1. IDENTIFICATION OF SUBSTANCE/PREPARATION AND THE COMPANY UNDERTAKING

Chemical Name: Tris(2-Chloroethyl) amine hydrochloride  
Product Code: FT51113  
Synonyms: 2,2',2''-Trichlorotriethylamine hydrochloride  
Recommended uses: For R&D purposes  
Supplier: Carbosynth Ltd, 8&9 Old Station Business Park, Compton, Berkshire, RG20 6NE, UK.  
Emergency contact numbers:  
Telephone: +44 (0)1635 578 444  
Fax: +44 (0)1635 579 444  
Mobile: +44 (0)7887 998 634

2. HAZARDS IDENTIFICATION

Very toxic if swallowed. Causes burns. Limited evidence of a carcinogenic effect.

**Classification:**

Acute toxicity, Oral (Category 2)  
Skin corrosion (Category 1B)  
Carcinogenicity (Category 2)

**Labelling and precautionary statements:**

- **Pictogram:**

- **Signal word:** Danger.

- **Hazard statement(s):**
  - H300 Fatal if swallowed.
  - H314 Causes severe skin burn and eye damage.
  - H351 Suspected of causing cancer.

- **Precautionary statement(s):**
  - P201 Obtain special instructions before use.
  - P264 Wash hands thoroughly after handling.
  - P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
  - P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
  - P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in position comfortable for breathing.
PRD03 Issue 3 01.12.10

3. COMPOSITION/INFORMATION ON INGREDIENTS

Molecular Formula: \( \text{C}_6\text{H}_{12}\text{Cl}_3\text{N} \cdot \text{HCl} \)
Molecular weight: 240.98
CAS Number: 817-09-4
EINECS Number: 212-442-3

Synonyms: 2,2',2''-Trichlorotriethylamine hydrochloride

4. FIRST AID MEASURES

Eye contact: Immediately flush eye with copious amounts of water for at least 15 minutes. Get medical aid immediately.

Skin contact: In case of contact remove contaminated clothing and immediately wash affected areas with copious quantities of water and soap for at least 15 minutes. Get medical aid immediately. Wash contaminated clothing before reuse.

Inhalation: Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult give oxygen. Get medical aid.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Wash out mouth with water provided person is conscious. Call a physician.

Notes to Physician: Treat symptomatically and supportively.

5. FIRE-FIGHTING MEASURES
6. ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Personal precautions: Wear self-contained breathing apparatus, eye protection and gloves. Keep personal hygiene. Avoid contact with skin and eyes. Avoid dust formation. Avoid breathing dust, vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions: Do not let product enter the drains. Prevent further leakage or spillage if safe to do so.

Spills/Leaks: Sweep up and place the material in appropriate container for disposal without creating dust and dispose of as hazardous waste. Ventilate area, clean up spills and wash spill site after material pickup is complete, observing precautions in the Protective Equipment section.

7. HANDLING AND STORAGE

Handling: Wear appropriate protective clothing - see Section 8. Wash thoroughly after handling. Use only under a chemical fume hood. Use with adequate ventilation. Avoid contact with skin and eyes. Avoid ingestion and inhalation. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Storage: Store in a cool, dry, well-ventilated area. Keep container tightly closed. Refrigerate. Keep cold. Store at 2 - 8 °C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protection equipment:
Eye protection: Wear appropriate protective safety glasses with side-shields conforming to EN166, chemical safety goggles or face-shield (min. 8-inch) as described by OSHA’s eye and face protection regulations. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection: Wear appropriate protective gloves to prevent skin exposure, as defined in EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body protection: Appropriate protective clothing, overalls.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hygiene measures: Use good working practices. Wash hands and face thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>White to off-white solid.</td>
</tr>
<tr>
<td>Odour:</td>
<td>Data not available/does not apply.</td>
</tr>
<tr>
<td>Odour threshold:</td>
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<tr>
<td>pH:</td>
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<tr>
<td>Melting point:</td>
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<tr>
<td>Boiling point:</td>
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<tr>
<td>Flash point:</td>
<td>Data not available/does not apply.</td>
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<tr>
<td>Evaporation rate:</td>
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</tr>
<tr>
<td>Flammability:</td>
<td>Data not available/does not apply.</td>
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<tr>
<td>Flammability or explosive limits:</td>
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<tr>
<td>Vapor pressure:</td>
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<tr>
<td>Vapor density:</td>
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<tr>
<td>Relative density:</td>
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<td>Solubility:</td>
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<td>Decomposition temperature:</td>
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<tr>
<td>Viscosity:</td>
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</table>

10. STABILITY AND REACTIVITY

Chemical stability: Stable under recommended storage conditions.
11. TOXICOLOGICAL INFORMATION

RTCS #: YE2800000.

Acute toxicity: Data not available.

Skin corrosion/irritation: Data not available.

Serious eye damage/eye irritation: Data not available.

Respiratory or skin sensitization: Data not available.

Germ cell mutagenicity: Data not available.

Carcinogenicity: This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Tris(2-chloroethyl)amine hydrochloride).

Reproductive toxicity: Data not available.

Specific target organ toxicity - single exposure: Data not available.

Specific target organ toxicity - repeated exposure: Data not available.

Aspiration hazard: Data not available.

Signs and symptoms of exposure: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea.

Target organs: Data not available.

Potential health effects:

Eye: Causes eye burns.
Skin: May be harmful by skin absorption. Causes skin burns.
Ingestion: Very toxic if swallowed.
Inhalation: May be harmful if inhaled.
12. ECOLOGICAL INFORMATION

Data not available.

13. DISPOSAL CONSIDERATIONS

Observe all federal, state and local environmental regulations. Mix or dissolve the material in a combustible solvent and burn in chemical incinerator equipped with an afterburner and scrubber. Contact a licensed professional waste disposal service to dispose of this material.

14. TRANSPORT INFORMATION

This product is classified as hazardous for transport.

**ADR/RID**

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
<th>TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. (Tris(2-chloroethyl)amine hydrochloride)</th>
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<tbody>
<tr>
<td>UN Number</td>
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<tr>
<td>Class</td>
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<tr>
<td>Packing Group</td>
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<tr>
<td>Environmental hazards</td>
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**IMDG**

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**IATA**

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</tr>
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15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
16. ADDITIONAL INFORMATION

Further information on PPE:

European Standard & performance category markings:

EN143 - Particulates filter.
EN166 - Standard applicable to all types of personal eye protectors.
EN374 - Protects hands against chemicals and/or microorganisms.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.