


| | | |
|--|--|---|
| MSDS Material Safety Data Sheet | | 24 Hour Emergency Telephone: 908-859-2151 CHEMTREC: 1-800-424-9300 |
| From: Mallinckrodt Baker, Inc. 222 Red School Lane Phillipsburg, NJ 08865 | | 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 (1-800-582-2637) for assistance. | | |

TETRAMETHYLAMMONIUM CHLORIDE

1. Product Identification

Synonyms: Methanaminium, N,N,N-trimethyl-, chloride; TMC1; TMAc1; Tetranine
CAS No.: 75-57-0
Molecular Weight: 109.60
Chemical Formula: C₄H₁₂ClN
Product Codes:
J.T. Baker: V636
Mallinckrodt: 2720

2. Composition/Information on Ingredients

| Ingredient | CAS No | Percent | Hazardous |
|------------------------------|---------|-----------|-----------|
| Tetramethylammonium Chloride | 75-57-0 | 98 - 100% | Yes |

3. Hazards Identification

Emergency Overview

DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 4 - Extreme (Poison)
Flammability Rating: 0 - None
Reactivity Rating: 1 - Slight
Contact Rating: 3 - Severe
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: Blue (Health)

Potential Health Effects

Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

Ingestion:

May be fatal if swallowed. Symptoms may include dizziness, nausea and shortness of breath (nicotine-like symptoms). Acts as a ganglionic (nerve cells) blocking agent and vasodilator (dilates blood vessels).

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain.

Eye Contact:

Causes irritation, redness, and pain.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

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.

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 upper and lower eyelids occasionally. Get medical attention.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

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.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Best if stored in plastic or glass. May slightly corrode steel. 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.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. 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):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face 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.

9. Physical and Chemical Properties

Appearance:

White crystals.

Odor:

Odorless.

Solubility:

Soluble in water.
Specific Gravity:
Approx. 1.2
pH:
4-10 (solution)
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
No information found.
Melting Point:
368 - 370C (694 - 698F)
Vapor Density (Air=1):
Not applicable.
Vapor Pressure (mm Hg):
None.
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Hygroscopic.
Hazardous Decomposition Products:
May produce carbon monoxide, carbon dioxide, nitrogen oxides and hydrogen chloride when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Avoid moisture. Strong oxidizers should be tested for compatibility.
Conditions to Avoid:
Incompatibles.

11. Toxicological Information

Oral rat LD50: 94 mg/kg, 50% solution (from supplier data).

| | | | |
|---|----------------------|-------------|---------------|
| -----\Cancer Lists\----- | | | |
| Ingredient | ---NTP Carcinogen--- | | IARC Category |
| | Known | Anticipated | |
| Tetramethylammonium Chloride (75-57-0) | No | No | None |

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal 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: TOXIC SOLID, ORGANIC, N.O.S. (TETRAMETHYLAMMONIUM CHLORIDE)
Hazard Class: 6.1
UN/NA: UN2811
Packing Group: III
Information reported for product/size: 125G

International (Water, I.M.O.)

Proper Shipping Name: TOXIC SOLID, ORGANIC, N.O.S. (TETRAMETHYLAMMONIUM CHLORIDE)
Hazard Class: 6.1

UN/NA: UN2811
Packing Group: III
Information reported for product/size: 125G

International (Air, I. C. A. O.)

Proper Shipping Name: TOXIC SOLID, ORGANIC, N. O. S. (TETRAMETHYLAMMONIUM CHLORIDE)
Hazard Class: 6.1
UN/NA: UN2811
Packing Group: III
Information reported for product/size: 125G

15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|--|------|-----|-------|-----------|
| Ingredient | TSCA | EC | Japan | Australia |
| Tetramethylammonium Chloride (75-57-0) | Yes | Yes | Yes | Yes |

| -----\Chemical Inventory Status - Part 2\----- | | | | |
|--|-------|---------------|-----|-------|
| Ingredient | Korea | Canada DSL | NDL | Phil. |
| Tetramethylammonium Chloride (75-57-0) | Yes | Yes | No | Yes |

| -----\Federal, State & International Regulations - Part 1\----- | | | | |
|---|----------------|-----|------|----------------------------|
| Ingredient | SARA 302 RQ | TPQ | List | SARA 313 Chemical Catg. |
| Tetramethylammonium Chloride (75-57-0) | No | No | No | No |

| -----\Federal, State & International Regulations - Part 2\----- | | | | |
|---|--------|------------------|----------------|--|
| Ingredient | CERCLA | -RCRA- 261.33 | -TSCA- 8(d) | |
| Tetramethylammonium Chloride (75-57-0) | No | No | No | |

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

Australian Hazchem Code: 2(Z)
Poison Schedule: None allocated.

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.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 0 Reactivity: 0

Label Hazard Warning:

DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT.

Label Precautions:

Avoid breathing dust.
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Use only with adequate ventilation.
Keep container closed.

Label First Aid:

If swallowed, give large quantities of water to drink and get medical attention immediately. 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:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR

DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Prepared by: Environmental Health & Safety

Phone Number: (314) 654-1600 (U.S.A.)