Material Safety Data Sheet Conforms with OSHA form OMB No. 1218-0072
Roebic K-77 Root Killer, 2 pounds

Roebic Laboratories, Inc.
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Emergency Telephone Numbers-
ROEBIC (203) 795-1283
CHEMTREC (800) 424-9300

Date: 11/09/04
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SECTION I - INGREDIENTS

Chemical Name Copper Sulfate, Blue Vitrol, Bluestone
Trade name Roebic K-77 Root Killer
DOT Shipping Name Copper Sulfate (Blue Vitrol)
CAS Number 7758-98-7

SECTION II – HAZARDOUS INGREDENTS

INGREDIENTS	CAS No.	%
Copper Sulfate Pentahydrate ($CuSO_4.5H_20$)	7758-98-7	99.0

Hazard Data
Health hazard: Oral LD50 (rats, male) = 472 mg/kg.
Oral- toxic
Dermal- non irritating to skin
Inhalation- non toxic
Eye- corrosive
According to FHSLA regulations, Aquatic hazard: LC50 set at >1.0>1mg/1 (water programs hazardous substances, FPA) *see possible use exceptions on last page.

SECTION III – PHYSICAL DATA

Boiling Point -5 H_2O @ 150°C
Volatility/VOL (%) -
Melting Point -4 H_2O @ 110°C
Vapor Pressure (mm Hg) -
Vapor Density (air=1) -
Solubility in H_2O 22.37 @ 0°C, 117.95@ 100°C
Appearance/Odor Blue crystals or powder, no odor
Specific Gravity (H_2O=1) 2.284
Evaporation Rate (Butyl Acetate = 1)
pH (as is) N/A
pH (1% SOLN.) Not known

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Flash Point Non-flammable
Auto Ignition Temperature N/A
Flammable Limits in Ai, % by vol. **Lower** N/A **Upper** N/A
Extinguish 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 Procedure If dry heated above 600°C, SO_2 is evolved. If water is used, it will be solubilize the $CuSO_4$. $5H_2O$, and care should be used to keep such water out of streams or other water bodies.
Unusual Fire Hazard None

SECTION V – HEALTH HAZARD DATA

Routes of Entry Inhalation, Skin Contact, Skin Absorption, Eye Contact, Ingestion

Hazard Classification
Inhalation: Produces irritation by inhalation, in accordance with FHSLA regulations. TWA=1 mg/m_3 for all copper dusts and mists.
Skin Contact: No effect on skin, in accordance with FHSLA regulations.
Skin Absorption: Not toxic dermally, in accordance with FHSLA regulations.
Eye Contact: Corrosive in accordance with FHSLA regulations.
Ingestion: Toxic orally, in accordance with FHSLA regulations.

Basis for Classification
Inhalation: Acute inhalation LC50, in excess of 1.48 mg / 1 air.
Skin Contact: Skin irritations index, zero
Skin Absorption: Dermal LD50, in excess of 8,000 mg/kg
Eye Contact: Eye irritation score, 24 hrs. = 41.67 / 48hrs. corrosive
Ingestion: Acute oral LD50 (male rats) = 472 mg/kg

Source Laboratory testing in accordance with FHSLA regulations.

Over Exposure Effects

Acute Overexposure Copper sulfate is emetic, and has seldom been fatal

Chronic Overexposure Prolonged over ingestion might increase liver copper content

First Aid
Eye contact: Flush immediately with plenty of water for at least 15 minutes, hold eyelids apart during irrigation. Seek medical attention.
Skin contact: Wash or shower thoroughly with water. Remove and wash contaminated clothing before reuse.
Ingestion: Drink a large quantity of water or milk. Get medical attention.
Inhalation: Remove worker from exposure and seek medical aid.

Notes to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

SECTION VI – REACTIVITY DATA

Chemical Stability Stable

Conditions to Avoid None

Incompatible Materials 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 product is heated above 1100°F (600°C) sulfur dioxide (SO_2) may be released.

Hazardous Polymerization Will not occur

Polymerization Avoid N/A

SECTION VII – SPILL OR LEAK PROCEDURE

Aquatic Toxicity (E.G. 96 HR. TLM) LC50 24 hr. = Daphnia magna = .182 mg/1. Rainbow trout = 0.17 mg/1. Bluegill 1.5 mg/1. 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 of in an approved landfill. Product when discarded is not listed by EPA in 40 CFR paragraph 261.33.

Steps to be taken if Material is Released or Spilled Contact appropriate local, state, or federal pollution control officials if warranted, especially if spilled into public

waters. If spill is confined to the use site, neutralize with lime or soda ash and use absorbent and remove to approved land fill.

Neutralizing Chemicals Lime or soda ash

SECTION VIII – SPECIAL PROTECTION INFORMATION

Ventilation Requirements TWA = 1 mg/m^3 for all copper dusts and mists. If TWA exceeds this limit in the workplace, appropriate ventilation should be provided or respiratory protective equipment must be provided.

Specific Personal Protective Equipment TWA = 1 mg/m^3 for all copper dusts and mists. If TWA exceeds this limit in the workplace, respiratory protective equipment must be provided in accordance with the paragraph 1910.134 of title 29, code of federal regulations.

Eye Protection Chemical goggles should be worn when handling the product.

Protective Gloves Rubber gloves may be worn

Other Protection No special protective clothing or equipment required.

SECTION IX – SPECIAL PRECAUTIONS

Precautionary Statement No special precautions are known other than those stated on the bag and in this Material Safety Data Sheet. Under some 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 livestock when used in accord with good management practices. 21 CFR paragraph 582.80.

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

CPSC

TSCA This product and all of ingredients are certified for inclusion on the toxic substances control act inventory of chemical substances.

Other Labeled and registered with the EPA as a pesticide to control algae in water and roots in sewers.

OSHA Product is a hazardous material as defined be 20 CFR paragraph 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 <u>is not</u> listed by the National Toxicology Program, the International Agency for Research on Cancer, nor the Registry of Toxic Effects of Chemical Substances (1981-82) as a carcinogen or potential carcinogen.