

# DuPont™ DryFilm LXE/IPA Dispersion

## Dry Lubricants

DuPont™ DryFilm LXE/IPA is an extremely stable dry lubricant designed for specialized applications, such as blade-coating grease thickener and high temperature mold release. The superior performance of DuPont™ DryFilm LXE/IPA dispersion in these applications is a result of its melt flow characteristics. DuPont™ DryFilm LXE/IPA dispersion is listed in **Table 1**.

**Table 1**  
**DuPont™ DryFilm LXE/IPA Dispersion**

Product	Solvent
LXE/IPA	Isopropyl Alcohol (IPA)

### Dilution

The extendability of DuPont™ DryFilm LXE/IPA dispersion is a major asset, because it allows the user to customize the dispersion for ease of application and adequacy of coverage. DuPont™ DryFilm LXE/IPA dispersion can be extended with additional amounts of the base solvent.

DuPont™ DryFilm LXE/IPA is furnished as a dispersion at 10% solids by weight. **Table 2** is a dilution table showing the total parts DuPont™ DryFilm LXE/IPA dispersion and solvent required to achieve a range of final concentrations by weight.

### Properties of Dispersion Fluids

**Table 3** shows the properties of the dispersion fluids that are used with DuPont™ DryFilm LXE/IPA dispersion. Additional details are contained in each product's Material Safety Data Sheet (MSDS).

### Application

DuPont™ DryFilm LXE/IPA dispersion is applied by any of several methods, including dipping, spraying, or brushing onto a prepared surface. After application, DuPont™ DryFilm LXE/IPA dispersion can be air-dried or melt-coated.

For melt-coating, the heated surface should be heated to a temperature of 335–340°C (635–644°F); the temperature should be held for 10–15 min.

**Table 2**  
**DuPont™ DryFilm LXE/IPA Dispersion**

DuPont™ DryFilm LXE/IPA Dispersion	Dilution Table				
	Solvent	Solids wt%	Final Conc. wt%	Parts DuPont™ DryFilm LXE/IPA Dispersion	Parts Solvent
LXE/IPA	IPA	10	5.0	1	1
			2.5	1	3
			1.0	1	9



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**Table 3**  
**Properties of Dispersion Fluids**

DuPont™ DryFilm Dispersion Products	DuPont™ DryFilm LXE/IPA Dispersion
Solvent	Isopropyl Alcohol
Composition	CH <sub>3</sub> CH(OH)CH <sub>3</sub>
CAS#	67-63-0
Boiling Point	82°C (179.6°F)
Freezing Point	-89°C (-128.2°F)
Density (g/cc)	0.79 (25°C [77°F])
Vapor Pressure (20°C [68°F])	33 mmHg
Odor	Alcohol
Color	Colorless
Flash Point	11°C (52°F) TCC
Flammability—LEL	2.0%
Flammability—UEL	12.7%
Exposure Limits—AEL	200 ppm 8- and 12-hr TWA
Exposure Limits—PEL	200 ppm 8-hr TWA
Exposure Limits—TLV	200 ppm 8-hr TWA 400 ppm STEL
Exposure Limits—WEEL	—
TSCA Status	Listed
DOT	
Flammable Liquid	

Sources for additional amounts of dispersion fluids are shown in **Table 4**.

### Melt-Coating for Improved Adhesion

Adhesion of DuPont™ DryFilm dispersion coatings can be improved by melting the deposited solids. After the dilute dispersions are applied and the solvent is allowed to evaporate at room temperature, the surface can be heated to cure.

The proper fusion temperature for DryFilm LXE/IPA is 335–340°C (635–644°F). Note that these are the recommended temperatures for the coated surface itself.

**Table 4**  
**Sources of Dispersion Fluid**

Isopropyl Alcohol	
Union Carbide	(800) 765-8368
Shell Oil Company	(713) 241-4819
Aldrich Chemical Co.	(414) 273-3850

- Measure the surface temperature directly with a thermocouple. You may observe a change in coating appearance, which may alter initially from an opaque white to a darker, translucent look and then appear clear and wet.
- Maintain the temperature of the coated surfaces (not the temperature of the ambient air) at the correct temperature for 5–10 min.
- If a white residue is left on the metal surface, buff with a soft cloth.
- In melt-coating DuPont™ DryFilm dispersions, provide adequate ventilation and observe all the precautions outlined in the section titled “Safe Handling and Storage.”

### Product Description

DuPont™ DryFilm LXE/IPA dispersion is a fluorotelomer, a highly fluorinated substance with a low molecular weight. The functional ingredient is polytetrafluoroethylene, or PTFE, which has an extremely low coefficient of friction and, thus, imparts high lubricity and excellent nonstick properties.

Because of the chemical stability of PTFE, DuPont™ DryFilm LXE/IPA dispersion is resistant to attack by nitric acid, hydrochloric acid, sodium hydroxide, and alcoholic potassium hydroxide in most applications. They are also extremely stable thermally and can be heated above the melting point before appreciable decomposition begins. DuPont™ DryFilm LXE/IPA dispersion is essentially insoluble in all nonfluorinated solvents. Typical properties of DuPont™ DryFilm LXE/IPA dispersion are shown in **Table 5**.

**Table 5**  
**DuPont™ DryFilm LXE/IPA Dispersion**  
**Typical Properties**

	<b>LXE/IPA</b>
Solids, wt%	10
Melting Point	322–326°C (612–619°F)
Telomer Solids	
Molecular Weight	30,000
Density, g/cc	2.2
Particle Size, µm	
Average Bulk	3.7
Dispersion	
Boiling Point	82°C (179.6°F)
Vapor Pressure at 20°C (68°F)	33 mmHg
Freezing Point	–89°C (–128.2°F)
Volatiles, %	90
pH	4–6
Odor	Alcohol
Form	Fluid Dispersion
Color	Translucent
Density, g/cc (lb/gal)	0.84 (7.0)
Solvent	IPA

## **Safe Handling and Storage**

### ***General Practices***

When using DuPont™ DryFilm LXE/IPA dispersion, a handler should observe the same precautions associated with many solvents and resinous materials in regular commercial use. A summary of these precautions is contained in the MSDS on DuPont™ DryFilm dispersions; the appropriate solvents can be consulted for more detailed information.

Adequate ventilation is important when DuPont™ DryFilm LXE/IPA dispersion is applied or heated, and care should be taken to avoid inhaling spray mist or fumes containing DuPont™ DryFilm LXE/IPA dispersion. Appropriate precautions for the solvents should also be used.

# DuPont™ DryFilm

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*H-97552-2 (7/05) Printed in the U.S.A.*

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