

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

Name of chemical (Product name)	Copper 182 Product	
Company name	Materion Advanced Materials Group	
Address	42 Mt. Ebo Road South Brewster, NY 10509 United States	
Telephone	1+845.279.0900	
Emergency telephone number	Chemtrec	1+703.527.3887
Reference number	015	

2. Hazards identification**GHS classification**

Physical hazards	The product is not classified according to GHS.	
Health hazards	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 1 (liver)
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 4

GHS label elements**Symbols****Signal words**

Danger

Hazard statement

May cause respiratory irritation. Causes damage to organs (liver) through prolonged or repeated exposure. Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.

Precautionary statement**Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment.

Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. Collect spillage.

Storage

Store in a well-ventilated place. Keep container tightly closed. 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 information100% 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.**Main symptoms and emergency overview****Main symptoms**

May cause respiratory irritation. Jaundice. Prolonged exposure may cause chronic effects.

Emergency overview

Causes damage to organs through prolonged or repeated exposure. May cause irritation to the respiratory system. Dangerous for the environment if discharged into watercourses. 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
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Components	CAS Number	Gazette notification		Concentration (%)
		ENCS no.	ISHL no.	
Copper	7440-50-8			98.8 - 99.2
Chromium	7440-47-3			0.8 - 1.2

Chemical formula Cu (7440-50-8), Cr (7440-47-3)

4. First aid measures

If inhaled	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
If on skin	Wash off with soap and water. Get medical attention if irritation develops and persists.
If in eyes	Rinse with water. Get medical attention if irritation develops and persists.
If swallowed	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	May cause respiratory irritation. Jaundice. Prolonged exposure may cause chronic effects.
Protection of first-aid responders	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Notes to physician	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

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	During fire, gases hazardous to health may be formed.
Special fire fighting procedures	Move containers from fire area if you can do so without risk.
Protection of fire-fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
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. 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.
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.
Methods or materials 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. 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	Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices. 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. Routinely wash work clothing and protective equipment to remove contaminants.
Storage	
Safe storage conditions	Store locked up. Store away from incompatible materials (see Section 10 of the SDS).

Safe packaging materials Store in original tightly closed container.

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³

US. ACGIH Threshold Limit Values

Material	Type	Value	Form
Copper 182 Product	TWA	1 mg/m ³	Dust and mist.
		0.2 mg/m ³	Fume.

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	Inhalable fraction.

Engineering measures

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.

Personal protective equipment

Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Hand protection	Wear appropriate chemical resistant gloves.
Eye protection	If contact is likely, safety glasses with side shields are recommended.
Skin and body protection	Use of an impervious apron is recommended.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid.
Color	Not available.

Odor Not available.

pH Not available.

Melting point/Freezing point 1981.4 °F (1083 °C)
1981.4 °F (1083 °C) estimated

Boiling point, initial boiling point,
and boiling range 4703 °F (2595 °C)
4703 °F (2595 °C) estimated

Flash point Not available.

Combustion characteristics
(solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower
(%) Not available.

Flammability limit - upper
(%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure < 0.0000001 kPa (77 °F (25 °C))
0.00001 hPa estimated

Vapor density Not available.

Specific gravity 8.94
8.92 estimated

Solubility(ies)

Solubility (water) Insoluble

Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity (Coefficient of viscosity)	Not available.
Other information	
Density	8.94 g/cm ³ estimated 8.92 g/cm ³ estimated
Explosive properties	Not explosive.
Molecular formula	Cu
Molecular weight	63.55 g/mol
Oxidizing properties	Not oxidizing.

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	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Japan Society for Occupational Health: Respiratory sensitizer	
Chromium (CAS 7440-47-3)	2 Probable respiratory sensitizer.
Japan Society for Occupational Health: Skin sensitizer	
Chromium (CAS 7440-47-3)	1 Known skin sensitizer.
Copper (CAS 7440-50-8)	2 Probable skin sensitizer.
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	
IARC Monographs. Overall Evaluation of Carcinogenicity	
Chromium (CAS 7440-47-3)	3 Not classifiable as to carcinogenicity to humans.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Causes damage to organs (liver) through prolonged or repeated exposure.
Aspiration hazard	Not an aspiration hazard.

12. Ecological information

Ecotoxicological data

Product		Species	Test Results	
Copper 182 Product				
	Aquatic			
	Crustacea	EC50	Daphnia	0.1601 mg/l, 48 hours estimated
	Fish	LC50	Fish	2.5299 mg/l, 96 hours estimated

Components		Species	Test Results	
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

Ecotoxicity	Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation	No data available.
Mobility in soil	The product is immiscible with water and will spread on the water surface.
Hazardous to the ozone layer	No data available.
Other hazardous effects	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.

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.

Local disposal regulations Contract with a disposal operator licensed by the Law on Disposal and Cleaning. 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. 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

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 applicable.

National regulations Follow regulation in section 15 for domestic transportation.

15. Regulatory information

Industrial Safety and Health Act

Notifiable substances

CHROMIUM AND CHROMIUM COMPOUNDS (EXCLUDING CHROMIC ACID AND CHROMIC ACID SALTS AND DICHROMIC ACID AND DICHROMATE)	Table 9 Ordinance No. 142	0.80 - 1.2 %
COPPER AND COPPER COMPOUNDS	Table 9 Ordinance No. 379	99 - 99 %

Labeling substances

CHROMIUM (POWDER)		0.80 - 1.2 %
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CHROMIUM AND CHROMIUM COMPOUNDS (EXCLUDING
CHROMIC ACID AND CHROMIC ACID SALTS AND
DICHROMIC ACID AND DICHROMATE)

0.80 - 1.2 %

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)

CHROMIUM AND CHROMIUM(III) Ordinance No. 87 1.2 % (Chromium)
COMPOUNDS

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.

Water Pollution Control Act

CHROMIUM

COPPER

Sewage Act

CHROMIUM AND ITS COMPOUNDS, EXCEPT 2 MG/L

HEXAVALENT CHROMIUM COMPOUNDS (AS CR)

COPPER AND ITS COMPOUNDS (AS CU) 3 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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Revision information

This document has undergone significant changes and should be reviewed in its entirety.