MSDS Number: **M1573** * * * * * *Effective Date:* ***05/08/03*** * * * * * *Supercedes:* ***08/02/00***

MSDS Material Safety Data Sheet

*From*: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. And Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

# MERCUROUS CHLORIDE

## 1. Product Identification

**Synonyms:** Calomel; Calogreen; Mercury Monochloride; Mercury Chloride
**CAS No.:** 10112-91-1
**Molecular Weight:** 472.09
**Chemical Formula:** Hg2Cl2
**Product Codes:** 2654

## 2. Composition/Information on Ingredients

| Ingredient | CAS No | Percent | Hazardous |
|---|---|---|---|
| Mercurous Chloride | 10112-91-1 | 90 - 100% | Yes |

## 3. Hazards Identification

**Emergency Overview**

---

**WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED**

**THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. MERCURY COMPOUNDS AFFECT THE KIDNEYS AND CENTRAL NERVOUS SYSTEM.**

**J.T. Baker SAF-T-DATA(tm)** Ratings (Provided here for your convenience)
---
Health Rating: 3 - Severe (Poison)
Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 3 - Severe (Life)
Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES
Storage Color Code: Blue (Health)
---

**Potential Health Effects**
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**Inhalation:**
Causes irritation to the respiratory tract. Symptoms include sore throat, coughing, pain, tightness in chest, breathing difficulties, shortness of breath and headache. Pneumonitis may develop. Can be absorbed through inhalation with symptoms to parallel ingestion.
**Ingestion:**
Toxic! Average lethal dose for inorganic mercury salts is about 1 gram. May cause burning of the mouth and pharynx, abdominal pain, vomiting, bloody diarrhea. May be followed by a rapid and weak pulse, shallow breathing, paleness, exhaustion, tremors and collapse. Delayed death may occur from renal failure.
**Skin Contact:**
Causes irritaton. Symptoms include redness and pain. May cause burns. May cause sensitization. Can be absorbed through the skin with symptoms to parallel ingestion.
**Eye Contact:**
Causes irritation to eyes, may cause burns and eye damage.
**Chronic Exposure:**
Chronic exposure through any route can produce central nervous system damage. May cause muscle tremors, personality and behavior changes, memory loss, metallic taste, loosening of the teeth, digestive disorders, skin rashes, brain damage and kidney damage. Can cause skin allergies and accumulate in the body. Repeated skin contact can cause the skin to turn gray in color. Not a known reproductive hazard, but related mercury compounds can damage the developing fetus and decrease fertility in males and females.
**Aggravation of Pre-existing Conditions:**
Persons with nervous disorders, or impaired kidney or respiratory function, or a history of allergies or a known sensitization to mercury may be more susceptible to the effects of the substance.

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# 4. First Aid Measures

**Inhalation:**
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
**Ingestion:**
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
**Skin Contact:**
Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
**Eye Contact:**
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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## 5. Fire Fighting Measures

**Fire:**
Not considered to be a fire hazard.
**Explosion:**
Not considered to be an explosion hazard.
**Fire Extinguishing Media:**
Water, dry chemical, foam or carbon dioxide. Do not allow water runoff to enter sewers or waterways.
**Special Information:**
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Clean-up personnel require protective clothing and respiratory protection from dust.

Spills: Pick up and place in a suitable container for reclamation or disposal in a method that does not generate dust. Sprinkle area with sulfur or calcium polysulfide to suppress mercury.
US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Protect from light. Follow

strict hygiene practices. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**
- OSHA Acceptable Ceiling Concentration:
mercury and mercury compounds: 0.1 mg/m3 (TWA), skin
- ACGIH Threshold Limit Value (TLV):
inorganic and metallic mercury, as Hg: 0.025 mg/m3 (TWA) skin, A4 Not classifiable as a human carcinogen.
- ACGIH Biological Exposure Indices:
total inorganic mercury in urine (preshift): 35 ug/g creatinine;
total inorganic mercury in blood (end of shift): 15 ug/l.

**Ventilation System:**
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**
If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:**
Heavy, white powder.

**Odor:**
Odorless.

**Solubility:**

Negligible.
**Specific Gravity:**
7.15
**pH:**
No information found.
**% Volatiles by volume @ 21C (70F):**
0
**Boiling Point:**
384C (723F)
**Melting Point:**
400 - 500C (752 - 932F) (sublimes without melting)
**Vapor Density (Air=1):**
No information found.
**Vapor Pressure (mm Hg):**
No information found.
**Evaporation Rate (BuAc=1):**
No information found.

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# 10. Stability and Reactivity

**Stability:**
Stable under ordinary conditions of use and storage. Slowly decomposed by sunlight into mercuric chloride and metallic mercury.
**Hazardous Decomposition Products:**
Oxides of the contained metal and halogen, possibly also free, or ionic halogen.
**Hazardous Polymerization:**
Will not occur.
**Incompatibilities:**
Bromides, iodides, ammonia, alkalis, cyanides, chlorides, copper and lead salts, silver salts, carbonates, sulfides, soap, lime water, iodoform, and hydrogen peroxide.
**Conditions to Avoid:**
Light and incompatibles.

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# 11. Toxicological Information

**Toxicological Data:**
Oral rat LD50: 210 mg/kg.
**Reproductive Toxicity:**
All forms of mercury can cross the placenta to the fetus, but most of what is known has been learned from experimental animals. See Chronic Health Hazards.

```
  --------\Cancer Lists\---------------------------------------------
--------
                                          ---NTP Carcinogen---
  Ingredient                              Known    Anticipated    IARC
Category
  ----------------------------------      -----    -----------    -----
--------
  Mercurous Chloride (10112-91-1)          No          No
3
```

## 12. Ecological Information

**Environmental Fate:**
For mercury: This material has an experimentally-determined bioconcentration factor (BCF) of greater than 100. This material is expected to significantly bioaccumulate.
**Environmental Toxicity:**
For mercury: This material is expected to be toxic to aquatic life. The LC50/96-hour values for fish are less than 1 mg/l.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

**Domestic (Land, D.O.T.)**
---
**Proper Shipping Name:** MERCURY COMPOUND, SOLID, N.O.S. (MERCUROUS CHLORIDE)
**Hazard Class:** 6.1
**UN/NA:** UN2025
Packing Group: III
**Information reported for product/size:** 500G

**International (Water, I.M.O.)**
---
**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MERCUROUS CHLORIDE)
**Hazard Class:** 9
**UN/NA:** UN3077
Packing Group: III
**Information reported for product/size:** 500G

**International (Air, I.C.A.O.)**
---
**Proper Shipping Name:** MERCURY COMPOUND, SOLID, N.O.S. (MERCUROUS CHLORIDE)
**Hazard Class:** 6.1
**UN/NA:** UN2025
Packing Group: III
**Information reported for product/size:** 500G

# 15. Regulatory Information

```
  --------\Chemical Inventory Status - Part 1\-----------------------
---------
  Ingredient                                        TSCA  EC   Japan
Australia
  ------------------------------------------------  ----  ---  -----  -
--------
  Mercurous Chloride (10112-91-1)                    Yes  Yes   Yes
Yes

  --------\Chemical Inventory Status - Part 2\-----------------------
---------
                                                                --Canada--
  Ingredient                                        Korea  DSL   NDSL
Phil.
  ------------------------------------------------  -----  ---   ----
-----
  Mercurous Chloride (10112-91-1)                    Yes   Yes   No
Yes

  --------\Federal, State & International Regulations - Part 1\-------
---------
                                                -SARA 302-    ------SARA
313------
  Ingredient                                    RQ    TPQ     List
Chemical Catg.
  --------------------------------------------  ---   -----   ----  -----
---------
  Mercurous Chloride (10112-91-1)               No    No      No
No

  --------\Federal, State & International Regulations - Part 2\-------
---------
                                                              -RCRA-    -
TSCA-
  Ingredient                                    CERCLA     261.33
8(d)
  --------------------------------------------  ------     ------    ----
--
  Mercurous Chloride (10112-91-1)               No         No         No


Chemical Weapons Convention:  No     TSCA 12(b):  No     CDTA:  No
SARA 311/312:  Acute: Yes      Chronic: Yes  Fire: No  Pressure: No
Reactivity: No          (Pure / Solid)
```

**WARNING:**
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

**Australian Hazchem Code:** 2X
**Poison Schedule:** S7
**WHMIS:**
This MSDS has been prepared according to the hazard criteria of the Controlled

Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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# 16. Other Information

**NFPA Ratings:** Health: **3** Flammability: **0** Reactivity: **0**
**Label Hazard Warning:**
WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. MERCURY COMPOUNDS AFFECT THE KIDNEYS AND CENTRAL NERVOUS SYSTEM.
**Label Precautions:**
Avoid breathing dust.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Avoid contact with eyes, skin and clothing.
**Label First Aid:**
If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.
**Product Use:**
Laboratory Reagent.
**Revision Information:**
No Changes.
**Disclaimer:**
**********
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