CALEDON LABORATORY CHEMICALS

MATERIAL SAFETY DATA SHEET

KELCAL POWDER 10

PRODUCT CODE NUMBER(S): 4421-8, 4422-8

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Kelcal powder 10*
Chemical Family: *Mixture*
Chemical Formula: *K_2SO_4, HgO, $CuSO_4$*
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	*9.9 g*	*Not established*	*7778-80-5*
Mercuric oxide	*0.4 g*	*0.01 mg/m^3 (as Hg)*	*21908-53-2*
Cupric sulphate	*0.08 g*	*1 mg/m^3 (as Cu)*	*7758-98-7*
May contain:			
Pumice	*<1*	*Not established*	*Not availble*

PHYSICAL DATA

Physical State: *Powder*
Odour and Appearance: *Red granular powder; odour of sulphur dioxide*
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): *Not available*
pH: *Not available*
Specific Gravity: *Not available*
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: *HgO - reducing agents, phenols, amines, organics, chlorine, hydrazine, hydrogen peroxide, acetyl nitrate, butadione, sulphur, hypophorus acid, magnesium, phosphorus, phospham, sodium potassium alloy.*
$CuSO_4$- hydroxylamine, powdered metals, magnesium, water.

K_2SO_4 - strong oxidizing agents
Reactivity: *Avoid excessive heat, generation of dust, all incompatible materials.*
Hazardous Decomposition Products: *Mercury and copper vapours, SO_x, CuO.*

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: *Mercury, copper vapours, SO_x, CuO.*
Sensitivity to Impact: *None identified*
Sensitivity to Static discharge: *None identified*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD_{50}: *(HgO) (oral, rat) 18 mg/kg*
($CuSO_4$) (oral, rat) 960 mg/kg;
K_2SO_4 (oral, rat) 6,600 mg/kg
LC_{50}: *Not available*

Effects of Acute Exposure to Product:

Mercuric oxide is highly toxic, causing damage to central nervous system and kidneys. Individuals with pre-existing central nervous system or kidney disorders are at increased risk from mercury compounds.
Inhaled: *Irritates the respiratory tract. Symptoms may include sore throat, coughing, laboured breathing and headache.*
In contact with skin: *May cause irritation, dermatitis or sensitivity. Symptoms may parallel ingestion.*
In contact with eyes: *Causes irritation and may cause ulceration of the conjunctiva and cornea.*
Ingested: *Large doses may cause gingivitis, weakness, tremors, erethism, greying lens of eye, kidney and CNS damage.*

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Effects of Chronic Exposure to Product:

Danger of cumulative effects from mercury compounds. Chronic exposure through any route will damage central nervous system, brain, liver, kidneys, and cause symptoms such as headache, tremors, personality and behaviour changes, loosening of teeth, loss of appetite, ulceration of skin, impaired memory. Can cause skin sensitization. Repeated skin contact can cause skin to turn grey in colour. Persons with pre-existing nervous, kidney, or respiratory disorders may be more susceptible to the effects of this substance. Prolonged or repeated contact with potassium sulphate may cause skin irritation or eye damage, and may aggravate liver and kidney disorders.

Carcinogenicity: *Not considered carcinogenic*

Teratogenicity: *Mercury compounds have caused retarded fetal growth in animal testing.*

Reproductive Effects: *Cited for mercuric oxide.*

Mutagenicity: *Mercury compounds have been shown to be mutagenic in bacterial and mammalian assays (WHO, Geneva, 1991)*

Synergistic Products: *None known*

REVENTIVE MEASURES

Engineering Controls: *Local exhaust ventilation required.*

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: *Protective gloves. Other protective clothing, apron, sleeves, coveralls, as required to prevent contact.*

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

Leak and Spill Procedure: *Evacuate area of spill. Cleanup personnel must be thoroughly trained in the handling of hazardous materials, and must wear protective equipment and clothing sufficient to prevent inhalation of dusts or fumes and contact with skin and eyes. Mix with sand, 10 to 20 times by weight, transfer carefully into container and arrange 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, CUMULATIVE. 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 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: *March 2011*

MSDS: *4421-8, 4422-8*

Proposed WHMIS Designation: *D1A; D2A; D2B (HgO)*

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