1. IDENTIFICATION OF SUBSTANCE

Name: TRICHLOROACETIC ACID SOLUTION
Manufacturer: Department of Pharmacy
Duke University Medical Center
Box 3089
Durham, NC 27710
919-684-5125

Information Department: Occupational and Environmental Safety Office
Duke University Medical Center
Box 3914
Durham, NC 27710
919-684-5996

Emergency Information: Regional Poison Control Center
800-848-6946

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization/Description: Trichloroacetic acid solution
Synonym(s): TCA

Dangerous Components (CAS#, Hazardous Chemical, Percent):
76-03-9 Trichloroacetic acid 10-85%
7732-18-5 Water Balance

3. HAZARDS IDENTIFICATION

Hazard Description:
Trichloroacetic acid may cause severe burns and is highly irritating to the eyes and skin. It is a corrosive irritant to the skin, eyes, and mucous membranes. Trichloroacetic acid is classified as a poison by subcutaneous route and is moderately toxic by intraperitoneal route. (Hazard description based on concentrated constituents; this product is an aqueous solution.)

NFPA Ratings (scale 0-4):
Health 3
Fire: 0
Reactivity: 0
**TRADE NAME: TRICHLOROACETIC ACID SOLUTION**

<table>
<thead>
<tr>
<th>4. FIRST AID MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhalation:</strong></td>
</tr>
<tr>
<td>Remove victim to fresh air. Give oxygen or artificial respiration if necessary.</td>
</tr>
<tr>
<td><strong>Skin Contact:</strong></td>
</tr>
<tr>
<td>IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. Seek medical attention if warranted.</td>
</tr>
<tr>
<td><strong>Eye Contact:</strong></td>
</tr>
<tr>
<td>First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.</td>
</tr>
<tr>
<td><strong>Ingestion:</strong></td>
</tr>
<tr>
<td>DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus, and may be aspirated into the victim’s lungs during vomiting.</td>
</tr>
<tr>
<td>If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.</td>
</tr>
<tr>
<td>If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open, and lay the victim on his/her side with the head lower than the body. Transport the victim IMMEDIATELY to a hospital.</td>
</tr>
</tbody>
</table>
5. **FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Agents:**

Fires involving this material can be controlled with a dry chemical, carbon dioxide, or Halon extinguisher. Use appropriate extinguishing media for surrounding fire.

**Protective Equipment:**

Self-contained breathing apparatus and protective equipment for fire fighting.

6. **ACCIDENTAL RELEASE MEASURES**

**Personnel Precautions:**

Wear gloves (nitrile) and eye protection (chemical splash goggles).

**Environmental Precautions:**

None necessary under normal conditions of use.

**Measures for Cleaning/Collection:**

Use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as contaminated clothing, in a vapor-tight plastic bag for eventual disposal. Wash all contaminated surfaces with a soap and water solution.

7. **HANDLING AND STORAGE**

**Handling:**

Wear PPE when handling this material. Wash hands after handling.

**Storage:**

Store in a cool, dry, well-ventilated location.
8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls:
None necessary under conditions of normal use.

Control Parameters:
<table>
<thead>
<tr>
<th>Chemical</th>
<th>Limit</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroacetic acid</td>
<td>1 ppm</td>
<td>ACGIH TLV-TWA</td>
</tr>
</tbody>
</table>

Personal Protective Equipment:

Respiratory Protection
None necessary under conditions of normal use.

Skin Protection
Wear gloves (nitrile) when using this chemical. If this chemical comes into contact with your gloves, or if a tear/puncture develops, remove gloves at once and wash hands.

Eye Protection
Splash-proof safety goggles should be worn while handling this chemical.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
pH: <2

Color and Odor: Colorless; sharp, pungent odor

Boiling/Freezing Points (°C):
Vary with concentration.

Flashpoint (°C): N/A
Autoignition Temperature (°C): N/A

Explosion Properties: N/A
Vapor Pressure (mm Hg/51°C): 1
Vapor Density (air = 1): Approx. 5.6

Solubility: Soluble in water (aqueous solution).
Density (water = 1): Approx. 1.6
TRADE NAME: TRICHLOROACETIC ACID SOLUTION

10. STABILITY AND REACTIVITY

General: This product is hygroscopic. Aqueous solutions may slowly hydrolyze.

Materials to Avoid: Alkalies, oxidizing or reducing materials, cyanides, sulfides, combustible materials, metals, and amines. It is corrosive to most metals and may react violently with copper and DMSO.

Hazardous Decomposition Products: When heated to decomposition, product may emit toxic fumes of CO, CO₂, and HCl gas.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Trichloroacetic acid may cause severe burns and is highly irritating to the eyes and skin. It is a corrosive irritant that rapidly penetrates and “fixes” tissues. It is extremely destructive to tissues of the mucous membranes and upper respiratory tract, eyes, and skin. Skin irritation tests in rabbits resulted in a “mild” rating at 210 µg. Trichloroacetic acid is classified as a poison by subcutaneous route and is moderately toxic by intraperitoneal route.

Signs/Symptoms of Overexposure: Inhalation may result in coughing, choking, headache, dizziness, weakness, or pulmonary edema. Ingestion may cause sore throat, severe abdominal pain, vomiting or tissue damage. Redness, pain, and blurred vision may result from skin or eye exposure.

Chronic Toxicity: This product is not considered a carcinogen by NTP, IARC or OSHA.

12. ECOLOGICAL EFFECTS

None anticipated under normal conditions of use.

13. DISPOSAL CONSIDERATIONS

Dispose of all waste and contaminated materials associated with this chemical as specified by existing local, state and federal regulations concerning hazardous waste disposal. Contact the Occupational and Environmental Safety Office for specific guidance.

14. TRANSPORT INFORMATION

Proper shipping name (DOT): Trichloroacetic acid, solution
UN/ID number: UN2564 Hazard class: 8
Packing group: II Labels required: Corrosive

15. REGULATORY INFORMATION

Reported in EPA TSCA Inventory and Genetic Toxicology Program.

16. OTHER INFORMATION

This information is based on our present knowledge; however this shall not constitute a guarantee for any specific product features. No toxicity data are available on this specific formulation; this health hazard assessment is based on information that is available for its components.