Technical Information

DuPont Fluoroproducts

DuPont™ FE-25™ Fire Extinguishing Agent (HFC-125)

Properties, Uses, Storage, and Handling

DUPONT®

The miracles of science™

DuPont™ FE-25™ Fire Extinguishing Agent

Properties, Uses, Storage, and Handling

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Introduction

Background

Chlorofluorocarbons (CFCs), bromofluorocarbons, and bromochlorofluorocarbons (Halons,) which were developed in the 1930s, have unique properties. They are low in toxicity, non-flammable, non-corrosive, and compatible with other materials. In addition, they have thermodynamic and physical properties that make them ideal for a variety of uses. One high value use of Halon compounds is as fire extinguishants and explosion suppressants. They are used in hand held portable extinguishers, total flooding systems, and local application systems. However, the stability of these compounds, coupled with their bromine and/or chlorine content, has linked them to depletion of the earth's protective ozone layer. As a result, these compounds have been phased out of production. DuPont has developed environmentally preferred replacements, such as hydrofluorocarbon (HFC) 125.

FE-25™ Fire Extinguishing Agent

As a fire extinguishing agent, HFC-125 is referred to as FE-25™, a trademark of DuPont. It is intended to replace Halon 1301 in total flooding and inerting applications. DuPont™ FE-25™ is a safe, clean, and electrically nonconductive agent and is suited for use at low temperatures, because it has a low boiling point (–48.1°C [–54.7°F]) which is similar to Halon 1301 (–57.7°C [–72°F]).

The physical properties of FE-25™ are listed in **Table 1**.

Application

Total Flooding of Class-A Hazards

FE-25™ is an ideal replacement for Halon 1301 for the total flooding of enclosures. It can be used in applications where **people are normally present (normally occupied spaces) for Class-A fire assets**. Class-A fire assets represent greater than 90% of all commercial protection scenarios. Examples of applications where FE-25™ would be an excellent choice for a total flood fire suppression system where people are present are: computer rooms, telecommunication switch stations and facilities, semi-conductor manufacturing facilities, data processing centers, clean rooms, industrial process control rooms, museums, libraries and historical sites.

Total Flooding of Class-B Hazards

FE-25™ can also be used to suppress **Class-B fire hazards**. Examples of these applications would include: engine compartments, petrochemical facilities, chemical storage rooms, paint lockers and other areas where hydrocarbon-based materials are stored or handled.

Protection of Aircraft Engine Nacelles

FE-25™ was selected by the U.S. Department of Defense to undergo full-scale testing for engine nacelle applications as a replacement for Halon 1301 in new aircraft designs. This selection follows a comprehensive 17-month study at Wright-Patterson Air Force Base coordinated by National Institute of Standards and Technology (NIST) involving 12 candidate agents. NIST evaluated performance of the candidate agents over the flight envelope noting agent discharge characteristics, toxicity, and agent compatibility. As a result, the Navy has specified FE-25™ for the engine nacelles of aircraft such as the F/A-18 E/F and V-22.

Flow Simulant

HFC-125 (FE-25™) demonstrates the closest match to the flow characteristics of Halon 1301. As a result, FE-25™ is used for system flow verification, eliminating the use and discharge of Halon 1301, an ozone-depleting substance, into the atmosphere. The pressure traces, vaporization, and spray patterns for HFC-125 nearly duplicate that of Halon 1301.

Explosion Suppression

FE-25™ is currently used commercially in the area of explosion suppression.The primary application for FE-25™ in explosion suppression is to stop grain elevator explosions by stopping flame propagation in a fraction of a second.

Physical Properties

Physical properties of FE-25™ are shown in **Table 1**.

Saturated vapor pressures and densities are given in **Tables 2** and **3**.

Thermodynamic tables in English and SI units are available in DuPont Bulletins T-125-ENG and T-125-SI.

Table 1
Physical Properties of DuPont™ FE-25™

Properties	
Chemical Name	Pentafluoroethane
Chemical Formula	CF_3CHF_2
CAS Number	354-33-6
Molecular Weight	120.02
Boiling Point, 1 atm, °C (°F)	–48.14 (–54.7)
Freezing Point, °C (°F)	–103 (–153)
Flammable Limits in Air (1 atm)	none
Critical Temperature °C (°F)	66.25 (151.25)
Critical Pressure, kPa (psia)	3631 (526.6)
Critical Density, kg/m^3 (lb/ft^3)	571.9 (35.70)
Liquid Density at 25°C (77°F), kg/m^3 (lb/ft^3)	1189.7 (74.27)
Vapor Density at 25°C (77°F) and 1 atm, Kg/m^3 (lb/ft^3)	4.983 (0.3111)
Specific Heat, Liquid (Cp) at 25°C (77°F), KJ/Kg–°C (Btu/lb°F)	1.37 (0.327)
Specific Heat, Vapor (Cp) at 25°C (77°F), KJ/Kg–°C (Btu/lb°F) and 1 atm	0.809 (0.193)
Vapor Pressure, Saturated at 25°C (77°F), kPa (psia)	1381.5 (200.4)
Heat of Vaporization at B.P., KJ/Kg (Btu/lb)	164.4 (70.7)
Thermal Conductivity, Liquid at 25°C (77°F), W/m–°C (Btu/hr–ft°F)	0.0652 (0.0377)
Thermal Conductivity, Vapor at 25°C (77°F), W/m–°C (Btu/hr–ft°F)	0.0166 (0.0096)
Viscosity, Liquid at 25°C (77°F), cP (lb/ft-hr)	0.137
Viscosity, Vapor at 25°C (77°F), cP (lb/ft-hr)	0.013
Relative dielectric strength at 1 atm, 25°C (77°F) (N_2 =1)	1.007
Solubility of Water in FE-25 at 25°C (77°F), ppm	700
Ozone Depletion Potential	0.0
Global Warming Potential, GWP (100 yr ITH. For CO_2, GWP = 1)*	2800
Atmospheric Lifetime, years*	32.6
TSCA Inventory Status	Included
European Classification Number	EC-No.: 206-557-8
SNAP Status	Included
Inhalation Exposure Limit (AEL- 8 and 12 hr. TWA), ppm**	1000

** Second Assessment Report (1995) – Intergovernmental Panel on Climate Change (IPCC).

* The acceptable exposure limit (AEL) is the 8-hr time weighted average (TWA) workplace exposure limit established by DuPont.

Table 2
Vapor Pressure and Density of DuPont™ FE-25™ (ENG)

Temperature, °F	Saturated Vapor Pressure, psia	Liquid Density at Saturation, lbm/ft³	Vapor Density at 14.686 psia, lbm/ft³
–50	16.65	93.92	0.4184
–40	21.54	92.65	0.4068
–30	27.49	91.35	0.3960
–20	34.64	90.02	0.3858
–10	43.14	88.65	0.3763
0	53.15	87.24	0.3673
10	64.83	85.79	0.3587
20	78.36	84.29	0.3506
30	93.91	82.73	0.3429
40	111.7	81.10	0.3355
50	131.8	79.39	0.3285
60	154.6	77.59	0.3218
70	180.1	75.69	0.3153
80	208.7	73.65	0.3092
90	240.6	71.44	0.3033
100	276.0	69.03	0.2976
110	315.3	66.32	0.2921
120	358.7	63.20	0.2869
130	406.7	59.42	0.2818
140	459.9	54.33	0.2769
150	519.4	43.07	0.2722

Table 3
Vapor Pressure and Density of DuPont™ FE-25™ (SI)

Temperature, °C	Saturated Vapor Pressure, kPa	Liquid Density at Saturation, kg/m³	Vapor Density at 101.325 kPa, kg/m³
–45	117.85	1502.4	6.6827
–40	148.53	1484.0	6.5158
–35	185.10	1465.3	6.3593
–30	228.29	1446.2	6.2118
–25	278.84	1426.7	6.0722
–20	337.55	1406.6	5.9396
–15	405.23	1386.0	5.8134
–10	482.72	1364.7	5.6930
–5	570.90	1342.8	5.5780
0	670.68	1320.0	5.4681
5	782.99	1296.4	5.3627
10	908.79	1271.7	5.2616
15	1049.1	1245.9	5.1646
20	1205.0	1218.6	5.0713
25	1377.6	1189.8	4.9815
30	1568.0	1158.9	4.8950
35	1777.7	1125.5	4.8117
40	2007.9	1089.0	4.7313
45	2260.3	1048.2	4.6537
50	2536.7	1001.3	4.5787
55	2839.3	944.90	4.5062
60	3171.1	870.33	4.4360
65	3537.5	729.76	4.3681

Performance

The Accepted Minimum Extinguishing Concentration (MEC) for FE-25™ for Class-A fires is 6.7% based on the Class-A fire test requirements found in the Underwriters Laboratories' (UL) Standard 2166. For Class-B fires, the MEC is 8.7% based on cupburner tests with n-heptane fuel. Minimum Design Concentrations (MDC) should be based on the specific hardware manufacturer's MEC plus a safety factor of 20–30% depending on the requirements of the local Authority Having Jurisdiction (AHJ).

The concentration of FE-25™ required to inert an atmosphere containing a flammable concentration of methane has been measured at 14.7%. The inerting concentration is defined as the percentage of agent in air that inhibits the propagation of a flame. It is typically measured using the specific fuel and an ignition spark energy of 68 Joules. The inerting concentration is always greater than an agent's extinguishing concentration.

Materials Compatibility

It is important to review materials of constructions for compatibility when designing new equipment, retrofitting existing equipment or preparing storage and handling facilities.

Plastics and Elastomers

See **Tables 2** and **3** for compatibility data on commonly used plastics and elastomers.

It should be recognized that these data reflect compatibility in sealed tube tests, and that compatibility in real systems can be influenced by the actual system conditions, the nature of the polymers used, compounding formulations of the polymers, and the curing or vulcanization processes used to create the polymer. Polymers should always be tested under actual operating conditions before reaching final conclusions about their suitability. The rankings shown in **Tables 4a** and **4b** are based on samples of each plastic subjected to aging at room temperature and at 60°C for two weeks in agent alone. **Tables 5a** and **5b** shows compatibility of FE-25™ with various elastomers using the same aging conditions. Physical properties of the test samples were determined before and after aging. The resulting ratings are based on zero (0) being best and two (2) being worst for the purposes of comparison. The factors included in the overall assessment of compatibility included:

- Visual observations of material changes due to aging
- Changes in weight and volume of the samples due to aging
- Changes in hardness of the samples due to aging
- Changes in flexural properties of the samples due to aging

Metals

FE-25™ like other halocarbons may react violently with highly reactive metals such as the alkali and alkaline earth metals, sodium, potassium, and barium, in their free metalalic form. Some metals become more reactive when finely ground or powdered, and in this state magnesium and aluminum may react, especially at higher temperatures. Highly reactive materials should not be brought into contact with FE-25™ until a careful study is made and appropriate safety precautions are taken.

Table 4a
Plastic Compatibility with DuPont™ FE-25™ at Room Temperature for 2 weeks

Plastic	Linear Swell, %	Surface Conditions
High-density polyethylene (HDPE)	0.1	No Change
Polypropylene (PP)	<1	No Change
Polystyrene (PS)	1	No Change
Nylon 6/6	<1	No Change
Polymethyl methacrylate (PMMA)	*	*

*Partly dissolved, deformed, and destroyed

Table 4b
Plastic Compatibility with DuPont™ FE-25™ at 60°C for 2 weeks

Plastic	Linear Swell %	Surface Conditions
High-density polyethylene (HDPE)	0.5	No Change
Polypropylene (PP)	2.3	No Change
Polystyrene (PS)	0.8	No Change
Nylon 6/6	–0.2	No Change
Polymethyl methacrylate (PMMA)	*	*

*Partly dissolved, deformed, and destroyed

Table 5a
Elastomer Compatibility with DuPont™ FE-25™ at Room Temperature for 2 weeks

Elastomer	Linear Swell, %	Weight Gain, %	Hardness change, units
Butyl	–1	2	2
Nordel® EPDM	–1	3	–2
Neoprene® W	3	2	–5
NBR	<1	4	–8
Hypalon® CSM	1	1	–1

Table 5b
Elastomer Compatibility with DuPont™ FE-25™ at 60°C for 2 weeks

Elastomer	Linear Swell, %	Weight Gain, %	Hardness change, units
Butyl	1.3	2.9	–2
Nordel® EPDM	2.0	3.4	–5
Neoprene® W	1.7	2.3	–4
NBR	2.3	7.7	–5
Hypalon® CSM	0.1	0.8	0

Safety

Users of DuPont™ FE-25™ should read and understand the DuPont Material Safety Data Sheet (MSDS.) Copies are available through DuPont's web site at www.dupont.com/fire.

Inhalation Toxicity

FE-25™ is safe when used in accordance with DuPont recommendations. As with many halocarbon materials used safely in fire protection applications, inhalation abuse or intentional inhalation of concentrated FE-25™ vapors may result in suffocation by oxygen displacement, central nervous system anesthesia-like effects or cardiac sensitization effects that may cause death without warning.

If a person is experiencing any of the noted symptoms, they should be moved to fresh air and kept calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

Cardiac Sensitization

Under misuse or intentional abuse conditions, many hydrocarbons and halocarbons can potentially sensitize the heart to adrenaline, especially under conditions of physical or emotional stress. In studies designed to determine the potential for cardiac sensitization, laboratory animals are given large doses of adrenaline to predispose them to cardiac sensitization during inhalation of the test material. In these studies with FE-25™, the lowest concentration producing cardiac sensitization was 100,000 ppm and no cardiac sensitization was produced during exposure to 75,000 ppm.

When treating patients who have been exposed to a high concentration of FE-25™, the use of catecholamine drugs, such as epinephrine, should be considered only as a last resort in life-threatening emergencies because of possible disturbances of cardiac rhythm.

Fire Extinguishing Concentrations

Minimum requirements for the installation and use of clean agent fire extinguishing systems are given in National Fire Protection Association (NFPA) 2001 Standard. Included is guidance for human exposure limits for HFC-125 (FE-25™) based on the Environmental Protection Agency's (EPA) recommended Physiological-Based Pharmacokinetic (PBPK) model. The Standard lists HFC-125 acceptable for use in normally occupied spaces. For design concentrations up to 11.5%, the EPA recommended, Physiologically-Based Pharmocokinetic (PBPK) method allows an exposure time limited to a duration of five minutes.

Skin and Eye Contact

At room temperature, FE-25™ vapors have little or no effect on the skin or eyes. However, in liquid form, they can freeze skin or eyes on contact, causing frostbite. If contact with liquid does occur, soak the exposed areas in lukewarm water, not cold or hot. In all cases, seek medical attention as soon as possible.

Always wear protective clothing when there is a risk of exposure to liquid FE-25™. Where splashing of agent may occur, always wear eye protection and a face shield.

Spills or Leaks

If a large release of vapor occurs, such as from a large spill or leak, the vapors may concentrate near the floor or in low elevation areas, which can displace the oxygen needed for life, resulting in suffocation.

Evacuate everyone until the area has been well ventilated. Do not re-enter the affected area without self-contained breathing apparatus or unless the area has been monitored to indicate that the concentration of FE-25™ vapors is below the DuPont Acceptable Exposure Limit (AEL) of 1,000 ppm by volume.

Always use self-contained breathing apparatus or a supplied air mask when entering tanks or other enclosures where vapors might exist. Use the buddy system and a lifeline. Refer to the FE-25™ MSDS for more information.

Storage and Handling

Shipping Containers in the United States

FE-25™ is a liquefied compressed gas. According to the U.S. Department of Transportation (DOT) a nonflammable compressed gas is defined as a nonflammable material having an absolute pressure greater than 40 psia at 21°C (70°F) and/or an absolute pressure greater than 104 psia at 54°C (130°F.)

The appropriate DOT designations are as follows:

DOT Proper Shipping Name	Pentafluoroethane
Hazard Class	2.2
UN Number	3220
DOT/IMO Labels	Nonflammable Gas

A list of the different types of containers that can be used to ship FE-25™ in the United States, along with their water capacities, dimensions, DOT specifications and net weights, are provided in **Table 6**. All pressure relief devices used on the containers must be in compliance with the corresponding Compressed Gas Association (CGA) Standards for compressed gas cylinders, cargo, and portable tanks.

The 123-lb. water capacity (WC) cylinders are equipped with a non-refillable liquid vapor CGA-660 valve. With this two-way valve, agent can be removed from the cylinder as either vapor or liquid, without inverting the cylinder. The vapor valve handwheel is located on the top of the valve assembly. The liquid hand-wheel is on the side of the valve and attached to a dip tube extending to the bottom of the cylinder. Each is clearly identified as vapor or liquid.

The general construction of a one-ton returnable container is shown in **Figure 1**. Note that one end of the container is fitted with two valves. When the container is turned so that the valves are lined up vertically, the top valve will discharge vapor and the bottom valve will discharge liquid. The valves are protected by a dome cover. The valves are Superior Type 660-X1-B1.

Ton containers are equipped with two fusible plugs in each end. The fusible metal in the plugs is designed to start melting at 69°C (157°F) and completely melt at 74°C (165°F.) Containers should never be heated to temperatures higher than 52°C (125°F.) One spring-loaded pressure relief valve is also located in each end of the container.

In the United States FE-25™ is also deliverable by tank truck in quantities of approximately 33,000 lbs (15,000 kgs). For export shipments ISO containers are used.

Bulk Storage Systems

DuPont sells storage systems to their customers. The systems are prefabricated, tested, and ready to install on site. The units are designed to optimize economy, efficiency, and safety in the storage and dispensing of DuPont material. The delivered systems include all components, such as storage tanks, pumps, piping, valves, motors, and gauges as an integrated unit. All systems are equipped with dual pumps to provide an installed spare. The units are skid-mounted and require only placement on a concrete pad and connection to electrical and process systems.

A typical bulk storage system is shown in **Figure 2**.

Table 6
Specifications of Shipping Containers for DuPont™ FE-25™ (U.S)

Container	Dimensions	DOT Spec.	Net Weight, lb/kg
123 lb. WC Cylinder	55”H x 10” OD	4BA400	90/41
1682 lb. WC Ton Cylinder	82”L x 30” OD	110A800	1200 /544

Figure 1. One-Ton Returnable Container

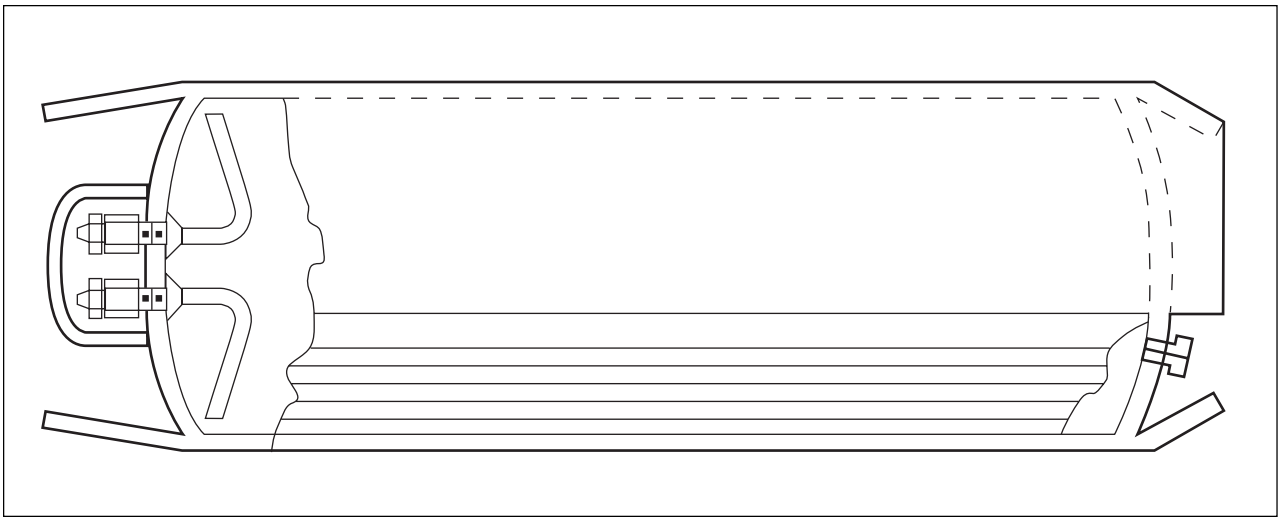
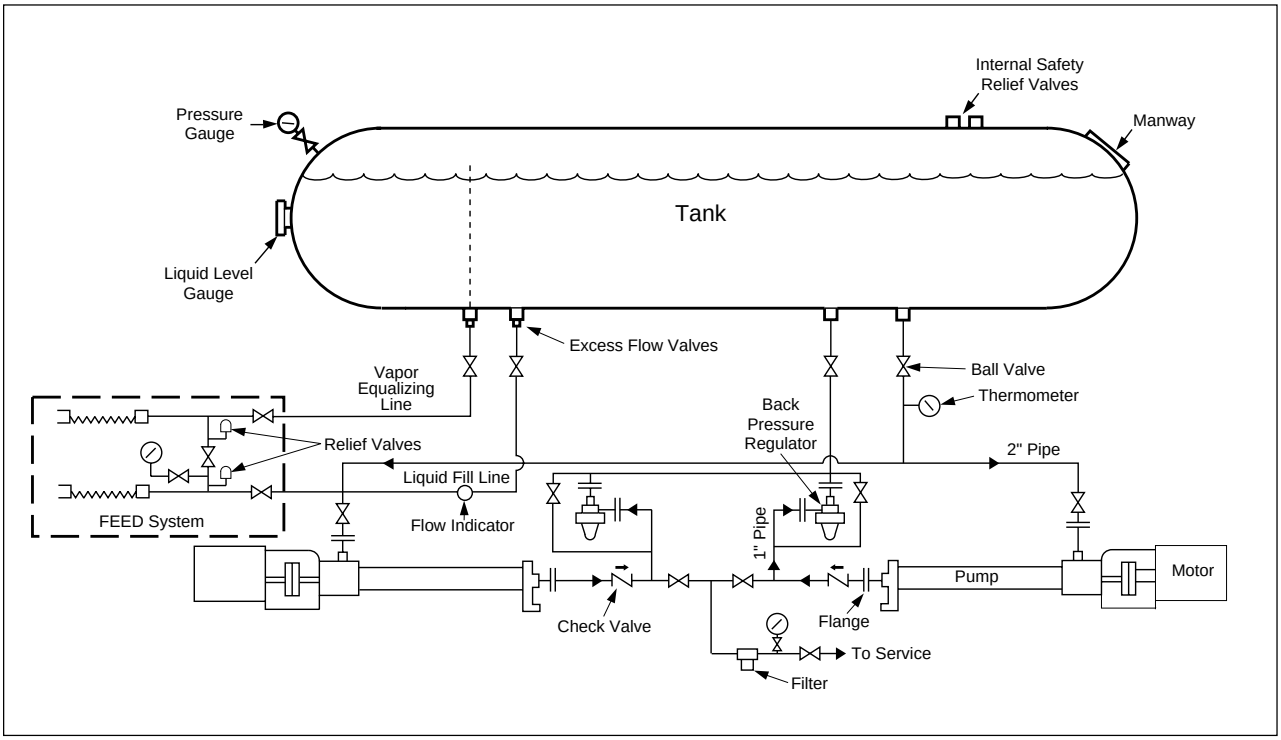


Figure 2. Typical Bulk Storage System



Transfer of DuPont™ FE-25™ Between Containers

The preferred method to transfer FE-25™ is with a pumping system that has been designed for that purpose. A supplier with experience in building fluorocarbon type systems should be contacted.

If a pump is not available the chilled transfer line method will facilitate transfer of FE-25™ to the receiving container. This method chills the FE-25™ as it passes through the transfer line, reducing the pressure in the receiver to induce transfer by pressure differential. A coil of compatible metal tubing of sufficient pressure rating is positioned in the transfer line between the supply and the receiver. The coil is placed in a cold bath, such as water ice or carbon ice.

The receiving container should be evacuated to eliminate contamination by air and to facilitate transfer of FE-25™.

Before returning empty DuPont cylinders the vapor heel should be recovered. This may be done by the chilled transfer method or with a recovery system consisting of a compressor, desiccant dryer, oil separator (or oilless compressor) and condenser.

Leak Detection

Whenever a system is assembled or serviced, it should be checked for leaks. There are many commercially available leak detectors. These devises are readily available through a refrigeration supply house.

A detailed discussion of leak detection, along with a list of manufacturers of leak detection equipment, is available in DuPont Bulletin ARTD-27 (H-31753-2).

Handling Precautions for FE-25™ Shipping Containers

The following rules for handling FE-25™ containers are strongly recommended:

- Use personal protective equipment, such as side-shield glasses, gloves, and safety shoes, when handling containers.
- Avoid skin contact with liquid FE-25™; it can cause frostbite.
- Never heat a container to a temperature higher than 52°C (125°F).
- Never refill returnable cylinders without DuPont consent. DOT regulations forbid transportation of returnable cylinders refilled without DuPont's authorization.
- Never use a magnet or sling (rope or chain) to lift containers. Lifting may be accomplished by the use of a safe cradle or platform basket that holds the container.
- Never use containers as rollers, supports, or any other purpose than to contain FE-25™.
- Protect containers from any objects that will result in a cut or other abrasion in the surface of the metal.
- Never tamper with the safety devices in the valves or container.
- Never attempt to repair or alter containers or valves.
- Never force connections that do not fit. Make sure the threads on the regulator or other auxiliary equipment are the same as those on the valve outlets.
- Keep valves tightly closed, with valve caps and hoods in place when the container is not in use.
- When storing containers outside, store under a roof and protect from weather extremes.

Nitrogen Superpressurization of DuPont™ FE-25™

FE-25™ is shipped in cylinders that contain essentially pure agent. The pressure in these cylinders is therefore due to the vapor pressure of FE-25™ alone. In fire suppression applications, it is often desirable to increase the available pressure above the vapor pressure of FE-25™. In these cases, nitrogen is added to the FE-25™ after transfer to accomplish this pressure increase and is called "superpressurization." Superpressurization may be for one or more of the following purposed:

- To increase the total pressure available for flow from the container through down-stream piping systems.
- To provide a "pressure-pad" for the liquid in order to keep the liquid "compressed" in the liquid phase during flow-through piping systems. This prevents a two-phase flashing flow situation and simplifies calculation of flows in pipeline.
- To stabilize the container pressure over a wide temperature range or, specifically, to maintain significant storage pressures at low temperatures.

To determine the amount of nitrogen required for superpressurization of FE-25™ at various fill densities, it is necessary to understand the solubility relationship of nitrogen and FE-25™. Extensive experimental work was conducted by DuPont's Central Research and Development group to develop the following information:

- Weights of nitrogen required for superpressurization
- Isometric diagrams
- Henry's Law Constants

Tables 7a and **7b** provide the weight of nitrogen required to pressurize a given amount of FE-25™ to 360 psig (2500 kPa) and 600 psig (4150 kPa.) Isometric diagrams of FE-25™ superpressurization to 360 psig and 600 psig at 72°F are shown in **Figures 3** and **4**. **Figures 5** and **6** show the isometric diagrams of FE-25™ superpressurized to 2583 kPa and 4240 kPa at 22°C.

Table 7a
Weight of Nitrogen Required for Superpressurization of DuPont™ FE-25™ at 70°F

Fill Density, lb/ft^3	Ounces at 360 psig	Ounces at 600 psig
40	0.346	0.777
45	0.303	0.680
50	0.269	0.602
55	0.240	0.539
60	0.217	0.485
65	0.197	0.441
70	0.190	0.424
75	0.180	

Table 7b
Weight of Nitrogen Required for Superpressurization of DuPont™ FE-25™ at 21°C

Fill Density, kg/m^3	Grams at 2500 kPa (gauge)	Grams at 4150 kPa (gauge)
600	23.7	52.6
700	19.9	44.2
800	17.1	37.9
900	14.9	33.0
1000	13.2	29.1
1100	11.7	25.9
1150	11.1	

Figure 3. Isometric Diagram – DuPont™ FE-25™ Pressurized with Nitrogen to 374.7 psia at 72°F

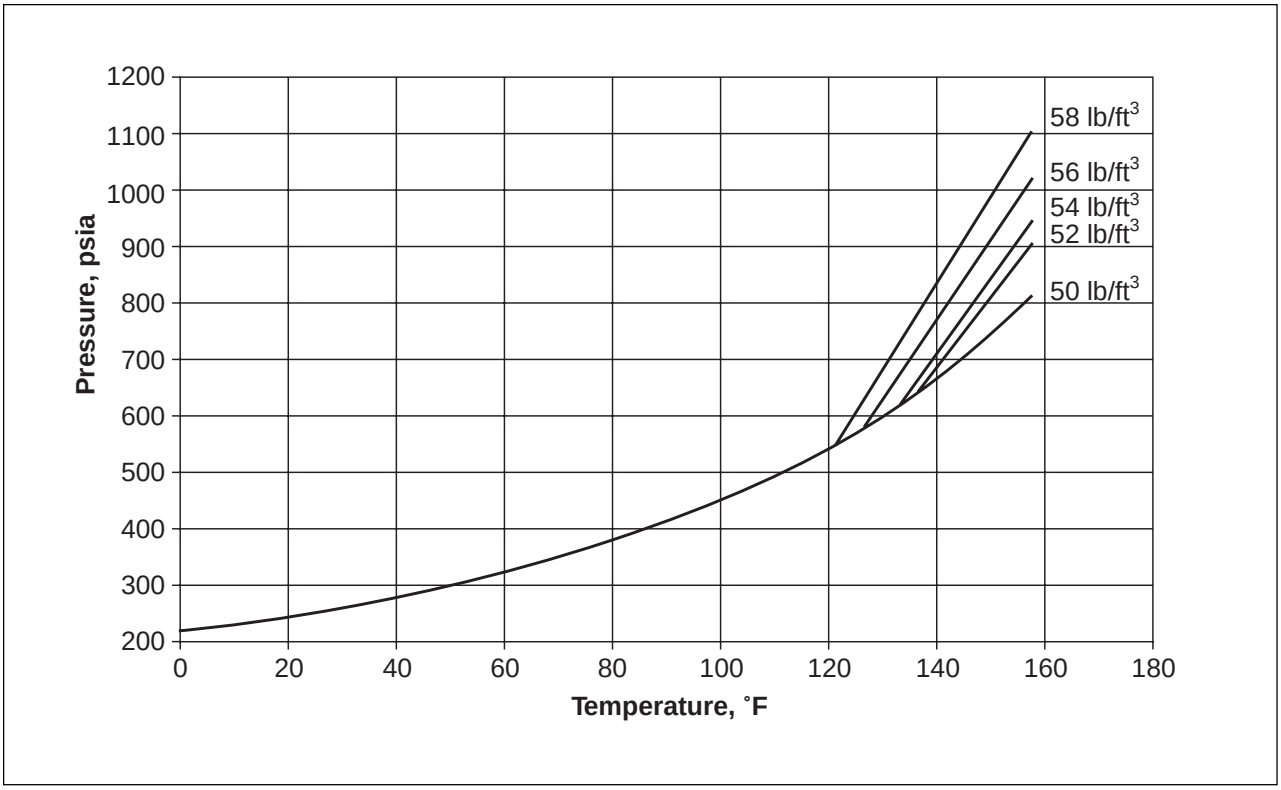


Figure 4. Isometric Diagram – DuPont™ FE-25™ Pressurized with Nitrogen to 614.7 psia at 72°F

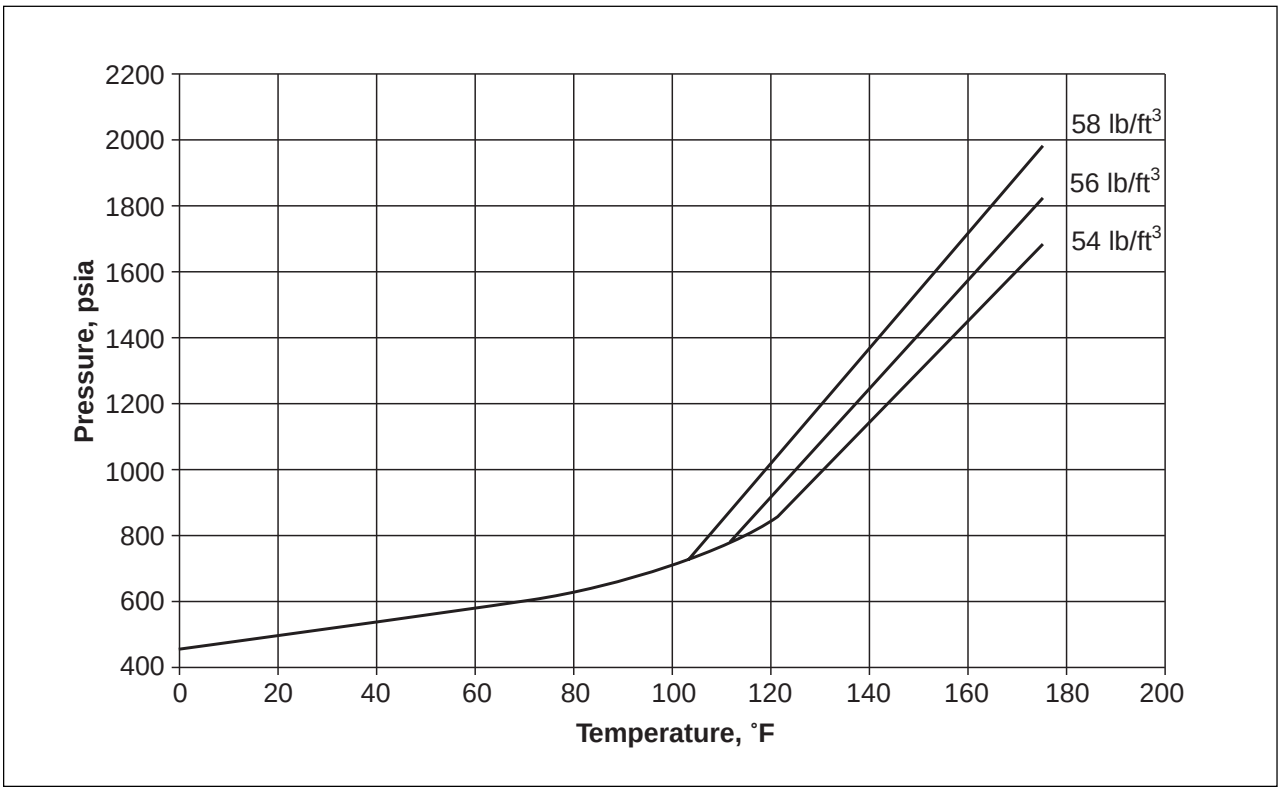


Figure 5. Isometric Diagram of HFC-125 Pressurized with Nitrogen to 2583 kPa at 22°C

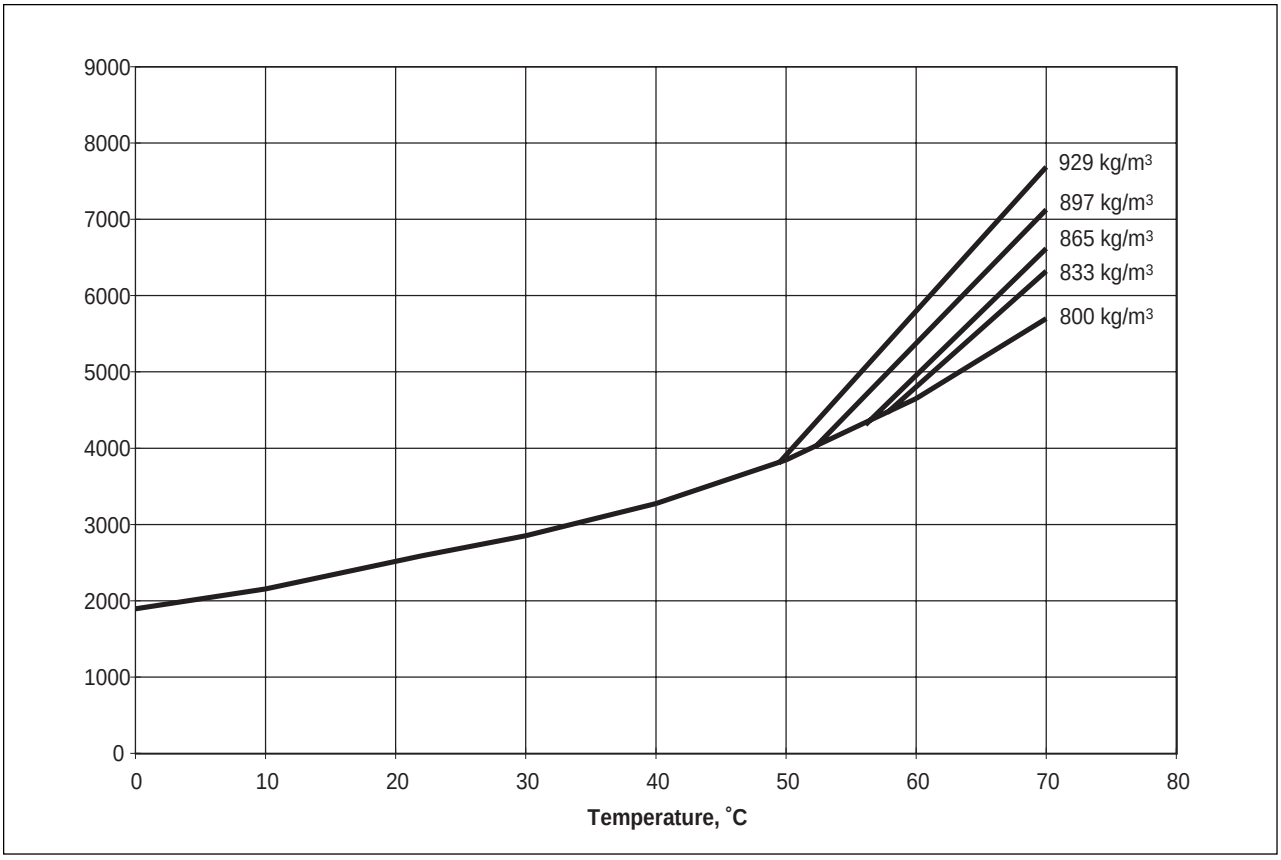
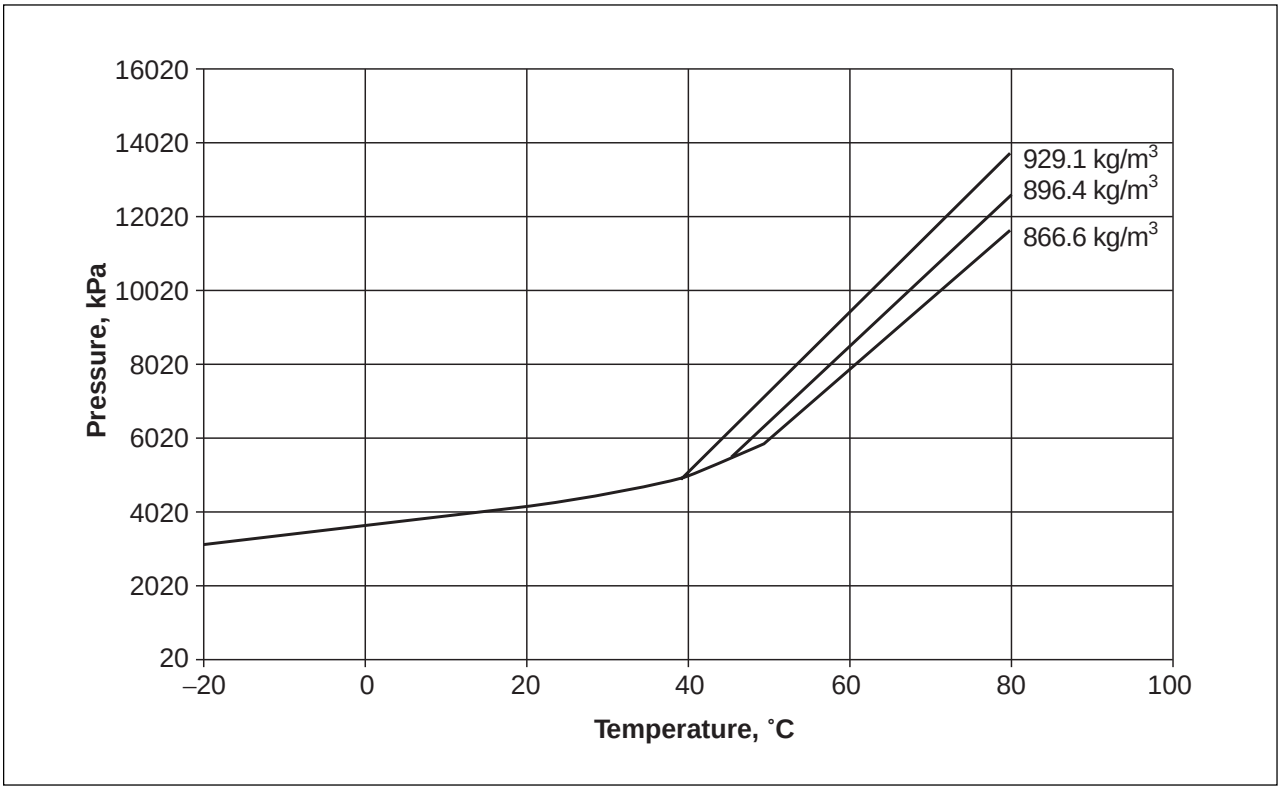


Figure 6. Isometric Diagram – DuPont™ FE-25™ Pressurized with Nitrogen to 4240 kPa at 22°C



Henry's Law Constants

Henry's Law Constants are shown in **Figure 7** (ENG units) and **Figure 8** (SI units.)

Figure 7. Henry's Law Constant for Nitrogen Solubility in DuPont™ FE-25™ (ENG Units)

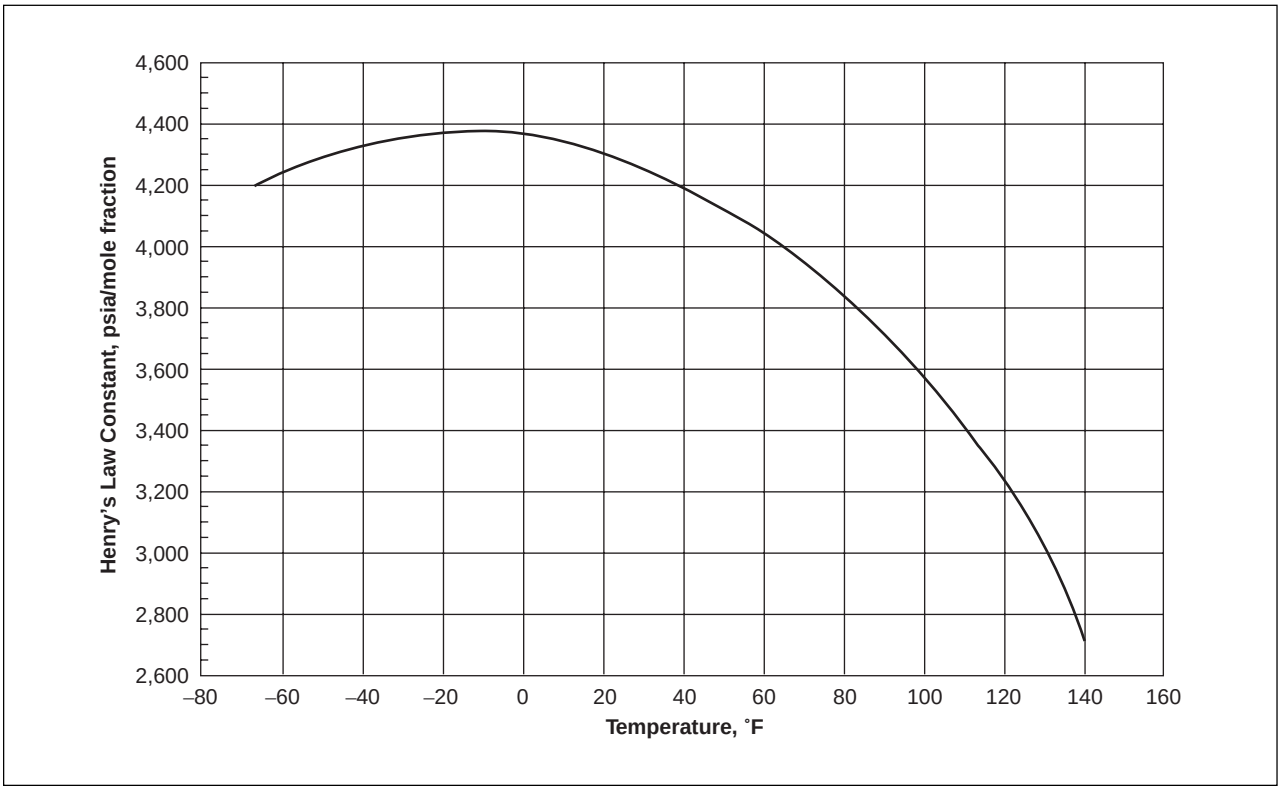
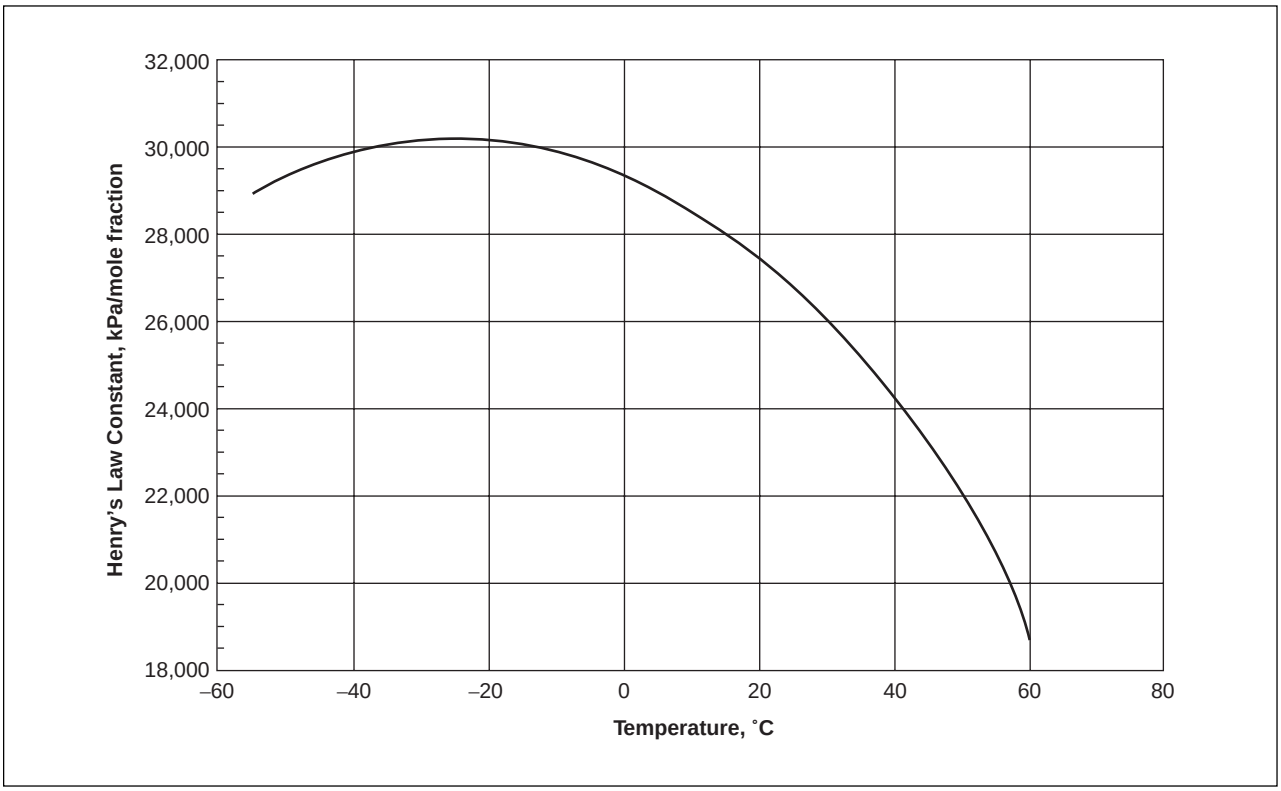


Figure 8. Henry's Law Constant for Nitrogen Solubility in DuPont™ FE-25™ (SI Units)



Recovery, Recycle, Reclamation, and Disposal

Responsible use of FE-25™ requires that the product be recovered for reuse or disposal whenever possible. Recovery and reuse makes sense from an environmental and economic standpoint.

Recovery

Recovery refers to the removal of FE-25™ from equipment and collection in an appropriate external container. Recovery does not involve processing or analytical testing. But if the system contains nitrogen or other pressurizing gas, it must be identified on the label. Recovery is normally performed when a system must undergo maintenance and the FE-25™ is then returned to the system after completion.

Reclamation

Reclamation refers to the reprocessing of FE-25™ recovered from a system to new product specifications. Quality of the reclaimed product is verified by chemical analysis. In the United States FE-25™ is included in DuPont's reclamation program. Contact DuPont for further information.

Disposal

Disposal refers to the destruction of used FE-25™. Disposal may be necessary when FE-25™ has become contaminated with other materials and no longer meets the acceptable specifications of DuPont or other reclaimer. DuPont does not presently accept severely contaminated FE-25™ for disposal; licensed waste disposal firms are available. Be sure to check the qualifications of any firm before sending them used FE-25™.

DuPont ... A Tradition in Safety

For further information regarding DuPont Fire Extinguishing Agents, contact:

United States

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Chestnut Run Plaza 702-1274E
P.O. Box 80702
Wilmington, DE 19880-0702
(800) 473-7790
Fax: (302) 999-4727
www.dupont.com/fire

Europe/Middle East/Africa

DuPont de Nemours International S.A.
DuPont Fire Extinguishants
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CH-1218 Le Grand-Saconnex
Geneva, Switzerland
Tel: 41-22-7175111
Fax: 41-22-7176169

Asia

DuPont Taiwan Co., Ltd.
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