

**DuPont™ FE-13® fire extinguishing agent HFC-23**

Version 2.0

Revision Date 04/29/2015

Ref. 130000000355

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : DuPont™ FE-13® fire extinguishing agent HFC-23  
Tradename/Synonym : Fluoroform  
HFC-23  
R23  
FE-13  
Trifluoromethane

Product Use : Fire extinguishing agent, For industrial use only.

Restrictions on use : Do not use product for anything outside of the above specified uses  
Manufacturer/Supplier : DuPont  
1007 Market Street  
Wilmington, DE 19898  
United States of America

Product Information : +1-800-441-7515 (outside the U.S. +1-302-774-1000)  
Medical Emergency : 1-800-441-3637 (outside the U.S. 1-302-774-1139)  
Transport Emergency : CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

**SECTION 2. HAZARDS IDENTIFICATION**

**Product hazard category**  
Gases under pressure                      Liquefied gas

**DuPont™ FE-13® fire extinguishing agent HFC-23**

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Ref. 130000000355

**Label content**

Pictogram

:



Signal word

: Warning

Hazardous warnings

: Contains gas under pressure; may explode if heated.

Hazardous prevention  
measures

: Protect from sunlight. Store in a well-ventilated place.

**Other hazards**

Misuse or intentional inhalation abuse may lead to death without warning.

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Rapid evaporation of the liquid may cause frostbite.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS-No.	Concentration
Trifluoromethane	75-46-7	100 %

**SECTION 4. FIRST AID MEASURES**

**DuPont™ FE-13® fire extinguishing agent HFC-23**

Version 2.0

Revision Date 04/29/2015

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General advice	: Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
Inhalation	: Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.
Skin contact	: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. Treat for frostbite if necessary by gently warming affected area.
Eye contact	: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.
Ingestion	: Is not considered a potential route of exposure.
Most important symptoms/effects, acute and delayed	: No applicable data available.
Protection of first-aiders	: If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

**SECTION 5. FIREFIGHTING MEASURES**

Suitable extinguishing media	: This material is a fire extinguishing agent.
Unsuitable extinguishing media	: No applicable data available.
Specific hazards	: The product is not flammable. Hazardous decomposition products Hydrogen fluoride Not a fire or explosion hazard.
Special protective equipment for firefighters	: No applicable data available.

**DuPont™ FE-13® fire extinguishing agent HFC-23**

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Revision Date 04/29/2015

Ref. 130000000355

Further information : No applicable data available.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Wear self-contained breathing apparatus and protective suit.

Environmental precautions : No applicable data available.

Spill Cleanup : No applicable data available.

Accidental Release Measures : Ventilate area, especially low or enclosed places where heavy vapours might collect. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

**SECTION 7. HANDLING AND STORAGE**

Handling (Personnel) : CAUTION: High pressure gas and liquid. Avoid contact of liquid with eyes and prolonged skin exposure. Use sufficient ventilation to keep employee exposure below recommended limits. Decomposition will occur when product comes in contact with open flame or electrical heating elements.

Handling (Physical Aspects) : No applicable data available.

Dust explosion class : No applicable data available.

Storage : Store in a clean, dry place.

The product has an indefinite shelf life when stored properly.

Storage period : &gt; 10 yr

Storage temperature : &lt; 52 °C (&lt; 126 °F)

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Engineering controls : Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

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## Personal protective equipment

Respiratory protection : Under normal manufacturing conditions, no respiratory protection is required when using this product.

Hand protection : Additional protection: Impervious gloves

Eye protection : Wear safety glasses with side shields. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material. Wear safety glasses or coverall chemical splash goggles. Eye protection complying with EN 166. or ANSI Z87.1 Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Protective measures : Self-contained breathing apparatus (SCBA) is required if a large release occurs.

## Exposure Guidelines

## Exposure Limit Values

Trifluoromethane

AEL \*

(DUPONT)

1,000 ppm

8 &amp; 12 hr. TWA

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

## Appearance

Physical state : gaseous  
Form : Liquefied gas  
Color : colourless

Odor : slight, ether-like

Odor threshold : No applicable data available.

pH : neutral

Melting point/range : No applicable data available.

**DuPont™ FE-13® fire extinguishing agent HFC-23**

Version 2.0

Revision Date 04/29/2015

Ref. 130000000355

Boiling point/boiling range	: Boiling point -82.0 °C (-115.6 °F)
Flash point	: Method: ASTM D 56 does not flash
Evaporation rate	: No applicable data available.
Flammability (solid, gas)	: The product is not flammable.
Upper explosion limit	: Method: None per ASTM E681
Lower explosion limit	: Method: None per ASTM E681
Vapor pressure	: 46,986 hPa at 25 °C (77 °F)
Vapor density	: 2.4 at 25°C (77°F) and 1013 hPa (Air=1.0)
Density	: 0.380 g/cm <sup>3</sup> at 25 °C (77 °F) (as liquid)
Density	: 1.42 g/cm <sup>3</sup> at -75 °C (-103 °F) (as liquid)
Specific gravity (Relative density)	: No applicable data available.
Water solubility	: 1.0 g/l at 25 °C (77 °F) at 1,013 hPa
Solubility(ies)	: No applicable data available.
Partition coefficient: n-octanol/water	: No applicable data available.
Auto-ignition temperature	: No applicable data available.
Decomposition temperature	: No applicable data available.
Viscosity, kinematic	: No applicable data available.
Viscosity, dynamic	: No applicable data available.
% Volatile	: 100 %
Oxidising Substance	: The product is not oxidizing.

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Revision Date 04/29/2015

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity	:	Decomposes on heating.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Polymerization will not occur.
Conditions to avoid	:	Stable at normal temperatures and storage conditions.
Incompatible materials	:	Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts
Hazardous decomposition products	:	Hazardous decomposition products , Hydrofluoric acid...% , Carbonyl difluoride, Carbon monoxide

**SECTION 11. TOXICOLOGICAL INFORMATION**

## Trifluoromethane

Inhalation 4 h LC50	:	> 663000 ppm , Rat
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	:	> 500000 ppm , Dog Cardiac sensitization
Inhalation No Observed Adverse Effect Concentration	:	500000 ppm , Dog Cardiac sensitization
Repeated dose toxicity	:	Inhalation Rat - NOAEL: 28.634 mg/l No toxicologically significant effects were found.
Mutagenicity	:	Animal testing did not show any mutagenic effects. Evidence suggests this substance does not cause genetic damage in animals.
Reproductive toxicity	:	No toxicity to reproduction Evidence suggests the substance is not a reproductive toxin in animals.
Teratogenicity	:	Animal testing showed no developmental toxicity.

**DuPont™ FE-13® fire extinguishing agent HFC-23**

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Further information : Cardiac sensitisation threshold limit : &gt; 172414 mg/m3

**Carcinogenicity**

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

**SECTION 12. ECOLOGICAL INFORMATION****Aquatic Toxicity**

## Trifluoromethane

96 h LC50 : Pimephales promelas (fathead minnow) 633.26 mg/l  
96 h EC50 : Algae 154.54 mg/l  
48 h EC50 : Daphnia magna (Water flea) 323.05 mg/l

**Environmental Fate**

## Trifluoromethane

Biodegradability : Not readily biodegradable.  
Bioaccumulation : Bioconcentration factor (BCF) : 3.2  
Bioaccumulation is unlikely.

Additional ecological information : no data available

**SECTION 13. DISPOSAL CONSIDERATIONS**

Waste disposal methods - Product : Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility. Comply with applicable Federal, State/Provincial and Local Regulations.

Contaminated packaging : Empty pressure vessels should be returned to the supplier.




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Version 2.0

Revision Date 04/29/2015

Ref. 130000000355

**SECTION 14. TRANSPORT INFORMATION**

DOT	UN number	: 1984
	Proper shipping name	: Trifluoromethane
	Class	: 2.2
	Labelling No.	: 2.2
IATA_C	UN number	: 1984
	Proper shipping name	: Trifluoromethane
	Class	: 2.2
	Labelling No.	: 2.2
IMDG	UN number	: 1984
	Proper shipping name	: TRIFLUOROMETHANE
	Class	: 2.2
	Labelling No.	: 2.2

**SECTION 15. REGULATORY INFORMATION**

SARA 313 Regulated Chemical(s)	: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
PA Right to Know Regulated Chemical(s)	: Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Trifluoromethane
NJ Right to Know Regulated Chemical(s)	: Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Trifluoromethane
California Prop. 65	: Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known



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Revision Date 04/29/2015

Ref. 130000000355

**SECTION 16. OTHER INFORMATION**

® DuPont's registered trademark

Before use read DuPont's safety information. For further information contact the local DuPont office or DuPont's nominated distributors.

Revision Date : 04/29/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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