



CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

MATERION

Product name: Copper Gallium Targets

Issue date: 11-25-2019

Revision date: 05-26-2021


Version #: 02

SDS No: G04

SECTION 1 Chemical product and company identification

Chinese name of chemical	NEEDED - CHINESE NAME OR TRADE NAME WITH CHINESE USER DESCRIPTOR.
English name of chemical	Copper Gallium Targets
Manufacturer/Supplier	Materion Advanced Materials
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States
Contact person	Theodore Knudson
Telephone	1.216.383.4019
e-mail	ehs@materion.com
Emergency telephone number	See Section 16.
Issue date	11-25-2019
Revision date	05-26-2021
Supersedes date	11-25-2019
SDS No	G04

SECTION 2 Hazards identification

Emergency overview	Causes severe skin burns and eye damage.	
GHS hazard categories		
Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	
Label elements		
Pictograms		
Signal word	Danger	
Hazard statement		
H314	Causes severe skin burns and eye damage.	
H318	Causes serious eye damage.	
Precautionary statement		
Prevention		
P264	Wash thoroughly after handling.	
P280	Wear protective gloves/protective clothing/eye protection/face protection.	
Response		
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.	
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.	
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.	
P305 + P351 + P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	

P310 Immediately call a POISON CENTER/doctor.

P363 Wash contaminated clothing before reuse.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Physical and chemical hazards

The product is stable and non-reactive under normal conditions of use, storage and transport. No unusual fire or explosion hazards noted.

Health hazards

Health injuries are not known or expected under normal use. Causes serious eye damage. Causes severe skin burns. Causes digestive tract burns. May cause irritation to the respiratory system.

Environmental hazards

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.

Supplemental information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

SECTION 3 Composition/information on ingredients**Substance/mixture**

Mixture

Chemical name	Concentration (%)	CAS Number
铜 Copper	55 - 85	7440-50-8
镓 Gallium	15 - 45	7440-55-3

SECTION 4 First aid measures**Inhalation**

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

Skin contact

Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms and health effects

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Personal protection for first-aid responders

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. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

SECTION 5 Fire-fighting measures**Extinguishing media**

Powder. Dry sand.

Extinguishing media to avoid

Water.

Specific hazards

This product is not flammable.

Special fire fighting procedures

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

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.

SECTION 6 Accidental release measures

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. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. 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.

Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Avoid discharge into drains, water courses or onto the ground.

Clean-up methods and materials and containment measures The product is immiscible with water and will spread on the water surface. Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Prevention of secondary hazards Not available.

SECTION 7 Handling and storage

Handling Do not get in eyes, on skin, or on clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Storage Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

SECTION 8 Exposure controls/personal protection

Exposure limits

China OELs. Occupational Exposure Limits for Hazardous Agents in the Workplace, Chemical Hazardous Agents (GBZ 2.1-2007)

Components	Type	Value	Form
Copper (CAS 7440-50-8)	PC-TWA	1 mg/m ³	Dust.
		0.2 mg/m ³	Fume.

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

Monitoring methods Follow standard monitoring procedures.

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. Eye wash facilities and emergency shower must be available when handling this product.

Personal protective equipment

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

Hand protection Wear gloves to prevent metal cuts and skin abrasions during handling.

Eye 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.

Skin and body protection Wear necessary protective equipment.

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.

SECTION 9 Physical and chemical properties

Appearance	Solid.
Physical state	Solid.
Form	Solid.
Color	Brass.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	905 - 1796 °F (485 - 980 °C) estimated / Not applicable.
Boiling point, initial boiling point, and boiling range	Not applicable.
Flash point	Not applicable.
Flammability limit - lower (%)	Not applicable.
Flammability limit - lower (%) temperature	Not applicable.
Flammability limit - upper (%)	Not applicable.
Flammability limit - upper (%) temperature	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.
Relative density	Not applicable.
Density	7.20 - 8.30 g/cm3 estimated
Solubility(ies)	
Solubility (water)	Insoluble.
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Other data	
Explosive properties	Not explosive.
Flammability	Not applicable.
Oxidizing properties	Not oxidizing.
Viscosity	Not applicable.

SECTION 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.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Acids. Bases.

Hazardous decomposition products No hazardous decomposition products are known.

SECTION 11 Toxicological information

Acute toxicity None known.

Routes of exposure Skin contact. Eye contact.

Symptoms Burning pain and severe corrosive skin damage. Causes serious eye damage.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitizer Not a skin sensitizer.

Germ cell mutagenicity Not classified.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

Toxic to reproduction This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity following single exposure Not classified.

Specific target organ toxicity following repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects None known.

SECTION 12 Ecological information

Ecotoxicological data

Product	Species	Test Results
Copper Gallium Targets		
Aquatic		
<i>Acute</i>		
Fish	LC50	0.0382 mg/l, 96 hours estimated
Components	Species	Test Results
Copper (CAS 7440-50-8)		
Aquatic		
<i>Acute</i>		
Crustacea	EC50	0.0031 mg/l
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>) 0.0219 - 0.0446 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Ecotoxicity The product is not classified as environmentally hazardous.

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

Bioaccumulation No data available.

Mobility in soil The product is insoluble in water.

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.

SECTION 13 Disposal considerations

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). Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options.

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 Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14 Transport information

CNDG

Not regulated as dangerous goods.

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.

SECTION 15 Regulatory information

Law of the People's Republic of China on Prevention and Control of Occupational Diseases

Classification of occupational disease hazards

COPPER AND ITS COMPOUNDS (CAS 7440-50-8)

Regulations on the Control over Safety of Dangerous Chemicals

Catalog of Hazardous Chemicals

Gallium (CAS 7440-55-3)

Provision on the Environmental Administration of New Chemical Substances

China Inventory of Existing Chemical Substances

Country(s) or region	Inventory name	On inventory (yes/no)*
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Other regulations This safety data sheet conforms to the following laws, regulations and standards:
 Measures for the Safe Use of Chemicals in Workplaces
 General Rules for Preparation of Precautionary Labels for Chemicals (GB15258-2009)
 Regulations on Labor Protection in Workplaces Where Toxic Products Are Used
 Packing Symbol of Dangerous Goods(GB190-2009)
 Regulations on the Control over Safety of Dangerous Chemicals
 Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/T 16483-2008)
 Packing - Pictorial Marking for Handling of Goods (GB/T191-2009)

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

SECTION 16 Other information**References**

EPA: AQUIRE database
GB6944-2012: Classification and Code of Dangerous Goods.
GB12268-2012: List of Dangerous Goods.
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents

Further information

Transportation Emergency
Call Chemtrec at:
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402

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Other information

Revised information in Section 16.