

PRODUCT INFORMATION SHEET

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

1.1. Product identifier

Trade name or designation of the mixture	Copper Gallium Targets
Registration number	-
Document number	G04
Synonyms	None.
Issue date	07-June-2019
Version number	03
Revision date	28-May-2021
Supersedes date	07-June-2019

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

Identified uses	Industrial uses: Uses of substances as such or in preparations at industrial sites Offshore industries Manufacture of basic metals, including alloys Manufacture of computer, electronic and optical products, electrical equipment General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment Scientific research and development Other: Manufacture of medical and defense equipment
Uses advised against	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)

1.3. Details of the supplier of the product information sheet

Supplier

Company name	Materion Advanced Materials
Address	6070 Parkland Boulevard United States
Division	
Telephone	1.216.383.4019
e-mail	ehs@materion.com
Contact person	Theodore Knudson

1.4. Emergency telephone number See Section 16.

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 Category 1
aquatic hazard

Hazardous to the aquatic environment, Category 1
long-term aquatic hazard

Hazard summary 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:	COPPER FLAKES (COATED WITH ALIPHATIC ACID), Gallium
Hazard pictograms	None.
Signal word	None.
Hazard statements	The mixture does not meet the criteria for classification.

Precautionary statements

Prevention

P264 Wash thoroughly after handling.

Response

P305 + P351 + P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P405 Store locked up.

Disposal

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

Supplemental label information

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

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 FLAKES (COATED WITH ALIPHATIC ACID)	55 - 85	7440-50-8 231-159-6	01-2119480154-42-0080	-	
Classification: -					
Gallium	15 - 45	7440-55-3 231-163-8	-	-	
Classification: Skin Corr. 1C;H314, Eye Dam. 1;H318					

SECTION 4: First aid measures

General information

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.

4.1. Description of first aid measures

Inhalation

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

Skin contact

Get medical attention if irritation develops and persists.

Eye contact

Rinse with water. Get medical attention if irritation develops or 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.

5.2. Special hazards arising from the substance or mixture

This product is not flammable.

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	Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. For personal protection, see section 8 of the PIS.
For emergency responders	Keep unnecessary personnel away.

6.2. Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases.

6.3. Methods and material for containment and cleaning up

Stop the flow of material, if this is without risk.

6.4. Reference to other sections

For personal protection, see section 8 of the PIS. For waste disposal, see section 13 of the PIS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Provide adequate ventilation. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up.

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
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	MAK	1 mg/m ³	Inhalable fraction.
	STEL	0,1 mg/m ³	Fume and respirable dust.
		4 mg/m ³	Inhalable fraction.
		0,4 mg/m ³	Fume and respirable dust.

Belgium. Exposure Limit Values

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0,2 mg/m ³	Fume.

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

Components	Type	Value
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,1 mg/m ³

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	MAC	1 mg/m ³	
		0,2 mg/m ³	Dust and fume.
	STEL	2 mg/m ³	
2 mg/m ³		Dust and fume.	

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,2 mg/m ³	Fume.

Czech Republic. OELs. Government Decree 361 Components

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	Ceiling	2 mg/m ³	Dust.
	TWA	0,2 mg/m ³	Fume.
		1 mg/m ³	Dust.
		0,1 mg/m ³	Fume.

Denmark. Exposure Limit Values Components

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TLV	1 mg/m ³	Dust.
		0,1 mg/m ³	Fume.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m ³	Total dust.
		0,2 mg/m ³	Fine dust.

Finland. Workplace Exposure Limits Components

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,1 mg/m ³	Respirable dust and/or fume.
		0,02 mg/m ³	Respirable.

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

Components	Type	Value	Form	
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	VLE	2 mg/m ³	Dust.	
	Regulatory status: Indicative limit (VL)	VME	1 mg/m ³	Dust.
		0,2 mg/m ³	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	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,01 mg/m ³	Respirable fraction.

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	STEL	2 mg/m ³	Dust.
	TWA	1 mg/m ³	Dust.
		0,2 mg/m ³	Fume.

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	STEL	4 mg/m ³	
		0,4 mg/m ³	Smoke.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
	TWA	1 mg/m ³	
		0,1 mg/m ³	Smoke.

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m ³	Total dust.
		0,1 mg/m ³	Respirable dust.

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0,2 mg/m ³	Fume.

Italy. Occupational Exposure Limits

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0,2 mg/m ³	Fume.

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	STEL	1 mg/m ³	
	TWA	0,5 mg/m ³	

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m ³	Inhalable fraction.
		0,2 mg/m ³	Respirable fraction.

Netherlands. OELs (binding)

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,1 mg/m ³	Inhalable fraction.

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TLV	1 mg/m ³	Dust.
		0,1 mg/m ³	Fume.

Poland. 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
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,2 mg/m ³	

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.

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

Components	Type	Value	Form
		0,2 mg/m3	Fume.

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	STEL	1,5 mg/m3	Dust.
		0,2 mg/m3	Fume.
	TWA	0,5 mg/m3	Dust.

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	1 mg/m3	Inhalable fraction.
		0,2 mg/m3	Respirable fume.

Spain. Occupational Exposure Limits

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,1 mg/m3	Respirable fraction.

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

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	TWA	0,01 mg/m3	Respirable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	STEL	0,2 mg/m3	Inhalable fraction.
	TWA	0,1 mg/m3	Inhalable fraction.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)	STEL	2 mg/m3	Inhalable dusts and mists.
	TWA	1 mg/m3	Inhalable dusts and mists.
		0,2 mg/m3	Fume.

Biological limit values

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

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

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

Wear suitable protective clothing.

Eye/face 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 protection**- Hand protection**

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

- Other

Wear necessary protective equipment.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Not applicable.

Hygiene measures

Keep away from food and drink. 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

Environmental manager must be informed of all major releases.

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

Appearance	Solid.
Physical state	Solid.
Form	Solid.
Colour	Brass.
Odour	None.
Odour threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	485 - 980 °C (905 - 1796 °F) estimated / Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
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.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	Not applicable.
Solubility(ies)	
Solubility (water)	Insoluble.
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2. Other information

Density	7,20 - 8,30 g/cm ³ estimated
Flammability	Not applicable.
Specific gravity	7,92 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	Contact with incompatible materials.
10.5. Incompatible materials	Acids. Bases.
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

Inhalation	Prolonged inhalation may be harmful.
Skin contact	Not relevant, due to the form of the product.
Eye contact	Not relevant, due to the form of the product.
Ingestion	Not relevant, due to the form of the product.

Symptoms None known.

11.1. Information on toxicological effects

Acute toxicity	None known.
Skin corrosion/irritation	Not relevant, due to the form of the product.
Serious eye damage/eye irritation	Not likely, due to the form of the product.
Respiratory sensitisation	Not a respiratory sensitizer.
Skin sensitisation	Not a skin sensitiser.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	Not classifiable as to carcinogenicity to humans.

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

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Mixture versus substance information	No information available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity The product is not classified as environmentally hazardous.

Product		Species	Test Results
Copper Gallium Targets			
Aquatic			
Crustacea	EC50	Daphnia	0,2044 mg/l, 48 hours
Fish	LC50	Fish	3,0071 mg/l, 96 hours
<i>Acute</i>			
Fish	LC50	Fish	0,0382 mg/l, 96 hours estimated

Components	Species		Test Results
COPPER FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Blue crab (<i>Callinectes sapidus</i>)	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.

12.2. Persistence and degradability

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 soil Data

COPPER FLAKES (COATED WITH ALIPHATIC ACID) (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 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.

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 (EU) 2019/1021 On persistent organic pollutants (recast), 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

COPPER FLAKES (COATED WITH ALIPHATIC ACID) (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 FLAKES (COATED WITH ALIPHATIC ACID) (CAS 7440-50-8)

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. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, 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.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculator methods and test data, if available.

Training information

Follow training instructions when handling this material.

Further information

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

Disclaimer

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Other information

Revised information in Section 16.