

**DuPont™ FE-36™ fire extinguishing agent**

Version 2.0

Revision Date 04/29/2015

Ref. 130000000697

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-36™ fire extinguishing agent  
Tradename/Synonym : 1,1,1,3,3,3-Hexafluoropropane  
HFC-236fa  
HEXAFLUOROPROPANE

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  
Specific target organ toxicity -        Category 3  
single exposure

**DuPont™ FE-36™ fire extinguishing agent**

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Revision Date 04/29/2015

Ref. 130000000697

**Label content**

Pictogram

:



Signal word

: Warning

Hazardous warnings

: Contains gas under pressure; may explode if heated.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.Hazardous prevention  
measures: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
Use only outdoors or in a well-ventilated area.  
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.  
Store in a well-ventilated place. Keep container tightly closed.  
Store locked up.  
Protect from sunlight. Store in a well-ventilated place.  
Dispose of contents/ container to an approved waste disposal plant.**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.

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 1 %

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

**DuPont™ FE-36™ fire extinguishing agent**

Version 2.0

Revision Date 04/29/2015

Ref. 130000000697

Component	CAS-No.	Concentration
1,1,1,3,3,3-Hexafluoropropane	690-39-1	>=99%

**SECTION 4. FIRST AID MEASURES**

- General advice : Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
- Inhalation : If inhaled, remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Skin contact : Take off all contaminated clothing immediately. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.
- Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
- 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 : Do not give adrenaline or similar drugs. 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., Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**DuPont™ FE-36™ fire extinguishing agent**

Version 2.0

Revision Date 04/29/2015

Ref. 130000000697

Unsuitable extinguishing media	: No applicable data available.
Specific hazards	: Not a fire or explosion hazard. Hazardous gases/vapors produced are: Hydrogen fluoride
Special protective equipment for firefighters	: Wear self-contained breathing apparatus (SCBA). Wear full protective equipment.
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)	: Keep upwind of leak - evacuate until gas has dispersed.
Environmental precautions	: No applicable data available.
Spill Cleanup	: No applicable data available.
Accidental Release Measures	: Do not enter places where used or stored until adequately ventilated.

**SECTION 7. HANDLING AND STORAGE**

Handling (Personnel)	: Do not breathe gas. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling. 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	: Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Never attempt to lift cylinder by its cap. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Cylinders should be stored upright and firmly secured to

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Version 2.0

Revision Date 04/29/2015

Ref. 130000000697

prevent falling or being knocked over.

Separate full containers from empty containers. Keep at temperature not exceeding 52°C. Avoid area where salt or other corrosive materials are present.

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 : Use only with adequate ventilation especially for enclosed and low area where vapors can accumulate. Keep container tightly closed.

Personal protective equipment

Respiratory protection : Wear NIOSH approved respiratory protection as appropriate.

Eye protection : Wear safety glasses or coverall chemical splash goggles.

Skin and body protection : Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants, jacket, hood and boots.

Exposure Guidelines

Exposure Limit Values

1,1,1,3,3,3-Hexafluoropropane

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

**DuPont™ FE-36™ fire extinguishing agent**

Version 2.0

Revision Date 04/29/2015

Ref. 130000000697

Odor	: slight, ether-like
Odor threshold	: No applicable data available.
pH	: No applicable data available.
Melting point/freezing point	: Freezing point -94 °C (-137 °F)
Boiling point/boiling range	: Boiling point -1.44 °C (29.41 °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	: 2,724 hPa at 25 °C (77 °F)
Vapour density	: No applicable data available.
Density	: 1.3598 g/cm <sup>3</sup> at 25 °C (77 °F) (as liquid)
Specific gravity (Relative density)	: 1.36 at 25 °C (77 °F)
Water solubility	: No applicable data available.
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.

**DuPont™ FE-36™ fire extinguishing agent**

Version 2.0

Revision Date 04/29/2015

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Viscosity, kinematic : No applicable data available.

Viscosity, dynamic : No applicable data available.

**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : Decomposes on heating.

Chemical stability : Stable

Possibility of hazardous reactions : Polymerization will not occur.

Conditions to avoid : No applicable data available.

Incompatible materials : Strong bases metallic sodium, Potassium, Lithium

Hazardous decomposition products : Hazardous gases/vapors produced are:, Hydrogen fluoride

**SECTION 11. TOXICOLOGICAL INFORMATION**

1,1,1,3,3,3-Hexafluoropropane

Inhalation 4 h LC50 : &gt; 457000 ppm , Rat

 Inhalation 4 h LC50 : > 189000 ppm , Rat  
 Target Organs: Central nervous system  
 Narcotic effects  
 Central nervous system effects

 Inhalation Low Observed Adverse Effect  
 Concentration (LOAEC) : 150000 ppm , Dog  
 Cardiac sensitization

 Inhalation No Observed Adverse Effect  
 Concentration : 100000 ppm , Dog  
 Cardiac sensitization

 Skin irritation : No skin irritation, Not tested on animals  
 Not expected to cause skin irritation based on expert review of the properties of the substance.

 Eye irritation : No eye irritation, Not tested on animals  
 Not expected to cause eye irritation based on expert review of the properties of the substance.

Skin sensitization : Does not cause skin sensitisation., Not tested on animals

**DuPont™ FE-36™ fire extinguishing agent**

Version 2.0

Revision Date 04/29/2015

Ref. 130000000697

Not expected to cause sensitization based on expert review of the properties of the substance.

There are no reports of human respiratory sensitization.

Repeated dose toxicity	: Inhalation Rat - gas No toxicologically significant effects were found.
Mutagenicity	: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Animal testing did not show any mutagenic effects.
Reproductive toxicity	: No toxicity to reproduction Evidence suggests the substance is not a reproductive toxin in animals.
Teratogenicity	: Animal testing showed no developmental toxicity.
Further information	: Cardiac sensitisation threshold limit : 932751 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**
**1,1,1,3,3,3-Hexafluoropropane**

96 h LC50	: Zebra fish 292 mg/l
96 h ErC50	: Pseudokirchneriella subcapitata (microalgae) > 186 mg/l
48 h EC50	: Daphnia magna (Water flea) 299 mg/l



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## Environmental Fate

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Biodegradability : 16 %

According to the results of tests of biodegradability this product is not readily biodegradable.

**SECTION 13. DISPOSAL CONSIDERATIONS**

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

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

**SECTION 14. TRANSPORT INFORMATION**

DOT	UN number	: 3163
	Proper shipping name	: Liquefied gas, n.o.s. (1,1,1,3,3,3-Hexafluoropropane)
	Class	: 2.2
	Labelling No.	: 2.2
IATA_C	UN number	: 3163
	Proper shipping name	: Liquefied gas, n.o.s. (1,1,1,3,3,3-Hexafluoropropane)
	Class	: 2.2
	Labelling No.	: 2.2
IMDG	UN number	: 3163
	Proper shipping name	: LIQUEFIED GAS, N.O.S. (1,1,1,3,3,3-Hexafluoropropane)
	Class	: 2.2
	Labelling No.	: 2.2

**DuPont™ FE-36™ fire extinguishing agent**

Version 2.0

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**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.

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

**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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