

MATERIAL SAFETY DATA SHEET**KELCAL MIXTURES**

PRODUCT CODE NUMBER(S): 4423-8, 4424-8, 4425-8, 4426-8, 4444-8, 4445-8, 4450-8

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: Kelcal powder 15, Kelcal powder 20, Kelcal tablets CT 37, Kelcal tablets CT 50, Kelcal tablets LCT 50

Chemical Family: Mixture

Chemical Formula: K_2SO_4 , $CuSO_4$

Product Use: Kjeldahl reagent

Manufacturer's Name and Address:
Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9

Telephone No: (905) 877-0101

Fax No: (905) 877-6666

Emergency Telephone No: CANUTEC (613) 996-6666

HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
Potassium sulphate	85-99	Not established	7778-80-5
Cupric sulphate	1-15	1 mg/m ³ (as Cu)	7758-98-7
May contain:			
Pumice	<1	Not established	Not available

PHYSICAL DATA

Physical State: Solid

Odour and Appearance: White and blue granules in powder or tablets, odourless

Odour Threshold (ppm): Not available

Vapour Pressure (mm Hg): Not applicable

Vapour Density (Air = 1): Not applicable

Evaporation Rate: Not applicable

Boiling Point (degrees C): Not available

Melting Point (degrees C): 888°C

pH: Not available

Specific Gravity: 2.67

Coefficient of Water/Oil distribution: Not available

SHIPPING DESCRIPTION

UN: Not regulated

T.D.G. Class: Not regulated

Pkg. Group: Not regulated

REACTIVITY DATA

Chemical Stability: Stable

Incompatibility with other substances: $CuSO_4$ - hydroxylamine, powdered metals, magnesium, water. K_2SO_4 - strong oxidizing agents.

Reactivity: Avoid excessive heat, generation of dust, all incompatible materials.

Hazardous Decomposition Products: SO_x , CuO , copper fumes

FIRE AND EXPLOSION DATA

Flammability: Not combustible

Extinguishing Media: Use any means suitable for surrounding fire. Fight fire from up wind, from a safe distance. Firefighters must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes and contact with skin and eyes.

Flash Point (Method Used): Not applicable

Autoignition Temperature: Not applicable

Upper Flammable Limit (% by volume): Not applicable

Lower Flammable Limit (% by volume): Not applicable

Hazardous Combustion Products: SO_x , CuO , copper fumes

Sensitivity to Impact: None identified

Sensitivity to Static discharge: None identified

TOXICOLOGICAL PROPERTIES AND HEALTH DATA**Toxicological Data:**

LD₅₀: $CuSO_4$: (oral, rat) 960 mg/kg;
 K_2SO_4 (oral, rat) 6,600 mg/kg

LC₅₀: Not available

Effects of Acute Exposure to Product:

Inhaled: Copper sulphate is irritating to mucous membranes and upper respiratory tract. Severe overexposure can cause ulceration of nasal septum, probably due to traces of sulphuric acid impurities.

In contact with skin: May cause skin irritation.

In contact with eyes: Particles of copper sulphate can cause inflammation, tissue destruction and corneal opacity.

Ingested: Toxic. Copper sulphate may cause metallic taste in mouth, burning sensation in the throat, and repeated vomiting. More severe exposures may cause ulceration of the gastrointestinal tract, diarrhea.

Effects of Chronic Exposure to Product:

Prolonged or repeated contact with potassium sulphate may cause skin irritation or eye damage, and may aggravate kidney disorders. Prolonged or repeated contact with copper compounds may cause skin irritation, contact dermatitis. Prolonged inhalation can cause lung damage. Chronic copper poisoning is typified by hepatic cirrhosis, copper deposits in the cornea, brain damage and kidney damage, hemolytic anemia.

Carcinogenicity: None of the components is listed as carcinogenic by NTP, IARC, or OSHA

Teratogenicity: No information available

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Reproductive Effects: *Reproductive effects cited for copper in animal testing.*

Mutagenicity: *No information available*

Synergistic Products: *None known*

PREVENTIVE MEASURES

Engineering Controls: *Local exhaust ventilation recommended*

Respiratory Protection: *Dust mask. NIOSH approved respiratory equipment sufficient to prevent inhalation of fumes or dusts. For high or unknown concentrations, as in fire or spill conditions, NIOSH approved positive-pressure, full face-piece self-contained breathing apparatus.*

Eye Protection: *Chemical safety goggles*

Skin Protection: *Neoprene gloves. Other protective body-covering clothing sufficient to prevent contact.*

Other Personal Protective Equipment: *Safety shower and eye-wash fountain in work area.*

Leak and Spill Procedure: *Ventilate area. Cleanup personnel must be thoroughly trained in the hazards of this material and must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes. Mix with sand or inert absorbent, collect in a manner that does not raise dust, and transfer carefully into labelled, covered container(s) for removal by disposal company. Wash site of spillage thoroughly with water and detergent.*

Waste Disposal: *Follow all federal, provincial and local regulations for disposal.*

Handling Procedures and Equipment: *TOXIC. Workers using this chemical must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Avoid all contact and inhalation of dust or fumes. Use the smallest possible amount for the purpose, in designated areas with adequate ventilation. Keep work area clean and free of extraneous materials. Maintain good housekeeping procedures to avoid accumulation of dust. Keep containers closed when not in use and when empty.*

Storage Requirements: *Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight. Keep containers tightly closed when not in use and when empty. Protect from damage. Store away from incompatible materials.*

FIRST AID MEASURES

Specific Measures:

Eyes: *Immediately flush eyes with gently running water, holding eyelids open while flushing, for five to ten (5-10) minutes, or until no trace of chemical remains. If irritation persists, obtain medical attention.*

Skin: *Remove contaminated clothing. Brush or wipe off dry material. Flush affected areas with soap and running water for five to ten (5-10) minutes, or until no trace of chemical remains. If irritation persists, or if exposure was extensive, obtain medical attention.*

Inhalation: *Remove to fresh air. Give oxygen and get medical attention for any breathing difficulty.*

Ingestion: *If the person is alert, and not convulsing, give 2 to 4 glasses of water to drink immediately. After the water has been swallowed encourage vomiting (under medical supervision) by touching the back of throat with finger or by administering syrup of ipecac. Get medical attention immediately.*

REFERENCES USED

CCINFO disc: Cheminfo

Budavari: The Merck Index, 12th ed., 1997

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987

Sax: Dangerous Properties of Industrial Materials, 5th ed., 1979

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: *July 15, 1991*

Revision: *February 2011*

MSDS: *4423-8, 4424-8, 4425-8, 4426-8, 4444-8, 4445-8, 4450-8*

Proposed WHMIS Designation: *D2B (CuSO₄)*

*Prepared by: Caledon Laboratories Ltd. (905) 877-0101
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