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## PFPE Perfluorinated Heat Transfer Fluids

**Product name:** JHT110, JHT135, JHT170, JHT200, JHT230, JHT270

**Chemical name:** Perfluoropolyether

### Introduction

The JHT fluid range consists of clear, colorless, and odorless perfluoropolyether (PFPE) fluids designed to replace ozone-depleting substances (ODSs), compounds with high global warming potential (GWP), and chlorinated materials in various industrial applications. These fluids offer a higher boiling point compared to most CFCs, HCFCs, and HFCs, reducing evaporative losses. Their low surface tension and viscosity make them ideal for vapor degreasing, cold cleaning, and heat transfer applications. Additionally, their chemical and thermal stability, non-flammability, and non-toxicity make them suitable for use in semiconductor manufacturing, electronics, and other industrial processes.

### Applications

**Semiconductor Manufacturing:** Etching, Chemical Vapor Deposition (CVD), and ion implantation.

**Recirculating Chillers:** Heat transfer fluids for temperature control.

**Cold Cleaning:** Cleaning and rinsing agent for vapor degreasing, particularly for flex circuits and wipe solvents.

**Light-Duty Cleaning:** Removal of particulates, fluorolubes, light oils, and fluoropolymers. **Lubricant**

**Carrier:** Used in applications involving fluorocarbons, hydrocarbons, and silicones. **Specialty Solvents:** Dispersion medium, reaction medium, and extraction solvent.

**Spray Contact Cleaner:** Effective for cleaning sensitive electronic components.

**CFC, HCFC, HFC, and PFC Replacement:** Environmentally friendly alternative to traditional refrigerants and solvents.

**Pharmaceutical Industry:** Freeze-drying processes.

### Features

**Compatibility:** Compatible with metals, ceramics, and elastomers.

**Thermal and Chemical Stability:** Resistant to degradation under high temperatures and harsh chemical environments.

**Non-Flammable:** Safe for use in high-temperature applications. **Dielectric**

**Properties:** Excellent electrical insulation properties. **Low Viscosity:** Ensures efficient heat transfer and fluid flow.

**High Electrical Resistivity:** Suitable for electronic applications.

**FM6930 Approval:** Meets industry standards for safety and performance.

**Wide Temperature Range:** Operates effectively across a broad range of temperatures.

**Non-Toxic:** Safe for use in sensitive environments.

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## Physical Properties

| Property                       | Units                                       | JHT-110            | JHT-135            | JHT-170            | JHT-200            | JHT-230            | JHT-270            |
|--------------------------------|---------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Boiling Point                  | °C                                          | 110                | 135                | 170                | 200                | 230                | 270                |
| Pour Point                     | °C                                          | -125               | -100               | -97                | -85                | -77                | -66                |
| Max Working Temp               | °C                                          | 100                | 125                | 160                | 180                | 180                | 260                |
| Min Working Temp               | °C                                          | -60                | -50                | -30                | -20                | 0                  | 25                 |
| Molecular Weight               | g/mol                                       | 580                | 630                | 780                | 890                | 1100               | 1600               |
| Vapor Press                    | kPa                                         | 2.27               | 0.77               | 0.1                | 0.027              | 0.004              | < 0.001            |
| Heat of Vaporization           | KJ/Kg                                       | 71.4               | 67.2               | 67.2               | 63                 | 63                 | 63                 |
| Density                        | g/m <sup>3</sup>                            | 1.71               | 1.72               | 1.77               | 1.79               | 1.82               | 1.84               |
| Coeff. of Expansion @100C      | κ <sup>-1</sup>                             | 0.001              | 0.001              | 0.001              | 0.001              | 0.001              | 0.001              |
| Kinematic Viscosity            | cSt                                         | .8                 | 1.0                | 1.8                | 2.9                | 5.0                | 16                 |
| Specific Heat                  | Cal/g°C                                     | 0.23               | 0.23               | 0.23               | 0.23               | 0.23               | 0.23               |
| Thermal Conductivity           | W/m-K                                       | 0.065              | 0.065              | 0.065              | 0.065              | 0.065              | 0.065              |
| Surface Tension                | mN/m                                        | 16                 | 17                 | 18                 | 19                 | 19                 | 20                 |
| Refractive Index               | 589.3nm                                     | 1.28               | 1.28               | 1.28               | 1.28               | 1.28               | 1.28               |
| Solubility Water               | ppm(w)                                      | < 10               | < 10               | < 10               | < 10               | < 10               | < 10               |
| Solubility Air                 | cm <sup>3</sup> gas/100 cm <sup>3</sup> liq | 26                 | 26                 | 26                 | 26                 | 26                 | 26                 |
| Dielectric Strength (0.1" gap) | Kv                                          | > 40               | > 40               | > 40               | > 40               | > 40               | > 40               |
| Dielectric Constant @ 1kHz     | -                                           | 1.92               | 1.92               | 1.94               | 1.94               | 1.94               | 1.94               |
| Volume Resistivity             | ohm-cm                                      | 6·10 <sup>15</sup> | 6·10 <sup>15</sup> | 6·10 <sup>15</sup> | 6·10 <sup>15</sup> | 6·10 <sup>15</sup> | 6·10 <sup>15</sup> |
| Ozone Depletion Potential      | -                                           | 0                  | 0                  | 0                  | 0                  | 0                  | 0                  |

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#### **Safety and Handling**

**Storage:** Store in a cool, dry place away from direct sunlight and incompatible materials. **Handling:** Use appropriate personal protective equipment (PPE) when handling. Avoid inhalation and contact with skin or eyes.

**Disposal:** Dispose of in accordance with local regulations. Do not pour into drains or water sources.

#### **Environmental Impact**

**Ozone Depletion Potential (ODP):** 0 (No impact on the ozone layer)

**Global Warming Potential (GWP):** Low compared to traditional CFCs, HCFCs, and HFCs.

**Biodegradability:** Non-biodegradable, but chemically inert and non-toxic.

#### **Additional Information**

- **Packaging:** JHT fluids are available in a variety of packaging options to suit your specific needs, including bottles, drums, and totes. Contact Scanwel for details.
- **Technical Support:** Scanwel provides comprehensive technical support to assist you with selecting the appropriate JHT fluid for your application and to ensure optimal performance. Contact our technical team for assistance.

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