

**MicroCare™**  
ENGINEERED FLUIDS

# HFE7100

## Cleaning & Rinsing Agent, Carrier Fluid

Use for electronics cleaning and lubricant deposition

- Ideal replacement for 3M™ Novec™ 7100 Engineered Fluid
- Effective replacement for CFC, HCFC, HFC & PFC fluids, enabling greener operations

## Introduction

MicroCare™ HFE7100 Engineered Fluid is a clear, colorless, and low odor precision fluid designed for various applications, including electronics cleaning, and carrying and deposition of lubricants and coatings.

Its unique properties make it a versatile solution for mono-solvent or co-solvent cleaning.

## Benefits

- Non-flammable for improved workplace safety
- Very low global warming potential (GWP), contributing to climate protection
- Non-ozone depleting, ensuring minimal environmental impact
- Fast drying for improved process efficiency
- Moderate boiling point and low surface tension enable enhanced cleaning and coating effectiveness
- Excellent toxicity profile
- Provides reliable chemical and thermal stability

## Use Procedures

It is recommended that MicroCare™ HFE7100 Engineered Fluid be used in a vapor degreaser or closed-loop system to maximize cleaning efficiency, economy, and emission control. Cleaning procedures for MicroCare™ HFE7100 are like those of conventional vapor degreasing products. The procedures consist of immersing a workload into the vapor or boiling solvent, rinsing with solvent, and then drying in the solvent vapor. Coating can be conducted by mixing the coating material with MicroCare™ HFE7100 Engineered Fluid and dipping a workload into the coating bath followed by air drying.

## Recovery

MicroCare™ HFE7100 Engineered Fluid is recoverable by simple distillation, either by using a vapor degreaser or a simple still apparatus, reducing waste and operational costs.

Recovery should be closely watched to ensure that the operating levels are maintained. Spent ingredients and still bottoms need to be disposed of according to Federal, State, and local regulations.



Replacements for  
**3M™ Novec™**  
Engineered Fluids

We offer chemically equivalent fluid formulas for the ones you already rely on, delivering the same high-quality cleaning performance without costly operational changes.

Our products meet or exceed 3M Novec™ performance standards, and as a leading supplier of high-purity HFEs, we ensure they pass the industry's most stringent quality metrics.

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## Applications

- Removing oils, greases, fluxes, waxes and particulates
- Lubricant carrier for fluorocarbons, hydrocarbons and silicones

## Specifications

**Table 1. Physical Properties**

Formula	$C_4F_9OCH_3$
Molecular Weight	250
Boiling Point (°C)	61
Freeze Point (°C)	-135
Liquid Density (g/ml)	1.53
Surface Tension (dynes/cm)	13.6
Solubility of Solvent in Water (ppmw)	12
Solubility of Water in Solvent (ppmw)	95
Vapor Pressure (mmHg)	202

**Table 2. Product Comparison Chart**

Property	MicroCare™ HFE7100	Opteon™ SF33	Vertrel™ XF	Tergo™ PF100	Teres™
BP (C)	61	33	55	56	51
KB value	<20	<20	<20	<20	<20
Specific Gravity	1.53	1.36	1.58	1.47	1.39
Surface Tension (dyne/cm)	13.6	13	14.1	16.4	15
GWP	297	2	1650	580	27
Plastic Compatibility	Good	Good	Good	Good	Fair

## Materials Compatibility

MicroCare™ HFE7100 Engineered Fluid is compatible with most metals and hard polymers such as:

Short-Term Exposure Compatibility		
Metals	Plastics	Elastomers
Aluminum	Acrylic (PMMA)	Butyl Rubber
Molybdenum	Epoxy	Natural Rubber
Copper	Polyethylene	Nitrile Rubber
Tantalum	PET	EPDM
Carbon Steel	Polypropylene	
Tungsten	Phenolic	
302 Stainless Steel	Polycarbonate	
Cu/Be Alloy C172	ABS	
Brass	Polyester	
Mg Alloy AZ32B		

*Exceptions: Some swelling of PTFE and Silicone Rubber. Some surface oxidation of copper during heat aging.*

## Environmental Health and Safety

Ozone Depletion Potential (ODP) <sup>1</sup>	None
Global Warming Potential (GWP) <sup>2</sup>	320
Atmospheric Lifetime (years)	4.1
Flash Point	None
Flammability Range in Air	None
Exposure Guidelines (8 hr. time-weighted average)	750
Exposure Ceiling (ppm)	None
Acute Toxicity (4 hr. LC <sub>50</sub> [Rat])	>100,000

<sup>1</sup> HCFC-225 ca/cb ratio is 45/55

<sup>2</sup> CFC-11 = 1.0

## Storage and Handling

Before using this product, carefully read and follow all precautions and directions provided on the product label and in the Safety Data Sheet (SDS).

MicroCare™ HFE7100 Engineered Fluid is nonflammable and highly resistant to thermal breakdown and hydrolysis during storage and use. It is thermally and hydrolytically stable, keeping integrity under normal storage conditions without oxidation or degradation. To ensure the best performance, store containers in a clean, dry area away from direct sunlight, with a recommended storage temperature not exceeding 30°C.

For detailed handling and safety recommendations, refer to the SDS, available from your local representative or online at [microcare.com](http://microcare.com).



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