Puretecs GmbH

TEL: +49 (0)7021 / 8608838 FAX: +49(0)7021 / 7383648

Email: info@puretecs.de; Website: www.puretecs.de

TDS of HFE-7300

Product name: 1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl)pentane

Synonym: Heat transfer liquid; HFE-7300

CAS NO: 132182-92-4

Introduction

This product is a clear, colorless, odorless fluid that has utility in a wide variety of applications, including heat transfer, lubricant deposition, electronic testing and cleaning applications. This product is non-flammable, thermally stable, non-ozone depleting, and has a very low global warming potential. It does not contribute to the formation of photochemical smog. It is recommended for use as a replacement for perfluoropolyethers (PFPEs), perfluorocarbons (PFCs), hydrochlorofluorocarbons (HCFCs), and hydrofluorocarbons (HFCs). On this basis, it provides a useful tool to help meet commitments for greenhouse gas emission reduction.The boiling point, wide liquid range and low-temperature viscosity of this product make it ideal for cooling ion implanters, dry etchers, and CVD machines. It is effective at mitigating the aggressiveness of solvents and is useful in inerting the flammability of blends. The chemical and thermal stability of this product lend to its use as a reaction media.

Typical Physical Properties

Items	Typical value
Appearance	Clear and colorless
Molecular Weight	350
Boiling Point (°C) @760 mmHg	98.0
Freeze Point (°C)	-38
Critical Temperature (°C)	243
Critical Pressure (Mpa)	1.88
Liquid Density (g/ml, 25°C)	1.67
Surface Tension (dynes/cm)	15.0
Solubility of Solvent in Water (ppmw)	<1
Solubility of Water in Solvent (ppmw)	67
Vapor Pressure (mmHg)	45
Viscosity @ 25°C (cSt)	0.71

Viscosity @ -35°C (cSt)	3.51
Absolute viscosity (mPa.S)	1.18
Specific heat (J/Kg-K)	1140
Heat of Vaporization (Kj/kg)	102
Coefficient of expansion (K^{-1})	0.0013
Thermal Conductivity (W/m-K)	0.063
Dielectric Strength@1atm 0.1″gap (KV)	>25
Dielectric Constant@1kHz	6.14
Volume Resistivity (Ohm-cm)	10^{11}

Environmental and Safety Properties

Ozone Depletion Potential-ODP	0
Global Warming Potential	200
Atmospheric Lifetime (years)	3.8
Flash Point (°C)	None
Flammability Range in Air	None
Exposure Guidelines (8 hr. TWA) (ppm)	100

Heat Transfer

This product is ideal as a heat transfer fluid for the demanding requirements of semiconductor processing and electronics equipment. It is designed to balance performance with favorable environmental and worker safety properties. In heat transfer applications, it offers:

- Excellent dielectric properties
- Non-flammability
- Wide liquid range
- Low Global Warming Potential (GWP)
- Good materials compatibility
- Zero Ozone Depletion Potential (ODP)
- Low toxicity

For heat transfer applications, favorable environmental health and safety properties make it a long-term, sustainable solution, helping improve reliability, address environmental concerns and lower overall operating costs.

Solvent Properties

Data compiled from published information, not compiled specification purposes.
It is an excellent replacement for PFCs, HCFCs, and MFCs in many solvent applications. It has shown utility in solvent cleaning applications -both in its neat form, and when blended with organic solvents, and/or other hydrofluoroethers, hydrofluorocarbons and other fluorinated solvents.

Materials Compatibility

It is compatible with most metals and hard polymers such as:

Metals	Plastics	Elastomers
Stainless Steei	Polycarbonate	EPDM
Nickel	PMMA	Nahjral Rubber
Copper	ABS	Polyurethane
Aluminum	Polypropylene	
Monel	Polyethylene	

Safety and Handling

Be sure to read and follow the precautions and directions for use contained in the product label and Safety Data Sheet before using this product. It is nonflammable and is highly resistant to thermal breakdown and hydrolysis in storage and during use. Recommended handling procedures are provided in the Material Safety Data Sheet.