

128 4 128 5 128 6
 128 1 MATERIAL SAFETY DATA SHEET

1290 = Tamará

I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME	Boliden Intertrade Inc.	REGULAR TELEPHONE NO. 404-239-6700 EMERGENCY TELEPHONE NO. Chemtrec 800-424-9300
ADDRESS	3400 Peachtree Rd., NE, Suite 401 Atlanta, Georgia 30326	
TRADE NAME	Copper-Sulfate	
SYNONYMS	Bluestone, Blue Vitriol	
SHIPPING NAME ¹	DOT: RQ, 10 lb/4.54 kg (Cupric sulfate) NA 9188. ORM-E. 15, INC IATA:	

RECEIVED JUL 10 1992

TAB CHEMICALS, INC
 4001 SO. AUSTIN BLVD
 CHICAGO, IL 60638

II HAZARDOUS INGREDIENTS²

MATERIAL OR COMPONENT	CAS NO.	%	HAZARD DATA
Copper sulfate pentahydrate (CuSO ₄ · 5H ₂ O)	7758-98-7	99.0	Health hazard: Oral LD ₅₀ (rats, male) = 300 mg/kg.. Product is toxic orally but not dermally. It is a skin sensitizer and skin irritant. It is corrosive to the eyes.
Copper 25.2% *			
* Reportable under SARA Title III Sec. 313 and 40 CFR Part 372			Aquatic hazard: LC ₅₀ set at >0.1 <1 mg/l by EPA water programs for hazardous substances.

III PHYSICAL DATA

BOILING POINT, 760 MM HG	- 5 H ₂ O @ 150° C.	MELTING POINT	- 4 H ₂ O @ 110° C.
SPECIFIC GRAVITY (H ₂ O = 1)	2.284	VAPOR PRESSURE	7.3 mg Hg @ 25° C.
VAPOR DENSITY (AIR = 1)	Not determined	SOLUBILITY IN H ₂ O % BY WT	22.37 @ 0° C. 117.95 @ 100° C.
% VOLATILES BY VOL.	Not determined	EVAPORATION RATE (BUTYL ACETATE = 1)	Not determined
APPEARANCE AND ODOR	Blue crystals or powder. No odor.	Ph (AS IS)	Not applicable
		Ph (1% SOLN)	5% soln. = pH 4.0

IV FIRE AND EXPLOSION DATA

FLASH POINT (TEST METHOD)	Not applicable	AUTOIGNITION TEMPERATURE	Not applicable
FLAMMABLE LIMITS IN AIR, % BY VOL.	LOWER	Not applicable	UPPER
EXTINGUISHING MEDIA	Copper sulfate does not burn, nor will it support combustion. If stored with other combustible products, use water, CO ₂ or dry chemical.		
SPECIAL FIRE FIGHTING PROCEDURES	If dry heated above 600° C., SO ₂ is evolved. If water is used, it will solubilize the CuSO ₄ · 5H ₂ O, and care should be used to keep such water out of streams or other water bodies.		
UNUSUAL FIRE AND EXPLOSION HAZARD	None		

V HEALTH HAZARD INFORMATION

HEALTH HAZARD DATA	HAZARD CLASSIFICATION	BASIS FOR CLASSIFICATION	SOURCE
ROUTES OF EXPOSURE INHALATION	Copper sulfate is a skin irritant and sensitizer including nasal membranes. Copper dusts and mists regulated. OSHA PEL = 1 mg (Cu)/M ³ . ACGIH TWA = 1 mg (Cu)/M ³	Acute inhalation LC50: In excess of 1.48 mg/l air. OSHA 29 CFR 1910.1000 and American Conference of Governmental Industrial Hygienists (ACGIH) for 1987-1988.	Laboratory test in accordance with FHSLA regulations.
SKIN CONTACT	Skin irritant and sensitizer especially to some individuals.	US EPA Pesticide fact sheet No. 87. Copper sulfate, PB87-116570, March 21, 1987.	Same as Basis for Classification
SKIN ABSORPTION	Not toxic dermally.	Dermal LD50: In excess of 8,000 mg/kg.	Laboratory test in accordance with FHSLA regulations.
EYE CONTACT	Corrosive	Eye irritation score: 24 hrs. = 41.67 48 hrs. = Corrosive	Laboratory test in accordance with FHSLA regulations.
INGESTION	Moderate toxicity in humans orally. High intraperitoneal toxicity.	Acute oral LD50 (male rats) = 300 mg/kg	See Reference 1 below.

EFFECTS OF OVEREXPOSURE Ingestion: Copper sulfate may induce severe gastroenteric distress (vomiting, gastroenteric pain, and local corrosion and hemorrhages). Prostration, anuria, hematuria, anemia, increase in white blood cells, coma, respiratory difficulties and circulatory failure. Eye: Corrosive to eye tissue.

CHRONIC OVEREXPOSURE Copper sulfate is reported to be systemic effect in humans (Ref. 1), which effects the metabolic and excretory function of the liver and kidney.

EMERGENCY AND FIRST AID PROCEDURES

EYES: Irrigate eyes with large amounts of water for at least 15 minutes. Hold eyelids apart during irrigation. Send patient to a physician immediately.

SKIN: Wash or shower thoroughly with water. Remove and wash contaminated clothes before reuse.

INHALATION: Remove worker from exposure and seek medical aid.

INGESTION: If swallowed, call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger, or if available by administering syrup of ipecac. Do not induce vomiting or give anything by mouth to an unconscious person.

NOTES TO PHYSICIAN Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

Reference 1: Dangerous Properties of Industrial Materials. Sixth Edition by N. I. Sax. Van Nostrand Reinhold Co., 1984.

VI REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY

None known. Product is highly soluble in water, but does not react with the water.

INCOMPATIBILITY

None known when product remains dry. Product readily dissolves in water. Solutions are corrosive to mild steel. Store solutions in plastic, rubber, 304, 347, or 316 stainless steel.

HAZARDOUS DECOMPOSITION PRODUCTS

None at normal process temperatures and pressures. If dry heated above 1100° F (600° C) sulfur dioxide (SO₂) may be released.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION

None known.

VII DISPOSAL, SPILL OR LEAK PROCEDURES

~~XXXXXX~~ AQUATIC TOXICITY ~~XXXXXX~~ LC₅₀ 24 hr = Daphnia magna = 0.182 mg/l. Rainbow trout = 0.17 mg/l. Bluegill = 1.5 mg/l. All values are expressed as copper sulfate pentahydrate. Test water was soft.

WASTE DISPOSAL METHOD

Sweep up crystal or powdered product and dispose in an approved landfill. If product is in confined solution, introduce lime or soda ash to form insoluble copper salts and then dispose in an approved landfill. Reportable Quantity of a spill is 10 lbs/4.54 kg. Product when discarded is not listed by EPA in 40 CFR § 261.33.

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

- 1). Contact appropriate, local, State, or Federal pollution control officials if warranted and especially if spilled into public waters.
- 2). If spill is confined to the use site, neutralize with lime or soda ash and use absorbent and remove to approved landfill.

NEUTRALIZING CHEMICALS

Soda ash or lime.

VIII SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS

TWA = 1 mg(Cu)/m³ (ACGIH) and PEL = 1 mg(Cu)/m³ (OSHA) for all copper dusts and mists. If TWA or PEL exceeds this limit in workplace, appropriate ventilation should be provided, or respiratory protective equipment must be provided.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

TWA = 1 mg(Cu)/m³ (ACGIH). PEL = 1 mg(Cu)/m³ (OSHA) for all copper dusts and mists. If TWA or PEL exceeds this limit in workplace, respiratory protective equipment must be provided in accordance with Paragraph 1910.134 of Title 29, Code of Federal Regulations.

EYE

Chemical goggles should be worn when handling product.

GLOVES

Rubber gloves may be worn.

OTHER CLOTHING AND EQUIPMENT

Wear long sleeve protective clothing when handling product.
Avoid breathing dust.

IX SPECIAL PRECAUTIONS

PRECAUTIONARY STATEMENTS

No special precautions are known other than those stated on the bag and in this Material Safety Data Sheet.

Under some use conditions copper sulfate dust may be irritating to the skin of some individuals. Problem use conditions seem to be aggravated by high humidity and sweating when copper sulfate is applied undiluted and dust contact occurs.

OTHER HANDLING AND STORAGE REQUIREMENTS

Store product in a dry place.

ADDITIONAL REGULATORY CONCERNS

FEDERAL:

FDA Is Generally Recognized as Safe (GRAS) as a trace mineral for lives tock when used in accord with good management practices. 21 CFR §1582.80.

USDA Is GRAS when used in food wrap paper and paperboard products. 21 CFR §182.90.

CPSC

TSCA IS THIS PRODUCT, OR ALL ITS INGREDIENTS, BEING CERTIFIED FOR INCLUSION ON THE TOXIC SUBSTANCES CONTROL ACT INVENTORY OF CHEMICAL SUBSTANCES? Yes

OTHER Labeled and registered with EPA as a pesticide to control algae in water and roots in sewers or diseases on some plants. Follow specific label instructions.

STATE:

OSHA: Product is a hazardous material as defined by 29 CFR §1910.1200 because it is corrosive to the eye, it is toxic orally, and it is a regulated air contaminant for dusts and mists.

Product is not listed by the National Toxicology Program, the International Agency for Research on Cancer, nor the Registry of Toxic Effects of Chemical Substances (1983-84) as a carcinogen or potential carcinogen.

DOT: 49 CFR §171 and 172. Copper sulfate is classified as a hazardous substance classed as ORM-E with a reportable quantity (RQ) as 10 lbs/4.54 kg.

SARA: This product is covered by SARA Title III with reporting requirements under 313.

PREPARED BY Dr. Arthur F. Gohlke

TITLE: Technical Service Specialist

COMPANY: Boliden Intertrade Inc.

ADDRESS: 3400 Peachtree Rd. NE, Suite 401
Atlanta, Georgia 30326