

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name **Copper(I) oxide**  
 Stock number: 40189  
 CAS Number: 1317-39-1  
 EC number: 215-270-7  
 Index number: 029-002-00-X

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

Identified use: SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar GmbH & Co.KG  
 A Johnson Matthey Company  
 Zeppelinstr. 7b  
 76185 Karlsruhe / Germany  
 Tel: +49 (0) 721 84007 280  
 Fax: +49 (0) 721 84007 300  
 Email: tech@alfa.com  
 www.alfa.com

**Informing department:**

Product safety Tel + +049 (0) 7275 988687-0

**1.4 Emergency telephone number:**

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)  
 Poison Information Center Mainz  
 www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

Xn; Harmful

R22: Harmful if swallowed.

N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Information concerning particular hazards for human and environment:**

Not applicable

**Other hazards that do not result in classification**

No information known.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008****Hazard pictograms****Signal word****Hazard statements****Precautionary statements**

The substance is classified and labelled according to the CLP regulation.

GHS07, GHS09

Warning

H302 Harmful if swallowed.

H410 Very toxic to aquatic life with long lasting effects.

P273 Avoid release to the environment.

P264 Wash thoroughly after handling.

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

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

P330 Rinse mouth.

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

**2.3 Other hazards****Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

CAS# Designation: 1317-39-1 Copper(I) oxide

Identification number(s):

EC number: 215-270-7

Index number: 029-002-00-X

**SECTION 4: First aid measures****4.1 Description of first aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

**After skin contact**

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing**

Seek medical treatment.

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

No further relevant information available.

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

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing agents**

Use fire fighting measures that suit the environment.

**5.2 Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

**5.3 Advice for firefighters****Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

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**SECTION 6: Accidental release measures**

<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation
<b>6.2 Environmental precautions:</b>	Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach sewage system or water bodies. Do not allow to enter the ground/soil.
<b>6.3 Methods and material for containment and cleaning up:</b>	Dispose of contaminated material as waste according to item 13.
<b>Prevention of secondary hazards:</b>	No special measures required.
<b>6.4 Reference to other sections</b>	See Section 7 for information on safe handling See section 8 for information on personal protection equipment. See Section 13 for information on disposal.

**SECTION 7: Handling and storage**

<b>7.1 Precautions for safe handling</b>	Handle under dry protective gas. Keep containers tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation/exhaustion at the workplace. Prevent formation of dust.
<b>Information about protection against explosions and fires:</b>	The product is not flammable
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	
<b>Storage Requirements to be met by storerooms and containers:</b>	No special requirements.
<b>Information about storage in one common storage facility:</b>	Store away from oxidizing agents. Store away from air. Store away from water.
<b>Further information about storage conditions:</b>	Store under dry inert gas. This product is hygroscopic. This product is moisture sensitive. This product is air sensitive. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Protect from humidity and keep away from water.
<b>7.3 Specific end use(s)</b>	No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

**Additional information about design of technical systems:** Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters****Components with critical values that require monitoring at the workplace:****1317-39-1 Copper(I) oxide (100,0%)**

MAK (Germany)	0,1E mg/m <sup>3</sup>
MAK (TRGS 900) (Germany)	1 E mg/m <sup>3</sup>
	25; (DFG)

**Additional information:** No data**8.2 Exposure controls****Personal protective equipment****General protective and hygienic measures**

<b>Breathing equipment:</b>	The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Maintain an ergonomically appropriate working environment.
<b>Protection of hands:</b>	Use breathing protection with high concentrations. Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
<b>Material of gloves</b>	Impervious gloves
<b>Penetration time of glove material</b>	Not determined
<b>Eye protection:</b>	Safety glasses
<b>Body protection:</b>	Protective work clothing.

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

<b>Form:</b>	Powder
<b>Colour:</b>	Purple-red
<b>Smell:</b>	Odourless
<b>Odour threshold:</b>	Not determined.

**pH-value:** Not applicable.**Change in condition**

<b>Melting point/Melting range:</b>	1235 °C
<b>Boiling point/Boiling range:</b>	1800 °C (dec)
<b>Sublimation temperature / start:</b>	Not determined
<b>Inflammability (solid, gaseous)</b>	Not determined.
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Self-inflammability:</b>	Not determined.

**Danger of explosion:** Product is not explosive.**Critical values for explosion:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Steam pressure:</b>	Not applicable.
<b>Density at 20 °C</b>	6 g/cm <sup>3</sup>

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Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with Water:	Not determined
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
9.2 Other information	No further relevant information available.

**SECTION 10: Stability and reactivity**

10.1 Reactivity	No information known.
10.2 Chemical stability	Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:	No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions	No dangerous reactions known
10.5 Incompatible materials:	Air Oxidizing agents Water/moisture

**SECTION 11: Toxicological information**

11.1 Information on toxicological effects	
Acute toxicity:	Harmful if swallowed. The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

**LD/LC50 values that are relevant for classification:**

Oral LD50 470 mg/kg (rat)

Skin irritation or corrosion:	May cause irritation
Eye irritation or corrosion:	May cause irritation
Sensitization:	No sensitizing effect known.
Germ cell mutagenicity:	No effects known.
Carcinogenicity:	EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.
Reproductive toxicity:	No effects known.
Specific target organ system toxicity - repeated exposure:	No effects known.
Specific target organ system toxicity - single exposure:	No effects known.
Aspiration hazard:	No effects known.
Additional toxicological information:	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.


**SECTION 12: Ecological information**

12.1 Toxicity	
Aquatic toxicity:	No further relevant information available.
12.2 Persistence and degradability	No further relevant information available.
12.3 Bioaccumulative potential	No further relevant information available.
12.4 Mobility in soil	No further relevant information available.
Ecotoxicological effects:	
Remark:	Very toxic for fish
Additional ecological information:	
General notes:	Do not allow material to be released to the environment without proper governmental permits. Water danger class 3 (Self-assessment): extremely hazardous for water. Do not allow product to reach ground water, water bodies or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into soil. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms
12.5 Results of PBT and vPvB assessment	
PBT:	Not applicable.
vPvB:	Not applicable.
12.6 Other adverse effects	No further relevant information available.

**SECTION 13: Disposal considerations**

13.1 Waste treatment methods	
Recommendation	Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
Uncleaned packagings:	
Recommendation:	Disposal must be made according to official regulations.

**SECTION 14: Transport information**

UN-Number	
ADR, IMDG, IATA	UN3077
14.2 UN proper shipping name	
ADR	3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(I) oxide)
IMDG, IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(I) oxide)
14.3 Transport hazard class(es)	
ADR	
	
Class	9 (M7) Miscellaneous dangerous substances and articles.

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<b>Label</b> 	9
<b>Class</b> <b>Label</b> <b>IATA</b> 	9 Miscellaneous dangerous substances and articles. 9
<b>Class</b> <b>Label</b>	9 Miscellaneous dangerous substances and articles. 9
<b>Packing group</b> <b>ADR, IMDG, IATA</b>	III
<b>14.5 Environmental hazards:</b> <b>Special marking (ADR):</b> <b>Special marking (IATA):</b>	Symbol (fish and tree) Symbol (fish and tree)
<b>14.6 Special precautions for user</b> <b>Kemler Number:</b>	Warning: Miscellaneous dangerous substances and articles. 90
<b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>Transport/Additional information:</b>	
<b>ADR</b> <b>Excepted quantities (EQ):</b> <b>Limited quantities (LQ)</b> <b>Transport category</b> <b>Tunnel restriction code</b>	E1 5 kg 3 E
<b>UN "Model Regulation":</b>	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(I) oxide), 9, III

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical****Substances**

Substance is listed.

**Standard for the Uniform Scheduling of Drugs and Poisons**

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S5, S6

**National regulations****Information about limitation of use:**

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

Not applicable

**Classification according to VbF:****Technical instructions (air):**

Class	Share in %
III	100.0

**Water hazard class:**

Water danger class 3 (Self-assessment): extremely hazardous for water.

**Other regulations, limitations and prohibitive regulations****ELINCS (European List of Notified Chemical****Substances)**

Substance is not listed.

**Substances of very high concern (SVHC)****according to REACH, Article 57**

Substance is not listed.

**REACH - Pre-registered substances**

Substance is listed.

**15.2 Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing data specification sheet:** Health, Safety and Environmental Department.**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International

Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of

Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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