SAFETY DATA SHEET
NORDOX CUPROUS OXIDE, XLT-G

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

Date issued	26.06.2014

1.1. Product identifier

Product name	NORDOX CUPROUS OXIDE, XLT-G
Chemical name	Copper (I) oxide
CAS no.	1317-39-1
EC no.	215-270-7
Formula	Cu2O

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

Use of the substance/preparation	Active ingredient in marine antifouling paints. Low tinting properties.

1.3. Details of the supplier of the safety data sheet

Manufacturer

Company name	NORDOX AS
Postal address	Østensjøveien 13
Postcode	0661
City	OSLO
Country	Norway
Tel	+47 22 97 50 00
Fax	+47 22 64 12 08
E-mail	marketing@nordox.no
Website	http://www.nordox.no

1.4. Emergency telephone number

Emergency telephone	Emergency telephone:+47 22 97 50 00

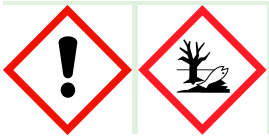
SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Acute tox. 4; H302; On basis of test data Aquatic Acute 1; H400; On basis of test data Aquatic Chronic 1; H410; On basis of test data

2.2. Label elements

Hazard Pictograms (CLP)



Signal word	Warning
Hazard statements	Hazard classes and category codes: Acute Tox. 4 Aquatic Acute 1 Aquatic Chronic 1

	Hazard statements : H302 Harmful if swallowed H400 Very toxic to aquatic life. H410 Very toxic to aquatic life With long lasting effects. Precautionary statements: 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. P273 Avoid release to the environment. See section 6.3 P391 Collect spillage

2.3. Other hazards

Description of hazard	Classification CLP: WARNING GHS07, GHS09 Hazard description: Xn Harmful N Dangerous for the environment Information concerning particular hazards for human and environment: R-22: Harmful if swallowed R-50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment S-2: Keep out of the reach of children S-22: Do not breathe dust S-60: This material and its container must be disposed of as hazardous waste S-61 Avoid release to the environment. Refer to special instructions/safety data sheet

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Substance	Identification	Classification	Contents
Copper (I) Oxide	CAS no.: 1317-39-1 EC no.: 215-270-7	Xn, N; R22, R50/53 Acute tox. 4; H302; On basis of test data Aquatic Acute 1; H400; On basis of test data Aquatic Chronic 1; H410; On basis of test data	> 94,0 weight%
Cupric oxide	CAS no.: 1317-38-0	Xn, N	< 1 weight%
Substance comments	Substance/preparation : Preparation As copper dusts or mists (CAS No. 7440-50-8). Compounds not precisely identified are proprietary or not hazardous.		

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Remove victim to fresh air. Give artificial respiration if victim does not breathe. Seek medical advice.
Skin contact	Remove contaminated clothing. Wash off with plenty of water and soap.
Eye contact	Wash out with plenty of water with the eyelid held wide open for at least 15 minutes. Seek medical advice.

Ingestion	One glass of water with addition of one tablespoon of common salt may induce vomiting.

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

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Use fire extinguishing methods suitable to surrounding conditions. Water sprays.

5.2. Special hazards arising from the substance or mixture

5.3. Advice for firefighters

Personal protective equipment	Additional protective clothing must be worn to prevent personal contact. you are recommended to use an approved Self-Containing Breathing Apparatus (SCBA). In case of fire, use normal fire fighting equipment including an approved SCBA.
Other Information	Non-flammable product

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal protection measures	Use dust mask and eye protection. No smoking. Do not breathe dust and avoid contact with eyes.

6.2. Environmental precautions

Environmental precautionary measures	Do not allow to enter sewage systems or any water course. This material is only slightly soluble in water.

6.3. Methods and material for containment and cleaning up

Cleaning method	The product should be collected for recycling, or be disposed of in a place where copper is tolerated or needed. To be recovered in the most convenient way.

6.4. Reference to other sections

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Do not breathe dust and avoid contact with eyes. Take pre-cautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Store in a cool dry well ventilated palce. Store only in orginal material/container. Keep material/container tightly closed.

7.3. Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure limit values

Substance	Identification	Value	TWA Year
Copper (I) Oxide	CAS no.: 1317-39-1 EC no.: 215-270-7	8-hour TWA: 1 mg/m3, TLV 8-hour TWA: 1 mg/m3, PEL	
Cupric oxide	CAS no.: 1317-38-0	8-hour TWA: 1 mg/m3, TLV 8-hour TWA: 1 mg/m3, PEL	

8.2. Exposure controls

Occupational exposure limits	Engineering measures : Take precautionary measures against static discharges. Hygienic measures : When using do not eat, drink or smoke. Occupational Exposure Limits : Not classified.

Safety signs

Respiratory protection

Respiratory protection	Wear dust mask.

Hand protection

Hand protection	Wear rubber gloves

Eye / face protection

Eye protection	Safety goggles.

Skin protection

Skin protection (except hands)	Impervious protective clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Fine, easily compactable granules odourless (purity 85 % as total copper)
Colour	Red-brown
Odour	None
pH (aqueous solution)	Value: 7,0
Comments, pH (aqueous solution)	pH range(1% solution)
Melting point/melting range	Value: > 332 °C Method of testing: O`Connor and Mullee, 2003
Comments, Melting point / melting range	Decomposes over 332 degrees before boiling (Purity 85 % as total copper)
Comments, Boiling point / boiling range	Decompose at 1800 °C (a.i.)
Comments, Flash point	Not required as the active substance is a solid.
Lower explosion limit with unit of measurement	Non explosive
Upper explosion limit with units of measurement	Non explosive
Comments, Vapour pressure	Not applicable
Specific gravity	Value: ~ 5,87 kg/l Method of testing: O`Connor and Mullee, 2003 Test temperature: 20 °C
Comments, Specific gravity	(Br. Stand. 2955)
Bulk density	Value: 1,1 kg/l
Comments, Bulk density	(Br. Stand. 2955)
Solubility in water	Solubility in water at pH 6.6 salt: 0,000639 g/L at 20 ° C as Cu 0,000539. (Purity 85 % as total copper)
Solubility in organic solvents	Value: < 14 mg/L Name: O`Connor and Mullee, 2003 Test temperature: 20 °C
Comments, Solubility	Toluen
Comments, Partition coefficient: n-octanol / water	Not relevant for the ecotoxicological risk assessement, due to the specific absorption mechanism of copper.

Comments, Spontaneous combustability	Not auto-flammable - self ignition temperature is 234 degrees C. (Baker, D. 2003)
Comments, Viscosity	Not required (solid)
Oxidising properties	Not oxidizing

9.2. Other information

Sublimation point, comments	Comments: Not relevant - always remains in solution in a dissociated ionic state.

Physical hazards

Comments, Solvent content	Organic solvents, a determination of the stability in organic solvents is unnecessary. Moreover the active substance as manufactured does not include any organic solvents.

Other physical and chemical properties

Physical and chemical properties	Einecs ref.: Unit 250, col. 2, page 125.

SECTION 10: Stability and reactivity

10.1. Reactivity

10.2. Chemical stability

Stability	Stable under normal conditions

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Conditions to avoid	High humidity

10.5. Incompatible materials

10.6. Hazardous decomposition products

Hazardous decomposition products	None

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information:

Other toxicological data	Chemical name : Copper (I) oxide Acute toxicity Oral : LD50 = 1340 mg/kg bodyweight Dermal : Non irritant (OECD) Inhalation : LC50 = 5.0 mg/l

Other information regarding health hazards

General	Copper is an essential element and therefore, its concentration in the body is strictly and efficiently regulated by homeostatic mechanisms.

Acute toxicity, Mixture estimate

Oral	Acute Tox 4 - H302
Dermal	None
Metabolism	Metabolism does not occur. Copper is a monatomic ion and cannot be metabolised. It is however used in every cell in the body, and every cell can regulate its copper content.

Potential acute effects

Inhalation	Inhalation: Copper (I) oxide showed little/no toxicity when administered to test animals by other routes. Furthermore, information on the particle size distribution and low water solubility of Copper (I) oxide indicate a low potential for inhalation exposure.
Skin contact	No skin irritation was seen in test animals (rabbits). Test guideline OECD 404. Copper (I) oxide does not meet the criteria for classification.

Eye contact	A test carried out in 3 male rabbits resulted in scattered or diffuse corneal opacity in one treated eye up to 72 hours and iridial inflammation up to 48 hours. Test guideline 405. Copper (I) oxide does not meet the criteria for classification. Positive irritant (OECD)
Ingestion	May be harmful if swallowed. If small quantities are ingested, vomiting will normally occur (usually within 5 to 10 minutes).

Delayed effects / repeated exposure

Chronic effects	Chronic toxicity Copper (I) oxide is classified as harmful, but is not considered a dangerous material for working (Ulmann Encyclopaedia, Band 15, page 560 (1978). It may cause "metallic fever" after inhalation of dust in the same way as other metal dusts.

Carcinogenic, Mutagenic or Reprotoxic

Mutagenicity	Not known to be Carcinogenic.
Teratogenic properties	Negative results were obtained for copper sulphate in vitro in a bacterial cell reverse mutation assay (OECD 471). An In vivo unscheduled DNA synthesis test (equivalent to OECD 486) and a mouse micronucleus test (EC method B.12) performed on copper sulphate also gave negative results.
Reproductive toxicity	NOAEL for reproductive toxicity of copper sulphate pentahydrate in rats is > 1500 ppm in food. Test guideline OECD 416. Copper (I) oxide does not meet the criteria for classification.

Symptoms of Exposure

Symptoms of overexposure	Copper (I) oxide is not classified on the basis of acute oral, inhalation or dermal toxicity. Copper (I) oxide does not meet the criteria for classification as STOT for a single exposure.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic, algae	Value: ~ 0,035 mg/l Algae, species: Selenastrum capr. Duration: EC50
Acute aquatic, Daphnia	Value: > 9,8 mg/l Daphnia, species: Magna Duration: EC50
Ecotoxicity	Copper is a necessary trace element and stimulates plant growth and yield on copper deficient soil. Copper is an intergral part of various oxidating enzymes, and several animal diseases may occur if the diet is deficient in copper. Copper (I) oxide is an active ingredient in antifouling paints and accordingly toxic to primitive marine organisms. Ecotoxicity (Cu2+): EC50 (Daphnia magna: 48 h): 9.8 - 41.2 ppb
Aquatic, comments	Chronic marine waters toxicity test results and PNEC derivation: Chronic toxicity of copper ions from soluble copper compounds was assessed using 51 NOEC/EC10 values from 24 species representing different trophic levels (fish, invertebrates and algae). Species-specific NOECs were calculated after normalizing to dissolved organic carbon (DOC) and were used to derive SSDs and HC5 values. Normalisation at a typical DOC for coastal waters of 2 mg/l resulted in an HC5 of 5.2 µg dissolved Cu/L. Applying an assessment factor of 1, a default chronic marine PNEC of 5.2 µg dissolved Cu/L is

	assigned to assess local risks.

12.2. Persistence and degradability

Comments, Biodegradability	Copper is an element and not degrade.

12.3. Bioaccumulative potential

Bioaccumulative potential	The “bioaccumulative” criteria are not applicable to essential metals.
Comments, BCF	Copper-ions bind strongly to soil. The median water-soil partitioning coefficient (Kp) is 2120 L/kg.

12.4. Mobility in soil

Mobility	Copper salts will in general gradually release Cu++ ions in soil. The ions will strongly adhere to negatively charged clay minerals and soil oxides, and charged organic molecules. Some ions will also be absorbed as nutrient to biota. Following this the mobilty of copper ions is strongly restricted in soil.

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

Other adverse effects / Remarks	Copper is a necessary trace element and stimulates plant growth and yield on copper deficient soil. Copper is an integral part of various oxidizing enzymes, and several animal diseases may occur if the diet is deficient in copper. Cuprous oxide is an active ingredient in antifouling paints and accordingly toxic to primitive marine organisms. Ecotoxicity (Cu2+): EC50 (Daphnia magna: 48 h) : 9.8 -41.2 ppb
Environmental details, summation	Water Hazard Class 2 (German Regulation) (Self-assessment): Hazardous for water. Do not allow product to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	The product should be collected for recycling, or be disposed of in a place where copper is tolerated or needed. Leakage to water should be avoided. Comply with local legislation. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, national an EU laws, directives and regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes.

SECTION 14: Transport information

14.1. UN number

ADR	3077
RID	3077
IMDG	3077
ICAO/IATA	3077

14.2. UN proper shipping name

ADR	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
RID	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
ICAO/IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3. Transport hazard class(es)

ADR	9
Hazard no.	90
RID	9
IMDG	9

ICAO/IATA	9

14.4. Packing group

ADR	III
RID	III
IMDG	III
ICAO/IATA	III

14.5. Environmental hazards

IMDG Marine pollutant	Yes

14.6. Special precautions for user

EmS	F-A, S-F

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

SECTION 15: Regulatory information

EC no.	215-270-7

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

Other Label Information	Label name : NORDOX CUPROUS OXIDE, XLT-G
Legislation and regulations	National regulations : There are no additional National Regulations required/available.

15.2. Chemical safety assessment

SECTION 16: Other information

Hazard symbol

R-phrases	R22 Harmful if swallowed. R50/53 Very toxic to aquatic organisms, may cause long-term adverseeffects in the aquatic environment.
S-phrases	S22 Do not breathe dust.
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Acute tox. 4; H302; On basis of test data Acute tox. 1; H302; Aquatic Acute 1; H400; On basis of test data Aquatic Acute 1; H410; Aquatic Chronic 1; H410; On basis of test data
List of relevant R-phrases (under headings 2 and 3).	R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R22 Harmful if swallowed.
List of relevant H-phrases (Section 2 and 3).	H302 Harmful if swallowed. H410 Very toxic to aquatic life with long lasting effects. H400 Very toxic to aquatic life.
Additional information	The information contained herein is based on the current state of our knowledge. As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof.

	Compliance with all applicable federal, state, and local regulations remains the responsibility of the user.
Information which has been added, deleted or revised	Chapter 3.
Responsible for safety data sheet	NORDOX AS