Chemical Safety Data Sheet MSDS / SDS

Fluoroethylene SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Fluoroethylene

CAS: 75-02-5

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable gases, Category 1A, Flammable gas
Gases under pressure: Liquefied gas

Germ cell mutagenicity, Category 2
Carcinogenicity, Category 1B
Specific target organ toxicity – repeated exposure, Category 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H220 Extremely flammable gas
H280 Contains gas under pressure; may explode if heated
H341 Suspected of causing genetic defects
H350 May cause cancer
H373 May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.

Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.

Storage

P403 Store in a well-ventilated place.
P410+P403 Protect from sunlight. Store in a well-ventilated place.
P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Fluoroethylene
Common names and synonyms:	Fluoroethylene
CAS number:	75-02-5
EC number:	200-832-6
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms/effects, acute and delayed

Inhalation of vapor causes slight intoxication, some shortness of breath. Liquid may cause frostbite of eyes or skin. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Cover skin burns with sterile dressings after decontamination . Halogenated aliphatic hydrocarbons and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Vinyl fluoride, stabilized

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic hydrogen fluoride gas is generated in a fire. Behavior in Fire: Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back. Containers may explode. (USCG, 1999)

Special protective actions for fire-fighters

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with powder, carbon dioxide. In case of fire: keep cylinder cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Ventilation. NEVER direct water jet on liquid. Personal protection: self-contained breathing apparatus. Remove fumes with fine water spray. Do NOT wash away into sewer.

Environmental precautions

Evacuate danger area! Consult an expert! Ventilation. NEVER direct water jet on liquid. Personal protection: self-contained breathing apparatus.

Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants. Cool. Store only if stabilized.Fireproof. Separated from strong oxidants. Cool. Store only if stabilized.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 1 ppm as TWA; A2 (suspected human carcinogen)

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Cold-insulating gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Vinyl fluoride, stabilized is a colorless gas with a faint ethereal odor. Shipped as a confined liquid under its vapor pressure. Any leak can either be liquid or vapor. Contact with the liquid can cause frostbite. Easily ignited. Vapors are heavier than air. Can asphyxiate by the displacement of air. Under prolonged exposure to fire or intense heat the containers may rupture violently and rocket.
Colour:	Colorless gas [Note: Shipped as a liquefied compressed gas].
Odour:	Faint, ethereal odor.
Melting point/freezing point:	-160.5°C
Boiling point or initial boiling point and boiling range:	-72°C
Flammability:	Flammable Gas

Lower and upper explosion limit/flammability limit:	Lower flammable limit: 2.6% by volume; Upper flammable limit: 21.7% by volume
Flash point:	Flammable gas
Auto-ignition temperature:	860° F (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	3.2347E-04 pascal/seconds (liquid) @ boiling point
Solubility:	Insoluble (NIOSH, 2016)
Partition coefficient n-octanol/water:	log Kow = 1.19 /Estimated/
Vapour pressure:	25.2 atm (NIOSH, 2016)
Density and/or relative density:	0.615 g/cm3
Relative vapour density:	1.58 (Air= 1)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

The substance may freely polymerize. Decomposes on heating and on burning. This produces toxic gases of hydrogen fluoride.

Chemical stability

no data available

Possibility of hazardous reactions

Ignites in presence of heat or source of ignition.The vapour is heavier than air and may travel along the ground; distant ignition possible.VINYL FLUORIDE is light sensitive, peroxidizable monomer may initiate exothermic polymerization of the bulk material [Handling Chemicals Safely 1980. p. 958]. Sensitive to many oxidants.

Conditions to avoid

no data available

Incompatible materials

During ozonolysis of vinyl fluoride an explosive solid residue is produced, and the volatile ozonide, trapped at -63 deg C, may explode spontaneously or during removal by syringe.

Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen fluoride/.

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Evaluation: There is inadequate evidence in humans for the carcinogenicity of vinyl fluoride. There is sufficient evidence in experimental animals for the carcinogenicity of vinyl fluoride. Overall evaluation: Vinyl fluoride is probably carcinogenic to humans (Group 2A). In making the overall evaluation, the working group took into account the following evidence: Vinyl fluoride is closely related structurally to the known carcinogen, vinyl chloride. The two chemicals cause the same rare tumor (hepatic hemangiosarcoma) in experimental animals, which is also a tumor caused by vinyl chloride in humans.

Reproductive toxicity

no data available

STOT-single exposure

The liquid may cause frostbite. The substance may cause effects on the central nervous system.

STOT-repeated exposure

This substance is probably carcinogenic to humans.

Aspiration hazard

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

An estimated BCF of 2 was calculated for vinyl fluoride(SRC), using an estimated log Kow of 1.19(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC), provided the compound is not altered physically or chemically once released into the environment.

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for vinyl fluoride can be estimated to be 24(SRC). According to a classification scheme(2), this estimated Koc value suggests that vinyl fluoride is expected to have very high mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1860 (For reference only, please check.)
IMDG: UN1860 (For reference only, please check.)
IATA: UN1860 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: VINYL FLUORIDE, STABILIZED (For reference only, please check.)
IMDG: VINYL FLUORIDE, STABILIZED (For reference only, please check.)
IATA: VINYL FLUORIDE, STABILIZED (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 2.1 (For reference only, please check.)
IMDG: 2.1 (For reference only, please check.)
IATA: 2.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: (For reference only, please check.)
IMDG: (For reference only, please check.)
IATA: (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Not Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death. Check oxygen content before entering area.