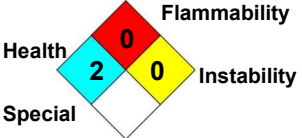

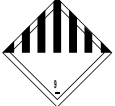



Material Safety Data Sheet

| NFPA | HMIS | WHMIS | TDG | DOT | | | | | | | | |
|--|--|--------|-----|--------------|---|------------------|---|---------------|---|---|---|---|
|  | <table border="1"> <tr><td>Health</td><td>2</td></tr> <tr><td>Flammability</td><td>0</td></tr> <tr><td>Physical hazards</td><td>0</td></tr> <tr><td>Suggested PPE</td><td>E</td></tr> </table> | Health | 2 | Flammability | 0 | Physical hazards | 0 | Suggested PPE | E |  |  |  |
| Health | 2 | | | | | | | | | | | |
| Flammability | 0 | | | | | | | | | | | |
| Physical hazards | 0 | | | | | | | | | | | |
| Suggested PPE | E | | | | | | | | | | | |

1 . Product and Company Identification

| | | | |
|----------------------|--|--|------------|
| Product name | 103000 Ultra Yield Copper 12% | | |
| Synonym | Copper Oxy-Sulfate 12% | MSDS prepared by the Environment, Health & Safety Department on: | 1/14/2010. |
| Material uses | Agricultural industry: Soil additive, micronutrient mix | Version | 5 |
| MSDS Number | 103000 | <u>In Case of Emergency</u> | |
| | | Transportation: 1-800-792-8311 Medical: 1-888-615-0015 | |
| Manufacturer | Agrium Advanced Technologies, Inc. 2915 Rocky Mountain Avenue, Suite 400 Loveland, CO. 80538 | For more information on Agrium AT or our products, please go to: http://www.agriumat.com or contact us at Toll-Free:800-461-6471 | |

2 . Hazards Identification

| | |
|--|---|
| Physical state | Solid. |
| OSHA/HCS status | This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
| Emergency overview | <p>WARNING!</p> <p>HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.</p> <p>Harmful if swallowed. Avoid exposure - obtain special instructions before use. Do not ingest. Avoid contact with eyes, skin and clothing. Contains material that may cause target organ damage, based on animal data. Wash thoroughly after handling.</p> |
| <u>Potential acute health effects</u> | |
| Inhalation | Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. |
| Ingestion | Toxic if swallowed. |
| Skin | May cause skin irritation. |
| Eyes | May irritate the eyes upon contact. |
| <u>Potential chronic health effects</u> | |

2 . Hazards Identification

| | |
|---|--|
| Chronic effects | Contains material that may cause target organ damage, based on animal data. Chronic copper poisoning due to excessive intake is rarely seen in humans. Chronic overdosage of copper salts in normal humans is unlikely to result in liver or kidney damage. However, a hereditary condition known as Wilson's disease makes individuals with this condition susceptible to toxic effects from copper at levels of exposure which cause no symptoms to others in the community. |
| Carcinogenicity | No known significant effects or critical hazards. |
| Mutagenicity | No known significant effects or critical hazards. |
| Teratogenicity | No known significant effects or critical hazards. |
| Developmental effects | No known significant effects or critical hazards. |
| Fertility effects | No known significant effects or critical hazards. |
| Target organs | Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eyes, nose/sinuses, throat. |
| <u>Over-exposure signs/symptoms</u> | |
| Inhalation | No specific data. |
| Ingestion | No specific data. |
| Skin | No specific data. |
| Eyes | No specific data. |
| Medical conditions aggravated by over-exposure | Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product. |
| See toxicological information (section 11) | |

3 . Composition / Information on Ingredients

United States

| <u>Name</u> | <u>CAS number</u> | <u>%</u> |
|---------------------------|-------------------|---------------|
| copper sulphate | 7758-98-7 | 15 - 40 |
| diiiron trioxide | 1309-37-1 | 10 - 30 |
| copper oxide | 1317-38-0 | 7 - 13 |
| urea | 57-13-6 | 6.93 - 12.948 |
| zinc sulphate (anhydrous) | 7733-02-0 | 5 - 10 |
| zinc oxide | 1314-13-2 | 1 - 5 |

Canada

| <u>Name</u> | <u>CAS number</u> | <u>%</u> |
|---------------------------|-------------------|---------------|
| copper sulphate | 7758-98-7 | 15 - 40 |
| diiiron trioxide | 1309-37-1 | 10 - 30 |
| copper oxide | 1317-38-0 | 7 - 13 |
| urea | 57-13-6 | 6.93 - 12.948 |
| zinc sulphate (anhydrous) | 7733-02-0 | 5 - 10 |
| zinc oxide | 1314-13-2 | 1 - 5 |

Mexico

| <u>Name</u> | <u>CAS number</u> | <u>UN number</u> | <u>%</u> | <u>IDLH</u> | <u>Classification</u> | | | |
|-------------|-------------------|------------------|----------|-------------|-----------------------|----------|----------|----------------|
| | | | | | <u>H</u> | <u>E</u> | <u>R</u> | <u>Special</u> |

3 . Composition / Information on Ingredients

| | | | | | | | |
|-----------------|-----------|----------------|---------|------------------------|---|---|---|
| copper sulphate | 7758-98-7 | Not available. | 15 - 40 | - | 1 | 0 | 0 |
| copper oxide | 1317-38-0 | Not available. | 7 - 13 | 100 mg/m ³ | 2 | 0 | 0 |
| diiron trioxide | 1309-37-1 | Not available. | 10 - 30 | 2500 mg/m ³ | 0 | 0 | 0 |
| zinc oxide | 1314-13-2 | Not available. | 1 - 5 | 500 mg/m ³ | 0 | 0 | 0 |

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.

4 . First Aid Measures

| | |
|-----------------------------------|---|
| Eye contact | Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately. |
| Skin contact | In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation develops. |
| Inhalation | Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear. |
| Ingestion | Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear. |
| 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. |
| 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. |

5 . Fire-fighting Measures

| | |
|------------------------------------|---|
| Flammability of the product | No specific fire or explosion hazard. |
| Extinguishing media | |
| Suitable | Use an extinguishing agent suitable for the surrounding fire. |
| Not suitable | None known. |
| Special exposure hazards | 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. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. |

5 . Fire-fighting Measures

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

6 . Accidental Release Measures

| | |
|---------------------------------------|---|
| Personal precautions | 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 spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8). |
| Environmental precautions | Avoid dispersal of spilled 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. |
| <u>Methods for cleaning up</u> | |
| Small spill | Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. |
| Large spill | Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal. |

7 . Handling and Storage

| | |
|-----------------|--|
| Handling | Put on appropriate personal protective equipment (see section 8). 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. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| Storage | Store in accordance with local regulations. 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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. |

8 . Exposure Controls / Personal Protection

United States

| Ingredient | Exposure limits |
|-----------------|--|
| diiron trioxide | <p>ACGIH TLV (United States, 1/2008). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction</p> <p>NIOSH REL (United States, 6/2008). TWA: 5 mg/m³, (as Fe) 10 hour(s). Form: Dust and fumes</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 10 mg/m³ 8 hour(s). Form: Total dust STEL: 10 ppm, (as Fe) 15 minute(s). Form: Total particulates</p> <p>OSHA PEL (United States, 11/2006). TWA: 10 mg/m³ 8 hour(s).</p> |
| copper oxide | <p>NIOSH REL (United States, 6/2008). TWA: 0.1 mg/m³, (as Cu) 10 hour(s). Form: Fume</p> |
| urea | <p>AIHA WEEL (United States, 1/2008). TWA: 10 mg/m³ 8 hour(s).</p> |
| zinc oxide | <p>NIOSH REL (United States, 6/2008). CEIL: 15 mg/m³ Form: Dust TWA: 5 mg/m³ 10 hour(s). Form: Dust and fumes STEL: 10 mg/m³ 15 minute(s). Form: Fume</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hour(s). Form: Fume STEL: 10 mg/m³ 15 minute(s). Form: Fume TWA: 10 mg/m³ 8 hour(s). Form: Total dust TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction</p> <p>OSHA PEL (United States, 11/2006). TWA: 5 mg/m³ 8 hour(s). Form: Fume TWA: 15 mg/m³ 8 hour(s). Form: Total dust TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction</p> <p>ACGIH TLV (United States, 1/2008). STEL: 10 mg/m³ 15 minute(s). TWA: 2 mg/m³ 8 hour(s).</p> |

Canada

| Occupational exposure limits | | TWA (8 hours) | | | STEL (15 mins) | | | Ceiling | | | |
|------------------------------|-----------------|---------------|-------------------|-------|----------------|-------------------|-------|---------|-------------------|-------|-----------|
| Ingredient | List name | ppm | mg/m ³ | Other | ppm | mg/m ³ | Other | ppm | mg/m ³ | Other | Notations |
| diiron trioxide | US ACGIH 1/2008 | - | - | 5 | - | - | - | - | - | - | [a] |
| diiron trioxide, as Fe | AB 6/2008 | - | - | 5 | - | - | - | - | - | - | [b] |
| | BC 6/2008 | - | - | 10 | - | - | - | - | - | - | [c] |
| | | - | - | 5 | - | 10 | - | - | - | - | [d] |
| | | - | - | 3 | - | - | - | - | - | - | [e] |
| | | - | - | 10 | - | - | - | - | - | - | [f] |
| diiron trioxide | ON 6/2008 | - | - | 5 | - | - | - | - | - | - | [g] |
| | | - | - | 10 | - | - | - | - | - | - | [h] |
| diiron trioxide, as Fe | QC 6/2008 | - | - | 5 | - | - | - | - | - | - | [i] |
| zinc oxide | US ACGIH 1/2008 | - | - | 2 | - | 10 | - | - | - | - | |
| | AB 6/2008 | - | - | 10 | - | - | - | - | - | - | [c] |
| | | - | - | 5 | - | 10 | - | - | - | - | [d] |
| | BC 6/2008 | - | - | 2 | - | 10 | - | - | - | - | [j] |
| | ON 6/2008 | - | - | 2 | - | 10 | - | - | - | - | [g] |
| | QC 6/2008 | - | - | 5 | - | 10 | - | - | - | - | [k] |
| urea | US AIHA 1/2008 | - | - | 10 | - | - | - | - | - | - | |

Form: [a]Respirable fraction [b]Dust and fumes [c]Dust [d]Fume [e]Respirable dust [f]Total dust [g]The notation "respirable" following the name of an agent in this Schedule means that size fraction of the airborne particulate deposited in the gas-exchange region of the respiratory tract and collected during air sampling with a particle size-selective device that, (a) meets the American Conference of Governmental Industrial Hygienists (ACGIH) particle size-selective criteria; and (b) has the cut point of 4 microns at 50 per cent collective efficiency. [h]total dust [i]dust and fume [j]Respirable [k]fume

8 . Exposure Controls / Personal Protection

Mexico

| Ingredient | Exposure limits |
|-----------------|--|
| diiron trioxide | NOM-010-STPS (Mexico, 9/2000). LMPE-CT: 10 mg/m ³ , (as Fe) 15 minute(s). LMPE-PPT: 5 mg/m ³ , (as Fe) 8 hour(s). |
| zinc oxide | NOM-010-STPS (Mexico, 9/2000). LMPE-PPT: 10 mg/m ³ 8 hour(s). Form: powder LMPE-CT: 10 mg/m ³ 15 minute(s). Form: smoke LMPE-PPT: 5 mg/m ³ 8 hour(s). Form: smoke |

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

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.

Eyes

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin

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.

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.

9 . Physical and Chemical Properties

Physical state Solid.

10 . Stability and Reactivity

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur.

Hazardous polymerization Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid No specific data.

Materials to avoid No specific data.

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological Information

United States

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|---------------|---------|------------|----------|
| copper sulphate | LD50 Oral | Rat | 960 mg/kg | - |
| copper oxide | LD50 Oral | Rat | 470 mg/kg | - |
| | LDLo | Rat | 278 mg/kg | - |
| | Intratracheal | | | |
| urea | LD50 | Rat | 567 mg/kg | - |
| | Intratracheal | | | |
| | LD50 Oral | Rat | 8471 mg/kg | - |

Classification

| Product/ingredient name | ACGIH | IARC | EPA | NIOSH | NTP | OSHA |
|-------------------------|-------|------|-----|-------|-----|------|
| diiron trioxide | A4 | 3 | - | - | - | - |
| zinc oxide | A4 | - | - | - | - | - |

Canada

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|--------|---------|------|----------|
|-------------------------|--------|---------|------|----------|

11 . Toxicological Information

| | | | | |
|-----------------|---------------|-----|------------|---|
| copper sulphate | LD50 Oral | Rat | 960 mg/kg | - |
| copper oxide | LD50 Oral | Rat | 470 mg/kg | - |
| | LDLo | Rat | 278 mg/kg | - |
| | Intratracheal | | | |
| urea | LD50 | Rat | 567 mg/kg | - |
| | Intratracheal | | | |
| | LD50 Oral | Rat | 8471 mg/kg | - |

Classification

| Product/ingredient name | ACGIH | IARC | EPA | NIOSH | NTP | OSHA |
|-------------------------|-------|------|-----|-------|-----|------|
| diiron trioxide | A4 | 3 | - | - | - | - |
| zinc oxide | A4 | - | - | - | - | - |

Mexico

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|---------------|---------|-----------|----------|
| copper sulphate | LD50 Oral | Rat | 960 mg/kg | - |
| copper oxide | LD50 Oral | Rat | 470 mg/kg | - |
| | LDLo | Rat | 278 mg/kg | - |
| | Intratracheal | | | |

Classification

| Product/ingredient name | ACGIH | IARC | EPA | NIOSH | NTP | OSHA |
|-------------------------|-------|------|-----|-------|-----|------|
| diiron trioxide | A4 | 3 | - | - | - | - |
| zinc oxide | A4 | - | - | - | - | - |

12 . Ecological Information

Environmental effects Water polluting material. May be harmful to the environment if released in large quantities.

United States

Aquatic ecotoxicity

| Product/ingredient name | Test | Result | Species | Exposure |
|-------------------------|------|--------|---------|----------|
|-------------------------|------|--------|---------|----------|

12 . Ecological Information

| | | | | |
|---------------------------|---|--|---|----------|
| copper sulphate | - | Acute LC50 0.02 to 0.025 ppb Fresh water | Daphnia - Water flea - Daphnia magna - Neonate - 0 to 24 hours | 48 hours |
| | - | Acute LC50 4.8 to 6.8 ug/L Fresh water | Fish - Fathead minnow - Pimephales promelas - FRY - <1 days - 0.68 mg | 96 hours |
| copper oxide | - | Acute EC50 11 to 39 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - <24 hours | 48 hours |
| | - | Acute LC50 25.4 to 29.5 ppm Fresh water | Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss | 96 hours |
| urea | - | Acute LC50 66800 to 70500 ug/L Fresh water | Fish - Rohu - Labeo rohita - Egg | 96 hours |
| | - | Acute LC50 22500 ug/L | Fish - Mozambique tilapia - Tilapia mossambica | 96 hours |
| zinc sulphate (anhydrous) | - | Acute LC50 240 to 500 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - <24 hours | 48 hours |
| | - | Acute LC50 40 to 50 ug/L Fresh water | Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - Fingerling | 96 hours |
| zinc oxide | - | Acute LC50 2246000 ug/L Fresh water | Fish - Fathead minnow - Pimephales promelas - Neonate - <24 hours | 96 hours |
| | - | Acute LC50 24600 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - Neonate - <24 hours | 48 hours |

Canada

Aquatic ecotoxicity

| Product/ingredient name | Test | Result | Species | Exposure |
|-------------------------|------|--------|---------|----------|
|-------------------------|------|--------|---------|----------|

12 . Ecological Information

| | | | | |
|---------------------------|---|--|---|----------|
| copper sulphate | - | Acute LC50 0.02 to 0.025 ppb Fresh water | Daphnia - Water flea - Daphnia magna - Neonate - 0 to 24 hours | 48 hours |
| | - | Acute LC50 4.8 to 6.8 ug/L Fresh water | Fish - Fathead minnow - Pimephales promelas - FRY - <1 days - 0.68 mg | 96 hours |
| copper oxide | - | Acute EC50 11 to 39 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - <24 hours | 48 hours |
| | - | Acute LC50 25.4 to 29.5 ppm Fresh water | Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss | 96 hours |
| zinc sulphate (anhydrous) | - | Acute LC50 240 to 500 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - <24 hours | 48 hours |
| | - | Acute LC50 40 to 50 ug/L Fresh water | Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - Fingerling | 96 hours |
| zinc oxide | - | Acute LC50 2246000 ug/L Fresh water | Fish - Fathead minnow - Pimephales promelas - Neonate - <24 hours | 96 hours |
| | - | Acute LC50 24600 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - Neonate - <24 hours | 48 hours |
| urea | - | Acute LC50 66800 to 70500 ug/L Fresh water | Fish - Rohu - Labeo rohita - Egg | 96 hours |
| | - | Acute LC50 22500 ug/L | Fish - Mozambique tilapia - Tilapia mossambica | 96 hours |

Mexico

Aquatic ecotoxicity

| Product/ingredient name | Test | Result | Species | Exposure |
|-------------------------|------|--------|---------|----------|
|-------------------------|------|--------|---------|----------|

12 . Ecological Information

| | | | | |
|-----------------|---|---|---|----------|
| copper sulphate | - | Acute LC50 0.02 to 0.025 ppb Fresh water | Daphnia - Water flea - Daphnia magna - Neonate - 0 to 24 hours | 48 hours |
| | - | Acute LC50 4.8 to 6.8 ug/L Fresh water | Fish - Fathead minnow - Pimephales promelas - FRY - <1 days - 0.68 mg | 96 hours |
| copper oxide | - | Acute EC50 11 to 39 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - <24 hours | 48 hours |
| | - | Acute LC50 25.4 to 29.5 ppm Fresh water | Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss | 96 hours |
| zinc oxide | - | Acute LC50 2246000 ug/L Fresh water | Fish - Fathead minnow - Pimephales promelas - Neonate - <24 hours | 96 hours |
| | - | Acute LC50 24600 ug/L Fresh water | Daphnia - Water flea - Daphnia magna - Neonate - <24 hours | 48 hours |

13 . Disposal Considerations

Waste disposal

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.



Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport Information

| Regulatory information | UN number | Shipping name | Classes | PG* | Label | Additional information |
|------------------------|-----------|---------------|---------|-----|-------|------------------------|
| | | | | | | |

14 . Transport Information

| | | | | | | |
|------------------------------|----------------|---|----------------|-----|---|------------------|
| DOT Classification | UN3077 | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (copper sulphate). Marine pollutant (copper sulphate) | 9 | III |  | Marine pollutant |
| TDG Classification | Not available. | Not available. | Not available. | - |  | - |
| Mexico Classification | Not available. | Not available. | Not available. | - | | - |
| PG* : Packing group | | | | | | |

15 . Regulatory Information**United States****HCS Classification**

Toxic material
Target organ effects

U.S. Federal regulations

TSCA 4(a) final test rules: biuret; Urea, reaction products with formaldehyde
United States inventory (TSCA 8b): All components are listed or exempted.
TSCA 12(b) one-time export: biuret; Urea, reaction products with formaldehyde

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: copper sulphate; zinc oxide; zinc sulphate (anhydrous); diiron trioxide; urea

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

copper sulphate: Immediate (acute) health hazard, Delayed (chronic) health hazard;
zinc oxide: Immediate (acute) health hazard, Delayed (chronic) health hazard;
zinc sulphate (anhydrous): Immediate (acute) health hazard, Delayed (chronic) health hazard;
diiron trioxide: Delayed (chronic) health hazard; urea: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: copper oxide; copper sulphate; zinc oxide; zinc sulphate (anhydrous)

Clean Water Act (CWA) 311: copper sulphate; zinc sulphate (anhydrous)

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)

Not listed

Clean Air Act Section 602 Class I Substances

Not listed

15 . Regulatory Information

Clean Air Act Section 602
Class II Substances Not listed

DEA List I Chemicals
(Precursor Chemicals) Not listed

DEA List II Chemicals
(Essential Chemicals) Not listed

SARA 313

| | <u>Product name</u> | <u>CAS number</u> | <u>Concentration</u> |
|--|---------------------------|-------------------|----------------------|
| Form R - Reporting requirements | copper sulphate | 7758-98-7 | 15 - 40 |
| | copper oxide | 1317-38-0 | 7 - 13 |
| | zinc sulphate (anhydrous) | 7733-02-0 | 5 - 10 |
| | zinc oxide | 1314-13-2 | 1 - 5 |
| Supplier notification | copper sulphate | 7758-98-7 | 15 - 40 |
| | copper oxide | 1317-38-0 | 7 - 13 |
| | zinc sulphate (anhydrous) | 7733-02-0 | 5 - 10 |
| | zinc oxide | 1314-13-2 | 1 - 5 |

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: IRON OXIDE DUST; CUPRIC SULFATE; ZINC SULFATE; ZINC OXIDE FUME
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: IRON OXIDE FUME; CUPRIC SULFATE; COPPER compounds; ZINC SULFATE; ZINC OXIDE
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: The following components are listed:
 Cupric sulfate; Zinc sulfate
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed:
 IRON OXIDE (FE₂O₃); SULFURIC ACID COPPER(2+) SALT (1:1); COPPER COMPOUNDS; SULFURIC ACID, ZINC SALT (1:1); ZINC OXIDE (ZNO)
Rhode Island Hazardous Substances: None of the components are listed.

United States inventory (TSCA 8b) All components are listed or exempted.

Canada

WHMIS (Canada) Not controlled under WHMIS (Canada).

15 . Regulatory Information

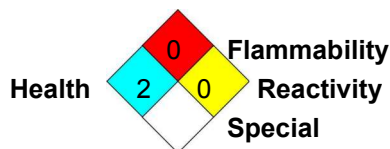
Canadian lists
CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Copper; Copper; Zinc; Zinc
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada inventory At least one component is not listed in DSL but all such components are listed in NDSL.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Mexico

Classification



EU regulations

Hazard symbol or symbols



Risk phrases

R22- Harmful if swallowed.
 R36/38- Irritating to eyes and skin.
 R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

S2- Keep out of the reach of children.
 S29- Do not empty into drains.
 S46- If swallowed, seek medical advice immediately and show this container or label.
 S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

International regulations

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): Not determined.
Japan inventory (ENCS): Not determined.
Japan inventory (ISHL): Not determined.
Korea inventory (KECI): All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): Not determined.

Chemical Weapons Convention List Schedule I Chemicals

Not listed

Chemical Weapons Convention List Schedule II Chemicals

Not listed

Chemical Weapons Convention List Schedule III Chemicals

Not listed

16 . Other information

Label requirements

HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

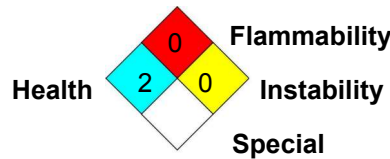
Hazardous Material Information System (U.S.A.)

| | |
|------------------|---|
| Health | 2 |
| Flammability | 0 |
| Physical hazards | 0 |
| | |

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

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



Date of issue

1/14/2010.

Version

5

☑ Indicates information that has changed from previously issued version.

Notice to Reader:

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