SAFETY DATA SHEET

Product Name: Acidified Copper Sulfate

SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Acidified Copper Sulfate Product EZP001
Formula: Mixture **Molecular Weight:** Mixture **Chemical Name:** Mixture **Chemical Family:** Mixture **Synonyms:**

MANUFACTURER FOR:
Clear View Enterprises, LLC
451 Agnes
Tontitown, AR 72770
Inquiry (866)-361-4689

DISTRIBUTOR INFORMATION:
Clear View Enterprises, LLC
451 Agnes
Tontitown, AR 72770
Inquiry (866)-361-4689

Product Use: Supplement for animal drinking water.

.
Emergency Telephone ChemTel 800-255-3924 (Contract MIS0004963)

Formula ID Number: EZP001

Original Preparation Date: 5-24-2010
Date Updated: 7-24-2015
Version SDS-001-CVE-FV 1.0

SECTION II HAZARDS IDENTIFICATION

Emergency Overview

GHS Hazard :		
Hazard Class	:	**Hazard Categories**
Acute Toxicity, Oral	:	Category 4 – Harmful if swallowed
Acute Toxicity, Dermal		Category 5 – May be harmful in contact with skin

Skin Irritation		Category 2 Irritant – Causes skin irritation
Eye Irritation		Category 2A Irritant – Causes serious eye irritation
Acute Aquatic Toxicity		Category 1 – Very toxic to aquatic life
Chronic Aquatic Toxicity		Category 1 – Very toxic to aquatic life with long lasting effects

Pictograms:

Signal Word	:	Danger
Physical Hazards	:	None
Health Hazards	H302 H313 H315 H319	Harmful if swallowed May be harmful in contact with skin Causes skin irritation. Causes serious eye irritation
Environmental Hazards	H400 H410	Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Precautionary Statements	P301 P310 P331 P303 P361 P353 P304 P340 P305 P351 P306 P361 P370 P376	IF SWALLOWED P310: Immediately call the National POISON CENTER at 800-222-1222 or doctor/physician. Do NOT induce vomiting IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. IF ON CLOTHING: Remove/Take off immediately all contaminated clothing. IN CASE OF FIRE: Use foam, carbon dioxide, dry chemical to extinguish fire Stop leaks if safe to do so.
Storage Statements	P403	Store in a well-ventilated place.
Disposal Statements	P501	Dispose of contents/container in accordance with local, regional, national or international regulations

SECTION III COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Wt %	OSHA PEL	ACGIH TLV	Other-Oral LD_{50}
Copper (II) Sulfate, Pentahydrate	7758-99-8	>82			
Citric Acid	77-92-9	<18			

Component Related Regulatory Information:

This product may be regulated, have exposure limits or other information identified as the following: Copper (7440-50-8) and inorganic compounds such as Cu, Copper (7440-50-8) dusts and mists, as Cu.

SECTION IV FIRST AID MEASURES

EMERGENCY OVERVIEW – HAZARD STATEMENTS – POTENTIAL HEALTH EFFECTS		
Emergency Overview	R25 R36/37/38	Copper Sulfate Pentahydrate is a blue crystalline or powdered, odorless solid. Toxic if swallowed Irritating to eyes, respiratory system and skin Fire may produce irritating, corrosive and/or toxic fumes. Firefighters should wear full protective equipment and clothing
Hazard Statements	H302 H313 H315 H319 P261 P262 P264 P233 P271	Harmful if swallowed May be harmful in contact with skin Causes skin irritation. Causes serious eye irritation Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep container tightly closed. Use only outdoors or in a well-ventilated area
Potential Health Effects: Eyes		Dusts or solution of this product may cause redness and pain. Prolonged contact may cause conjunctivitis, ulceration and corneal abnormalities.
Potential Health Effects: Skin		May cause irritation of skin with pain, itching and redness. Severe overexposure may cause skin burns. Prolonged exposure may cause dermatitis and eczema.
Potential Health Effects: Ingestion		Harmful or fatal if swallowed. May cause gastrointestinal irritation with symptoms such as nausea, vomiting, and diarrhea.
Potential Health Effects: Inhalation		Dusts may irritate nose, throat, and respiratory tract. Symptoms may include sore throat, coughing, and shortness of breath. In severe cases, ulceration and perforation of nasal septum may occur.

FIRST AID MEASURES		
First Aid: Eyes		In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. After the first 5 minutes remove contact lens (if present) and continue to rinse for 15 more minutes. Seek immediate medical attention.
First Aid: Skin		Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water. Wash contaminated clothing before reuse. Seek medical attention if irritation develops or persists.

First Aid: Ingestion		DO NOT INDUCE VOMITING. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or Poison Control Center (1-800-222-1212 in USA) immediately.
First Aid: Inhalation		Remove source of contamination or move victim to fresh air. If breathing has stopped, apply artificial respiration. Get immediate medical attention.
First Aid: Notes to Physician		Special forms of treatment and immediate medical attention are not specified. Treat symptomatically

SECTION V FIRE FIGHTING MEASURES

FIRE FIGHTING MEASURES		
General Fire Hazards:		Copper Sulfate Pentahydrate is not combustible, but may decompose in the heat of a fire and liberate corrosive and/or toxic fumes. Citric Acid poses a serious dust explosion hazard. Citric acid can burn. Citric acid is a slight fire hazard when exposed to heat or flames
Hazardous Combustion Products:		Sulfur oxides, copper fumes, oxides of carbon. Irritating fumes and acrid smoke.
Extinguishing Media:		Water, Water Fog, Foam, Carbon Dioxide, Dry Chemical. Use extinguishing measures that appropriate to local circumstances and environment. Unsuitable Extinguishing Media: None known
Fire Fighting Equipment/Instructions		As with any fire, wear full face coverage self-contained breathing apparatus and full protective gear. Evacuate nonessential personnel from area to prevent human exposure to fire, smoke, fumes or products of combustion. Water runoff from firefighting may contain product residues, dike to prevent runoff from contaminating water supplies. Runoff may be corrosive and/or toxic and/or cause pollution.
NFPA (USA):		NFPA: Health 2; Flammability 1; Stability and Reactivity 0; Physical Hazard – Wear protective equipment.

SECTION VI ACCIDENTIAL RELEASE MEASURES

ACCIDENTIAL RELEASE MEASURES		
Containment Procedures:		Stop flow of material, if this can be done without risk. Contain discharged material. Sweep up spilled material.
Clean-Up Procedures:		Wear appropriate protective equipment and clothing during cleanup. Shovel material into waste container. Seal the container and handle in a safe manner. Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contaminating storm drains, sewers soil, or groundwater.

Evacuation Procedures:	P501	Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials which can burn away from spilled material. In case of large spills, follow all facility emergency response procedures. Dispose of contents/container in accordance with local, regional, national or international regulations
Special Procedures:		Remove soiled clothing and wash before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

SECTION VII HANDLING and STORAGE

HANDLING AND STORAGE		
Handling Procedures:		Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.
Storage Procedures:		Keep in original container in locked storage area. Keep container tightly closed when not in use. Store container in cool, dry location, away from direct sunlight, sources of intense heat. Material should be stored in secondary containment as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire resistant materials. Post warning and “NO SMOKING” signs in storage and use areas as appropriate. Use corrosion resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Have appropriate fire extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers). Empty containers may contain residual particles, therefore, empty containers should be handled with care. Do not cut drill, or weld near this container. Do not consume food, beverages, or tobacco products in the storage area. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink, or animal feed. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Do not store this material in unlabeled containers. Limit quantity of material stored. Store in suitable containers that are corrosion resistant.

SECTION VIII EXPOSURE CONTROL AND PERSONAL PROTECTION MEASURES

EXPOSURE GUIDELINES		
A. General product Information:		Follow the applicable exposure limits.
B. Component Exposure Limits:		The exposure limits given are for Copper and inorganic compounds, as Cu (CAS 7440-50-8), Copper fume as Cu, or Copper dusts and mists as Cu.
ACGIH:		1 mg/m^3 TWA (dusts & mists)
OSHA:		1 mg/m^3 TWA (dusts & mists)
NIOSH:		1 mg/m^3 TWA (dusts & mists)
EXPOSURE GUIDELINES (Continued)		
DFG MAKs		1 mg/m^3 TWA Peak, 30 minutes, average value (dusts & mists)
Engineering controls		Use mechanical ventilation such as dilution and local exhaust. Use a corrosion resistant ventilation system and exhaust directly to the outside. Supply ample air replacement. Provide dust collectors with explosion vents.

PERSONAL PROTECTIVE EQUIPMENT		
Personal Protective Equipment: Eyes/Face		Wear safety glasses with side shields (or goggles) and a face shield, if this material is to be made into a solution.
Personal Protective Equipment: Skin		Wear chemically impervious gloves, boots, and coveralls to avoid skin contact.
Personal Protective Equipment: Respiratory		If airborne concentrations are above applicable exposure limits, use NIOSH approved respiratory protection.
The following NIOSH Guidelines for Copper dusts and mists as Cu are presented for further information:		
Up to 5 mg/m^3		Dust and mist respirator
Up to 10 mg/m^3		Any dust and mist respirator except single use and quarter mask respirators or any SAR
Up to 25 mg/m^3		SAR operated in a continuous flow mode or powered air purifying respirator with a dust and mist filter.
Up to 25 mg/m^3		Air purifying, full face piece respirator with high efficiency particulate filter, any powered air purifying respirator with a tight fitting face piece and high efficiency particulate filter or full face piece SCBA, or full face piece SAR.
Up to 100 mg/m^3		Positive pressure full face piece SAR

Emergency or Planned Entry into Unknown Concentration of IDLH Conditions:		Positive pressure full face piece SCBA, or positive pressure full face piece SAR with an auxiliary positive pressure SCBA.
Escape		Full face piece respirator with high efficiency particulate filters, or escape type SCBA.
Note: IDLH concentrations for Copper dusts and mists as Cu is 100 mg/m^3		
Personal Protective Equipment: General		Eyewash fountain and safety shower available in work area.

Protective Clothing Pictograms




Splash Goggles Gloves Protective Apron Dust Respirator

SECTION IX PHYSICAL/CHEMICAL PROPERTIES

Copper Sulfate Pentahydrate			
Appearance	Blue crystals or powder	Molecular Weight	249.68
Physical State	Solid	Chemical Formula	$CuSO_4 \cdot 5H_2O$
Odor	Odorless	Specific Gravity	2.28 @ 15.6°C
Odor Threshold	N/A	Particle Size	various
Solubility (water)	31.6 g/100 cc @ 20°C	Bulk density	N/A
pH	3.7-4.2 (10% soln)	Flash point	Not determined
Solubility other solvents	Methanol, glycerol, slightly soluble in ethanol	Evaporation Rate	Not determined
Partition Coefficient	Not determined	Upper Flammable Limit (UEL)	Not determined
Vapor Pressure	20 torr @ 22.5 °C	Lower Flammable Limit (LEL)	Not determined
Vapor Density	8.6	Auto Ignition	Not determined
Freezing/Melting point	150°C	Explosive Properties	Not determined
Softening Point	N/A	Oxidizing Properties	Not determined
Boiling Point	Decomposes	Flammability Classification	N/A
Kinematic Viscosity	Not determined	Rate of Burning	N/A
Dynamic Viscosity	Not determined	Decomposition Temperature	560 °C decomposes

Citric Acid			
Appearance	White powder	Molecular Weight	68.02
Physical State	Solid	Chemical Formula	$C_6H_8O_7$
Odor	Odorless	Specific Gravity	1.66 @ 20°C
Odor Threshold	N/A	Particle Size	Powder or crystal
Solubility (water)	59 g/100 cc @ 20°C	Bulk density	900-980 kg/m^3
pH	1.8 (5% soln)	Flash point	100°C (212°F)
Solubility other solvents	ethanol	Evaporation Rate	Not determined
Partition Coefficient	Not determined	Upper Flammable Limit (UEL)	2.29 kg/m^3 (dust)
Vapor Pressure	N/A	Lower Flammable Limit (LEL)	0.28-2.3 kg/m^3 (dust)
Vapor Density	N/A	Auto Ignition	1010°C
Freezing/Melting point	153°C	Explosive Properties	Not determined
Softening Point	N/A	Oxidizing Properties	Not determined
Boiling Point	Decomposes	Flammability Classification	N/A
Kinematic Viscosity	Not determined	Rate of Burning	N/A
Dynamic Viscosity	Not determined	Decomposition Temperature	175°C

SECTION X CHEMICAL STABLITY AND REACTIVITY INFORMATION

CHEMICAL STABLITY AND REACTIVITY INFORMATION		
Chemical Stability		Copper Sulfate Pentahydrate is hydroscopic, but stable when kept dry, under normal temperature and pressures.
Chemical Stability: Conditions to Avoid		Avoid high temperatures, exposure to air and incompatible materials.
Incompatibility		Avoid contact with hydroxylamine, magnesium, metal nitrates, reducing agents, and oxidizing agents (eg Sodium Hypochlorite bleach) Copper Sulfate Pentahydrate is incompatible with strong alkalis and phosphates. Potentially explosive reactions with metal nitrates. Citric Acid is incompatible with reducing agents. Citric Acid when wet or in solution is corrosive to brass, copper, zinc. aluminum and their alloys, lead, cast iron and mild steel.
Hazardous Decomposition		Copper Sulfate Pentahydrate: Sulfur oxides and Copper oxides. Citric Acid; Oxides of carbon. Incomplete combustion may produce irritating fumes and acrid smoke.
Hazardous polymerization		Will not occur.

SECTION XI TOXILOGICAL INFORMATION

ACUTE AND CHRONIC TOXICITY FOR COPPER SULFATE PENTAHYDRATE		
A. General Product Information		**Acute toxicity** is largely due to the caustic (alkaline) properties of copper sulfate. Harmful or fatal if swallowed. Product is an eye and skin irritant, and may cause burns. Product is respiratory tract irritant. Dusts may irritate nose, throat, and respiratory tract. Symptoms may include sore throat, coughing, and shortness of breath. In severe cases, ulceration and perforation of nasal septum may occur. **Chronic toxicity**: Prolonged contact may cause conjunctivitis, ulceration and corneal abnormalities. Prolonged skin exposure may cause dermatitis and eczema. Chronic overexposure to this product may cause liver and kidney damage, anemia and other blood abnormalities.
B. Component Analysis – LD_{50}/LC_{50} Copper Sulfate Pentahydrate (CAS 7758-99-8)		Oral-rat LD_{50} = 330 m/kg Intraperitoneal-rat LD_{50} = 20 mg/kg Subcutaneous-rat LD_{50} = 43 mg/kg Dermal-rat LD_{50} = 50 mg/kg Inhalation-rat LC_{50} = .2.95 mg/L
C. Component Analysis – TDLo/LDLo Copper Sulfate Pentahydrate (CAS 7758-99-8)		Oral-man LDLo = 857 mg/kg Oral-Human TDLo = 272 mg/kg Liver, kidney, blood effects Oral-Human LDLo = 50 mg/kg Behavior: somnolence (general depressed activity) Kidney, urethra, bladder: changes in tubules (including acute renal failure, acute tubular necrosis) Blood: hemorrhage Oral-Human TDLo = 11 mg/kg Gastrointestinal: gastritis, hypermotility, diarrhea, nausea or vomiting

ACUTE AND CHRONIC TOXICITY FOR COPPER SULFATE PENTAHYDRATE (Continued)		
Carcinogenicity A. General Product Information		Copper Sulfate Pentahydrate (CAS 7758-99-8) Cytogenetic Analysis – Rat/ast = 300 mg/kg Copper dusts and mists as Cu (CAS 7440-50-8) EPA: EPA-D (Not Classifiable as to Human Carcinogenicity – inadequate human and animal evidence of carcinogenicity or no data available. This product does not contain any carcinogens or potential carcinogens as listed by OSHA. IARC, or NTP.
Epidemiology		No information available
Neurotoxicity		Has not been identified
Mutagenicity		Human and animal mutation data are available for Copper Sulfate Pentahydrate; these data were obtained during clinical studies on specific human and animal tissues exposed to high doses of this compound.
Teratogenicity		There are no reports of teratogenicity in humans. Animal studies indicate that deficiency or excess of copper in the body can cause significant harm to developing embryos. The net absorption of copper is limited and toxic levels are unlikely from industrial exposure.

Other Toxicological Information		Individuals with Wilson's disease are unable to metabolize copper. Thus, persons with pre-existing Wilson's disease may be more susceptible to the effects of overexposure to this product.

SECTION XII ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION		
Ecotoxicity A. General Product Information B. Ecotoxicity Copper Sulfate Pentahydrate (77-99-8)		Harmful to aquatic life in very low concentrations. Copper Sulfate Pentahydrate is toxic to fish and marine organisms with long lasting effects.
Environmental Fate		If released to soil copper sulfate may leach to groundwater, be partly oxidized or bind to humic materials, clay or hydrous oxides of iron and manganese. In water, it will bind to carbonates as well as humic materials, clay and hydrous oxides of iron and manganese. Copper is accumulated by plants and animals, but it does not appear to bio magnify from plants to animals.
Algae/aquatic plants		
Fish		0.66 – 01.15 mg/l 96 h *Lepomis machochirus* (bluegill) LC_{50} semi-static 0.96 – 1.8 mg/l 96 h *Lepomis machochirus* (bluegill) LC_{50} static 0.17478 – 0.165 mg/l 96 h *Oncorhynchus mykiss* LC_{50} flow-through
Toxicity to microorganisms		
Crustacea		0.147 – 0.227 mg/l 48 h *Daphnia magna* EC_{50} static
ECOLOGICAL INFORMATION (Continued)		
Summary of Effects		Do not apply directly to water, or areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by disposing of equipment wash water. Apply this product only as specified on the label.

SECTION XIII DISPOSAL CONSIDERATIONS

DISPOSAL CONSIDERATIONS		
US EPA Waste Number A. General Product Description B. Component Waste Numbers		This product contains copper sulfate which is a marine pollutant No EPA Waste Numbers are applicable for this product's components

California Hazardous Waste Status		Copper sulfate pentahydrate (CAS 7758-99-8) Toxic
Disposal Instructions		Do not reuse product containers. Do not pour unused product down the drain on the ground. Dispose of product residues, containers, packaging, and wastes according to all federal, state, and local health and environmental regulations.

SECTION XIV TRANSPORT INFORMATION

TRANSPORT INFORMATION		
US DOT for small package size (less than 10 lbs.) shipped by ground transportation. **Not by water or air.**		Not Regulated (This product package size is 1 lb.)
US DOT		UN 3077, Environmentally Hazardous Substance, Solid, N.O.S. (Copper (II) Sulfate, Pentahydrate), 9, PG III Marking: “Marine Pollutant” when shipping ground greater than 882 lbs. (400 kg) or any quantity by water.
UN / IMDG / IATA classification		UN 3077, Environmentally Hazardous Substance, Solid, N.O.S. (Copper (II) Sulfate, Pentahydrate), 9, PG III
Freight classification		

SECTION XV REGULATORY INFORMATION

USA REGULATORY INFORMATION		
Clean Water Act		Copper Sulfate Pentahydrate (CAS 7758-99-8) Priority and Toxic Pollutant
SARA Section 313 (40 CFR 372.65)		Copper (II) Sulfate (CAS 7758-98-7)

CERCLA (40 CFR 302.4)		Copper (II) Sulfate (CAS 7758-98-7) Final RQ = 10 lbs. (4.54 kg)			
SARA 311/312 Tier II Hazard Ratings Copper Sulfate Pentahydrate (CAS 7758-99-8)		Acute health hazard: Yes Chronic health hazard: No Fire hazard: No Sudden release of pressure hazard: No Reactivity hazard: No			
SARA 311/312 Tier II Hazard Ratings Citric Acid (CAS 77-92-9)		Acute health hazard: Yes Chronic health hazard: Yes Fire hazard: No Sudden release of pressure hazard: No Reactivity hazard: No			
State Regulations					
California Proposition 65		No			
State Hazardous Substance Lists Copper (CAS 7440-50-8)		CA FL MA	Yes No Yes	MN NJ PA	No Yes Yes
State Hazardous Substance Lists Copper Sulfate pentahydrate (CAS 7758-99-8)		CA FL MA	No No No	MN NJ PA	No Yes Yes
Citric Acid (CAS 77-92-9)		CA FL MA	No No No	MN NJ PA	No Yes Yes
Chemical Inventories					
Copper Sulfate Pentahydrate (CAS 7758-99-8)		TSCA DSL EINECS	Accepted as hydrate of Copper Sulfate (CAS 7758-98-7) No Yes		
Citric Acid (CAS 77-92-9))		TSCA DSL EINECS	Yes Yes Yes		

REGULATORY INFORMATION		
WHMIS Canadian Hazardous Products Act Disclosure List\		Copper Sulfate Pentahydrate (CAS 7758-99-8) Minimum concentration 1% Citric Acid (CAS 77-92-9) Minimum concentration 1% item 409 (80)

SECTION XVI OTHER INFORMATION

NFPA / HMIS Ratings USA	
NFPA	HMIS

2	Health	2	Health
1	Flammability	1	Flammability
0	Instability	0	Reactivity
	Special Hazards	B	Protective Equipment

Version SDS-001-CVE-FV 1.0
Date Prepared: 7-24-2015 SF Driggers
Supersedes: 5-24-2010

Reason: revised OSHA SDS format.

Notice to the reader: To the best of our knowledge the information contained herein is accurate. However, neither the manufacturer nor the distributor named assumes any liability for the accuracy or completeness of the information contained herein. Final determination of the suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used according to label directions and with caution. Although certain hazards are described herein, no guarantee is made that these are only hazards that exist.