

Product Safety Summary

1,1-Difluoroethylene

CAS No. 75-38-7

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

- Vinylidene fluoride
- 1,1-Difluoroethene
- Ethene, 1,1-difluoro
- Vinylidene difluoride
- Refrigerant gas R-1132a
- VF₂
- VDF
- CH₂-CF₂

Product Overview

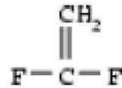
- **This product is not sold to the general public.** Solvay Solexis, Inc. uses it onsite as a starting material to make polymers. Some vinylidene fluoride is also sold to other industrial companies that use it to make polymers.
- Vinylidene fluoride is used as starting material in the manufacture of polyvinylidene fluoride and elastomeric copolymers. These polymers are used in commercial applications requiring chemical and weather resistance.
- Vinylidene fluoride is a colorless flammable gas with a faint ether-like odor under normal temperature and pressure.



Manufacture of Product

Production Process: Solvay uses proven technology in order to manufacture its chemicals in a safe and controlled manner. Vinylidene fluoride is manufactured by several companies in the United States.

Structure of vinylidene fluoride:



Product Description

Vinylidene fluoride is a colorless flammable gas with a faint ether-like odor under normal temperature and pressure.

Product Uses

Vinylidene fluoride is used as starting material in the manufacture of polyvinylidene fluoride and elastomeric copolymers. These polymers are used in commercial applications requiring chemical and weather resistance such as wire and cable coating, durable architectural coatings, and automotive components.

Exposure Potential

- **Workplace exposure** – Vinylidene fluoride is produced and polymerized in a closed system. Emissions will therefore be incidental during equipment failures and maintenance operations. Potential exposure to vinylidene fluoride is limited to industrial settings.
- **Consumer exposure to products containing vinylidene fluoride** – There are no direct consumer uses of vinylidene fluoride. Vinylidene fluoride is used industrially as a starting material in the production of polymers. The vinylidene fluoride is consumed in the polymerization process, therefore it is unlikely that any significant level of vinylidene fluoride remains in the final product. Thus, consumer exposure is not anticipated.
- **Environmental Releases** - Vinylidene fluoride is not expected to be intentionally released to the environment during production processes or during transportation.

- **Spills and Releases** – Vinylidene fluoride is a flammable gas and can form explosive mixtures with air. In case of accidental release, evacuate the area, stay upwind of the release, and extinguish all ignition sources. Immediately notify the appropriate authorities if required by Federal, State, and local laws and regulations.

Health Information

Results of toxicity studies indicate vinylidene fluoride is not a significant irritant to skin, eyes or the respiratory tract. Inhalation studies conducted on vinylidene fluoride, at relatively high dose rates and for repeated exposures indicate that vinylidene fluoride has a very low toxicity profile. In industrial settings, contact with liquefied vinylidene fluoride can cause frostbite. Vinylidene Fluoride may emit toxic fumes when involved in a fire.

Vinylidene fluoride is not considered a carcinogen meaning it does not cause cancer.

Environmental Information

Vinylidene fluoride is not expected to be intentionally released to the environment during production processes or during transportation.

Vinylidene fluoride is a gas at ambient temperature and has limited solubility in water. It has a short half life in air and has no significant bioaccumulation potential. This means that any vinylidene fluoride releases will dissipate quickly in air and not persist in the environment. Vinylidene fluoride does not contribute to ozone depletion and has a low global warming potential.

Physical Hazard Information

Vinylidene fluoride is handled in closed systems under high pressure. Vinylidene fluoride can undergo unintentional reactions including polymerization and decomposition under certain industrial conditions, releasing heat and pressure. Take measures to prevent the buildup of electrostatic charge and keep away from open flames, hot surfaces, and sources of ignition. Avoid contact with oxidizing agents and incompatible materials. If working in an industrial setting handling vinylidene fluoride, please contact Solvay Solexis Inc. to request the most current Material Safety Data Sheet (MSDS). The MSDS provides more detailed information on the physical hazards and safe handling practices.

Regulatory Information

Regulatory information may vary by geographic location. Please consult the material safety data sheet for regulatory information in your area.

Additional Information

- Solvay America, Inc. (www.solvaynorthamerica.com)
- Solvay Solexis, Inc. (www.solvaysolexis.com)
- This summary was prepared September, 2009.

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