Material Safety Data Sheet

Material Name: COMPSOL™ **ID: MRD-018**

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Name: Copper Ammonium Carbonate Solution
Product Use: Industrial wood preservative
Manufacturer Information

MINERAL RESEARCH AND DEVELOPMENT
5910 Pharr Mill Road
Harrisburg, NC 28075

Phone: 704-455-4811
Fax: 704-454-7390
Emergency # CHEMTREC: (800) 424-9300

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
7732-18-5	Water	70-80
Proprietary	Copper ammonium carbonate complex*	20-30

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Copper (7440-50-8), Ammonia (7664-41-7), Ammonium hydroxide (1336-21-6).

Component Information/Information on Non-Hazardous Components

This product is an approved pesticide registered with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). This Material Safety Data Sheet, as distributed with the pesticide product, is part of the pesticide labeling governed by the Environmental Protection Agency (40 CFR Parts 152-186) and provides information supplemental to the FIFRA required label on product packaging. READ PRODUCT LABEL FOR COMPLETE INFORMATION. This product is considered hazardous under the criteria specified in 29 CFR 1910.1200 (Hazard Communication Standard) and the Canadian Workplace Hazardous Materials Information System (WHMIS).

This product is registered under The Federal Insecticide, Fungicide, and Rodenticide Act. Pesticide Registration Number 10465-33.

*Metallic Copper Equivalent = 8% (Contains 0.784 lbs. copper per gallon)

* * * Section 3 - Hazards Identification * * *

Emergency Overview

DANGER CORROSIVE This product is a dark blue liquid with an ammonia odor. This product is harmful and may be fatal if it is swallowed or inhaled. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system.

Potential Health Effects: Eyes

Contact can cause moderate to severe irritation and possible injury to the eyes. Overexposure will cause irritation, pain, redness, and may result in blindness.

Potential Health Effects: Skin

This product is severely irritating to the skin and may cause burns. Depending on the duration of contact, symptoms will include reddening, discomfort, irritation, ulceration, and chemical burns. Repeated contact with this material may produce dermatitis. This product contains copper and copper salts which have caused allergic skin reactions in rare cases.

Potential Health Effects: Ingestion

This product may be harmful or fatal if swallowed. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion of high doses of copper salts can cause gastrointestinal disturbances, anemia, and secondary liver and kidney damage.

Potential Health Effects: Inhalation

This product may be harmful by inhalation. This product is severely irritating to the respiratory system. Inhalation may produce nasal perforations.

Medical Conditions Aggravated by Exposure

Pre-existing eye, respiratory system and skin conditions.

HMIS Ratings: Health: 3* **Fire:** 0 **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

First Aid: Skin

For skin contact, wash immediately with soap and water. Immediately take off all contaminated clothing. Seek immediate medical attention.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Give one to two glasses of water or milk. Do not use mouth-to-mouth if victim has ingested the substance. Induce artificial respiration with a proper respiratory medical device.

First Aid: Inhalation

If inhaled, immediately remove the affected person to fresh air. If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek immediate medical attention. Do NOT perform mouth-to-mouth resuscitation.

First Aid: Notes to Physician

If the product is ingested, probable mucosal damage may contraindicate the use of gastric lavage. Treat the affected person appropriately.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: Not flammable
Method Used: Not available
Upper Flammable Limit (UFL): Not applicable
Lower Flammable Limit (LFL): Not applicable
Auto Ignition: Not flammable
Flammability Classification: Non-flammable
Rate of Burning: Not applicable

General Fire Hazards

Not a fire hazard.

Hazardous Combustion Products

Combustion products include irritating vapors and toxic gases, copper compounds, ammonia and nitrogen oxides.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water spray.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

NFPA Ratings: Health: 3 **Fire:** 0 **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean-up. Contain the discharged material and dike the spilled material where possible. Prevent entry into sewers, drains, underground or confined spaces, water intakes and waterways.

Note: During a spill/leak response, minimal Personal Protective Equipment should include: Triple gloves (rubber gloves and nitrile gloves, over latex gloves), chemically resistant suit and boots, hard-hat, and Self Contained Breathing Apparatus.

Clean-Up Procedures

Neutralize spill area with citric acid or other neutralizing agent for basic liquids. Decontaminate the area. Absorb spill with inert material such as polypads, or other suitable absorbent material. Test area with litmus paper to ensure neutralization. Ventilate the contaminated area. See product label for more information.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Special Procedures

Wear appropriate personal protective equipment. Follow all Local, State, Federal and Provincial regulations for disposal.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Do not get this material in your eyes, on your skin, or on your clothing. Do not inhale vapors or mists of this product. Use this product with adequate ventilation. Wash thoroughly after handling. Keep out of reach of children. See Section 8 for appropriate protective clothing, equipment and air monitoring procedures.

Storage Procedures

Store in a cool, dry, well-ventilated area. Empty product containers may contain product residue. Do not reuse empty containers. Do not store this material in open or unlabeled containers. Store away from direct sunlight, acids, any sources of intense heat or where freezing is possible. Material should be stored in a secondary container or a diked area. Floors should be sealed to prevent absorption of this material.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

Follow all applicable exposure limits.

B: Component Exposure Limits

Copper ammonium carbonate complex* (Proprietary)

ACGIH:	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists) (related to Copper) 25 ppm TWA (related to Ammonia) 35 ppm STEL (related to Ammonia)
OSHA	0.1 mg/m3 TWA (fume, dusts, mists as Cu) (related to Copper)
Vacated:	35 ppm STEL; 27 mg/m3 STEL (related to Ammonia)
OSHA Final:	0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dusts and mists) (related to Copper) 50 ppm TWA; 35 mg/m3 TWA (related to Ammonia)
NIOSH:	1 mg/m3 TWA (dusts and mists); 0.1 mg/m3 TWA (fume) (related to Copper) 25 ppm TWA; 18 mg/m3 TWA (related to Ammonia) 35 ppm STEL; 27 mg/m3 STEL (related to Ammonia)

Engineering Controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles and face shield.

Personal Protective Equipment: Skin

Use impervious gloves. Recommended gloves include neoprene or rubber. Use of impervious apron and boots are recommended.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of vapors or mists, appropriate approved NIOSH respiratory protection must be provided (i.e. air-purifying respirator with an ammonia cartridge).

Respirators should be selected by and used under the direction of a trained health and safety professional following the requirements found in OSHA's respirator standard (29 CFR 1901.134) and ANSI's standard for respiratory protection (Z88.2-1992), applicable U.S. regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. A written respiratory protection program, including provisions for medical certification, training, fit-testing, exposure assessments, maintenance, inspection, cleaning, and convenient, sanitary storage, must be implemented. For concentrations above the TLV and/or PEL but less than 10 times these limits, a NIOSH approved half-facepiece respirator equipped with vapor cartridges may be used. For concentrations greater than 10 times the TLV and/or PEL, consult the NIOSH respirator decision logic found in Publication No. 87-116 or ANSI Z88.2-1992. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Personal Protective Equipment: General

Eyewash fountains and emergency showers are required.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Dark blue	**Odor:**	Ammonia
Physical State:	Aqueous liquid	**pH:**	9.9 @ 15ºC (59ºF)
Vapor Pressure:	Not established	**Vapor Density:**	Not established
Boiling Point:	Not established	**Melting Point:**	Not established
Solubility (H2O):	Complete	**Specific Gravity:**	1.20 @ 15ºC (59ºF)
Freezing Point:	-5ºC (23ºF)	**Evaporation Rate:**	Similar to water (n-BuAc = 1)
Octanol/H2O Coeff.:	Not available		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Chemical Stability: Conditions to Avoid

Avoid extreme heat and contact with incompatible materials.

Incompatibility

This product may react with strong acids.

Hazardous Decomposition

Decomposition products include copper compounds, ammonia and nitrogen oxides.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

No information available for the product.

The Copper complex expressed as copper oxide in this product contains copper salts which, upon ingestion of high oral doses, can cause gastrointestinal disturbances, anemia, and secondary liver and kidney damage. Exposure to Ammonia liquid or high concentrations of vapor can cause immediate and permanent damage to the eyes, skin, and respiratory and digestive tracts, and may be fatal. Respiratory effects may be delayed and include asthma-like bronchitis, pulmonary edema, laryngeal edema and glottis spasms creating a feeling of suffocation, and pneumonitis.

B: Component Analysis - LD50/LC50

Copper ammonium carbonate complex* (Proprietary)

Inhalation LC50 Rat : 2000 ppm/4H
Inhalation LC50 Mouse : 4230 ppm/1H (related to Ammonia)
Oral LD50 Rat : 350 mg/kg (related to Ammonium hydroxide)
100 mg/m3 IDLH (dusts and mists) (related to Copper)
300 ppm IDLH (related to Ammonia)

Carcinogenicity

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Chronic Toxicity

Chronic exposure to copper and its salts may cause rare cases of anemia (from hemolytic effects) and allergic contact dermatitis.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

This product contains a fungicide and bactericide (Copper ammonium carbonate complex) which when released into the environment, is expected to adversely effect or destroy contaminated plants. May be harmful or fatal to wildlife.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Copper ammonium carbonate complex* (Proprietary)

Test & Species		Conditions
LC50 (96 hr) fathead minnow	23 ug/L	20 mg CaCO3/L
LC50 (96 hr) rainbow trout	13.8 ug/L	juveniles
LC50 (96 hr) bluegill	236 - 892 ug/L	adults (related to Copper)
LC50 (24 hr) rainbow trout	0.008 mg/L.	
LC50 (96 hr) fathead minnow	8.2 mg/L.	
LC50 (48 hr) bluegill	0.024-0.093 mg/L.	(related to Ammonium hydroxide)
IC50 (72 hr) freshwater algae (Scenedesmus subspicatus)	120 ug/L	(related to Copper)
EC50 (5 min) Photobacterium phosphoreum	2.0 mg/L	15 ºC. (related to Ammonia)
LC50 (96 hr) water flea	10 ug/L	45 mg CaCO3/L
LC50 (96 hr) water flea	200 ug/L	226 mg CaCO3/L (related to Copper)
EC50 (48 hr) water flea	0.66 mg/L.	22 ºC. (related to Ammonium hydroxide)

Environmental Fate

No information available.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

Pesticide wastes are toxic. Improper disposal of excess pesticide, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide of Environmental Control Agency, or the hazardous waste representative at the nearest EPA Regional Office for guidance.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

For container disposal, do not use container in connection with food, feed, or drinking water. Completely empty container into the processing equipment. Then dispose of empty container according to Local, State, Federal, and Provincial Environmental Regulations.

* * * Section 14 - Transportation Information * * *

US DOT Information

Shipping Name: Corrosive liquids, n.o.s. (Contains: Copper ammonium carbonate complex* , Ammonium hydroxide)
Hazard Class: 8
UN/NA #: UN1760
Packing Group: II
Required Label(s): CORROSIVE

Canada Transportation of Dangerous Goods Information

Shipping Name: CORROSIVE LIQUIDS, N.O.S.* (Contains: Copper ammonium carbonate complex* , Ammonium hydroxide)
Hazard Class: 8, 9.2
UN/NA #: UN1760
Packing Group: II

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

This product is registered with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) under Environmental Protection Agency regulations. Pesticide Registration Number 10465-33.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Copper ammonium carbonate complex* (Proprietary)

SARA 302: TPQ = 500 pounds; RQ = 100 pounds (does not meet toxicity criteria but because of high production volume and recognized toxicity is considered a chemical of concern) (related to Ammonia)
SARA 313: form R reporting required for 1.0% de minimis concentration (related to Copper)
form R reporting required for 1.0% de minimis concentration (10% total aqueous ammonia); includes anhydrous ammonia and aqueous ammonia from water dissociable ammonium salts and other sources (related to Ammonia)
CERCLA: final RQ = 100 pounds (45.4 kg) (related to Ammonia)
final RQ = 1000 pounds (454 kg) (related to Ammonium hydroxide)

C: Federal Insecticide, Fungicide, and Rodenticide Act

This material contains the following chemicals present on either the Listing of Pesticide Chemicals (40 CFR 180) or Pesticides Classified for Restricted Use as listed by FIFRA :

Copper ammonium carbonate complex* (Proprietary)

FIFRA Section number 180.538 (related to Copper)
Section number 180.1003 (related to Ammonia)

D: Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Copper ammonium carbonate complex*	Proprietary	DOT regulated severe marine pollutant (related to Copper, metal powder)

SARA 311/312: **Acute Health** Yes **Chronic Health** Yes **Fire** No **Pressure** No **Reactive** No

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Copper ammonium carbonate complex* ([1]related to Copper)	Proprietary	Yes[1]	Yes[1]	Yes[1]	Yes[1]	Yes[1]	Yes[1]

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Copper ammonium carbonate complex*	Proprietary	1%; English Item 433; French Item 578 (related to Copper, elemental) 1%; English Item 86; French Item 225 (related to Ammonia) 1%; English Item 96; French Item 989 (related to Ammonium hydroxide)

WHMIS Classification: D2B, E

Additional Regulatory Information

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List. All components are on the Canadian Domestic Substances or Non-Domestic Substances Inventory Lists.

B: Component Analysis - InventoryComponent Analysis - Inventory

Component	CAS #	TSCA	DSL	NDSL	EINECS	AUST	MITI	PHIL	KOREA	ELINCS	CHINA	CAN
Water	7732-18-5	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	DSL
Copper ammonium carbonate complex*	Proprietary	Yes	No	Yes	Yes	No	No	No	Yes	No	No	NDSL

* * * Section 16 - Other Information * * *

Other Information

Disclaimer: Supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Material Safety Data Sheet before handling product.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists. AICS = Australian Inventory of Chemical Substances. CAS = Chemical Abstract Service. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. CHEMTREC = Chemical Transportation Emergency Center. DSL = Canadian Domestic Substance List. EINECS = European Inventory of New and Existing Chemical Substances. ELINCS = European List of Notified Chemical Substances. EPA = Environmental Protection Agency. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Material Information System. IARC = International Agency for Research on Cancer. IDLH = Immediately Dangerous to Life and Health. MITI = Japanese Ministry of International Trade and Industry. NDSL = Canadian Non-Domestic Substance List. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NA = Not available or Not Applicable. SARA = Superfund Amendments and Reauthorization Act. TDG = Transportation of Dangerous Goods. TLV = Threshold Limit Value. TSCA = Toxic Substances Control Act. WHMIS = Workplace Hazardous Materials Information System.

This is the end of MSDS # MRD-018