

SAFETY DATA SHEET



SeaForce Active Plus

Section 1. Identification

UN number : UN1263
GHS product identifier : SeaForce Active Plus
Product code : 43003
Other means of identification : Not available.
Product type : Liquid.
Product description : Paint.

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

Not applicable.

Supplier's details : Jotun Paints (Vietnam) Co. Ltd.
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Jotun Paints Viet Nam
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Ho Chi Minh, Viet Nam

Emergency telephone number : Office phone + 84 274 374 2206
or + 47 33 45 70 00 Jotun Norway (head office)

Section 2. Hazards identification

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
SKIN IRRITATION - Category 2
SERIOUS EYE DAMAGE - Category 1
SKIN SENSITISATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
AQUATIC TOXICITY (ACUTE) - Category 1
AQUATIC TOXICITY (CHRONIC) - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger.

Section 2. Hazards identification

- Hazard statements** :
- H226 - Flammable liquid and vapour.
 - H302 + H332 - Harmful if swallowed or if inhaled.
 - H315 - Causes skin irritation.
 - H317 - May cause an allergic skin reaction.
 - H318 - Causes serious eye damage.
 - H335 - May cause respiratory irritation.
 - H373 - May cause damage to organs through prolonged or repeated exposure. (nervous system)
 - H410 - Very toxic to aquatic life with long lasting effects.
- Precautionary statements**
- Prevention** :
- P280 - Wear protective gloves. Wear eye or face protection.
 - P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P273 - Avoid release to the environment.
 - P260 - Do not breathe vapour.
 - P270 - Do not eat, drink or smoke when using this product.
- Response** :
- P391 - Collect spillage.
 - P314 - Get medical advice/attention if you feel unwell.
 - P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
 - P302 + P352 - IF ON SKIN: Wash with plenty of water.
 - P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
 - P362 + P364 - Take off contaminated clothing and wash it before reuse.
 - P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
- Storage** :
- P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
 - P403 + P235 - Keep cool.
- Disposal** :
- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Additional information** :
- Antifouling. Active substances: dicopper oxide (CAS 1317-39-1) 33.1 % w/w, zineb (CAS 12122-67-7) 5.2 % w/w, copper pyrithione (CAS 14915-37-8) 1.4 % w/w. Read Technical Data Sheet and Safety Data Sheet before use. Do not reuse empty containers. For professional use only.
- Other hazards which do not result in classification** :
- None known.

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

Ingredient name	%	CAS number
dicopper oxide	≥25 - ≤50	CAS: 1317-39-1
xylene	≥10 - <22	CAS: 1330-20-7
colophony	≤10	CAS: 8050-09-7
zinc oxide	≤10	CAS: 1314-13-2
zineb	≤10	CAS: 12122-67-7
ethylbenzene	≤5	CAS: 100-41-4
1-methoxy-2-propanol	≤3	CAS: 107-98-2
hydrocarbons, C9, aromatics	≤3	CAS: 64742-95-6
Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)copper (Copper pyrithione)	<3	CAS: 14915-37-8

Section 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- | | |
|---------------------|---|
| Eye contact | : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. |
| Inhalation | : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| Skin contact | : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| Ingestion | : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |

Most important symptoms/effects, acute and delayed

Potential acute health effects

- | | |
|---------------------|--|
| Eye contact | : Causes serious eye damage. |
| Inhalation | : Harmful if inhaled. May cause respiratory irritation. |
| Skin contact | : Causes skin irritation. May cause an allergic skin reaction. |
| Ingestion | : Harmful if swallowed. |

Over-exposure signs/symptoms

- | | |
|---------------------|--|
| Eye contact | : Adverse symptoms may include the following:
pain
watering
redness |
| Inhalation | : Adverse symptoms may include the following:
respiratory tract irritation
coughing |
| Skin contact | : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur |
| Ingestion | : Adverse symptoms may include the following:
stomach pains |

Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
metal oxide/oxides

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and material for containment and cleaning up

Section 6. Accidental release measures

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
dicopper oxide	Ministry of Health (Vietnam, 4/2025) [copper compounds] TWA 8 hours: 0.5 mg/m ³ . STEL 15 minutes: 1 mg/m ³ . Ministry of Health (Vietnam, 4/2025) [copper and compounds] TWA 8 hours: 0.5 mg/m ³ . Form: Dust. TWA 8 hours: 0.1 mg/m ³ . Form: vapour, fume.
xylene	Ministry of Health (Vietnam, 4/2025) [xylene] 3. TWA 8 hours: 100 mg/m ³ . STEL 15 minutes: 300 mg/m ³ .
zinc oxide	Ministry of Health (Vietnam, 4/2025)

Section 8. Exposure controls/personal protection

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)copper (Copper pyrrhione)

TWA 8 hours: 5 mg/m³. Form: Dust and fumes.
 TWA 8 hours: 2 mg/m³. Form: Respirable dust.
 TWA 8 hours: 4 mg/m³. Form: Total dust.
Ministry of Health (Vietnam, 4/2025)
[copper compounds]
 TWA 8 hours: 0.5 mg/m³.
 STEL 15 minutes: 1 mg/m³.
Ministry of Health (Vietnam, 4/2025)
[copper and compounds]
 TWA 8 hours: 0.5 mg/m³. Form: Dust.
 TWA 8 hours: 0.1 mg/m³. Form: vapour, fume.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying to EN 166 should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

 There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.
 The breakthrough time must be greater than the end use time of the product.
 The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.
 Gloves should be replaced regularly and if there is any sign of damage to the glove material.
 Always ensure that gloves are free from defects and that they are stored and used correctly.
 The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance.
 Barrier creams may help to protect the exposed areas of the skin but should not be

Section 8. Exposure controls/personal protection

applied once exposure has occurred.

Wear suitable gloves tested to EN 374.

Not recommended, gloves(breakthrough time) < 1 hour: butyl rubber (> 0.4 mm)

May be used, gloves(breakthrough time) 4 - 8 hours: neoprene (> 0.35 mm), PVC (> 0.5 mm)

Recommended, gloves(breakthrough time) > 8 hours: fluor rubber (> 0.35 mm), nitrile rubber (> 0.75 mm), 4H/Silver Shield® (> 0.07 mm), Teflon (> 0.35 mm), polyvinyl alcohol (PVA) (> 0.3 mm)

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Colour** : Red
- Odour** : Characteristic.
- Odour threshold** : Not applicable.
- pH** : Not applicable.
- Melting point** : Not applicable.
- Boiling point** : Not available.
- Flash point** : Closed cup: 28°C (82.4°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Lower and upper explosive (flammable) limits** : 0.8 - 13.74%
- Vapour pressure** : Not available.
- Vapour density** : Not available.
- Relative density** : 1.722 to 1.728 g/cm³
- Solubility** : cold water Not soluble
hot water Not soluble
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C (104°F)): >20.5 mm²/s (>20.5 cSt)
- Flow time (ISO 2431)** : Not available.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	: Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name

dicopper oxide

Result

Rat - Oral - LD50

1340 mg/kg

Rat - Inhalation - LC50 Dusts and mists

3.34 mg/l [4 hours]

Rat - Oral - LD50

4300 mg/kg

Toxic effects: Liver - Other changes Kidney, Ureter, and Bladder - Other changes**Rabbit - Dermal - TDLo**

4300 mg/kg

Toxic effects: Skin After topical exposure - Corrosive**Rat - Inhalation - LC50 Vapour**

11 mg/l [4 hours]

Rat - Oral - LD50

1850 mg/kg

Toxic effects: Behavioral - Excitement Gastrointestinal - Hypermotility, diarrhea Gross Metabolite Changes - Weight loss or decreased weight gain**Rat - Oral - LD50**

3500 mg/kg

Toxic effects: Liver - Other changes Kidney, Ureter, and Bladder - Other changes**Rabbit - Dermal - LD50**

>5000 mg/kg

Rat - Male - Inhalation - LC50 Vapour

11 mg/l [4 hours]

Rabbit - Dermal - LD50

13 g/kg

Rat - Oral - LD50

6600 mg/kg

Toxic effects: Brain and Coverings - Other degenerative changes Behavioral - General anesthetic Lung, Thorax, or Respiration - Dyspnea**Rat - Oral - LD50**

200 mg/kg

Rabbit - Dermal - LD50

300 mg/kg

Rat - Inhalation - LC50 Dusts and mists70 mg/m³ [4 hours]Toxic effects: Eye - Lacrimation Lung, Thorax, or Respiration - Dyspnea Lung, Thorax, or Respiration - Respiratory stimulation

xylene

zineb

ethylbenzene

1-methoxy-2-propanol

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrrhione)

Conclusion/Summary[Product] : Not available.

Section 11. Toxicological information

Skin corrosion/irritation

Product/ingredient name

xylene

zinc oxide

1-methoxy-2-propanol

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrithione)

Result

Rat - Skin - Mild irritantDuration of treatment/exposure: 8 hoursAmount/concentration applied: 60 microliters**Rabbit - Skin - Mild irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 500 mg**Rabbit - Skin - Mild irritant**Amount/concentration applied: 500 mg**Mammal - species unspecified - Skin - Irritant**

Conclusion/Summary[Product] : Not available.

Serious eye damage/eye irritation

Product/ingredient name

dicopper oxide

xylene

zinc oxide

1-methoxy-2-propanol

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrithione)

Result

Rabbit - Eyes - Cornea opacity

OECD 405

Duration of treatment/exposure: 72 hours**Rabbit - Eyes - Redness of the conjunctivae**

OECD 405

Duration of treatment/exposure: 48 hours**Rabbit - Eyes - Mild irritant**Amount/concentration applied: 87 milligrams**Rabbit - Eyes - Mild irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 500 mg**Rabbit - Eyes - Mild irritant**Duration of treatment/exposure: 24 hoursAmount/concentration applied: 500 mg**Mammal - species unspecified - Eyes - Severe irritant**

Conclusion/Summary[Product] : Not available.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary[Product] : Not available.

Respiratory or skin sensitization

Product/ingredient name

colophony

zineb

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrithione)

Result

Mammal - species unspecified - skinResult: Sensitising**Mammal - species unspecified - skin**Result: Sensitising**Guinea pig - skin**Result: Not sensitizing

Skin

Conclusion/Summary[Product] : Not available.

Ingredient name

colophony

Conclusion/Summary

May cause an allergic skin reaction.

Respiratory

Section 11. Toxicological information

Conclusion/Summary[Product] : Not available.

Germ cell mutagenicity

Product/ingredient name

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrithione)

Result

In vivo - Mammalian-Animal - Oral

OECD 474

1300 mg/kg

Result: Negative

Conclusion/Summary[Product] : Not classified.

Carcinogenicity

Not available.

Conclusion/Summary[Product] : Not classified.

Reproductive toxicity

Product/ingredient name

zineb

Result

Mammal - species unspecified - Unreported

Developmental: Positive

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrithione)

Mammal - species unspecified - Unreported

Developmental: Positive

Conclusion/Summary[Product] : Suspected of damaging the unborn child.

Specific target organ toxicity (single exposure)

Product/ingredient name

xylene

Result

SPECIFIC TARGET ORGAN TOXICITY - SINGLE
EXPOSURE (Respiratory tract irritation) - Category 3

zineb

SPECIFIC TARGET ORGAN TOXICITY - SINGLE
EXPOSURE (Respiratory tract irritation) - Category 3

1-methoxy-2-propanol

SPECIFIC TARGET ORGAN TOXICITY - SINGLE
EXPOSURE (Narcotic effects) - Category 3

hydrocarbons, C9, aromatics

SPECIFIC TARGET ORGAN TOXICITY - SINGLE
EXPOSURE (Respiratory tract irritation) - Category 3

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrithione)

SPECIFIC TARGET ORGAN TOXICITY - SINGLE
EXPOSURE (Narcotic effects) - Category 3

SPECIFIC TARGET ORGAN TOXICITY - SINGLE
EXPOSURE (Respiratory tract irritation) - Category 3

Specific target organ toxicity (repeated exposure)

Product/ingredient name

ethylbenzene

Result

SPECIFIC TARGET ORGAN TOXICITY - REPEATED
EXPOSURE (hearing organs) - Category 2

Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)
copper (Copper pyrithione)

SPECIFIC TARGET ORGAN TOXICITY - REPEATED
EXPOSURE (nervous system) - Category 1

Aspiration hazard

Product/ingredient name

xylene

Result

ASPIRATION HAZARD - Category 1

ethylbenzene

ASPIRATION HAZARD - Category 1

hydrocarbons, C9, aromatics

ASPIRATION HAZARD - Category 1

Information on likely routes of exposure

Not available.

Section 11. Toxicological information

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Harmful if inhaled. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary[Product] : Not available.

- General** : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)

Section 11. Toxicological information

SeaForce Active Plus	1479.7	7572.4	N/A	56.8	3.3
dicopper oxide	500	N/A	N/A	N/A	3.34
xylene	N/A	1100	N/A	11	N/A
ethylbenzene	N/A	N/A	N/A	11	N/A
1-methoxy-2-propanol	6600	13000	N/A	N/A	N/A
Bis(1-hydroxy-1H-pyridine-2-thionato- O,S)copper (Copper pyriithione)	1075	N/A	N/A	N/A	0.07

Section 12. Ecological information

Toxicity

Product/ingredient name

dicopper oxide

Result

Acute - LC50 - Fresh water

Fish - Zebra danio - *Danio rerio*

0.075 mg/l [96 hours]

Effect: Mortality

Chronic - NOEC

Algae

0.001 mg/l

Chronic - NOEC

Algae

0.0052 mg/l

LC50

Fish - *Cyprinodon variegatus*

>0.173 mg/l [96 hours]

EC50

Daphnia

0.51 mg/l [48 hours]

xylene

Acute - LC50 - Marine water

Crustaceans - Daggerblade grass shrimp - *Palaemonetes pugio*

8500 µg/l [48 hours]

Effect: Mortality

Acute - LC50 - Fresh water

Fish - Fathead minnow - *Pimephales promelas*Age: 31 days; Size: 18.4 mm; Weight: 0.077 g

13400 µg/l [96 hours]

Effect: Mortality

zinc oxide

Chronic - NOEC - Fresh water

Algae - Green algae - *Pseudokirchneriella subcapitata* -

Exponential growth phase

0.02 mg/l [72 hours]

Effect: Growth

Acute - LC50 - Fresh water

US EPA

Fish - Rainbow trout, donaldson trout - *Oncorhynchus mykiss*Weight: 0.78 g

1.1 ppm [96 hours]

Effect: Mortality

zineb

Acute - LC50

Fish - Trout

0.225 mg/l [96 hours]

Acute - LC50 - Fresh water

Daphnia - Water flea - *Daphnia magna*

970 to 1800 µg/l [48 hours]

Effect: Mortality

Chronic - NOEC - Fresh water

Algae - Green algae - *Chlorella vulgaris*

0.05 mg/l [96 hours]

Effect: Population

Chronic - NOEC - Fresh water

Section 12. Ecological information

ethylbenzene	Algae - Green algae - <i>Scenedesmus quadricauda</i> 0.05 mg/l [96 hours] Effect: Population Acute - EC50 - Fresh water
	Algae - Green algae - <i>Pseudokirchneriella subcapitata</i> 0.38 mg/l [96 hours] Effect: Population Acute - EC50
	Daphnia 2.93 mg/l [48 hours] Effect: Intoxication Acute - LC50
	Fish 4.2 mg/l [96 hours] Effect: Mortality Acute - EC50 - Marine water
	Algae - Diatom - <i>Skeletonema costatum</i> 7700 µg/l [96 hours] Effect: Population Acute - LC50
hydrocarbons, C9, aromatics	Fish <10 mg/l [96 hours] Acute - EC50
	Daphnia <10 mg/l [48 hours] Acute - IC50
	Algae <10 mg/l [72 hours] Acute - LC50
	Fish 0.0043 mg/l [96 hours] Acute - EC50
	Daphnia 0.022 mg/l [48 hours] Acute - IC50
Bis(1-hydroxy-1H-pyridine-2-thionato- O,S) copper (Copper pyriithione)	Algae 0.035 mg/l [120 hours] Chronic - NOEC
	Algae - <i>Skeletonema costatum</i> 0.00046 mg/l [120 hours] EC50
	Algae - <i>Skeletonema costatum</i> 0.0012 mg/l [120 hours]

Conclusion/Summary[Product] : Not available.

Ingredient name	Conclusion/Summary
1-methoxy-2-propanol	Not available.

Persistence and degradability

Not available.

Conclusion/Summary[Product] : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
dicopper oxide	-	-	Not readily
xylene	-	-	Readily
zinc oxide	-	-	Not readily
ethylbenzene	-	-	Readily
hydrocarbons, C9, aromatics	-	-	Not readily

Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
xylene	3.12	8.1 to 25.9	Low
colophony	1.9 to 7.7	-	High
zinc oxide	-	28960	High
zineb	1.3	-	Low
ethylbenzene	3.6	-	Low
1-methoxy-2-propanol	<1	-	Low
hydrocarbons, C9, aromatics	-	10 to 2500	High

Mobility in soil

Soil/water partition coefficient : Not available.

Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	UN1263	UN1263	UN1263
UN proper shipping name	Paint	Paint. Marine pollutant (dicopper oxide)	Paint
Transport hazard class(es)	3 	3  	3 
Packing group	III	III	III
Environmental hazards	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Hazard identification number 30
Tunnel code (D/E)

Section 14. Transport information

- ADN** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules** F-E, S-E
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.
- Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Circular no. 05/1999/TT-BYT

Ingredient name	Category	Notes
xylene	Category 2	-

Toxic classification (TCVN : 3 3164-79)

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Section 16. Other information

Ratings of danger according to

NFPA



HMIS

Health	*	3
Flammability		3
Physical hazards		0

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Key to abbreviations

- : ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 HMIS = Hazardous Material Information System (U.S.A.)
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient

Section 16. Other information

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

N/A = Not available

NFPA = National Fire Protection Association (U.S.A.)

SGG = Segregation Group

UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
SKIN SENSITISATION - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2	Calculation method
AQUATIC TOXICITY (ACUTE) - Category 1	Calculation method
AQUATIC TOXICITY (CHRONIC) - Category 1	Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.