



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 Copper Stainless Steel Target
Registration number -
Document number 394
Synonyms None.
Issue date 02-October-2019
Version number 01

1.3. Details of the supplier of the product information 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

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

Health hazards

Acute toxicity, oral	Category 2	H300 - Fatal if swallowed.
Skin corrosion/irritation	Category 2	H315 - Causes skin irritation.
Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Skin sensitisation	Category 1	H317 - May cause an allergic skin reaction.
Carcinogenicity	Category 2	H351 - Suspected of causing cancer.
Specific target organ toxicity - single exposure	Category 3 respiratory tract irritation	H335 - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Category 2	H373 - May cause damage to organs through prolonged or repeated exposure.

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

Fatal if swallowed. May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer. Causes serious eye irritation. Causes skin irritation. May cause irritation to the respiratory system. May cause an allergic skin reaction. Prolonged exposure may cause chronic effects. Dangerous for the environment if discharged into watercourses. Occupational exposure to the substance or mixture may cause adverse health effects.

2.2. Label elements

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

Contains: Carbon, Chromium, copper, Iron, Manganese, Molybdenum, Nickel, Phosphorus, Silicon

Hazard pictograms



Signal word

Danger

Hazard statements

	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.
H300	Fatal if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

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.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTRE/doctor.
P330	Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P340	IF INHALED: Remove person to fresh air and keep 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.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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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. 100 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

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	50 - 85	7440-50-8 231-159-6	-	029-019-01-X	
Classification:	Aquatic Chronic 1;H410(M=100)				
Iron	40 - 80	7439-89-6 231-096-4	-	-	
Classification:	-				
Chromium	10 - 25	7440-47-3 231-157-5	-	-	#
Classification:	Aquatic Chronic 3;H412				
Nickel	5 - 20	7440-02-0 231-111-4	01-2119438727-29-0049	028-002-00-7	
Classification:	Skin Sens. 1;H317, STOT SE 3;H335, Carc. 2;H351, STOT RE 2;H373				7,S
Molybdenum	0,01 - 5	7439-98-7 231-107-2	-	-	
Classification:	-				
Manganese	0,01 - 3	7439-96-5 231-105-1	-	-	#
Classification:	-				
Silicon	0,01 - 2	7440-21-3 231-130-8	-	-	
Classification:	-				
Phosphorus	0,01 - 1	7723-14-0 231-768-7	-	015-002-00-7	
Classification:	Flam. Sol. 1;H228, Acute Tox. 2;H300, Skin Corr. 1A;H314, Eye Dam. 1;H318, Aquatic Acute 1;H400, Aquatic Chronic 3;H412				
Carbon	≤ 1	7440-44-0 231-153-3	-	-	
Classification:	Self-heat. 2;H252				

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union 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 H-statements is displayed in section 16.

SECTION 4: First aid measures**General information**

IF exposed or concerned: Get medical advice/attention. 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. Wash contaminated clothing before reuse.

4.1. Description of first aid measures**Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison centre or doctor/physician if you feel unwell.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion

Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

4.2. Most important symptoms and effects, both acute and delayed

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

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 Carbon dioxide (CO₂).

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

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 Move containers from fire area if you can do so without risk.

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 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.

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

Prevent product from entering drains.

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. Put material in suitable, covered, labeled containers.

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 Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not taste or swallow. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. 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**

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	MAK	5 mg/m ³	Respirable dust.
	STEL	10 mg/m ³	Respirable dust.
Chromium (CAS 7440-47-3)	MAK	2 mg/m ³	
copper (CAS 7440-50-8)	MAK	1 mg/m ³	Inhalable fraction.
		0,1 mg/m ³	Fume and respirable dust.
	STEL	4 mg/m ³	Inhalable fraction.
Manganese (CAS 7439-96-5)		0,4 mg/m ³	Fume and respirable dust.
	MAK	0,5 mg/m ³	Inhalable fraction.
Molybdenum (CAS 7439-98-7)	STEL	2 mg/m ³	Inhalable fraction.
	MAK	10 mg/m ³	Inhalable fraction.
Phosphorus (CAS 7723-14-0)	STEL	20 mg/m ³	Inhalable fraction.
	Ceiling	0,2 mg/m ³	Inhalable fraction.
	MAK	0,1 mg/m ³	Inhalable fraction.

Austria. TRK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Nickel (CAS 7440-02-0)	STEL	2 mg/m ³	Inhalable dust.
	TWA	0,5 mg/m ³	Inhalable dust.

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	
copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0,2 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	
Molybdenum (CAS 7439-98-7)	TWA	10 mg/m ³	
Nickel (CAS 7440-02-0)	TWA	1 mg/m ³	
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m ³	
		0,02 ppm	
Silicon (CAS 7440-21-3)	TWA	10 mg/m ³	

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	3,5 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
copper (CAS 7440-50-8)	TWA	0,1 mg/m ³	
Iron (CAS 7439-89-6)	TWA	6 mg/m ³	Inhalable fraction.
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	
	TWA	0,3 mg/m ³	
Molybdenum (CAS 7439-98-7)	TWA	10 mg/m ³	
Nickel (CAS 7440-02-0)	TWA	0,05 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
Carbon (CAS 7440-44-0)	MAC	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	MAC	2 mg/m ³	
copper (CAS 7440-50-8)	MAC	0,21 mg/m ³	Dust and fume.
	STEL	2 mg/m ³	Dust and fume.
Manganese (CAS 7439-96-5)	MAC	0,5 mg/m ³	
Nickel (CAS 7440-02-0)	MAC	0,5 mg/m ³	
Phosphorus (CAS 7723-14-0)	MAC	0,1 mg/m ³	
	STEL	0,3 ppm	
Silicon (CAS 7440-21-3)	STEL	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	10 mg/m ³	
copper (CAS 7440-50-8)	TWA	0,2 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TWA	5 mg/m ³	
Nickel (CAS 7440-02-0)	TWA	1 mg/m ³	
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m ³	

Czech Republic. OELs. Government Decree 361

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	Ceiling	1,5 mg/m ³	
	TWA	0,5 mg/m ³	Dust.
		0,5 mg/m ³	
copper (CAS 7440-50-8)	Ceiling	2 mg/m ³	Dust.
		0,2 mg/m ³	Fume.
	TWA	1 mg/m ³	Dust.
		0,1 mg/m ³	Fume.
Iron (CAS 7439-89-6)	TWA	10 mg/m ³	
Manganese (CAS 7439-96-5)	Ceiling	2 mg/m ³	
	TWA	1 mg/m ³	
Molybdenum (CAS 7439-98-7)	Ceiling	25 mg/m ³	
	TWA	5 mg/m ³	
Nickel (CAS 7440-02-0)	Ceiling	1 mg/m ³	
	TWA	0,5 mg/m ³	
Phosphorus (CAS 7723-14-0)	Ceiling	0,3 mg/m ³	
	TWA	0,1 mg/m ³	

Denmark. Exposure Limit Values

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TLV	2,5 mg/m ³	Respirable.
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m ³	Dust.
copper (CAS 7440-50-8)	TLV	1 mg/m ³	Dust.
		0,1 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TLV	0,2 mg/m ³	Dust.
		0,2 mg/m ³	Fume.

Denmark. Exposure Limit Values Components

Components	Type	Value	Form
Molybdenum (CAS 7439-98-7)	TLV	0,1 mg/m3 10 mg/m3	Respirable.
Nickel (CAS 7440-02-0)	TLV	0,05 mg/m3	Dust.
Phosphorus (CAS 7723-14-0)	TLV	0,1 mg/m3	
Silicon (CAS 7440-21-3)	TLV	10 mg/m3	

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	3 mg/m3	Dust.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
copper (CAS 7440-50-8)	TWA	1 mg/m3	Total dust.
		0,2 mg/m3	Respirable dust.
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m3	Total dust.
		0,1 mg/m3	Respirable dust.
Molybdenum (CAS 7439-98-7)	TWA	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m3	
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m3	
Silicon (CAS 7440-21-3)	TWA	5 mg/m3 10 mg/m3	Respirable dust.

Finland. Workplace Exposure Limits Components

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	2 mg/m3	
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	
copper (CAS 7440-50-8)	TWA	0,1 mg/m3	Respirable dust and/or fume.
		0,02 mg/m3	Respirable.
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m3	Inhalable dust.
		0,02 mg/m3	Respirable.
Molybdenum (CAS 7439-98-7)	TWA	0,5 mg/m3	
Nickel (CAS 7440-02-0)	TWA	0,01 mg/m3	Respirable.
Phosphorus (CAS 7723-14-0)	STEL	0,1 mg/m3	

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	VME	5 mg/m3	Respirable fraction.
Regulatory status: Regulatory binding (VRC)			
		2 mg/m3	Respirable fraction.
Regulatory status: Indicative limit (VL)			
		10 mg/m3	Inhalable fraction.
Regulatory status: Regulatory binding (VRC)			
Chromium (CAS 7440-47-3)	VME	2 mg/m3	
Regulatory status: Regulatory indicative (VRI)			
copper (CAS 7440-50-8)	VLE	2 mg/m3	Dust.
Regulatory status: Indicative limit (VL)			

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

Components	Type	Value	Form
	VME	1 mg/m3	Dust.
Regulatory status: Indicative limit (VL)			
		0,2 mg/m3	Fume.
Regulatory status: Indicative limit (VL)			
Manganese (CAS 7439-96-5)	VME	1 mg/m3	Fume.
Regulatory status: Indicative limit (VL)			
Nickel (CAS 7440-02-0)	VME	1 mg/m3	
Regulatory status: Indicative limit (VL)			
Phosphorus (CAS 7723-14-0)	VLE	0,3 mg/m3	
Regulatory status: Indicative limit (VL)			
	VME	0,1 mg/m3	
Regulatory status: Indicative limit (VL)			
Silicon (CAS 7440-21-3)	VME	10 mg/m3	
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 (CAS 7440-50-8)	TWA	0,01 mg/m3	Respirable fraction.
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m3	Inhalable fraction.
		0,02 mg/m3	Respirable fraction.
Phosphorus (CAS 7723-14-0)	TWA	0,01 mg/m3	Inhalable fraction.

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	AGW	10 mg/m3	Inhalable fraction.
		1,25 mg/m3	Respirable fraction.
Chromium (CAS 7440-47-3)	AGW	2 mg/m3	Inhalable fraction.
Manganese (CAS 7439-96-5)	AGW	0,2 mg/m3	Inhalable fraction.
		0,02 mg/m3	Respirable fraction.
Nickel (CAS 7440-02-0)	AGW	0,006 mg/m3	Respirable fraction.
Phosphorus (CAS 7723-14-0)	AGW	0,01 mg/m3	Inhalable fraction.

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Inhalable
Chromium (CAS 7440-47-3)	TWA	1 mg/m3	
copper (CAS 7440-50-8)	STEL	2 mg/m3	Dust.
	TWA	1 mg/m3	Dust.
		0,2 mg/m3	Fume.
Nickel (CAS 7440-02-0)	TWA	1 mg/m3	
Phosphorus (CAS 7723-14-0)	STEL	0,3 mg/m3	
	TWA	0,1 mg/m3	
Silicon (CAS 7440-21-3)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Inhalable

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	6 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.
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	
Manganese (CAS 7439-96-5)	STEL	0,1 mg/m3	Smoke.
		20 mg/m3	
Molybdenum (CAS 7439-98-7)	TWA	5 mg/m3	
	STEL	60 mg/m3	
Nickel (CAS 7440-02-0)	TWA	15 mg/m3	
	Ceiling	0,1 mg/m3	
Phosphorus (CAS 7723-14-0)	STEL	0,1 mg/m3	
	TWA	0,1 mg/m3	

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

Components	Type	Value	Form
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.
Manganese (CAS 7439-96-5)	STEL	5 mg/m3	Total dust.
	TWA	2,5 mg/m3	Total dust.
Molybdenum (CAS 7439-98-7)	TWA	1 mg/m3	Respirable dust.
		10 mg/m3	
Nickel (CAS 7440-02-0)	TWA	0,05 mg/m3	Dust.
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m3	
Silicon (CAS 7440-21-3)	TWA	0,7 mg/m3	
		0,5 ppm	

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	
copper (CAS 7440-50-8)	STEL	2 mg/m3	Dust and mist.
		1 mg/m3	Dust and mist.
	TWA	0,2 mg/m3	Fume.
Manganese (CAS 7439-96-5)	STEL	3 mg/m3	Inhalable fume.
		TWA	0,2 mg/m3
	TWA	0,2 mg/m3	Inhalable fume.
Molybdenum (CAS 7439-98-7)	TWA	0,02 mg/m3	Respirable fume.
		3 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m3	
Phosphorus (CAS 7723-14-0)	STEL	0,3 mg/m3	

Ireland. Occupational Exposure Limits Components

Components	Type	Value	Form
Silicon (CAS 7440-21-3)	TWA	0,1 mg/m ³	
	TWA	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total inhalable dust.

Italy. Occupational Exposure Limits Components

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	
copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0,2 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TWA	0,1 mg/m ³	Inhalable fraction.
		0,02 mg/m ³	Respirable fraction.
Molybdenum (CAS 7439-98-7)	TWA	3 mg/m ³	Respirable fraction.
		10 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1,5 mg/m ³	Inhalable fraction.
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m ³	

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
copper (CAS 7440-50-8)	STEL	1 mg/m ³	
	TWA	0,5 mg/m ³	
Manganese (CAS 7439-96-5)	TWA	0,1 mg/m ³	Welding fume.
		0,05 mg/m ³	
Nickel (CAS 7440-02-0)	TWA	0,05 mg/m ³	
Phosphorus (CAS 7723-14-0)	TWA	0,03 mg/m ³	

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
copper (CAS 7440-50-8)	TWA	1 mg/m ³	Inhalable fraction.
		0,2 mg/m ³	Respirable fraction.
Manganese (CAS 7439-96-5)	TWA	1 mg/m ³	Inhalable fraction.
		0,5 mg/m ³	Respirable fraction.
Molybdenum (CAS 7439-98-7)	TWA	5 mg/m ³	Respirable fraction.
		5 mg/m ³	
		10 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m ³	
Phosphorus (CAS 7723-14-0)	TWA	0,03 mg/m ³	

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

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

Netherlands. OELs (binding) Components

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	
copper (CAS 7440-50-8)	TWA	0,1 mg/m ³	Inhalable fraction.

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m ³	
copper (CAS 7440-50-8)	TLV	1 mg/m ³	Dust.
		0,1 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TLV	1 mg/m ³	Inhalable fraction.
		0,1 mg/m ³	Respirable fraction.
Molybdenum (CAS 7439-98-7)	TLV	10 mg/m ³	
Nickel (CAS 7440-02-0)	TLV	0,05 mg/m ³	
Phosphorus (CAS 7723-14-0)	TLV	0,1 mg/m ³	
Silicon (CAS 7440-21-3)	TLV	10 mg/m ³	

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
Carbon (CAS 7440-44-0)	TWA	4 mg/m ³	Inhalable fraction.
		1 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	
copper (CAS 7440-50-8)	TWA	0,2 mg/m ³	
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.
Molybdenum (CAS 7439-98-7)	STEL	10 mg/m ³	
	TWA	4 mg/m ³	
Nickel (CAS 7440-02-0)	TWA	0,25 mg/m ³	
Phosphorus (CAS 7723-14-0)	STEL	0,24 mg/m ³	
	TWA	0,03 mg/m ³	

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/m ³

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	2 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	
copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0,2 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TWA	0,1 mg/m ³	Inhalable fraction.
		0,02 mg/m ³	Respirable fraction.
Molybdenum (CAS 7439-98-7)	TWA	3 mg/m ³	Respirable fraction.
		10 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1,5 mg/m ³	Inhalable fraction.
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m ³	

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	2 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
copper (CAS 7440-50-8)	STEL	1,5 mg/m ³	Dust.

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

Components	Type	Value	Form
		0,2 mg/m ³	Fume.
	TWA	0,5 mg/m ³	Dust.
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	
	TWA	0,5 mg/m ³	
Molybdenum (CAS 7439-98-7)	STEL	10 mg/m ³	
	TWA	2 mg/m ³	
Nickel (CAS 7440-02-0)	STEL	0,5 mg/m ³	
	TWA	0,1 mg/m ³	
Phosphorus (CAS 7723-14-0)	STEL	0,15 mg/m ³	
	TWA	0,05 mg/m ³	

Slovakia. OELs for carcinogens and mutagens. Regulation No. 46/2002 on carcinogenic and mutagenic substances

Components	Type	Value	Form
Nickel (CAS 7440-02-0)	TWA	0,05 mg/m ³	Inhalable fraction.

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

Components	Type	Value	Form
copper (CAS 7440-50-8)	TWA	1 mg/m ³	Inhalable fraction.
		0,2 mg/m ³	Respirable fume.
Iron (CAS 7439-89-6)	TWA	6 mg/m ³	
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m ³	
Molybdenum (CAS 7439-98-7)	TWA	5 mg/m ³	Respirable fraction.
		5 mg/m ³	
		10 mg/m ³	Inhalable fraction.
Phosphorus (CAS 7723-14-0)	STEL	0,1 mg/m ³	
	TWA	0,05 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	4 mg/m ³	Respirable fraction.
		10 mg/m ³	Inhalable fraction.

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
copper (CAS 7440-50-8)	TWA	1 mg/m ³	Inhalable fraction.
		0,1 mg/m ³	Respirable fume.
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m ³	Inhalable fraction.
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m ³	Inhalable fraction.

Spain. Occupational Exposure Limits

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0,2 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Spain. Occupational Exposure Limits Components

Components	Type	Value	Form
Molybdenum (CAS 7439-98-7)	TWA	3 mg/m ³	Respirable fraction.
		10 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1 mg/m ³	
Phosphorus (CAS 7723-14-0)	TWA	0,1 mg/m ³	
		0,02 ppm	

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	0,2 fibers/ml	
		5 mg/m ³	Inhalable dust.
		2,5 mg/m ³	Respirable dust.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	Total dust.
copper (CAS 7440-50-8)	TWA	0,01 mg/m ³	Respirable dust.
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable dust.
		0,05 mg/m ³	Respirable dust.
Molybdenum (CAS 7439-98-7)	TWA	5 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz Components

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	Inhalable fraction.
copper (CAS 7440-50-8)	STEL	0,2 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m ³	Inhalable fraction.
Molybdenum (CAS 7439-98-7)	TWA	10 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m ³	Inhalable fraction.
Phosphorus (CAS 7723-14-0)	STEL	0,02 mg/m ³	Inhalable fraction.
	TWA	0,02 mg/m ³	Inhalable fraction.
Silicon (CAS 7440-21-3)	TWA	3 mg/m ³	Respirable fraction.

UK. EH40 Workplace Exposure Limits (WELs) Components

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	4 mg/m ³	Respirable dust.
		10 mg/m ³	Inhalable dust.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	
copper (CAS 7440-50-8)	STEL	2 mg/m ³	Inhalable dusts and mists.
	TWA	1 mg/m ³	Inhalable dusts and mists.
		0,2 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m ³	
Molybdenum (CAS 7439-98-7)	STEL	20 mg/m ³	
	TWA	10 mg/m ³	
Nickel (CAS 7440-02-0)	TWA	0,5 mg/m ³	
Phosphorus (CAS 7723-14-0)	STEL	0,3 mg/m ³	
	TWA	0,1 mg/m ³	

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Silicon (CAS 7440-21-3)	TWA	4 mg/m ³	Respirable dust.
		10 mg/m ³	Inhalable dust.

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

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	*
Nickel (CAS 7440-02-0)	0,077 µmol/mmol	Nickel	Creatinine in urine	*
	0,04 mg/g	Nickel	Creatinine in urine	*

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

Finland. HTP-arvot, App 2., Biological Limit Values, (BRA/BGV) , Social Affairs and Ministry of Health

Components	Value	Determinant	Specimen	Sampling Time
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Nickel (CAS 7440-02-0)	0,1 µmol/l	Nickel	Urine	*
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* - 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	*
Nickel (CAS 7440-02-0)	0,02 mg/g	Nickel	Creatinine in urine	*
	0,038 µmol/mmol	Nickel	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.

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Determinant	Specimen	Sampling Time
Manganese (CAS 7439-96-5)	20 µg/l	Mangan	Blood	*
Nickel (CAS 7440-02-0)	45 µg/l	Nickel	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 µmol/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. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. 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 appropriate chemical resistant clothing. Use of an impervious apron is recommended.

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

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

Observe any medical surveillance requirements. 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. Contaminated work clothing should not be allowed out of the workplace.

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 44,1 °C (111,38 °F) estimated

Initial boiling point and boiling range 280 °C (536 °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 2974,58 hPa estimated

Vapour density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Not available.

Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	452 °C (845,6 °F) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2. Other information

Density	8,49 g/cm ³ estimated
Specific gravity	8,49 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 acids. 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	
Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Ingestion	Fatal if swallowed.
Symptoms	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

11.1. Information on toxicological effects

Acute toxicity	Fatal if swallowed.
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Components	Species	Test Results
Carbon (CAS 7440-44-0)		
Acute		
Oral		
LD50	Rat	> 10000 mg/kg
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/eye irritation	Causes serious eye irritation.	
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.	
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.	

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

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

Nickel (CAS 7440-02-0)	Carcinogenic, Category 2.
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Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
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Specific target organ toxicity - single exposure	May cause respiratory irritation.
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.
Other information	Not available.

SECTION 12: Ecological information

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

Product	Species	Test Results
Copper Stainless Steel Target		
Aquatic		
Crustacea	EC50 Daphnia	0,1882 mg/l, 48 hours estimated
Fish	LC50 Fish	2,0791 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

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

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
Molybdenum (CAS 7439-98-7)	Molybdenum (Mo) 5 ug/l Molybdenum (Mo) 70 ug/l
Nickel (CAS 7440-02-0)	Nickel (Ni) 10 ug/l Nickel (Ni) 200 ug/l
Phosphorus (CAS 7723-14-0)	Pesticides (total) 0,5 ug/l Pesticides (total) 5 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
Molybdenum (CAS 7439-98-7)	Molybdenum (Mo) 10 mg/kg Molybdenum (Mo) 20 mg/kg Molybdenum (Mo) 200 mg/kg
Nickel (CAS 7440-02-0)	Nickel (Ni) 150 mg/kg Nickel (Ni) 50 mg/kg Nickel (Ni) 500 mg/kg
Phosphorus (CAS 7723-14-0)	Synthetic pesticides (total of active substances) 0,5 mg/kg Synthetic pesticides (total of active substances) 20 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**

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

RID

14.1. UN number	UN3178
14.2. UN proper shipping name	Flammable solid, inorganic, n.o.s. (Silicon)
14.3. Transport hazard class(es)	
Class	4.1
Subsidiary risk	-
Label(s)	4.1
14.4. Packing group	III
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

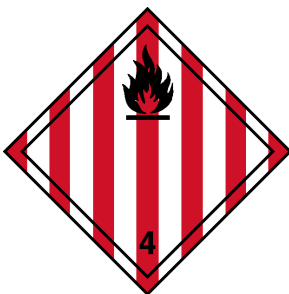
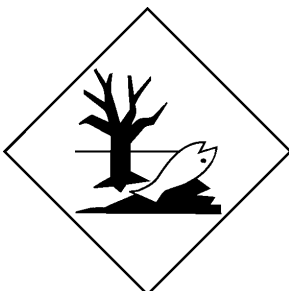
14.1. - 14.6.: Not regulated as dangerous goods.

IATA

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

IMDG

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

RID**Marine pollutant**

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

Carbon (CAS 7440-44-0)

Chromium (CAS 7440-47-3)

copper (CAS 7440-50-8)

Nickel (CAS 7440-02-0)

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

Nickel (CAS 7440-02-0)

Phosphorus (CAS 7723-14-0)

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)

Phosphorus (CAS 7723-14-0)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

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. 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. To avoid any misunderstandings or incorrect assumptions by the receiver of the safety information, it should be made clear that the supplied information is not in the form of a Safety Data Sheet (SDS), but is actually a voluntary Product Information Sheet closely following the guidelines of the Safety Data Sheet – COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 (REACH/SDS).