Material Safety Data Sheet  
2,2,2-Trifluoroethanol  
ACC# 01753 

**Section 1 - Chemical Product and Company Identification**

**MSDS Name:** 2,2,2-Trifluoroethanol

**Catalog Numbers:** AC139750000, AC139750025, AC139750250, AC139750500, AC139751000, AC139752500, AC139755000, BP622-100, NC9121946, XXAC13975-10KG

**Synonyms:** TFE; 2,2,2-Trifluoroethyl alcohol.

**Company Identification:**
- Fisher Scientific
- 1 Reagent Lane
- Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

**Section 2 - Composition, Information on Ingredients**

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-89-8</td>
<td>2,2,2-Trifluoroethanol</td>
<td>&gt;99</td>
<td>200-913-6</td>
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</tbody>
</table>

**Section 3 - Hazards Identification**

**EMERGENCY OVERVIEW**

Appearance: clear, colorless liquid. Flash Point: 29 deg C.

**Warning!** Flammable liquid and vapor. Harmful if swallowed, inhaled, or absorbed through the skin. Causes severe eye irritation and possible injury. Causes skin and respiratory tract irritation. Possible risk of impaired fertility.

**Target Organs:** Blood, eyes, skin, male reproductive system, mucous membranes.

**Potential Health Effects**

**Eye:** Causes severe eye irritation. May result in corneal injury.

**Skin:** Causes skin irritation. Harmful if absorbed through the skin.

**Ingestion:** Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

**Inhalation:** Harmful if inhaled. Causes respiratory tract irritation.

**Chronic:** May cause anemia and other blood cell abnormalities. Trifluoroethanol was found to be a testicular toxicant in rats and dogs. The extent to which trifluoroethanol or its metabolites (like trifluoroacetaldehyde) may produce male reproductive toxicity in humans is unknown. Subchronic inhalation exposure (6 hours per day, 5 days a week for 4 weeks) of male rats to 150 ppm of trifluoroethanol caused testicular depression (hypospermatogenesis and atrophy of the seminiferous tubules) leading to infertility lasting for at least 5 weeks after the exposure.

**Section 4 - First Aid Measures**

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
Get medical aid immediately.

**Skin:** In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid. Wash clothing before reuse.

**Ingestion:** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

- **Flash Point:** 29 deg C (84.20 deg F)
- **Autoignition Temperature:** 480 deg C (896.00 deg F)
- **Explosion Limits, Lower:** 5.5%
- **Upper:** 42%
- **NFPA Rating:** (estimated) Health: 3; Flammability: 3; Instability: 0

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8. **Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation.

### Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not ingest or inhale. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation.

**Storage:** Keep away from heat, sparks, and flame. Keep container closed when not in use. Flammables-area.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,2-Trifluoroethanol</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** 2,2,2-Trifluoroethanol: No OSHA Vacated PELs are listed for this
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Physical State: Liquid
Appearance: clear, colorless
Odor: alcohol-like
pH: 5-7 (10% aq soln)
Vapor Pressure: 70 mm Hg @ 25 deg C
Vapor Density: 3.45 (air=1)
Evaporation Rate: Not available.
Viscosity: 1.75 cP 25.00 deg
Boiling Point: 73.6 deg C
Freezing/Melting Point: -45 deg C
Decomposition Temperature: 315 deg C
Solubility: Soluble.
Specific Gravity/Density: 1.39 g/cm3
Molecular Formula: C2H3F3O
Molecular Weight: 100.04

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Ignition sources, electrical sparks, exposure to flame, heat.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, hydrogen fluoride gas.
Hazardous Polymerization: Will not occur.

RTECS#: 
CAS# 75-89-8: KM5250000
LD50/LC50:
CAS# 75-89-8:
   Draize test, rabbit, eye: 20 mg/24H Moderate;
   Draize test, rabbit, skin: 750 ug/24H Severe;
   Inhalation, mouse: LC50 = 2900 mg/m3/2H;
   Inhalation, mouse: LC50 = 2900 mg/m3/2H;
   Inhalation, rat: LC50 = 470 ppm/6H;
   Oral, mouse: LD50 = 366 mg/kg;
   Oral, rat: LD50 = 240 mg/kg;
   Skin, rabbit: LD50 = 390 uL/kg;
   Skin, rat: LD50 = 1680 mg/kg;
Carcinogenicity: 
CAS# 75-89-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: Paternal reproductive effects have been noted in experiments with rats where trifluoroethanol was administered via inhalation, TCLo=100 ppm/6H, and intraperitoneally, TDLo=200 mg/kg. The observed effects were effects on the male fertility index, spermatogenesis, the testes and the sperm duct.
Mutagenicity: No data available.
Neurotoxicity: No data available.
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

<table>
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<tr>
<th>US DOT</th>
<th>Canada TDG</th>
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<tbody>
<tr>
<td><strong>Shipping Name:</strong></td>
<td>TOXIC LIQUIDS, FLAMMABLE, ORGANIC, N.O.S.</td>
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<tr>
<td></td>
<td>Toxic Liquid, Flammable, Organic, N.O.S. (TRIFLUOROETHANOL)</td>
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<tr>
<td><strong>Hazard Class:</strong></td>
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<td>UN2929</td>
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<tr>
<td><strong>Packing Group:</strong></td>
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</tbody>
</table>

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 75-89-8 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

**SARA Codes**
- CAS # 75-89-8: immediate, fire.

**Section 313**
No chemicals are reportable under Section 313.

**Clean Air Act:**
- This material does not contain any hazardous air pollutants.
- This material does not contain any Class 1 Ozone depletors.
- This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**
- None of the chemicals in this product are listed as Hazardous Substances under the CWA.
- None of the chemicals in this product are listed as Priority Pollutants under the CWA.
- None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
- None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
- CAS# 75-89-8 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**
California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**
- XN

**Risk Phrases:**
- R 10 Flammable.
- R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
- R 38 Irritating to skin.
- R 41 Risk of serious damage to eyes.
- R 62 Possible risk of impaired fertility.

**Safety Phrases:**
- S 16 Keep away from sources of ignition - No smoking.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**WGK (Water Danger/Protection)**
- CAS# 75-89-8: 1

**Canada - DSL/NDSL**
- CAS# 75-89-8 is listed on Canada's DSL List.

**Canada - WHMIS**
- This product has a WHMIS classification of B2, D2B, D1B, D2A.
- This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

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**Section 16 - Additional Information**

**MSDS Creation Date:** 9/02/1997
**Revision #9 Date:** 6/29/2007

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