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 ToughMet® Alloys

Registration number -

Document number L19

Synonyms ToughMet® 2, ToughMet® 3, Copper Alloy, Copper Nickel Alloy, Copper Nickel Tin Alloy, Spinodal Alloy, T2, T3, ArmaMet™, C72700, C72900, C96900, C96950, C96970, EquiMet® 2, EquiMet® 3

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
Electricity, steam, gas water supply and sewage treatment
Scientific research and development
Other: Manufacture of medical and defense equipment

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Brush Inc.
Address 6070 Parkland Boulevard
Mayfield Heights, OH 44124
United States
Division
Telephone 1.216.383.4019
e-mail ehs@materion.com
Contact person Theodore Knudson

1.4. Emergency telephone number 1.216.383.4019

1.3. Details of the supplier of the product information sheet

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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 classificatior applies.

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

Health hazards

Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Carcinogenicity	Category 2	H351 - Suspected of causing cancer.

Specific target organ toxicity - repeated exposure	Category 1 (Respiratory system)	H372 - Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

2.2. Label elements

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

Contains: Copper, Iron, Nickel, Tin, Zinc

Hazard pictograms

Signal word Warning

Hazard statements

H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Precautionary statements

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	In case of inadequate ventilation wear respiratory protection.

Response

P302 + P350	If on skin: Wash with plenty of water.
P308 + P313	If exposed or concerned: Get medical advice/attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a poison centre/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.

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

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Copper	74 - 85	7440-50-8 231-159-6	01-2119480154-42-0000	-	
Classification: -					
Nickel	8,5 - 15,5	7440-02-0 231-111-4	01-2119438727-29-0001	028-002-00-7	
Classification: Skin Sens. 1;H317, Carc. 2;H351, STOT SE 3;H335, STOT RE 2;H373					
Tin	5,5 - 8,5	7440-31-5 231-141-8	-	-	#
Classification: STOT SE 3;H335, STOT RE 1;H372					
Iron	0 - 0,5	7439-89-6 231-096-4	-	-	
Classification: STOT RE 1;H372					

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Zinc	0 - 0,5	7440-66-6 231-175-3	-	030-001-01-9	
Classification: Water-React. 3;H261					

List of abbreviations and symbols that may be used above

CLP: Regulation No. 1272/2008.
DSD: Directive 67/548/EEC.

SECTION 4: First aid measures

General information Under normal conditions of intended use, this material does not pose a risk to health.

4.1. Description of first aid measures

Inhalation Breathing difficulty caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help.

Skin contact Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be thoroughly cleansed. Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.

Ingestion Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed May cause allergic skin reaction. Prolonged exposure may cause chronic effects.

4.3. Indication of any immediate medical attention and special treatment needed Not applicable.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media Not applicable, non-combustible. None known.

5.2. Special hazards arising from the substance or mixture Product is not considered combustible.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear suitable protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel As supplied, this product poses no special release issues.

For emergency responders As supplied, this product poses no special release issues. Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the PIS.

6.2. Environmental precautions Not relevant, due to the form of the product.

6.3. Methods and material for containment and cleaning up Not relevant, due to the form of the product.

6.4. Reference to other sections Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid prolonged exposure. Use personal protective equipment as required.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. Keep out of the reach of children.

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Hungary. OELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 1&2, as amended

Components	Type	Value
Copper (CAS 7440-50-8)	STEL	0,2 mg/m3

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU

Components	Type	Value
Tin (CAS 7440-31-5)	TWA	2 mg/m3

Biological limit values

Hungary. BELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 3&4, as amended

Components	Value	Determinant	Specimen	Sampling Time
Nickel (CAS 7440-02-0)	0,051 µmol/l	Nickel	Urine	*
	0,003 mg/l	Nickel	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 (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.

Individual protection measures, such as personal protective equipment

General information As a standard hygiene practice, wash hands before eating or smoking.

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 contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling.

- Other Protective overgarments or work clothing must be worn by persons who may become contaminated with particulate during activities.

Respiratory protection When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.

Thermal hazards Not applicable.

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. Contaminated work clothing should not be allowed out of the workplace.

Environmental exposure controls Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Form	Various shapes.
Colour	Bronze.
Odour	Not applicable.
Odour threshold	Not applicable.
Melting point/freezing point	950 °C (1742 °F) estimated / Not applicable.
Boiling point or initial boiling point and boiling range	Not applicable.
Flammability	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not applicable.
Explosive limit – upper (%)	Not applicable.
Flash point	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
pH	Not applicable.
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	Not applicable.
Partition coefficient (n-octanol/water) (log value)	Not available.
Vapour pressure	0,61 hPa estimated
Density and/or relative density	
Density	8,80 g/cm3 estimated
Relative density	Not applicable.
Vapour density	Not applicable.
Particle characteristics	Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes	No relevant additional information available.
9.2.2. Other safety characteristics	
Evaporation rate	Not applicable.
Specific gravity	8,8 estimated
Viscosity	Not applicable.

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	Strong acids. Chlorine.
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	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	May cause an allergic skin reaction.

Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms	May cause respiratory irritation. Coughing. Discomfort in the chest. Shortness of breath. May cause an allergic skin reaction. Dermatitis. Rash.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	May cause an allergic skin reaction. May cause respiratory irritation.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation	May cause an allergic skin reaction.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.

Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.

11.2. Information on other hazards

Endocrine disrupting properties	Not available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity

Product		**Species**	**Test Results**
ToughMet® Alloys			
Aquatic			
Acute			
Crustacea	EC50	Daphnia	280 mg/l, 48 hours estimated
Fish	LC50	Fish	0,037 mg/l, 96 hours estimated

Components		**Species**	**Test Results**
Copper (CAS 7440-50-8)			
Aquatic			
Acute			
Crustacea	EC50	Blue crab (Callinectes sapidus)	0,0031 mg/l
Fish	LC50	Chinook salmon (Oncorhynchus tshawytscha)	0,02 mg/l, 96 hours
Nickel (CAS 7440-02-0)			
Aquatic			
Acute			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,06 mg/l, 4 days

Components		Species	Test Results
Zinc (CAS 7440-66-6)			
Aquatic			
Acute			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,41 mg/l, 96 hours

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

12.2. Persistence and degradability	No data is available on the degradability of this product.
12.3. Bioaccumulative potential	Not available.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	Not available.
12.5. Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
12.6. Endocrine disrupting properties	Not available.
12.7. Other adverse effects	Not available.

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	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

14.1. UN number	Not regulated as dangerous goods.
14.2. UN proper shipping name	Not regulated as dangerous goods.
14.3. Transport hazard class(es)	
Class	Not assigned.
Subsidiary risk	-
Hazard No. (ADR)	Not assigned.
Tunnel restriction code	Not assigned.
14.4. Packing group	-
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not assigned.

RID

14.1. UN number	Not regulated as dangerous goods.
14.2. UN proper shipping name	Not regulated as dangerous goods.
14.3. Transport hazard class(es)	
Class	Not assigned.
Subsidiary risk	-
14.4. Packing group	-
14.5. Environmental hazards	No.

14.6. Special precautions for user Not assigned.

ADN

14.1. UN number Not regulated as dangerous goods.

14.2. UN proper shipping name Not regulated as dangerous goods.

14.3. Transport hazard class(es)

Class Not assigned.

Subsidiary risk -

14.4. Packing group -

14.5. Environmental hazards No.

14.6. Special precautions for user Not assigned.

IATA

14.1. UN number Not regulated as dangerous goods.

14.2. UN proper shipping name Not regulated as dangerous goods.

14.3. Transport hazard class(es)

Class Not assigned.

Subsidiary risk -

14.4. Packing group -

14.5. Environmental hazards No.

14.6. Special precautions for user Not assigned.

IMDG

14.1. UN number Not regulated as dangerous goods.

14.2. UN proper shipping name Not regulated as dangerous goods.

14.3. Transport hazard class(es)

Class Not assigned.

Subsidiary risk -

14.4. Packing group -

14.5. Environmental hazards

Marine pollutant No.

EmS Not assigned.

14.6. Special precautions for user Not assigned.

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 (CAS 7440-50-8)
Nickel (CAS 7440-02-0)
Zinc (CAS 7440-66-6)

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 - Conditions of restriction given for the associated entry number should be considered

Tin (CAS 7440-31-5) 75

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.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Not listed.

Other regulations	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. Pregnant women should not work with the product, if there is the least risk of exposure.
National regulations	Not applicable.
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	Not available.
Full text of any statements, which are not written out in full under sections 2 to 15	H261 In contact with water releases flammable gases. H317 May cause an allergic skin reaction. H335 May cause respiratory irritation. H351 Suspected of causing cancer. H372 Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation. H372 Causes damage to organs through prolonged or repeated exposure by inhalation. H373 May cause damage to organs through prolonged or repeated exposure.
Revision information	Product and Company Identification: Synonyms Composition / Information on Ingredients: Ingredient Classification Physical & Chemical Properties: Multiple Properties Transport Information: Material Transportation Information
Training information	Not available.
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