

# 3M™ Novec™ 72FL Engineered Fluid

## Introduction

For information on other applications, contact your 3M representative or 3M authorized distributor.

3M™ Novec™ 72FL Engineered Fluid is a safe, nonflammable solvent blend\* designed to clean aircraft exterior surfaces, flaps, controls, connectors, electromechanical devices, relays and circuit breakers. Novec 72FL fluid is formulated to remove light oils, greases and silicones, as well as fluorinated oils and greases, dust and particulates, from equipment and components. Novec 72FL fluid is compatible with most plastics and other materials of construction. It is nonflammable, non ozone-depleting, has low global warming potential and contains no TCE, perchloroethylene, HCFCs, HFCs, nPB or HAPs. Novec 72FL fluid is 80% US EPA VOC Exempt and can be used on aircraft under the Option 2 Aerospace NESHAP guidelines.

- Fast drying, low odor
- Excellent plastics compatibility
- No rinsing and no residues
- Non corrosive, non-conductive
- Non-flammable
- Low toxicity
- Low Global Warming Potential

\*Novec 72FL fluid is a non-azeotropic blend. It is not designed to be used in vapor degreasing applications.

## Applications

Ideal for cold cleaning (flush, wipe and spray) of particulates, fluorolubes, light oils and fluoropolymers. Also cleans hydraulic fluid with no effect on corrosion inhibiting compound (CIC coating). Not designed for vapor degreasing. 72DL is a non-azeotropic blend and, therefore, vapor concentrations in a vapor degreaser would shift over time rendering this product unacceptable for vapor degreasing.

## Compatibility Test Results

Test Description	ASTM #	CFC-113 (Control)	Novec™ 72FL
Sandwich Corrosion	F1110	Conforms	Conforms
Residue	F485	Conforms	Conforms
Stress Corrosion Cracking	F945	Conforms	Conforms
Paint Softening	F502	Conforms	Conforms
Hydrogen Embrittlement	F519	Conforms	Conforms

## Plastics Compatibility

Material	Compatibility	Material	Compatibility
ABS	Excellent	PMMA	Excellent
Nylon	Excellent	POM	Excellent
Lexan®/Polycarbonate	Excellent	PP	Excellent
HDPE	Excellent	PS	Excellent
CDPE	Excellent	PTFE	Excellent
C.E. Phenolic	Excellent	PVC	Excellent

**Note:** May damage stressed acrylic. Test before use.

## Environmental, Health and Safety Information

Properties	Novec 72FL	HCFC-14b*	HCFC-225*
Ozone Depletion Potential <sup>1</sup> (ODP)	0	0.1	0.03
Global Warming Potential <sup>2</sup> (GWP)	71	725	370
Flashpoint	None	None	None
Exposure Guideline (ppmV, 8 hr time weighted average)	200	500	50

<sup>1</sup> CFC-11=1.0, <sup>2</sup> GWP-100 year integration time horizon, CO<sub>2</sub> = 2.0

\* HCFC-141b is no longer produced in the U.S. and HCFC-225 will be banned after 2014.

## Physical Properties

Properties	Value	Properties	Value
Boiling Point (°C)	45	Dielectric Strength	>25 kV
% Volatile	100	Shelf Life	Initially 1 Year (further testing underway)
Evaporation Rate (relative to n-Butyl Acetate)	0.10	Heat of Vaporization	38*
Surface Tension (dynes/cm <sup>2</sup> )	16*	Vapor Density	7.9
Liquid Density (g/ml)	1.40	Vapor Pressure	330

\* Estimated Value.

## Safety and Handling

3M™ Novec™ 72FL Fluid is nonflammable. When used as directed, in its intended applications, the product has a wide margin of safety between anticipated exposures and the exposure guideline. It is recommended to store inside, at temperatures below 100°F (38°C) to prevent excess pressure build up inside the container. Before using this product, be sure to read and follow all precautions and directions for use contained in the product label and Material Safety Data Sheet, which is available from your local 3M representative upon request.

## Resources

3M™ Novec™ Engineered Fluids are supported by global sales, technical and customer service resources, with technical service laboratories in the U.S., Europe, Japan, Latin America and Southeast Asia. Users benefit from 3M's broad technology base and continuing attention to product development, performance, safety and environmental issues. For additional technical information on 3M™ Novec™ 72FL Engineered Fluid in the United States or for the name of a local authorized distributor, call 3M Electronics Markets Materials Division: **800 810 8513**.

### The 3M™ Novec™ Brand Family

The Novec brand is the hallmark for a variety of patented 3M products. Although each has its own unique formula and performance properties, all Novec products are designed in common to address the need for safe, effective, sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, lubricant deposition and several specialty chemical applications.

3M™ Novec™ Engineered Fluids • 3M™ Novec™ Aerosol Cleaners • 3M™ Novec™ 1230 Fire Protection Fluid • 3M™ Novec™ Electronic Coatings • 3M™ Novec™ Electronic Surfactants

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