3 0,1 mg/m3	Dust. Fume.

**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**

Material	Type	Value	
Copper 182 Product	TWA	0,2 mg/m3	
<b>Components</b>	<b>Type</b>	<b>Value</b>	
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	
Copper (CAS 7440-50-8)	TWA	0,2 mg/m3	

**Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)**

Components	Type	Value	
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	

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

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m3 0,2 mg/m3	Dust and mist. Fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	
Copper (CAS 7440-50-8)	TWA	1 mg/m3 0,2 mg/m3	Dust and mist. Fume.

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

Material	Type	Value	Form
Copper 182 Product	STEL	1,5 mg/m3 0,2 mg/m3	Dust. Fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	Dust.
Copper (CAS 7440-50-8)	STEL	1,5 mg/m3 0,2 mg/m3	Dust. Fume.
	TWA	0,5 mg/m3	Dust.

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

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m <sup>3</sup>	Inhalable fraction.
		0,2 mg/m <sup>3</sup>	Respirable fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Inhalable fraction.
		0,2 mg/m <sup>3</sup>	Respirable fume.

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

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m <sup>3</sup>	Inhalable fraction.
		0,1 mg/m <sup>3</sup>	Respirable fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Inhalable fraction.
		0,1 mg/m <sup>3</sup>	Respirable fume.

**Spain. Occupational Exposure Limits**

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m <sup>3</sup>	Dust and mist.
		0,2 mg/m <sup>3</sup>	Fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist.
		0,2 mg/m <sup>3</sup>	Fume.

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

Material	Type	Value	Form
Copper 182 Product	TWA	0,01 mg/m <sup>3</sup>	Respirable dust.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	Total dust.
Copper (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Total dust.
		0,2 mg/m <sup>3</sup>	Respirable dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Material	Type	Value	Form
Copper 182 Product	STEL	0,2 mg/m <sup>3</sup>	Inhalable fraction.
	TWA	0,1 mg/m <sup>3</sup>	Inhalable fraction.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.
Copper (CAS 7440-50-8)	STEL	0,2 mg/m <sup>3</sup>	Inhalable dust.
	TWA	0,1 mg/m <sup>3</sup>	Inhalable dust.

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

Material	Type	Value	Form
Copper 182 Product	STEL	2 mg/m <sup>3</sup>	Inhalable dusts and mists.
	TWA	1 mg/m <sup>3</sup>	Inhalable dusts and mists.
		0,2 mg/m <sup>3</sup>	Fume.
<b>Components</b>	<b>Type</b>	<b>Value</b>	<b>Form</b>
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m <sup>3</sup>	
Copper (CAS 7440-50-8)	STEL	2 mg/m <sup>3</sup>	Inhalable dusts and mists.
	TWA	1 mg/m <sup>3</sup>	Inhalable dusts and mists.
		0,2 mg/m <sup>3</sup>	Fume.



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

Chromium (CAS 7440-47-3)	TWA	2 mg/m <sup>3</sup>
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**Biological limit values****Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	0,065 µmol/mmol	Total chromium	Creatinine in urine	*
	0,03 mg/g	Total chromium	Creatinine in urine	*

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

**Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	0,02 mg/g	chromium	Creatinine in urine	*
	0,043 µmol/mmol	chromium	Creatinine in urine	*

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

**Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	25 µg/l	Cromo total	Urine	*
	10 µg/l	Cromo total	Urine	*

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

**UK. EH40 Biological Monitoring Guidance Values (BMGVs)**

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	10 umol/mol	Chromium	Creatinine in urine	*

\* - 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**

Inform appropriate managerial or supervisory personnel of all environmental releases. 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** 1083 °C (1981,4 °F)  
1083 °C (1981,4 °F) estimated

**Initial boiling point and boiling range** 2595 °C (4703 °F)

2595 °C (4703 °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.

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

**Vapour pressure** < 0,0000001 kPa (25 °C (77 °F))  
0,00001 hPa estimated

**Vapour density** Not available.

**Relative density** Not available.

**Solubility(ies)**

**Solubility (water)** Insoluble

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

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** Not available.

**Explosive properties** Not explosive.

**Oxidising properties** Not oxidising.

**9.2. Other information**

**Density** 8,94 g/cm<sup>3</sup> estimated  
8,92 g/cm<sup>3</sup> estimated

**Molecular formula** Cu

**Molecular weight** 63,55 g/mol

**Specific gravity** 8,94  
8,92 estimated

**SECTION 10: Stability and reactivity**

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

**10.2. Chemical stability** Material is stable under normal conditions.

**10.3. Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**10.4. Conditions to avoid** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.

**10.5. Incompatible materials** Strong oxidising agents.

## 10.6. Hazardous decomposition products

No hazardous decomposition products are known.

## SECTION 11: Toxicological information

**General information** Occupational exposure to the substance or mixture may cause adverse effects.

### Information on likely routes of exposure

<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.

**Symptoms** Exposure may cause temporary irritation, redness, or discomfort.

### 11.1. Information on toxicological effects

<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.

#### Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3) 3 Not classifiable as to carcinogenicity to humans.

<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.
<b>Mixture versus substance information</b>	No information available.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

**12.1. Toxicity** Very toxic to aquatic life with long lasting effects.

Product		Species	Test Results
Copper 182 Product			
<b>Aquatic</b>			
Crustacea	EC50	Daphnia	0,1601 mg/l, 48 hours estimated
Fish	LC50	Fish	2,5299 mg/l, 96 hours estimated
<b>Components</b>		<b>Species</b>	<b>Test Results</b>

Copper (CAS 7440-50-8)

#### Aquatic

Crustacea	EC50	Water flea (Daphnia magna)	0,036 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	0,0319 - 0,0544 mg/l, 96 hours

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

**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.

**12.7. Additional information**

**Estonia Dangerous substances in groundwater Data**

Chromium (CAS 7440-47-3)	Chromium (Cr) 10 ug/l Chromium (Cr) 200 ug/l
Copper (CAS 7440-50-8)	Copper (Cu) 1000 ug/l Copper (Cu) 15 ug/l

**Estonia Dangerous substances in soil Data**

Chromium (CAS 7440-47-3)	Chromium (Cr) 100 mg/kg Chromium (Cr) 300 mg/kg Chromium (Cr) 800 mg/kg
Copper (CAS 7440-50-8)	Copper (Cu) 100 mg/kg Copper (Cu) 150 mg/kg Copper (Cu) 500 mg/kg

**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. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

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

**SECTION 14: Transport information**

**ADR**

<b>14.1. UN number</b>	UN3077
<b>14.2. UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	9
<b>Hazard No. (ADR)</b>	90
<b>Tunnel restriction code</b>	E
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

**RID**

<b>14.1. UN number</b>	UN3077
<b>14.2. UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	9
<b>14.4. Packing group</b>	III
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

## ADN

- 14.1. UN number** UN3077  
**14.2. UN proper shipping name** Environmentally hazardous substance, solid, n.o.s.  
**14.3. Transport hazard class(es)**  
**Class** 9  
**Subsidiary risk** -  
**Label(s)** 9  
**14.4. Packing group** III  
**14.5. Environmental hazards** No.  
**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

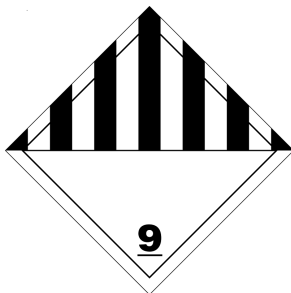
## IATA

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

## IMDG

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

## ADN; ADR; RID



## 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**

Chromium (CAS 7440-47-3)

Copper (CAS 7440-50-8)

**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**

Copper (CAS 7440-50-8)

**Other regulations**

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, 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. 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.