

SAFETY DATA SHEET

1. Identification

| | |
|---|--|
| Product identifier | Kopr-Shield |
| Other means of identification | |
| SDS number | SDS-00003 |
| Product code | 201-31879, 201-31879-1, CP128, CP16, CP8-TB, 54865CK |
| Recommended use | Lubricants, Greases and Release Products |
| Recommended restrictions | None known. |
| Manufacturer/Importer/Supplier/Distributor information | |
| Company name | Thomas & Betts Corporation |
| Address | 8155 T & B Boulevard Memphis, TN 38125 US |
| Telephone | 901-252-5000 ext.8324 |
| E-mail | Not available. |
| Emergency phone number | For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night +1 703-741-5970 |

2. Hazard(s) identification

| | |
|--|--|
| Physical hazards | Not classified. |
| Health hazards | Not classified. |
| OSHA defined hazards | Not classified. |
| Label elements | |
| Hazard symbol | None. |
| Signal word | None. |
| Hazard statement | The mixture does not meet the criteria for classification. |
| Precautionary statement | |
| Prevention | Observe good industrial hygiene practices. |
| Response | Wash hands after handling. |
| Storage | Store away from incompatible materials. |
| Disposal | Dispose of waste and residues in accordance with local authority requirements. |
| Hazard(s) not otherwise classified (HNOC) | None known. |
| Supplemental information | Very toxic to aquatic life. Harmful to aquatic life with long lasting effects. |

3. Composition/information on ingredients

Mixtures

| Chemical name | CAS number | % |
|---|-------------------|----------|
| Lubricating greases; a complex combination of hydrocarbons having carbon numbers predominantly in the range of C12 through C50. May contain organic salts of alkali metals, alkaline earth metals, etc. | 74869-21-9 | 65 - 70 |
| Copper | 7440-50-8 | 25-30 |
| Zinc bis(dipentyl)dithiocarbamate) | 15337-18-5 | <1 |

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

| | |
|---|--|
| Inhalation | Move to fresh air. Call a physician if symptoms develop or persist. |
| Skin contact | Wash off with soap and water. Get medical attention if irritation develops and persists. |
| Eye contact | Rinse with water. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. Get medical attention if symptoms occur. |
| Most important symptoms/effects, acute and delayed | Direct contact with eyes may cause temporary irritation. |
| Indication of immediate medical attention and special treatment needed | Treat symptomatically. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

5. Fire-fighting measures

| | |
|--|---|
| Suitable extinguishing media | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | None known. |
| Special protective equipment and precautions for firefighters | Firefighters should wear full protective clothing including self contained breathing apparatus. Wear suitable protective equipment. |
| Fire fighting equipment/instructions | Use standard firefighting procedures and consider the hazards of other involved materials. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. |
| General fire hazards | No unusual fire or explosion hazards noted. |

6. Accidental release measures

| | |
|--|--|
| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. For personal protection, see section 8 of the SDS. Wear suitable protective clothing, gloves and eye/face protection. |
| Methods and materials for containment and cleaning up | <p>Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. The product is immiscible with water and will spread on the water surface. Should not be released into the environment. Be aware of potential for surfaces to become slippery.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p> |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not contaminate water. |

7. Handling and storage

| | |
|---|--|
| Precautions for safe handling | Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and wash before reuse. Do not breathe vapors or spray mist. In case of insufficient ventilation, wear suitable respiratory equipment. Use only in area provided with appropriate exhaust ventilation. Be aware of potential for surfaces to become slippery. Do not eat, drink or smoke when using the product. |
| Conditions for safe storage, including any incompatibilities | Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS). |

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|------------------------|------|--|-------------------------|
| Copper (CAS 7440-50-8) | PEL | 1 mg/m ³ 0.1 mg/m ³ | Dust and mist. Fume. |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|------------------------|------|--|-------------------------|
| Copper (CAS 7440-50-8) | TWA | 1 mg/m ³ 0.2 mg/m ³ | Dust and mist. Fume. |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value | Form |
|------------------------|------|---------------------|----------------|
| Copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

No exposure standards allocated. Occupational Exposure Limits are not relevant to the current physical form of the product.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Skin protection

Other

Wear apron or protective clothing in case of contact. Use of protective coveralls and long sleeves is recommended.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Appearance

Physical state

Semi-fluid (gel).

Form

Gel.

Color

Copper.

Odor

Petroleum.

Odor threshold

Not available.

pH

Neutral

Melting point/freezing point

NONE.

Initial boiling point and boiling range

> 599 °F (> 315 °C)

Flash point

> 590.0 °F (> 310.0 °C)

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

Not applicable.

| | |
|--|-----------------|
| Flammability limit - upper (%) | Not applicable. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Relative density | 1.2 |
| Solubility(ies) | |
| Solubility (water) | Insoluble. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not applicable. |
| Other information | |
| Explosive properties | Not explosive. |
| Oxidizing properties | Not oxidizing. |

10. Stability and reactivity

| | |
|---|---|
| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Material is stable under normal conditions. Decomposes in the presence of water. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Conditions to avoid | Contact with incompatible materials. |
| Incompatible materials | Acids. Oxidizing agents. Acetylene. Vinyl compounds. |
| Hazardous decomposition products | Metal oxides. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---------------------|--|
| Inhalation | No adverse effects due to inhalation are expected. |
| Skin contact | No adverse effects due to skin contact are expected. |
| Eye contact | Direct contact with eyes may cause temporary irritation. |
| Ingestion | Expected to be a low ingestion hazard. |

| | |
|---|--|
| Symptoms related to the physical, chemical and toxicological characteristics | Direct contact with eyes may cause temporary irritation. |
|---|--|

Information on toxicological effects

| | |
|-----------------------|-----------------------------------|
| Acute toxicity | Not expected to be acutely toxic. |
|-----------------------|-----------------------------------|

| Product | Species | Test Results |
|---------------------------|---------|-------------------------------------|
| Kopr-Shield (CAS Mixture) | | |
| Acute | | |
| <i>Oral</i> | | |
| LD50 | | 3266 mg/kg, Acute toxicity estimate |

* Estimates for product may be based on additional component data not shown.

| | |
|--|---|
| Skin corrosion/irritation | No adverse effects due to skin contact are expected. |
| Serious eye damage/eye irritation | Direct contact with eyes may cause temporary irritation. |
| Respiratory or skin sensitization | |
| Respiratory sensitization | Not a respiratory sensitizer. |
| Skin sensitization | This product is not expected to cause skin sensitization. |

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Further information This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

| Components | | Species | Test Results |
|------------------------|------|--------------------------------------|--------------------------------|
| Copper (CAS 7440-50-8) | | | |
| Aquatic | | | |
| Algae | EC50 | Pseudokirchnerella subcapitata | 0.031 - 0.054 mg/l, 96 hours |
| Crustacea | EC50 | Water flea (Daphnia magna) | 0.03 mg/l, 48 hours |
| Fish | LC50 | Fathead minnow (Pimephales promelas) | 0.0068 - 0.0156 mg/l, 96 hours |

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential The product is not expected to bioaccumulate.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

| | |
|-----------------------------------|--|
| UN number | UN3082 |
| UN proper shipping name | Environmentally hazardous substances, liquid, n.o.s. (Copper RQ = 18182 LBS) |
| Transport hazard class(es) | |
| Class | 9 |
| Subsidiary risk | - |
| Label(s) | 9 |
| Packing group | III |

Environmental hazards

Marine pollutant Yes.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions 8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions 155
Packaging non bulk 203
Packaging bulk 241

IATA

UN number UN3082
UN proper shipping name Environmentally hazardous substance, liquid, n.o.s. (Copper)
Transport hazard class(es)
Class 9
Subsidiary risk -
Packing group III
Environmental hazards Yes.
ERG Code 9L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN3082
UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (COPPER)
Transport hazard class(es)
Class 9
Subsidiary risk -
Packing group III
Environmental hazards
Marine pollutant YES.
EmS F-A, S-F
Special precautions for user Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Copper (CAS 7440-50-8) LISTED
Zinc bis(dipentylidithiocarbamate) (CAS 15337-18-5) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|------------------------------------|------------|----------|
| Copper | 7440-50-8 | 25-30 |
| Zinc bis(dipentylidithiocarbamate) | 15337-18-5 | <1 |

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Copper (CAS 7440-50-8)

US. New Jersey Worker and Community Right-to-Know Act

Copper (CAS 7440-50-8)

Zinc bis(dipentyldithiocarbamate) (CAS 15337-18-5)

US. Pennsylvania Worker and Community Right-to-Know Law

Copper (CAS 7440-50-8)

US. Rhode Island RTK

Copper (CAS 7440-50-8)

Zinc bis(dipentyldithiocarbamate) (CAS 15337-18-5)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | No |
| Canada | Domestic Substances List (DSL) | No |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | No |
| Korea | Existing Chemicals List (ECL) | No |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

| | |
|---------------------|---|
| Issue date | 15-January-2016 |
| Revision date | 04-May-2016 |
| Revision # | 2 |
| Further information | HMIS Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard NFPA Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe |
| HMIS® ratings | Health: 0 Flammability: 1 Physical hazard: 0 |

NFPA ratings



List of abbreviations

DOT: Department of Transportation.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
HMIS: Hazardous Materials Identification System.
NFPA: National Fire Protection Association.
CAS Number: Chemical Abstracts Service Registry Number.
LC50: Lethal concentration 50% (concentration that kills 50% of test animals).
EC50: (Effective Concentration – 50%) The concentration that will produce a 50% in vivo inhibition of a biological or biochemical effect, in the test organisms or animals.
MARPOL: International Convention for the Prevention of Pollution from Ships.

Disclaimer

The information presented herein has been compiled from resources considered to be dependable and accurate to the best of Thomas & Betts Corporation knowledge. The information relates to the special material. It may not be valid for this material if used in combination with any other materials or in any other process. It is user's responsibility to satisfy himself as to the suitability and completeness of this information for his own particular use. Thomas & Betts Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

SAFETY DATA SHEET

1. Identification

| | |
|---|--|
| Product identifier | Kopr-Shield |
| Other means of identification | |
| SDS number | SDS-00003 |
| Product code | 201-31879, 201-31879-1, CP128, CP16, CP8-TB, 54865CK |
| Recommended use | Lubricants, Greases and Release Products |
| Recommended restrictions | None known. |
| Manufacturer/Importer/Supplier/Distributor information | |
| Company name | Thomas & Betts Corporation |
| Address | 8155 T & B Boulevard Memphis, TN 38125 US |
| Telephone | 901-252-5000 ext.8324 |
| E-mail | Not available. |
| Emergency phone number | For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night +1 703-741-5970 |

2. Hazard(s) identification

| | |
|--|--|
| Physical hazards | Not classified. |
| Health hazards | Not classified. |
| OSHA defined hazards | Not classified. |
| Label elements | |
| Hazard symbol | None. |
| Signal word | None. |
| Hazard statement | The mixture does not meet the criteria for classification. |
| Precautionary statement | |
| Prevention | Observe good industrial hygiene practices. |
| Response | Wash hands after handling. |
| Storage | Store away from incompatible materials. |
| Disposal | Dispose of waste and residues in accordance with local authority requirements. |
| Hazard(s) not otherwise classified (HNOC) | None known. |
| Supplemental information | Very toxic to aquatic life. Harmful to aquatic life with long lasting effects. |

3. Composition/information on ingredients

Mixtures

| Chemical name | CAS number | % |
|---|-------------------|----------|
| Lubricating greases; a complex combination of hydrocarbons having carbon numbers predominantly in the range of C12 through C50. May contain organic salts of alkali metals, alkaline earth metals, etc. | 74869-21-9 | 65 - 70 |
| Copper | 7440-50-8 | 25-30 |
| Zinc bis(dipentyl)dithiocarbamate) | 15337-18-5 | <1 |

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

| | |
|---|--|
| Inhalation | Move to fresh air. Call a physician if symptoms develop or persist. |
| Skin contact | Wash off with soap and water. Get medical attention if irritation develops and persists. |
| Eye contact | Rinse with water. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. Get medical attention if symptoms occur. |
| Most important symptoms/effects, acute and delayed | Direct contact with eyes may cause temporary irritation. |
| Indication of immediate medical attention and special treatment needed | Treat symptomatically. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

5. Fire-fighting measures

| | |
|--|---|
| Suitable extinguishing media | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | None known. |
| Special protective equipment and precautions for firefighters | Firefighters should wear full protective clothing including self contained breathing apparatus. Wear suitable protective equipment. |
| Fire fighting equipment/instructions | Use standard firefighting procedures and consider the hazards of other involved materials. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. |
| General fire hazards | No unusual fire or explosion hazards noted. |

6. Accidental release measures

| | |
|--|--|
| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. For personal protection, see section 8 of the SDS. Wear suitable protective clothing, gloves and eye/face protection. |
| Methods and materials for containment and cleaning up | <p>Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. The product is immiscible with water and will spread on the water surface. Should not be released into the environment. Be aware of potential for surfaces to become slippery.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p> |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not contaminate water. |

7. Handling and storage

| | |
|---|--|
| Precautions for safe handling | Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and wash before reuse. Do not breathe vapors or spray mist. In case of insufficient ventilation, wear suitable respiratory equipment. Use only in area provided with appropriate exhaust ventilation. Be aware of potential for surfaces to become slippery. Do not eat, drink or smoke when using the product. |
| Conditions for safe storage, including any incompatibilities | Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS). |

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|------------------------|------|--|-------------------------|
| Copper (CAS 7440-50-8) | PEL | 1 mg/m ³ 0.1 mg/m ³ | Dust and mist. Fume. |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|------------------------|------|--|-------------------------|
| Copper (CAS 7440-50-8) | TWA | 1 mg/m ³ 0.2 mg/m ³ | Dust and mist. Fume. |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value | Form |
|------------------------|------|---------------------|----------------|
| Copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

No exposure standards allocated. Occupational Exposure Limits are not relevant to the current physical form of the product.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Skin protection

Other

Wear apron or protective clothing in case of contact. Use of protective coveralls and long sleeves is recommended.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Appearance

Physical state

Semi-fluid (gel).

Form

Gel.

Color

Copper.

Odor

Petroleum.

Odor threshold

Not available.

pH

Neutral

Melting point/freezing point

NONE.

Initial boiling point and boiling range

> 599 °F (> 315 °C)

Flash point

> 590.0 °F (> 310.0 °C)

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)

Not applicable.

| | |
|--|-----------------|
| Flammability limit - upper (%) | Not applicable. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Relative density | 1.2 |
| Solubility(ies) | |
| Solubility (water) | Insoluble. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not applicable. |
| Other information | |
| Explosive properties | Not explosive. |
| Oxidizing properties | Not oxidizing. |

10. Stability and reactivity

| | |
|---|---|
| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Material is stable under normal conditions. Decomposes in the presence of water. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Conditions to avoid | Contact with incompatible materials. |
| Incompatible materials | Acids. Oxidizing agents. Acetylene. Vinyl compounds. |
| Hazardous decomposition products | Metal oxides. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---------------------|--|
| Inhalation | No adverse effects due to inhalation are expected. |
| Skin contact | No adverse effects due to skin contact are expected. |
| Eye contact | Direct contact with eyes may cause temporary irritation. |
| Ingestion | Expected to be a low ingestion hazard. |

| | |
|---|--|
| Symptoms related to the physical, chemical and toxicological characteristics | Direct contact with eyes may cause temporary irritation. |
|---|--|

Information on toxicological effects

| | |
|-----------------------|-----------------------------------|
| Acute toxicity | Not expected to be acutely toxic. |
|-----------------------|-----------------------------------|

| Product | Species | Test Results |
|---------------------------|---------|-------------------------------------|
| Kopr-Shield (CAS Mixture) | | |
| Acute | | |
| <i>Oral</i> | | |
| LD50 | | 3266 mg/kg, Acute toxicity estimate |

* Estimates for product may be based on additional component data not shown.

| | |
|--|---|
| Skin corrosion/irritation | No adverse effects due to skin contact are expected. |
| Serious eye damage/eye irritation | Direct contact with eyes may cause temporary irritation. |
| Respiratory or skin sensitization | |
| Respiratory sensitization | Not a respiratory sensitizer. |
| Skin sensitization | This product is not expected to cause skin sensitization. |

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Further information This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

| Components | | Species | Test Results |
|------------------------|------|--------------------------------------|--------------------------------|
| Copper (CAS 7440-50-8) | | | |
| Aquatic | | | |
| Algae | EC50 | Pseudokirchnerella subcapitata | 0.031 - 0.054 mg/l, 96 hours |
| Crustacea | EC50 | Water flea (Daphnia magna) | 0.03 mg/l, 48 hours |
| Fish | LC50 | Fathead minnow (Pimephales promelas) | 0.0068 - 0.0156 mg/l, 96 hours |

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential The product is not expected to bioaccumulate.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

| | |
|-----------------------------------|--|
| UN number | UN3082 |
| UN proper shipping name | Environmentally hazardous substances, liquid, n.o.s. (Copper RQ = 18182 LBS) |
| Transport hazard class(es) | |
| Class | 9 |
| Subsidiary risk | - |
| Label(s) | 9 |
| Packing group | III |

Environmental hazards

Marine pollutant Yes.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions 8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions 155
Packaging non bulk 203
Packaging bulk 241

IATA

UN number UN3082
UN proper shipping name Environmentally hazardous substance, liquid, n.o.s. (Copper)
Transport hazard class(es)
Class 9
Subsidiary risk -
Packing group III
Environmental hazards Yes.
ERG Code 9L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN3082
UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (COPPER)
Transport hazard class(es)
Class 9
Subsidiary risk -
Packing group III
Environmental hazards
Marine pollutant YES.
EmS F-A, S-F
Special precautions for user Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Copper (CAS 7440-50-8) LISTED
Zinc bis(dipentylidithiocarbamate) (CAS 15337-18-5) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|------------------------------------|------------|----------|
| Copper | 7440-50-8 | 25-30 |
| Zinc bis(dipentylidithiocarbamate) | 15337-18-5 | <1 |

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Copper (CAS 7440-50-8)

US. New Jersey Worker and Community Right-to-Know Act

Copper (CAS 7440-50-8)

Zinc bis(dipentyldithiocarbamate) (CAS 15337-18-5)

US. Pennsylvania Worker and Community Right-to-Know Law

Copper (CAS 7440-50-8)

US. Rhode Island RTK

Copper (CAS 7440-50-8)

Zinc bis(dipentyldithiocarbamate) (CAS 15337-18-5)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | No |
| Canada | Domestic Substances List (DSL) | No |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | No |
| Korea | Existing Chemicals List (ECL) | No |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

| | |
|---------------------|---|
| Issue date | 15-January-2016 |
| Revision date | 04-May-2016 |
| Revision # | 2 |
| Further information | HMIS Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard NFPA Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe |
| HMIS® ratings | Health: 0 Flammability: 1 Physical hazard: 0 |

NFPA ratings



List of abbreviations

DOT: Department of Transportation.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
HMIS: Hazardous Materials Identification System.
NFPA: National Fire Protection Association.
CAS Number: Chemical Abstracts Service Registry Number.
LC50: Lethal concentration 50% (concentration that kills 50% of test animals).
EC50: (Effective Concentration – 50%) The concentration that will produce a 50% in vivo inhibition of a biological or biochemical effect, in the test organisms or animals.
MARPOL: International Convention for the Prevention of Pollution from Ships.

Disclaimer

The information presented herein has been compiled from resources considered to be dependable and accurate to the best of Thomas & Betts Corporation knowledge. The information relates to the special material. It may not be valid for this material if used in combination with any other materials or in any other process. It is user's responsibility to satisfy himself as to the suitability and completeness of this information for his own particular use. Thomas & Betts Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.