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

1.1. Product identifier

Trade name/designation : Copper Atomized
 Chemical name : copper
 EC No : 231-159-6
 CAS No. : 7440-50-8
 REACH registration No. : 01-2119480154-42-XXXX
 Product code : 42-44

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

Main use category : Industrial uses .,Professional use .

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.


Aquatic Acute 1 H400
 Aquatic Chronic 3 H412

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 substance is classified as hazardous according to 67/548/EEC.
 N; R50
 R53

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 :



GHS09

Signal word :

Warning

Hazard statements :

H400 - Very toxic to aquatic life.

H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements :

P273 - Avoid release to the environment.

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 :

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on ingredients

3.1. Substances

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	100	N; R50 R53

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	100	Aquatic Acute 1, H400 (M=10) Aquatic Chronic 3, H412

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

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation :

Provide fresh air.

Put victim at rest, cover with a blanket and keep warm.


Artificial respiration and/or oxygen may be necessary.

If symptoms persist, call a physician.

Skin contact :

Wash with plenty of water/.

Take off contaminated clothing.

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- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If symptoms persist, call a physician.
- In case of ingestion : Rinse mouth thoroughly with water.
Rinse mouth immediately and drink plenty of water.
If symptoms persist, call a physician.
- Additional advice : First aider: Pay attention to self-protection!
See also section 8
Treat symptomatically.
When in doubt or if symptoms are observed, get medical advice.

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

- Inhalation : Dyspnoea, The following symptoms may occur: Cough, sore throat
Headache,.
- Skin contact : Prolonged skin contact may cause skin irritation. Symptoms : erythema (redness).
- Eye contact : Dust contact with the eyes can lead to mechanical irritation.
- Ingestion : Abdominal pain The following symptoms may occur: Nausea Vomiting.

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 : Dry sand, ABC-powder, Co-ordinate fire-fighting measures to the fire surroundings.
- Extinguishing media which must not be used for safety reasons: : Water

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Non-flammable.
- Specific hazards : 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.


SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel : Evacuate area.
Prevent unauthorised persons entering the zone.
Provide adequate ventilation.
Use personal protective equipment as required.
Personal protection equipment: see section 8
Avoid generation of dust.
Do not breathe dust.
- 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 to enter into surface water or drains.

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6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so.
 Dam up.
 Take up mechanically.
 Dispose according to legislation.

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 : Provide adequate ventilation.
 Use personal protective equipment as required.
 Avoid contact with skin, eyes and clothes.
 Do not breathe dust.
 Personal protection equipment: see section 8
 Avoid generation of dust.
 Take any precaution to avoid mixing with incompatible materials.
 See also section 10
 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 : Keep containers tightly closed in a dry, cool and well-ventilated place.
 Do not store near or with any of the incompatible materials listed in section 10.

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)

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copper (7440-50-8)		
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)
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)

Recommended monitoring procedures : Concentration measurement in air
Personal air monitoring

Copper Atomized (7440-50-8)
DNEL/DMEL (general population)

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Copper Atomized (7440-50-8)	
Acute - systemic effects, dermal	0,082 mg/kg bodyweight
Acute - systemic effects, inhalation	0,082 mg/kg bodyweight/day
Acute - systemic effects, oral	0,082 mg/kg bodyweight
Long-term - systemic effects, oral	0,041 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0,041 mg/kg bodyweight/day
Long-term - systemic effects, dermal	0,041 mg/kg bodyweight/day
PNEC (water)	
PNEC aqua (freshwater)	7,8 µg/L
PNEC aqua (marine water)	5,2 µg/L
PNEC (sediment)	
PNEC sediment (freshwater)	87 mg/kg dwt
PNEC sediment (marine water)	676 mg/kg dwt
PNEC (soil)	
PNEC soil	65,5 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	230 g/l


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	: Use appropriate respiratory protection. Effective dust mask. (EN 149) Respirator with a particle filter (EN 143) : Full face mask (EN 136) Half-face mask (DIN EN 140) Filter type: P1
Hand protection	: Wear gloves in accordance with EN 388 as a protection against mechanical risks.,Leather gloves,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.
Eye protection	: Dust protection eye glasses (EN 166)
Body protection	: Wear suitable protective clothing.
Thermal hazard protection	: Not required under normal use. Use dedicated equipment.
Engineering control measures	: Use only in area provided with appropriate exhaust ventilation. Organisational measures to prevent/limit releases, dispersion and exposure See also section 7
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	: Powder
Colour	: Copper
Odour	: odourless

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Odour threshold:	:	No data available
Odour threshold:	:	No data available
pH	:	Not applicable
Melting point/freezing point	:	1083 °C
Initial boiling point and boiling range	:	2597 °C
Flash point	:	Not applicable
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Non-flammable.
Upper/lower flammability or explosive limits	:	No data available
Vapour pressure	:	Not applicable
Vapour density	:	No data available
Density	:	8,96 g/cm ³
Relative density	:	No data available
Water solubility	:	Insoluble
Solubility in different media	:	No data available
Partition coefficient n-octanol/water	:	No data available
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	No data available
Viscosity	:	No data available
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

Other information : (Apparent) Density : 1,2 - 1,5 g/cm³ @ 20°C

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity : None under normal processing.
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 : Reference to other sections: 10.4/10.5

10.4. Conditions to avoid


Conditions to avoid : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
See also section 7

10.5. Incompatible materials

Incompatible materials : No data available

10.6. Hazardous decomposition products

Hazardous decomposition products : metal oxides

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified (Based on available data, the classification criteria are not met.)
Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met.) pH: Not applicable
Serious eye damage/eye irritation	: Not classified (Based on available data, the classification criteria are not met.) pH: Not applicable
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.)
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 organisms.

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])
LC50 fish 2	< 0,3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
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])

12.2. Persistence and degradability

Persistence and degradability : Not applicable

12.3. Bioaccumulative potential


Bioaccumulation : No data available
Partition coefficient n-octanol/water : No data available

12.4. Mobility in soil

Mobility : No data available

12.5. Results of PBT and vPvB assessment

PBT/vPvB data : This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

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This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

Other information :

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product waste: : Do not dispose of together with household waste.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Delivery to an approved waste disposal company.

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.
The following Waste Codes are only suggestions:
12 01 04

SECTION 14: Transport information

14.1. UN number

UN number : 3077

14.2. UN proper shipping name

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Copper Powder ())

Proper shipping name IATA/IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper Powder())

14.3. Transport hazard class(es)

14.3.1. Overland transport

ADR/RID : tunnel restriction code E

Class(es) : 9 - Miscellaneous dangerous substances and articles

Hazard identification number (Kemler No.) : 90

Classification code : M7

ADR/RID-Labels : 9 - Miscellaneous dangerous substances and articles



14.3.2. Inland waterway transport (ADN)

Class (UN) : 9

14.3.3. Transport by sea


Class or Division : 9 - Miscellaneous dangerous substances and articles

14.3.4. Air transport

Class or Division : 9 - Miscellaneous dangerous substances and articles

14.4. Packing group

Packing group : III

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14.5. Environmental hazards

Environmental hazards : N



Other information : Not applicable.

14.6 Special precautions for user

Special precautions for user : Not applicable.

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

Code: IBC : Not applicable.

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Restrictions on use : Not applicable

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 : TA-Luft : Total dust
 FR : Installations classées : 117X
 NL : ABM : 5 - Very toxic to aquatic organisms (B)
 NL : NeR (Nederlandse emissie Richtlijn) : Inorganic substances in powdered form

15.2. Chemical safety assessment

Chemical Safety Assessment : For this substance a chemical safety assessment has been carried out.


SECTION 16: Other information

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

Aquatic Acute 1 : Hazardous to the aquatic environment - Aquatic Acute 1
 Aquatic Chronic 3 : Hazardous to the aquatic environment - chronic hazard category 3
 H400 : Very toxic to aquatic life.
 H412 : Harmful to aquatic life with long lasting effects.
 R50 : Very toxic to aquatic organisms.
 R53 : May cause long-term adverse effects in the aquatic environment.
 N : Dangerous for the environment

Key literature references and sources for data : European Metal Particulate Association (EMPA)

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

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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
 LD 50 = Median lethal dose
 DNEL = Derived No Effect Level
 PNEC = Predicted No Effect Concentration
 NOAEL = No observed adverse effect level

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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