1 Identification

· Product identifier
  · Trade name: Ethyl Trifluoroacetate
    Synonym: ETFA, Ethyl Ester
  · CAS Number: 383-63-1
  · EC number: 206-851-6
  · Product description Pharmaceuticals

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: Halocarbon Products Corp.
    1100 Dittman Court
    North Augusta, SC 29841
    Phone: 803-278-3500
    www.halocarbon.com
  · Emergency telephone number: Chemtrec 800-424-9300 or outside USA 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture
  · GHS02 Flame
    Highly flammable liquid and vapor.
  · GHS05 Corrosion
    Causes serious eye damage.
  · GHS07
    Harmful if swallowed.
    Causes skin irritation.
    May cause respiratory irritation.

· Label elements
  · GHS label elements
    The substance is classified and labeled according to the Globally Harmonized System (GHS).
  · Hazard pictograms
    GHS02  GHS05  GHS07

· Signal word Danger

· Hazard-determining components of labeling:
  ethyl trifluoroacetate
Safety Data Sheet (SDS)

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Trade name: Ethyl Trifluoroacetate
Synonym: ETFA, Ethyl Ester

· Hazard statements
  Highly flammable liquid and vapor.
  Harmful if swallowed.
  Causes skin irritation.
  Causes serious eye damage.
  May cause respiratory irritation.

· Precautionary statements
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Avoid breathing dust/fume/gas/mist/vapors/spray.
  Use only outdoors or in a well-ventilated area.
  Wear protective gloves/protective clothing/eye protection/face protection.
  Ground/bond container and receiving equipment.
  IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  Immediately call a POISON CENTER or doctor/physician.
  IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
  Specific treatment (see on this label).
  Take off contaminated clothing and wash before reuse.
  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  Call a POISON CENTER or doctor/physician if you feel unwell.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

· Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 2
    Fire = 3
    Reactivity = 0
  · HMIS-ratings (scale 0 - 4)
    HEALTH 2
    Health = 2
    FIRE 3
    Fire = 3
    REACTIVITY 0
    Reactivity = 0

· 3 Composition/information on ingredients
  · Chemical characterization: Substances
  · CAS No. Description
    383-63-1 ethyl trifluoroacetate
  · Identification number(s)
    · EC number: 206-851-6
  · Additional information: Synonyms: ETFA, Ethyl Ester

· 4 First-aid measures
  · Description of first aid measures
  · General information:
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  · After inhalation: In case of unconsciousness, place patient securely in side position for transportation.
  · After skin contact: Immediately wash with water and soap and rinse thoroughly.
Trade name: Ethyl Trifluoroacetate  
Synonym: ETFA, Ethyl Ester

After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing: Immediately call a doctor.
Most important symptoms and effects, both acute and delayed: No further relevant information available.
Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents:
CO₂, sand, dry chemical, water spray or alcohol resistant foam.
CO₂, sand, extinguishing powder. Do not use water.
For safety reasons unsuitable extinguishing agents: Water with full jet
Special hazards arising from the substance or mixture: Emits toxic corrosive fumes under fire conditions.
Advice for firefighters
Protective equipment:
Wear fully protective suit.
Wear SCBA if there is danger of leakage.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Environmental precautions: Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up:
Remove all sources of ignition.
Absorb with liquid-binding material (ie. sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents.
Store in closed container.
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Information about protection against explosions and fires:
Keep ignition sources away - Do not smoke.
Protect from heat.
Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: Store in a cool location.
Information about storage in one common storage facility: Not required.
Further information about storage conditions:
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Safety Data Sheet (SDS)

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· Specific end use(s) No further relevant information available.

* 8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see section 7.
· Control parameters
· Components with limit values that require monitoring at the workplace: Not required.
· Additional information: The lists that were valid during the creation were used as basis.
· Exposure controls
· Personal protective equipment:
· General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
  Avoid contact with the skin.
  Avoid contact with the eyes and skin.
· Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure, use respiratory protective device that is independent of circulating air.
· Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Select glove material based on penetration times, rates of diffusion and degradation.
· Material of gloves
  Neoprene gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· Penetration time of glove material
  The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.
· Eye protection: Tightly sealed goggles

* 9 Physical and chemical properties

· Information on basic physical and chemical properties
· General Information
· Appearance:
  · Form: Liquid
  · Color: Colorless
  · Odor: Sweetish
  · pH-value: Acidic
· Change in condition
  · Melting point/Melting range: Not determined.
  · Boiling point/Boiling range: 61 °C (142 °F)
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**Trade name:** Ethyl Trifluoroacetate  
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(Contd. of page 4)

- **Flash point:** -1 °C (30 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Ignition temperature:**
  - **Decomposition temperature:** Not determined.
- **Auto igniting:** Not determined.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- **Explosion limits:**
  - **Lower:** Not determined.
  - **Upper:** Not determined.
- **Vapor pressure:** Not determined.
- **Density @ 20 °C (68 °F):** 1.19 g/cm³ (9.931 lbs/gal)
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with Water:** Negligible - hydrolyzes in water to trifluoro acetic acid and ethanol.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - **Dynamic:** Not determined.
  - **Kinematic:** Not determined.
- **Organic solvents:** 0.0 %
- **Other information** No further relevant information available.

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability** Product is stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** Avoid extremes of temperature and direct sunlight.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** Strong bases and oxidizing agents, ammonia, other amines.
- **Hazardous decomposition products:** Thermal decomposition can lead to release of toxic/corrosive gases and hydrogen fluoride.

**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**
  - **LD/LC50 values that are relevant for classification:**
    - 383-63-1 ethyl trifluoroacetate
      - Inhalative LC50/4 h | 7790-12800 mg/l (Pimephales)
- **Primary irritant effect:**
  - **on the skin:** Corrosive to skin and mucous membranes.

(Contd. on page 6)
38. on the eye:
Corrosive effect.
Strong irritant with the danger of severe eye injury.
- Sensitization: No sensitizing effects known.
- Additional toxicological information:
Swallowing will lead to a corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- Carcinogenic categories
- IARC (International Agency for Research on Cancer)
  Substance is not listed.
- NTP (National Toxicology Program)
  Substance is not listed.

12 Ecological information
- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Additional ecological information:
  - General notes:
    Water hazard class 1 (Self-assessment): slightly hazardous for water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations
- Waste treatment methods
  - Recommendation:
    May be incinerated by licensed waste disposal company.
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information
- UN-Number
  - DOT, ADR, IATA: UN2924
  - IMDG: Not Regulated
- UN proper shipping name
  - DOT: Flammable liquids, corrosive, n.o.s. (Ethyl Trifluoroacetate)
  - ADR: UN2924 Flammable liquids, corrosive, n.o.s. (Ethyl Trifluoroacetate)
  - IMDG, IATA: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Ethyl Trifluoroacetate)
Trade name: Ethyl Trifluoroacetate
Synonym: ETFA, Ethyl Ester

- **Transport hazard class(es)**
  - **DOT**
    - Class 3 Flammable liquids.
    - Label 3+8
  - **ADR**
    - Class 3 (FC) Flammable liquids
    - Label 3+8
  - **IMDG, IATA**
    - Class 3 Flammable liquids.
    - Label 3+8
    - Packing group II
  - **Environmental hazards:**
    - Marine pollutant: No
  - **Special precautions for user**
    - Danger code (Kemler): Warning: Flammable liquids
    - EMS Number: F-E,S-C
  - **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
  - **UN "Model Regulation":** UN2924, Flammable liquids, corrosive, n.o.s. (Ethyl Trifluoroacetate), 3 (8), II

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Sara**
    - **Section 355 (extremely hazardous substances):** Substance is not listed.
    - **Section 313 (Specific toxic chemical listings):** Substance is not listed.
    - **TSCA (Toxic Substances Control Act):** Substance is listed.
Trade name: Ethyl Trifluoroacetate  
Synonym: ETFA, Ethyl Ester

· Proposition 65
  · **Chemicals known to cause cancer:**  
    Substance is not listed.
  · **Chemicals known to cause reproductive toxicity for females:**  
    Substance is not listed.
  · **Chemicals known to cause reproductive toxicity for males:**  
    Substance is not listed.
  · **Chemicals known to cause developmental toxicity:**  
    Substance is not listed.

· Carcinogenic categories
  · **EPA (Environmental Protection Agency)**  
    Substance is not listed.
  · **TLV (Threshold Limit Value established by ACGIH)**  
    Substance is not listed.
  · **NIOSH-Ca (National Institute for Occupational Safety and Health)**  
    Substance is not listed.
  · **OSHA-Ca (Occupational Safety & Health Administration)**  
    Substance is not listed.

· **GHS label elements**  
The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

![GHS02](image) ![GHS05](image) ![GHS07](image)

· **Signal word** Danger

· **Hazard-determining components of labeling:**  
  ethyl trifluoroacetate

· **Hazard statements**
  Highly flammable liquid and vapor.  
  Harmful if swallowed.  
  Causes skin irritation.  
  Causes serious eye damage.  
  May cause respiratory irritation.

· **Precautionary statements**
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
  Use explosion-proof electrical/ventilating/lighting/equipment.  
  Avoid breathing dust/fume/gas/mist/vapors/spray.  
  Use only outdoors or in a well-ventilated area.  
  Wear protective gloves/protective clothing/eye protection/face protection.  
  Ground/bond container and receiving equipment.  
  IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Trade name: Ethyl Trifluoroacetate
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Immediately call a POISON CENTER or doctor/physician.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment (see on this label).
Take off contaminated clothing and wash before reuse.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
Dispose of contents/container in accordance with local/regional/national/international regulations.

- National regulations:
  Substance is not listed.

- State Right to Know
  Substance is not listed.

- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Date of preparation / last revision 02/14/2014 / 7
- Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  ACGIH: American Conference of Governmental Industrial Hygienists
  EINECS: European Inventory of Existing Commercial Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  Flam. Liq. 2: Flammable liquids, Hazard Category 2
  Acute Tox. 4: Acute toxicity, Hazard Category 4
  Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
  STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
- * Data compared to the previous version altered.
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