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

1.1. Product identifier

Trade name/designation : COPPER PASTE PM8B
Product code : 2500, 36, 4000, 5000, 6000, 9000, 13000, FT, 330000, A33000 / PM8B / 80-20, 85-15/ Basic Colour: Copper Gold

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

Main use category : Industrial uses, Professional uses .

1.3. Details of the supplier of the safety data sheet

Company : AVL METAL POWDERS n.v.
Elleboogstraat 7
B-8500 Kortrijk , Belgium, Europe
Telephone +32 (0)56 22 00 21
Telefax: +32 (0)56 22 64 14
E-mail: sales@avlmetalpowders.com
Website: www.avlmetalpowders.com
VAT: BE 0405 375 371 - RPR Kortrijk

1.4. Emergency telephone number

Emergency telephone : +32 (0)475 38 36 83 (This telephone number is available 24 hours per day, 7 days per week.)

IRELAND (REPUBLIC OF)
National Poisons Information Centre
Beaumont Hospital +353 18 37 99 64/+353 1 809 21 66
UNITED KINGDOM
National Poisons Information Service
(Newcastle Centre) 0844 892 0111 (UK only, Monday to Friday, 08.00 to 18.00 hours)
Regional Drugs and Therapeutics Centre,
Wolfson Unit

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EU) 1272/2008

CLP-Classification : The product is classified as hazardous in accordance with Regulation (EC) No. 1272/2008.


Flam. Sol. 1 H228
Acute Tox. 4 (Oral) H302
Aquatic Acute 1 H400
Aquatic Chronic 2 H411

Full text of H-phrases: see section 16

2.1.2. Classification according to EU Directives 67/548/EEC or 1999/45/EC

Classification : This mixture is classified as hazardous according to 1999/45/EC.
F; R11
Xn; R22
N; R50/53
N; R50

Full text of R-phrases: see section 16

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2.2. Label elements

2.2.1. Labelling according to Regulation (EU) 1272/2008

Hazard pictograms :



GHS02

GHS07

GHS09

Signal word :

Danger

Contains :

Coated Copper Flakes

1-methoxy-2-propanol

Hazard statements :

H228 - Flammable solid.

H302 - Harmful if swallowed.

H400 - Very toxic to aquatic life.

H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P240 - Ground/bond container and receiving equipment.

P241 - Use explosion-proof electrical/ ventilating/ lighting/ / equipment.

P264 - Wash thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 - IF SWALLOWED: Call a POISON CENTER/doctor/ if you feel unwell.

P330 - Rinse mouth.

P370+P378 - In case of fire: Use ... to extinguish

P391 - Collect spillage.

P501 - Dispose of contents/ container to an approved waste disposal plant.

2.2.2. Labelling according to Directives (67/548 - 1999/45)

Not relevant

2.3. Other hazards

Other hazards :

PBT/vPvB data :

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).


SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Substance name	Product identifier	%	Classification according to Directive 67/548/EEC
copper	(CAS No.) 7440-50-8 (EC No) 231-159-6 (REACH-no) 01-2119480154-42-XXXX	80 - 85	Xn; R22 N; R50 F; R11 R53
1-methoxy-2-propanol, monopropylene glycol methyl ether	(CAS No.) 107-98-2 (EC No) 203-539-1 (EC Index) 603-064-00-3 (REACH-no) 01-2119457435-35-XXXX	12,4 - 17,6	R10 R67
xylene	(CAS No.) 1330-20-7 (EC No) 215-535-7 (EC Index) 601-022-00-9	0,24 - 0,26	R10 Xn; R20/21 Xi; R38

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Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
copper	(CAS No.) 7440-50-8 (EC No) 231-159-6 (REACH-no) 01-2119480154-42-XXXX	80 - 85	Flam. Sol. 1, H228 Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 2, H411
1-methoxy-2-propanol, monopropylene glycol methyl ether	(CAS No.) 107-98-2 (EC No) 203-539-1 (EC Index) 603-064-00-3 (REACH-no) 01-2119457435-35-XXXX	12,4 - 17,6	Flam. Liq. 3, H226 STOT SE 3, H336
xylene	(CAS No.) 1330-20-7 (EC No) 215-535-7 (EC Index) 601-022-00-9	0,24 - 0,26	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Skin Irrit. 2, H315

Full text of R- and H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	: Provide fresh air. Keep at rest. When in doubt or if symptoms are observed, get medical advice.
Skin contact	: Remove contaminated clothing and shoes. After contact with skin, wash immediately with plenty of water and soap. When in doubt or if symptoms are observed, get medical advice. Wash contaminated clothing before reuse.
Eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician if irritation develops or persists.
In case of ingestion	: Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Get medical advice/attention.
Additional advice	: First aider: Pay attention to self-protection! See also section 8 Treat symptomatically. Show this safety data sheet to the doctor in attendance. When in doubt or if symptoms are observed, get medical advice. Never give anything by mouth to an unconscious person or a person with cramps.

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

Inhalation	: Vapours may cause drowsiness and dizziness. Inhalation of vapours in high concentration may cause irritation of respiratory system.
Skin contact	: Prolonged skin contact may defat the skin and produce dermatitis. Repeated exposure may cause skin dryness or cracking.
Eye contact	: Dust contact with the eyes can lead to mechanical irritation.
Ingestion	: Harmful if swallowed.
Other adverse effects	: none.


4.3. Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: ABCD-powder Dry sand
Extinguishing media which must not be used	: Water

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for safety reasons:

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable solid

Specific hazards : Vapours can form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Beware of reignition.
The pressure in sealed containers can increase under the influence of heat.
Burning produces noxious and toxic fumes.
Hazardous combustion products: Carbon oxides, Copper oxides
Do not allow run-off from fire-fighting to enter drains or water courses.
Dispose according to legislation.

5.3. Advice for firefighters

Advice for firefighters : Special protective equipment for firefighters.
In case of fire: Wear self-contained breathing apparatus.
Evacuate area.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Evacuate area.
Provide adequate ventilation.
Use personal protective equipment as required.
Personal protection equipment: see section 8
Avoid contact with skin, eyes and clothes.
Avoid generation of dust.
Do not breathe vapours/dust.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.
Use only non-sparking tools.

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place.
Personal protection equipment: see section 8.

6.2. Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so.
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
Collect in closed and suitable containers for disposal.
Dispose according to legislation.
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.

6.4. Reference to other sections

Personal protection equipment: see section 8
Disposal: see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling : Use only in well-ventilated areas.
Provide adequate ventilation.

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Use personal protective equipment as required.
 Personal protection equipment: see section 8 .
 Avoid contact with skin, eyes and clothes.
 Avoid generation of dust.
 Do not breathe vapours/dust.
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Take precautionary measures against static discharges.
 Ensure that the equipment is adequately grounded.
 Take any precaution to avoid mixing with incompatible materials.
 See also section 10
 Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time).
 Do not allow to enter into surface water or drains.

Advices on general occupational hygiene :

Keep good industrial hygiene.
 When using do not eat, drink or smoke.
 Wash hands before breaks and immediately after using the product.
 Take off contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

Storage :

Flammable solids
 Keep container tightly closed in a cool, well-ventilated place.
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Protect from sunlight.
 Do not store near or with any of the incompatible materials listed in section 10.
 Maximum storage period (time) :
 12 months.

Packaging materials :

Keep/Store only in original container.

7.3 Specific end use(s)


No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters


Exposure limit values :

copper (7440-50-8)		
Austria	MAK (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,1 mg/m ³ (respirable fraction, smoke)
Austria	MAK Short time value (mg/m ³)	4 mg/m ³ (inhalable fraction) 0,4 mg/m ³ (respirable fraction, smoke)
Belgium	Limit value (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Bulgaria	OEL TWA (mg/m ³)	0,1 mg/m ³ (metal vapor)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	2 mg/m ³ (dust and fumes)
France	VLE (mg/m ³)	2 mg/m ³ (dust)
France	VME (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Greece	OEL TWA (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Greece	OEL STEL (mg/m ³)	2 mg/m ³ (dust)

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copper (7440-50-8)		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	0,2 mg/m ³ (fume)
Latvia	OEL TWA (mg/m ³)	0,5 mg/m ³
Spain	VLA-ED (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Switzerland	VLE (mg/m ³)	0,2 mg/m ³ (inhalable)
Switzerland	VME (mg/m ³)	0,1 mg/m ³ (inhalable)
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0,1 mg/m ³ (inhalable fraction)
United Kingdom	WEL TWA (mg/m ³)	1 mg/m ³ (dust and mists) 0,2 mg/m ³ (fume)
United Kingdom	WEL STEL (mg/m ³)	0,6 mg/m ³ (calculated-fume) 2 mg/m ³ (dust and mist)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³ (dust) 0,1 mg/m ³ (fume)
Denmark	Grænseværdie (langvarig) (mg/m ³)	1,0 mg/m ³ (dust and powder) 0,1 mg/m ³ (fume)
Finland	HTP-arvo (8h) (mg/m ³)	1 mg/m ³ 0,1 mg/m ³ (respirable dust and fume)
Hungary	AK-érték	1 mg/m ³ 0,1 mg/m ³ (fume)
Hungary	CK-érték	4 mg/m ³ 0,4 mg/m ³ (fume)
Ireland	OEL (8 hours ref) (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Ireland	OEL (15 min ref) (mg/m ³)	0,6 mg/m ³ (calculated-fume) 2 mg/m ³ (dust and mist)
Lithuania	IPRV (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,2 mg/m ³ (respirable fraction)
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	0,1 mg/m ³ (fume) 1 mg/m ³ (dust)
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m ³)	0,3 mg/m ³ (fume) 3 mg/m ³ (dust)
Poland	NDS (mg/m ³)	0,2 mg/m ³
Romania	OEL TWA (mg/m ³)	0,50 mg/m ³ (powder)
Romania	OEL STEL (mg/m ³)	0,20 mg/m ³ (fume) 1,50 mg/m ³ (dust)
Slovakia	NPHV (priemerná) (mg/m ³)	1 mg/m ³ (dust) 0,1 mg/m ³ (fume)
Slovakia	NPHV (Hraničná) (mg/m ³)	2 mg/m ³ (dust) 0,2 mg/m ³ (fume)
Sweden	nivågränsvärde (NVG) (mg/m ³)	1 mg/m ³ (total dust) 0,2 mg/m ³ (respirable dust)


1-methoxy-2-propanol, monopropylene glycol methyl ether (107-98-2)		
EU	IOELV TWA (mg/m ³)	375 mg/m ³
EU	IOELV TWA (ppm)	100 ppm
EU	IOELV STEL (mg/m ³)	568 mg/m ³
EU	IOELV STEL (ppm)	150 ppm
Austria	MAK (mg/m ³)	187 mg/m ³
Austria	MAK (ppm)	50 ppm

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1-methoxy-2-propanol, monopropylene glycol methyl ether (107-98-2)		
Austria	MAK Short time value (mg/m ³)	187 mg/m ³
Austria	MAK Short time value (ppm)	50 ppm
Belgium	Limit value (mg/m ³)	375 mg/m ³
Belgium	Limit value (ppm)	100 ppm
Belgium	Short time value (mg/m ³)	568 mg/m ³
Belgium	Short time value (ppm)	150 ppm
Bulgaria	OEL TWA (mg/m ³)	375,0 mg/m ³
Bulgaria	OEL TWA (ppm)	100 ppm
Bulgaria	OEL STEL (mg/m ³)	568,0 mg/m ³
Bulgaria	OEL STEL (ppm)	150 ppm
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	375 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	100 ppm
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	568 mg/m ³
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	150 ppm
Cyprus	OEL TWA (mg/m ³)	375 mg/m ³
Cyprus	OEL TWA (ppm)	100 ppm
Cyprus	OEL STEL (mg/m ³)	568 mg/m ³
Cyprus	OEL STEL (ppm)	150 ppm
France	VLE (mg/m ³)	375 mg/m ³ (restrictive limit)
France	VLE (ppm)	100 ppm (restrictive limit)
France	VME (mg/m ³)	188 mg/m ³ (restrictive limit)
France	VME (ppm)	50 ppm (restrictive limit)
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	370 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	TRGS 900 Occupational exposure limit value (ppm)	100 ppm (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	TRGS 903 (BGW)	15 mg/l (Medium: urine - Time: end of shift - Parameter: 1-Methoxypropan-2-ol)
Gibraltar	OEL TWA (mg/m ³)	375 mg/m ³
Gibraltar	OEL TWA (ppm)	100 ppm
Gibraltar	OEL STEL (mg/m ³)	568 mg/m ³
Gibraltar	OEL STEL (ppm)	150 ppm
Greece	OEL TWA (mg/m ³)	360 mg/m ³
Greece	OEL TWA (ppm)	100 ppm
Greece	OEL STEL (mg/m ³)	1080 mg/m ³
Greece	OEL STEL (ppm)	300 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	50 ppm
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	100 ppm
Italy	OEL TWA (mg/m ³)	375 mg/m ³
Italy	OEL TWA (ppm)	100 ppm
Italy	OEL STEL (mg/m ³)	568 mg/m ³
Italy	OEL STEL (ppm)	150 ppm
Latvia	OEL TWA (mg/m ³)	375 mg/m ³

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1-methoxy-2-propanol, monopropylene glycol methyl ether (107-98-2)		
Latvia	OEL TWA (ppm)	100 ppm
Spain	VLA-ED (mg/m ³)	375 mg/m ³ (indicative limit value)
Spain	VLA-ED (ppm)	100 ppm (indicative limit value)
Spain	VLA-EC (mg/m ³)	568 mg/m ³
Spain	VLA-EC (ppm)	150 ppm
Switzerland	VLE (mg/m ³)	720 mg/m ³
Switzerland	VLE (ppm)	200 ppm
Switzerland	VME (mg/m ³)	360 mg/m ³
Switzerland	VME (ppm)	100 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	375 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	563 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	375 mg/m ³
United Kingdom	WEL TWA (ppm)	100 ppm
United Kingdom	WEL STEL (mg/m ³)	560 mg/m ³
United Kingdom	WEL STEL (ppm)	150 ppm
Czech Republic	Expoziční limity (PEL) (mg/m ³)	270 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	185 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	50 ppm
Finland	HTP-arvo (8h) (mg/m ³)	370 mg/m ³
Finland	HTP-arvo (8h) (ppm)	100 ppm
Finland	HTP-arvo (15 min)	560 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	150 ppm
Hungary	AK-érték	375 mg/m ³
Hungary	CK-érték	568 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	375 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	100 ppm
Ireland	OEL (15 min ref) (mg/m ³)	568 mg/m ³
Ireland	OEL (15 min ref) (ppm)	150 ppm
Lithuania	IPRV (mg/m ³)	190 mg/m ³
Lithuania	IPRV (ppm)	50 ppm
Lithuania	TPRV (mg/m ³)	300 mg/m ³
Lithuania	TPRV (ppm)	75 ppm
Malta	OEL TWA (mg/m ³)	375 mg/m ³
Malta	OEL TWA (ppm)	100 ppm
Malta	OEL STEL (mg/m ³)	568 mg/m ³
Malta	OEL STEL (ppm)	150 ppm
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	180 mg/m ³
Norway	Gjennomsnittsverdier (AN) (ppm)	50 ppm
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m ³)	225 mg/m ³
Norway	Gjennomsnittsverdier (Korttidsverdi) (ppm)	75 ppm
Poland	NDS (mg/m ³)	180 mg/m ³
Poland	NDSch (mg/m ³)	360 mg/m ³
Romania	OEL TWA (mg/m ³)	375 mg/m ³
Romania	OEL TWA (ppm)	100 ppm
Romania	OEL STEL (mg/m ³)	568 mg/m ³
Romania	OEL STEL (ppm)	150 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	375 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	100 ppm

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1-methoxy-2-propanol, monopropylene glycol methyl ether (107-98-2)		
Slovakia	NPHV (Hraničná) (mg/m ³)	568 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	190 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	50 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	300 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	75 ppm

xylene (1330-20-7)		
EU	IOELV TWA (mg/m ³)	221 mg/m ³ (pure)
EU	IOELV TWA (ppm)	50 ppm (pure)
EU	IOELV STEL (mg/m ³)	442 mg/m ³ (pure)
EU	IOELV STEL (ppm)	100 ppm (pure)
Austria	MAK (mg/m ³)	221 mg/m ³ (all isomers)
Austria	MAK (ppm)	50 ppm (all isomers)
Austria	MAK Short time value (mg/m ³)	442 mg/m ³ (all isomers)
Austria	MAK Short time value (ppm)	100 ppm (all isomers)
Belgium	Limit value (mg/m ³)	221 mg/m ³
Belgium	Limit value (ppm)	50 ppm
Belgium	Short time value (mg/m ³)	442 mg/m ³
Belgium	Short time value (ppm)	100 ppm
Bulgaria	OEL TWA (mg/m ³)	221,0 mg/m ³ (pure)
Bulgaria	OEL TWA (ppm)	50 ppm (pure)
Bulgaria	OEL STEL (mg/m ³)	442 mg/m ³ (pure)
Bulgaria	OEL STEL (ppm)	100 ppm (pure)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	221 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	50 ppm
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	442 mg/m ³
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	100 ppm
Cyprus	OEL TWA (mg/m ³)	221 mg/m ³
Cyprus	OEL TWA (ppm)	50 ppm
Cyprus	OEL STEL (mg/m ³)	442 mg/m ³
Cyprus	OEL STEL (ppm)	100 ppm
France	VLE (mg/m ³)	442 mg/m ³ (restrictive limit)
France	VLE (ppm)	100 ppm (restrictive limit)
France	VME (mg/m ³)	221 mg/m ³ (restrictive limit)
France	VME (ppm)	50 ppm (restrictive limit)
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	440 mg/m ³ (all isomers)
Germany	TRGS 900 Occupational exposure limit value (ppm)	100 ppm (all isomers)
Germany	TRGS 903 (BGW)	1,5 mg/l (Medium: whole blood - Time: end of shift - Parameter: Xylene (all isomers) 2000 mg/l (Medium: urine - Time: end of shift - Parameter: Methylhippuric(tolur-)acid (all isomers)
Gibraltar	OEL TWA (mg/m ³)	221 mg/m ³ (pure)
Gibraltar	OEL TWA (ppm)	50 ppm (pure)
Gibraltar	OEL STEL (mg/m ³)	442 mg/m ³ (pure)



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xylyne (1330-20-7)

Gibraltar	OEL STEL (ppm)	100 ppm (pure)
Greece	OEL TWA (mg/m ³)	435 mg/m ³
Greece	OEL TWA (ppm)	100 ppm
Greece	OEL STEL (mg/m ³)	650 mg/m ³
Greece	OEL STEL (ppm)	150 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	100 ppm
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	150 ppm
Italy	OEL TWA (mg/m ³)	221 mg/m ³ (pure)
Italy	OEL TWA (ppm)	50 ppm (pure)
Italy	OEL STEL (mg/m ³)	442 mg/m ³ (pure)
Italy	OEL STEL (ppm)	100 ppm (pure)
Latvia	OEL TWA (mg/m ³)	221 mg/m ³
Latvia	OEL TWA (ppm)	50 ppm
Spain	VLA-ED (mg/m ³)	221 mg/m ³ (indicative limit value)
Spain	VLA-ED (ppm)	50 ppm (indicative limit value)
Spain	VLA-EC (mg/m ³)	442 mg/m ³
Spain	VLA-EC (ppm)	100 ppm
Switzerland	VLE (mg/m ³)	870 mg/m ³
Switzerland	VLE (ppm)	200 ppm
Switzerland	VME (mg/m ³)	435 mg/m ³
Switzerland	VME (ppm)	100 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	210 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	442 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	220 mg/m ³
United Kingdom	WEL TWA (ppm)	50 ppm
United Kingdom	WEL STEL (mg/m ³)	441 mg/m ³
United Kingdom	WEL STEL (ppm)	100 ppm
Czech Republic	Expoziční limity (PEL) (mg/m ³)	200 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	109 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	25 ppm
Finland	HTP-arvo (8h) (mg/m ³)	220 mg/m ³
Finland	HTP-arvo (8h) (ppm)	50 ppm
Finland	HTP-arvo (15 min)	440 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	100 ppm
Hungary	AK-érték	221 mg/m ³
Hungary	CK-érték	442 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	221 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	50 ppm
Ireland	OEL (15 min ref) (mg/m ³)	442 mg/m ³
Ireland	OEL (15 min ref) (ppm)	100 ppm
Lithuania	IPRV (mg/m ³)	200 mg/m ³
Lithuania	IPRV (ppm)	50 ppm
Lithuania	TPRV (mg/m ³)	450 mg/m ³
Lithuania	TPRV (ppm)	100 ppm
Malta	OEL TWA (mg/m ³)	221 mg/m ³ (pure)
Malta	OEL TWA (ppm)	50 ppm (pure)

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xylene (1330-20-7)		
Malta	OEL STEL (mg/m ³)	442 mg/m ³ (pure)
Malta	OEL STEL (ppm)	100 ppm (pure)
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	108 mg/m ³
Norway	Gjennomsnittsverdier (AN) (ppm)	25 ppm
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m ³)	135 mg/m ³
Norway	Gjennomsnittsverdier (Korttidsverdi) (ppm)	37,5 ppm
Poland	NDS (mg/m ³)	100 mg/m ³
Romania	OEL TWA (mg/m ³)	221 mg/m ³
Romania	OEL TWA (ppm)	50 ppm
Romania	OEL STEL (mg/m ³)	442 mg/m ³
Romania	OEL STEL (ppm)	100 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	221 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	50 ppm
Slovakia	NPHV (Hraničná) (mg/m ³)	442 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	221 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	50 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	442 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	100 ppm

Recommended monitoring procedures : Concentration measurement in air
Personal air monitoring

8.2. Exposure controls

Personal protection equipment : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.
Half-face mask (DIN EN 140)
Full face mask (EN 136)
Filter type: A/P (EN 141)

Hand protection : The selection of specific gloves for a specific application and time of use in a working area, should also take into account other factors on the working space, such as (but not limited to): other chemicals that are possibly used, physical requirements (protection against cutting/drilling, skill, thermal protection), and the instructions/specification of the supplier of gloves.,Wear chemically resistant gloves (tested to EN374) .

Eye protection : Wear eye glasses with side protection according to EN 166. Tightly fitting safety goggles (EN166).

Body protection : Wear suitable protective clothing.

Thermal hazard protection : Not required under normal use.

Engineering control measures : Provide adequate ventilation.
Use only in area provided with appropriate exhaust ventilation.
A washing facility/water for eye and skin cleaning purposes should be present.
Use only at a place, which is equipped with a safety shower.
Ensure that the equipment is adequately grounded.
Take precautionary measures against static discharges.
Apply measures to prevent dust explosions.
Organisational measures to prevent/limit releases, dispersion and exposure
See also section 7

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Environmental exposure controls : Do not allow to enter into surface water or drains.
Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance : Paste
Colour : Copper
Odour : aromatic
Odour threshold: : No data available
pH : No data available
Melting point/freezing point : 1083 °C Copper
-96 °C 1-methoxy-2-propanol
Freezing point : < 20 °C xylene
Initial boiling point and boiling range : 2597 °C Copper
12 °C 1-methoxy-2-propanol
Flash point : 31 °C 1-methoxy-2-propanol
182 °C xylene
Evaporation rate : No data available
Flammability (solid, gas) : Flammable.
Upper/lower flammability or explosive limits : 1,5 - 13,74 vol % 1-methoxy-2-propanol
Vapour pressure : 1,16 kPa 1-methoxy-2-propanol
Vapour density : 3,12 1-methoxy-2-propanol
(Air = 1.0)
Density : 8,96 g/cm³ Copper
0,881 g/ml 1-methoxy-2-propanol
Relative density : 0,919 1-methoxy-2-propanol
Water solubility : 0 g/l Copper
> 0 g/l 1-methoxy-2-propanol
Solubility in different media : >= 0 g/l xylene
Partition coefficient n-octanol/water : 0,37 1-methoxy-2-propanol
Auto-ignition temperature : 287 °C 1-methoxy-2-propanol
Decomposition temperature : No data available
Viscosity : 1,7 mPa.s 1-methoxy-2-propanol
Explosive properties : Not applicable
The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties : Not applicable
The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.


9.2. Other information

Molecular weight : 90,1 g/mol 1-methoxy-2-propanol

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity : Flammable solid.

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Reference to other sections: 10.5

10.2. Chemical stability

Stability : The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions : Vapours can form explosive mixtures with air.
Reference to other sections: 10.4 & 10.5

10.4. Conditions to avoid

Conditions to avoid : Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.
Avoid generation of dust.
See also section 7
Handling and storage

10.5. Incompatible materials

Incompatible materials : Oxidising substances,, Acids and bases,, See also section 7,, Handling and storage

10.6. Hazardous decomposition products

Hazardous decomposition products : Reference to other sections: 5.2

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.
Coated Copper Flakes :
Harmful if swallowed.

1-methoxy-2-propanol, monopropylene glycol methyl ether (107-98-2)	
LD50/oral/rat	> 2000 - 5000 mg/kg
LD50/dermal/rat	> 5000 mg/kg

xylene (1330-20-7)	
LD50/oral/rat	3500 mg/kg
LC50/inhalation/4h/rat	29,08 mg/l/4h
ATE CLP (oral)	3500 mg/kg bodyweight
ATE CLP (dermal)	1100 mg/kg bodyweight
ATE CLP (gases)	4500,000 ppmv/4h
ATE CLP (vapours)	11 mg/l/4h
ATE CLP (dust,mist)	1,5 mg/l/4h

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met.)
pH: No data available

Serious eye damage/eye irritation : Not classified (Based on available data, the classification criteria are not met.)
pH: No data available

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met.)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met.)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met.)

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met.)

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STOT-single exposure : Not classified (Based on available data, the classification criteria are not met.)

STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met.)

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met.)

Other information

Symptoms related to the physical, chemical and toxicological characteristics, Reference to other sections: 4.2

SECTION 12: Ecological information

12.1. Toxicity

Toxicity : Very toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

copper (7440-50-8)	
LC50 fish 1	0,0068 - 0,0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0,03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 other aquatic organisms 1	0,0426 - 0,0535 mg/l (72 h - Pseudokirchneriella subcapitata)
LC50 fish 2	< 0,3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 other aquatic organisms 2	0,031 - 0,054 mg/l (96 h - Pseudokirchneriella subcapitata)
EC50 72h algae [mg/l] (1)	0,0426 - 0,0535 mg/l (Species: Pseudokirchneriella subcapitata [static])
EC50 96h algae [mg/l] (1)	0,031 - 0,054 mg/l (Species: Pseudokirchneriella subcapitata [static])

1-methoxy-2-propanol, monopropylene glycol methyl ether (107-98-2)	
EC50 Daphnia 1	(48h)> 21000 mg/l

xylene (1330-20-7)	
LC50 fish 1	13,4 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3,82 mg/l (Exposure time: 48 h - Species: water flea)
LC50 fish 2	2,661 - 4,093 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

12.2. Persistence and degradability

Persistence and degradability : No data available

12.3. Bioaccumulative potential


Bioaccumulation : No data available
Partition coefficient n-octanol/water : 0,37 1-methoxy-2-propanol

12.4. Mobility in soil

Mobility : No data available

12.5. Results of PBT and vPvB assessment

PBT/vPvB data : PBT/vPvB data :
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

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12.6. Other adverse effects

Other information : No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product waste: : Handle with care.
Safe handling: see section 7
Handling and storage
Collect and dispose of waste product at an authorised disposal facility.
Refer to manufacturer/supplier for information on recovery/recycling.
If recycling is not practicable, dispose of in compliance with local regulations.
Dispose according to legislation.

Contaminated packaging : Do not puncture or incinerate.
Do not burn, or use a cutting torch on, the empty drum.
Empty containers should be taken to local recyclers for disposal.
If recycling is not practicable, dispose of in compliance with local regulations.

Further ecological information : Do not allow to enter into surface water or drains.

List of proposed waste codes/waste designations in accordance with EWC : Classified as hazardous waste according to European Union regulations.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

14.1. UN number

UN number : 1325

14.2. UN proper shipping name

Proper Shipping Name : FLAMMABLE SOLID, ORGANIC, N.O.S.(copper ; 1-methoxy-2-propanol, monopropylene glycol methyl ether)
Proper shipping name IATA/IMDG : FLAMMABLE SOLID, ORGANIC, N.O.S. (copper; 1-methoxy-2-propanol, monopropylene glycol methyl ether)

14.3. Transport hazard class(es)

14.3.1. Overland transport

Class(es) : 4.1 - Flammable solids, self-reactive substances and solid desensitized explosives
Hazard identification number (Kemler No.) : 40
Classification code : F1
ADR/RID-Labels : 4.1 - Flammable solid



14.3.2. Inland waterway transport (ADN)

Class (UN) : 4.1

14.3.3. Transport by sea


Class or Division : 4.1 - Flammable solids, self-reactive substances and solid desensitized explosives

14.3.4. Air transport

Class or Division : 4.1 - Flammable solids, self-reactive substances and solid desensitized explosives

14.4. Packing group

Packing group : II

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14.5. Environmental hazards

Environmental hazards : N



Other information : No supplementary information available.

14.6 Special precautions for user

No data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006 :

3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008 : 1-methoxy-2-propanol, monopropylene glycol methyl ether

40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not. : COPPER PASTE PM8B

This product contains an ingredient according to the candidate list of Annex XIV of the REACH Regulation 1907/2006/EC.

: None

Authorisations : Not applicable

15.1.2. National regulations

DE : WGK : 2
 DE : German storage class (LGK) : LGK 4.1B - Flammable solids
 DE : Technische Regeln für Gefahrstoffe (TRGS) : Applicable
 FR : Installations classées : 143x, 117x
 NL : ABM : 5 - (B) Very toxic to aquatic organisms

15.2. Chemical safety assessment


Chemical Safety Assessment : For the following substances of this preparation a chemical safety assessment has been carried out:
 Copper
 1-methoxy-2-propanol

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SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Dermal)	: Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	: Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	: Acute toxicity Category 4
Aquatic Acute 1	: Hazardous to the aquatic environment - Aquatic Acute 1
Aquatic Chronic 2	: Hazardous to the aquatic environment - chronic hazard category 2
Flam. Liq. 3	: Flammable liquids, Category 3
Flam. Sol. 1	: Flammable solids, Hazard Category 1
Skin Irrit. 2	: Skin corrosion/irritation, Category 2
STOT SE 3	: Specific target organ toxicity — Single exposure, Category 3, Narcosis
H226	: Flammable liquid and vapour.
H228	: Flammable solid.
H302	: Harmful if swallowed.
H312	: Harmful in contact with skin.
H315	: Causes skin irritation.
H332	: Harmful if inhaled.
H336	: May cause drowsiness or dizziness.
H400	: Very toxic to aquatic life.
H411	: Toxic to aquatic life with long lasting effects.
R10	: Flammable.
R11	: Highly flammable.
R20/21	: Harmful by inhalation and in contact with skin.
R22	: Harmful if swallowed.
R38	: Irritating to skin.
R50	: Very toxic to aquatic organisms.
R50/53	: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	: May cause long-term adverse effects in the aquatic environment.
R67	: Vapours may cause drowsiness and dizziness.
F	: Highly flammable
N	: Dangerous for the environment
Xi	: Irritant
Xn	: Harmful
Safety datasheet sections which have been updated	: 14
Key literature references and sources for data	: European Metal Particulate Association (EMPA) Supplier SDS
Abbreviations and acronyms	: ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC IATA = International Air Transport Association IMDG = International Maritime Dangerous Goods Code LEL = Lower Explosive Limit/Lower Explosion Limit UEL = Upper Explosion Limit/Upper Explosive Limit REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals TWA = time weighted average STEL = Short term exposure limit PBT = persistent, bioaccumulating and toxic (PBT). vPvB = very persistent and very bioaccumulating EWC = European Waste Catalogue NA = Not applicable LC50 = Median lethal concentration LD50 = Median lethal dose EC50 = Median Effective Concentration N.O.S. = Not Otherwise Specified

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WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC, 1272/2008/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

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