

## Product Safety Summary

### Tetrafluoroethane

CAS No. 811-97-2

The Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the Material Safety Data Sheet (MSDS) for the chemical substance.

#### Names

- Tetrafluoroethane
- 1,1,1,2,-tetrafluoroethane
- Difluoro-1-Chloroethane
- Ethane, 1-Chloro-1,1-difluoro
- Refrigerant gas R-134a
- HCFC-134a
- Solkane<sup>®</sup> 134a

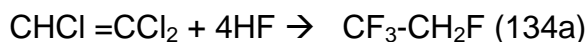
#### Product Overview

Solvay Fluorides, LLC does not sell tetrafluoroethane directly to consumers. Solvay Fluorides, LLC does sell this product to repackagers and distributors for resale primarily as a refrigerant gas and for use in polymeric foams. A small volume of tetrafluoroethane is also used as a propellant in aerosols including medical inhalers.

Tetrafluoroethane is a colorless nonflammable gas with a faint ether-like odor under normal temperature and pressure.

#### Manufacture of Product

**Production Process:** Tetrafluoroethane is made by reacting hydrogen fluoride (HF) with trichloroethylene. Solvay Fluorides imports the tetrafluoroethane it sells from a Solvay affiliate in Europe..



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## Product Description

Tetrafluoroethane is sold as a pressurized colorless nonflammable gas with a faint ether-like odor under normal temperature and pressure.

Table I: Typical physical properties for Tetrafluoroethane.

<b>pH</b>	neutral
<b>Boiling Point</b>	-15°F (-26°C)
<b>Freezing Point</b>	-162°F (-108°C)
<b>Vapor Pressure</b>	574 kPa (83.25 psi) @ 68°F (20°C)
<b>Relative Density</b>	4.24 @ 68°F (20°C)
<b>Solubility</b>	1 g / l @ 77°F (25°C)
<b>Autoflammability</b>	> 1369°F (743°C)

## Product Uses

Tetrafluoroethane is used primarily as a refrigerant gas, in manufacturing polymeric foams and as a propellant in aerosols including inhalers.

## Exposure Potential

- Workplace exposure** – Exposures can occur at a tetrafluoroethane manufacturing facility or a manufacturing, packaging or storage facility that handles tetrafluoroethane. Exposure may also occur in the event of a transportation incident. Persons involved in maintenance, sampling and testing activities, or in the loading and unloading of tetrafluoroethane containers are at greater risk of exposure. Following good industrial hygiene practices will minimize the likelihood of tetrafluoroethane exposure; however, persons involved in higher risk activities should always wear proper personal protective equipment such as protective gloves, goggles and a hard hat. In instances where the potential for exposure is high, proper respiratory protection should also be worn.

- **Consumer exposure to products containing tetrafluoroethane** – Tetrafluoroethane is used primarily as a refrigerant gas, and for use in polymeric foams. A small amount of tetrafluoroethane is used as a propellant in aerosols including inhalers. Consumers may be exposed to tetrafluoroethane in any of those uses, although in foam, loss is limited by very slow diffusion. The user should always use products containing tetrafluoroethane in strict compliance with the manufacturer's use and/or label instructions.
- **Environmental Releases** - Tetrafluoroethane is not expected to be intentionally released to the environment during production processes or during transportation. Accidental spills may occur during use or transfer of the pressurized gas. It may also be released by some consumer uses or products. Care should be taken to minimize any such releases as much as possible. (See guidelines in the Workplace exposure section of this document or the [Material Safety Data Sheet](#))
- **Releases** – Tetrafluoroethane is a non-flammable gas. A release may cause rapid cooling due to pressure relief. Vapors are heavier than air and may displace oxygen. In case of accidental release, evacuate the area, stay upwind of the release. Immediately notify the appropriate authorities if required by Federal, State, and local laws and regulations.

For more information, please consult the [Material Safety Data Sheet](#).

## Health Information

Tetrafluoroethane may be hazardous in case of accidental exposure to high vapor concentrations. The most likely route of exposure is through inhalation. If inhaled, tetrafluoroethane can act as an asphyxiant and cause headache, dizziness, lightheadedness, passing out, or even death at very high levels. Tetrafluoroethane vapors may affect the heartbeat causing irregular rhythms. In industrial settings, contact with liquefied tetrafluoroethane can cause frostbite. Tetrafluoroethane may emit toxic fumes when involved in a fire.

Tetrafluoroethane is not considered a carcinogen meaning it does not cause cancer.

For more information on health effects and routes of exposure, or for information concerning proper first aid measures, please consult the [Material Safety Data Sheet](#).

## Environmental Information

Tetrafluoroethane is not expected to be intentionally released to the environment during production processes or during transportation. Accidental releases may occur during use or transfer of the pressurized gas.

Tetrafluoroethane is a gas at ambient temperature and has limited solubility in water. It has a low toxicity to fish and has no significant bioaccumulation potential. This means that any tetrafluoroethane releases will dissipate quickly in air and not be taken up and stored by living organisms. Tetrafluoroethane is considered to be a 'greenhouse' gas and may contribute to global warming.

For more ecological and environmental information concerning this product, please consult the [Material Safety Data Sheet](#).

## Physical Hazard Information

Industrially, tetrafluoroethane is handled in closed systems under high pressure. Avoid contact with oxidizing agents and incompatible materials.

For more information concerning the physical hazards of this product, please consult the [Material Safety Data Sheet](#).

## Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use and/or disposal of this chemical. These regulations can vary by city, state, country or geographic region. Information may be found by consulting the relevant [Material Safety Data Sheet](#) specific to your country or region.

## Additional Information

- Solvay America, Inc. [www.solvaynorthamerica.com](http://www.solvaynorthamerica.com)
- Solvay Fluorides, LLC. [www.solvaychemicals.us](http://www.solvaychemicals.us)
- Solvay Fluorides, LLC. Material Safety Data Sheets [www.solvaychemicals.us/EN/Literature/LiteratureDocuments.aspx](http://www.solvaychemicals.us/EN/Literature/LiteratureDocuments.aspx)



- Contact Solvay Fluorides, LLC. [solvaychemicals.us@solvay.com](mailto:solvaychemicals.us@solvay.com)
- This summary was prepared in January, 2012

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