CALEDON LABORATORY CHEMICALS

MATERIAL SAFETY DATA SHEET

MERCUROUS CHLORIDE

PRODUCT CODE NUMBER(S): 5290-1

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Mercurous chloride*
Chemical Family: *Inorganic salt*
Chemical Formula: *Hg_2Cl_2*
Product Use: *Laboratory reagent*
Manufacturer's Name and Address:
Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9
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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	*%*	*TLV Units*	*CAS No.*
Mercurous chloride	*99*	*0.025 mg/m^3 (Hg)*	*10112-91-1*

PHYSICAL DATA

Physical State: *Solid*
Odour and Appearance: *Off-white powder, odourless*
Odour Threshold (ppm): *Not applicable*
Vapour Pressure (mm Hg): *Not applicable*
Vapour Density (Air = 1): *Not available*
Evaporation Rate: *Not available*
Boiling Point (degrees C): *384°C*
Melting Point (degrees C): *400°C (sublimes wihtout melting)*
pH: *Not available*
Specific Gravity: *7.150*
Coefficient of Water/Oil distribution: *Not available*

SHIPPING DESCRIPTION

UN: *2025*
T.D.G. Class: *6.1, 9*
Pkg. Group: *II*

REACTIVITY DATA

Chemical Stability: *Stable under ordinary conditions of storage and usage. Slowly decomposes into mercuric chloride and mercury on exposure to sunlight.*
Incompatibility with other substances: *Strong bases, ammonia, bromides, alkali chlorides, iodides, carbonates, hydroxides, sulphates, sulphites, lime water, cyanides, copper salts, lead salts, silver salts, iodine, iodoform, hydrogen peroxide, acacia, sulphides, soap. May decompose on exposure to light or moisture. Decomposed by solutions of alkali bromides, cyanides or iodides into mercury (II) salt and metallic mercury. Alkali chlorides or water act similarly but more slowly. Contact with ammonia, caustic alkali and alkaline earth solutions blacken the material.*
Reactivity: *Avoid excessive heat, generation of dust, all incompatible materials, exposure to light or moisture.*
Hazardous Decomposition Products: *Mercury, mercury oxides, hydrogen chloride gas.*

FIRE AND EXPLOSION DATA

Flammability: *Non flammable*
Extinguishing Media: *Use an extinguisher appropriate to the surrounding material that is burning. Move containers from fire area if it can be done without risk. Use water spray or fog to cool containers and disperse vapours. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (positive pressure full facepiece self-contained breathing apparatus) and clothing (chemical splash suit) sufifcient to prevent inhalation of vapours 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: *Hg vapour, toxic chloride fumes*
Sensitivity to Impact: *None identified*
Sensitivity to Static discharge: *None identified*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD_{50}: *(oral, rat) 210 mg/kg; (dermal, rat) 1,500 mg/kg*
LC_{50}: *Not available*

Effects of Acute Exposure to Product:

Inhaled: *Dust and vapour arevery irritating and very toxic. Can cause burns and severe respiratory tract damage with sore throat, coughing, pain, tightness in chest, breathing difficulties, shortness of breath, bronchitis and pneumonitis. Readily absorbed, causing systemic mercury poisoning,with headache, muscle weakness, anorexia, gastrointestinal disturbance, rapid and weak pulse, shallow breathing, paleness, ringing in the ears, liver changes, fever, kidney damage, exhaustion and collapse. Delayed death may occur due to renal failure.*
In contact with skin: *Skin contact may cause irritation, dermatitis or sensitivity. Is readily absorbed through the skin in toxic amounts, with symptoms as in "Ingested".*
In contact with eyes: *Dust or solutions can cause irritation and even ulceration of the conjunctiva and cornea with permanent eye damage.*
Ingested: *Very toxic. Average lethal dose for inorganic mercury salts ~1g. Ingestion may cause burning of the mouth and pharynx, abdominal pain, vomiting, bloody diarrhea, and systemic poisoning, with symptoms as in "Inhaled".*

Effects of Chronic Exposure to Product:

Danger of cumulative and irreversible effects. 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, digestive disorders, skin rashes. Can cause skin sensitization. Repeated skin contact can cause skin to turn grey in colour. Persons with pre-existing nervous, kidney, or respiratory disorders, or known sensitivity to mercury may be more susceptible to the effects of this substance.

Carcinogenicity: *No information available*

Teratogenicity: *No information specific to mercurous chloride is available, but other inorganic mercury compounds have been shown to retard fetal growth in animal testing.*

Reproductive Effects: *Reproductive effects cited.*

Mutagenicity: *No specific information available, but other inorganic mercury compounds are mutagenic in bacterial and mammalian assays.*

Synergistic Products: *None known*

PREVENTIVE MEASURES

Engineering Controls: *Local exhaust ventilation required.*

Respiratory Protection: *Dust mask. Up to 10x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH/MSHA approved half- face dust/mist filter respirator. Up to 50x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH/MSHA approved full face-piece dust/mist filter respirator. Higher or unknown concentrations, or for fire or spill conditions, self-contained breathing apparatus, or full face-piece, positive-pressure supplied-air respirator.*

Eye Protection: *Chemical safety goggles, face shield.*

Skin Protection: *Impervious protective gloves and other clothing, apron, sleeves, coveralls,sufficient to prevent all contact.*

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

Leak and Spill Procedure: *Evacuate and ventilate 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. Do not touch or inhale spilled material. Avoid raising dust. Mix with sand, 10 to 20 times by weight, transfer carefully into container and arrange removal by disposal company. Prevent from entering sewers, storm drains, or other waterways; dangerous if allowed to enter drinking water sources. 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, POSSIBLE TERATOGEN, MUTAGEN. Workers handling this product must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Keep away from combustible or organic materials, and all sources of heat and ignition. Keep work areas free of extraneous or incompatible materials. Use the smallest amounts possible for the purpose, in designated areas with adequate ventilation. Maintain good housekeeping procedures to avoid accumulation of dust. Avoid all contact and inhalation of dust or fumes. Keep containers closed when not in use and when empty. Empty containers may contain hazardour residues; treat with caution. Wash thoroughly after working with this product.*

Storage Requirements: *Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight. Protect from light. 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: *Flush thoroughly with gently running water for at least fifteen (15) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Wear protective gloves to avoid contact during first aid procedures. Get medical attention.*

Skin: *Remove contaminated clothing, including watches, rings, belts, and shoes. Rescuer should wear impervious gloves to avoid contact with this chemical. Wash skin with plenty of running water for at least fifteen (15) minutes. Get medical attention. Decontaminate clothing and leather goods (shoes, belts) before reuse, or discard.*

Inhalation: *Remove to fresh air. Give oxygen and get medical attention for any breathing difficulty. If breathing has stopped begin artificial respiration immediately.*

Ingestion: *If the person is conscious, alert, and not convulsing, give large quantities (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 (show label if possible).*

REFERENCES USED

CCINFO disc: MSDS's, May 2007

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

Royal Society of Chemistry: Chemical Safety Data Sheets, Vol. 4b, 1991

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

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: *July 15, 1991*

Revision: *May 2010*

MSDS: *5290-1*

Proposed WHMIS Designation: *D1A; D2A; D2B*

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