



Product Name:

Supplier:

SDS Status: 0




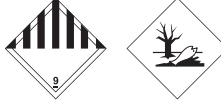
Obsolete Date: n/a

This Product is no longer provided by the manufacturer. As a result, it has been marked as obsolete.

If you still have this Product you may need to take some action regarding it:

- if you no longer have this Product and would like the SDS deleted from your msdsBinders system, please use the [Delete SDS](#) form (available to Client Administrators).
- if you have an alternate Product for which you do not have an SDS, you can search the sdsBinders Library and submit a request for the Product.

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:	2/19/2013.
Material uses	Agricultural industry: Soil additive, micronutrient mix	Version	5.01
MSDS Number	103000	<u>In Case of Emergency</u>	
		Transportation: 1-800-792-8311	
		Medical: 1-877-615-0015	
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. CAUSES EYE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.</p> <p>Harmful if swallowed. Irritating to eyes. 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	Irritating to eyes.
<u>Potential chronic health effects</u>	
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.

2. Hazards Identification

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: blood, kidneys, lungs, the nervous system, liver, cardiovascular system, upper respiratory tract, skin, adrenal, nose/sinuses, pancreas, testes, throat. Contains material which does not cause damage to the following organs: eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation	No specific data.
Ingestion	No specific data.
Skin	No specific data.
Eyes	Adverse symptoms may include the following: pain or irritation watering redness
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
diiron trioxide	1309-37-1	10 - 30
Copper oxide	1317-38-0	7 - 13
urea	57-13-6	7 - 13
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
diiron trioxide	1309-37-1	10 - 30
Copper oxide	1317-38-0	7 - 13
urea	57-13-6	7 - 13
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>H</u>	<u>F</u>	<u>R</u>	<u>Special</u>
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Classification

3 . Composition / Information on Ingredients

Copper sulphate	7758-98-7	Not available.	15 - 40	-	2	0	0
zinc sulphate (anhydrous)	7733-02-0	Not available.	5 - 10	-	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
urea	57-13-6	Not available.	7 - 13	-	0	0	0
Copper oxide	1317-38-0	Not available.	7 - 13	100 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. Seek medical advice if symptoms or conditions persist.
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	If inhalation occurs, remove individual(s) to fresh air. Loosen restrictive clothing items if necessary. If individual has irregular or difficulty breathing or is under respiratory arrest seek medical attention immediately. If other conditions or symptoms develop contact a physician.
Ingestion	If ingestion occurs, rinse mouth with copious amounts of water. Do Not induce vomiting unless directed to do so by trained medical personnel. Do Not give anything by mouth to unconscious individuals. Seek immediate medical attention.
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.
<u>Extinguishing media</u>	
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.

Methods for cleaning up

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. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. 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. Keep out of reach of children.

8 . Exposure Controls / Personal Protection

United States

Ingredient	Exposure limits
diiron trioxide	OSHA PEL (United States, 6/2010). TWA: 10 mg/m ³ 8 hour(s). NIOSH REL (United States, 6/2009). TWA: 5 mg/m ³ , (as Fe) 10 hour(s). Form: Dust and fumes ACGIH TLV (United States, 2/2010). TWA: 5 mg/m ³ 8 hour(s). Form: Respirable fraction
Copper oxide	NIOSH REL (United States, 6/2009). TWA: 0.1 mg/m ³ , (as Cu) 10 hour(s). Form: Fume
urea	AIHA WEEL (United States, 5/2010). TWA: 10 mg/m ³ 8 hour(s).
zinc oxide	OSHA PEL (United States, 6/2010). TWA: 5 mg/m ³ 8 hour(s). Form: Respirable fraction ACGIH TLV (United States, 2/2010). TWA: 2 mg/m ³ 8 hour(s). Form: Respirable fraction STEL: 10 mg/m ³ 15 minute(s). Form: Respirable fraction

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 2/2010	-	-	5	-	-	-	-	-	-	[a]
	AB 6/2008	-	-	10	-	-	-	-	-	-	
	AB 4/2009	-	-	5	-	-	-	-	-	-	[b]
diiron trioxide, as Fe	BC 9/2010	-	-	5	-	-	-	-	-	-	[c]
		-	-	5	-	10	-	-	-	-	[d]
		-	-	3	-	-	-	-	-	-	[e]
		-	-	10	-	-	-	-	-	-	[f]
diiron trioxide	ON 7/2010	-	-	5	-	-	-	-	-	-	[a]
	ON 6/2008	-	-	10	-	-	-	-	-	-	[g]
diiron trioxide, as Fe	QC 6/2008	-	-	5	-	-	-	-	-	-	[h]
zinc oxide	US ACGIH 2/2010	-	-	2	-	10	-	-	-	-	[a]
urea	US AIHA 5/2010	-	-	10	-	-	-	-	-	-	

Form: [a]Respirable fraction [b]Respirable [c]Dust [d]Fume [e]Respirable dust [f]Total dust [g]total dust [h]dust and fume

Mexico

Ingredient	Exposure limits
diiron trioxide	NOM-010-STPS (Mexico, 9/2000). LMPE-PPT: 5 mg/m ³ , (as Fe) 8 hour(s). LMPE-CT: 10 mg/m ³ , (as Fe) 15 minute(s).
zinc oxide	ACGIH TLV (United States, 2/2010). TWA: 2 mg/m ³ 8 hour(s). Form: Respirable fraction STEL: 10 mg/m ³ 15 minute(s). Form: Respirable fraction

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

No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

8 . Exposure Controls / Personal Protection

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.

Personal protective equipment (Pictograms)



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.
VOC 0 % (w/w)

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.

Conditions of reactivity Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.

10 . Stability and Reactivity

Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge.

11 . Toxicological Information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
diiron trioxide	LD50 Oral	Rat - Male, Female	>10000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
Copper sulphate	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male	482 mg/kg	-
Copper oxide	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male	>2500 mg/kg	-
urea	LD50 Oral	Rat - Male, Female	14300 mg/kg	-
	LD50 Oral	Rat - Male	2280 mg/kg	-
zinc sulphate (anhydrous)	LD50 Oral	Rat - Male	1710 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
zinc oxide	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-

Product/ingredient name	Result	Species	Score	Exposure	Observation
diiron trioxide	Skin - Edema	Rabbit	0	4 hours 500 mg	7 days
Copper sulphate	Skin - Erythema/Eschar	Rabbit	0	4 hours 500 mg	7 days
	Eyes - Cornea opacity	Rabbit	2.56	1 minutes 100 mg	21 days
	Skin - Erythema/Eschar	Rabbit	0.22	4 hours	48 hours
Copper oxide	Skin - Edema	Rabbit	0	4 hours	72 hours
	Skin - Erythema/Eschar	Rabbit	0	4 hours	72 hours
	Eyes - Cornea opacity	Rabbit	0.33	72 hours	-
	Eyes - Redness of the conjunctivae	Rat	0.77	72 hours	-
urea	Skin - Edema	Rabbit	0	-	-
	Skin - Erythema/Eschar	Rabbit	0	-	-
	Eyes - Cornea opacity	Rabbit	0.9	-	-
	Eyes - Iris lesion	Rabbit	0.4	-	-
zinc sulphate (anhydrous)	Eyes - Moderate irritant	Rabbit	-	-	-
	Eyes - Redness of the conjunctivae	Rabbit	2.7	1 minutes	48 hours
	Eyes - Edema of the conjunctivae	Rabbit	2.7	1 minutes	48 hours
	Skin - Edema	Mouse	0	1 minutes	5 days
zinc oxide	Skin - Edema	Rabbit	0	1 minutes	7 days
	Eyes - Redness of the conjunctivae	Rabbit	<=1	24 hours	72 hours

11 . Toxicological Information

Product/ingredient name	Route of exposure	Species	Result
Copper sulphate	skin	Guinea pig	Not sensitizing
Copper oxide	skin	Guinea pig	Not sensitizing
zinc sulphate (anhydrous)	skin	Mouse	Not sensitizing

Product/ingredient name	Result	Species	Dose	Exposure
diiron trioxide	Negative - Intravenous - TC	Rat - Male, Female	-	786 days
Copper sulphate	Negative - Oral - TD	Rat - Male, Female	-	7 days per week
zinc sulphate (anhydrous)	Negative - Oral - TC	Mouse - Female	-	7 days per week

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
diiron trioxide	A4	3	-	-	-	-
urea	A5	4	-	-	-	-
zinc oxide	A4	-	-	-	-	-

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
zinc sulphate (anhydrous)	Negative	Positive	Negative	Rat - Male	Oral: 4000 ppm	30 days; 7 days per week

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
diiron trioxide	LD50 Oral	Rat - Male, Female	>10000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
Copper sulphate	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male	482 mg/kg	-
Copper oxide	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male	>2500 mg/kg	-
zinc sulphate (anhydrous)	LD50 Oral	Rat - Male	2280 mg/kg	-
	LD50 Oral	Rat - Male	1710 mg/kg	-
zinc oxide	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
urea	LD50 Oral	Rat - Male, Female	14300 mg/kg	-

Product/ingredient name	Result	Species	Score	Exposure	Observation
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11 . Toxicological Information

diiron trioxide	Skin - Edema	Rabbit	0	4 hours 500 mg	7 days
	Skin - Erythema/Eschar	Rabbit	0	4 hours 500 mg	7 days
Copper sulphate	Eyes - Cornea opacity	Rabbit	2.56	1 minutes 100 mg	21 days
	Skin - Erythema/Eschar	Rabbit	0.22	4 hours	48 hours
Copper oxide	Skin - Edema	Rabbit	0	4 hours	72 hours
	Skin - Erythema/Eschar	Rabbit	0	4 hours	72 hours
	Eyes - Cornea opacity	Rabbit	0.33	72 hours	-
	Eyes - Redness of the conjunctivae	Rat	0.77	72 hours	-
zinc sulphate (anhydrous)	Eyes - Moderate irritant	Rabbit	-	-	-
	Eyes - Redness of the conjunctivae	Rabbit	2.7	1 minutes	48 hours
	Eyes - Edema of the conjunctivae	Rabbit	2.7	1 minutes	48 hours
zinc oxide	Skin - Edema	Mouse	0	1 minutes	5 days
	Skin - Edema	Rabbit	0	1 minutes	7 days
	Eyes - Redness of the conjunctivae	Rabbit	<=1	24 hours	72 hours
urea	Skin - Edema	Rabbit	0	-	-
	Skin - Erythema/Eschar	Rabbit	0	-	-
	Eyes - Cornea opacity	Rabbit	0.9	-	-
	Eyes - Iris lesion	Rabbit	0.4	-	-

Product/ingredient name	Route of exposure	Species	Result
Copper sulphate	skin	Guinea pig	Not sensitizing
Copper oxide	skin	Guinea pig	Not sensitizing
zinc sulphate (anhydrous)	skin	Mouse	Not sensitizing

Product/ingredient name	Result	Species	Dose	Exposure
diiron trioxide	Negative - Intravenous - TC	Rat - Male, Female	-	786 days
Copper sulphate	Negative - Oral - TD	Rat - Male, Female	-	7 days per week
zinc sulphate (anhydrous)	Negative - Oral - TC	Mouse - Female	-	7 days per week

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
diiron trioxide	A4	3	-	-	-	-
urea	A5	4	-	-	-	-
zinc oxide	A4	-	-	-	-	-

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
zinc sulphate (anhydrous)	Negative	Positive	Negative	Rat - Male	Oral:	30 days; 7

11 . Toxicological Information

4000 ppm days per week

Mexico

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Copper sulphate	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
zinc sulphate (anhydrous)	LD50 Oral	Rat - Male	482 mg/kg	-
	LD50 Oral	Rat - Male	2280 mg/kg	-
	LD50 Oral	Rat - Male	1710 mg/kg	-
diiron trioxide	LD50 Oral	Rat - Male, Female	>10000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
zinc oxide	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-

Product/ingredient name	Result	Score	Score	Exposure	Observation
Copper sulphate	Eyes - Cornea opacity	Rabbit	2.56	1 minutes 100 mg	21 days
	Skin - Erythema/Eschar	Rabbit	0.22	4 hours	48 hours
zinc sulphate (anhydrous)	Eyes - Moderate irritant	Rabbit	-	-	-
	Eyes - Redness of the conjunctivae	Rabbit	2.7	1 minutes	48 hours
	Eyes - Edema of the conjunctivae	Rabbit	2.7	1 minutes	48 hours
diiron trioxide	Skin - Edema	Rabbit	0	4 hours 500 mg	7 days
	Skin - Erythema/Eschar	Rabbit	0	4 hours 500 mg	7 days
zinc oxide	Skin - Edema	Mouse	0	1 minutes	5 days
	Skin - Edema	Rabbit	0	1 minutes	7 days
	Eyes - Redness of the conjunctivae	Rabbit	<=1	24 hours	72 hours

Product/ingredient name	Route of exposure	Species	Result
Copper sulphate	skin	Guinea pig	Not sensitizing
zinc sulphate (anhydrous)	skin	Mouse	Not sensitizing

Product/ingredient name	Result	Species	Dose	Exposure
Copper sulphate	Negative - Oral - TD	Rat - Male, Female	-	7 days per week
zinc sulphate (anhydrous)	Negative - Oral - TC	Mouse - Female	-	7 days per week
diiron trioxide	Negative - Intravenous - TC	Rat - Male, Female	-	786 days

Classification

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

11 . Toxicological Information

urea	A5	4	-	-	-	-
zinc oxide	A4	-	-	-	-	-

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
zinc sulphate (anhydrous)	Negative	Positive	Negative	Rat - Male	Oral: 4000 ppm	30 days; 7 days per week

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
Copper sulphate	-	Acute LC50 0.81 mg/l Fresh water	Fish - Cyprinus carpio - Young adult	96 hours
	-	Acute LC50 0.8 mg/l Fresh water	Fish - Cyprinus carpio	96 hours
	-	Acute LC50 0.098 mg/l Fresh water	Fish - Trout - Oncohyinchus mykiss	96 hours
Copper oxide	-	Acute LC50 0.81 mg/l Fresh water	Fish - Cyprinus carpio	96 hours
urea	-	Acute LC50 22500 mg/l Fresh water	Fish - Tilapia mossambica	96 hours
zinc sulphate (anhydrous)	-	Acute LC50 2.17 mg/l Fresh water	Fish - Onchorhynchus mykiss - Alevin	96 hours
	-	Acute LC50 0.82 mg/l Fresh water	Fish - Oncorhynchus kisutch - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	-	Acute LC50 0.78 mg/l Fresh water	Fish - Pimephales promelas - Newly or recently hatched	96 hours
	-	Chronic NOEC 0.25 mg/l Fresh water	Fish - Salmo trutta - Egg	15 days
	-	Chronic NOEC 0.025 mg/l Marine water	Fish - Culpea harengus - Egg	27
zinc oxide	-	Acute LC50 2.17 mg/l Fresh water	Fish - Oncorhynchus mykiss - Alevin	96 hours
	-	Acute LC50 1.793 mg/l Fresh water	Fish - Danio rario	96 hours
	-	Acute LC50 0.82 mg/l Fresh water	Fish -	96 hours

12 . Ecological Information

mg/l Fresh water Oncorhynchus
kisutch - Egg

Canada

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
Copper sulphate	-	Acute LC50 0.81 mg/l Fresh water	Fish - Cyprinus carpio - Young adult	96 hours
	-	Acute LC50 0.8 mg/l Fresh water	Fish - Cyprinus carpio	96 hours
	-	Acute LC50 0.098 mg/l Fresh water	Fish - Trout - Oncorhynchus mykiss	96 hours
Copper oxide	-	Acute LC50 0.81 mg/l Fresh water	Fish - Cyprinus carpio	96 hours
zinc sulphate (anhydrous)	-	Acute LC50 2.17 mg/l Fresh water	Fish - Onchorhynchus mykiss - Alevin	96 hours
	-	Acute LC50 0.82 mg/l Fresh water	Fish - Oncorhynchus kisutch - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	-	Acute LC50 0.78 mg/l Fresh water	Fish - Pimephales promelas - Newly or recently hatched	96 hours
	-	Chronic NOEC 0.25 mg/l Fresh water	Fish - Salmo trutta - Egg	15 days
	-	Chronic NOEC 0.025 mg/l Marine water	Fish - Culpea harengus - Egg	27
zinc oxide	-	Acute LC50 2.17 mg/l Fresh water	Fish - Oncorhynchus mykiss - Alevin	96 hours
	-	Acute LC50 1.793 mg/l Fresh water	Fish - Danio rario	96 hours
	-	Acute LC50 0.82 mg/l Fresh water	Fish - Oncorhynchus kisutch - Egg	96 hours
urea	-	Acute LC50 22500 mg/l Fresh water	Fish - Tilapia mossambica	96 hours

Mexico

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
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12 . Ecological Information

Copper sulphate	-	Acute LC50 0.81 mg/l Fresh water	Fish - Cyprinus carpio - Young adult	96 hours
	-	Acute LC50 0.8 mg/l Fresh water	Fish - Cyprinus carpio	96 hours
	-	Acute LC50 0.098 mg/l Fresh water	Fish - Trout - Oncochynchus mykiss	96 hours
zinc sulphate (anhydrous)	-	Acute LC50 2.17 mg/l Fresh water	Fish - Onchorhynchus mykiss - Alevin	96 hours
	-	Acute LC50 0.82 mg/l Fresh water	Fish - Oncorhynchus kisutch - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	-	Acute LC50 0.78 mg/l Fresh water	Fish - Pimephales promelas - Newly or recently hatched	96 hours
zinc oxide	-	Chronic NOEC 0.25 mg/l Fresh water	Fish - Salmo trutta - Egg	15 days
	-	Chronic NOEC 0.025 mg/l Marine water	Fish - Culpea harengus - Egg	27
	-	Acute LC50 2.17 mg/l Fresh water	Fish - Oncorhynchus mykiss - Alevin	96 hours
	-	Acute LC50 1.793 mg/l Fresh water	Fish - Danio rario	96 hours
	-	Acute LC50 0.82 mg/l Fresh water	Fish - Oncorhynchus kisutch - Egg	96 hours
	-			

13 . Disposal Considerations







Waste disposal

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. 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. 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. 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
DOT Classification	3077	Environmentally Hazardous Substance, Solid, N.O.S. (Copper sulphate). Marine pollutant (Copper sulphate, Copper oxide)	9	-	 	-
TDG Classification	3077	Environmentally Hazardous Substance, Solid, N.O.S. (Copper sulphate). Marine pollutant (Copper sulphate, Copper oxide)	9	-	 	Considered Limited Quantity when container is less than, or equal to 5 kilograms.
Mexico Classification	3077	Environmentally Hazardous Substance, Solid, N.O.S. (Copper sulphate). Marine pollutant (Copper sulphate, Copper oxide)	9	-	 	

PG* : Packing group

15 . Regulatory Information

United States

HCS Classification

Toxic material
Irritating material
Target organ effects

U.S. Federal regulations

TSCA 4(a) final test rules: biuret; Urea, reaction products with formaldehyde
TSCA 8(a) IUR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.

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

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

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

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

15 . Regulatory Information

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) Not listed

Clean Air Act Section 602 Class I Substances Not listed

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; FERRIC OXIDE; CUPRIC SULFATE; SULFURIC ACID COPPER(2+) SALT (1:1); COPPER compounds; ZINC SULFATE; SULFURIC ACID, ZINC SALT (1:1); 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

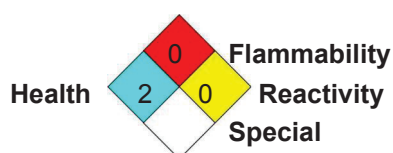
15 . Regulatory Information

WHMIS (Canada)	Class D-1B: Material causing immediate and serious toxic effects (Toxic). Class D-2B: Material causing other toxic effects (Toxic).
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: All components are listed or exempted.
Korea inventory: 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. CAUSES EYE IRRITATION. 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.)



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☑ Indicates information that has changed from previously issued version.

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