



Performance Fluid

PF-5070

Introduction

Acota™ Performance Fluid PF-5070 is a clear, colorless, fully-fluorinated liquid. Like other Acota Performance Fluids, PF-5070 fluid is chemically and thermally stable, practically non-toxic, and nonflammable.

The high dielectric strength, excellent materials compatibility, and chemical and thermal stability make PF-5070 fluid useful in a wide range of applications, such as lubricant deposition, reaction media and heat transfer.

Typical Physical Properties

Not for specification purposes

All values determined at 25°C unless otherwise specified

Properties	PF-5070
Appearance	Clear, colorless
Average Molecular Weight	388
Boiling Point (1 atm)	80 °C
Pour Point	-95 °C
Estimated Critical Temperature	478 K
Estimated Critical Pressure	1.75 x 10 ⁶ Pa
Vapor Pressure	10.6 x 10 ³ Pa
Latent Heat of Vaporization (at normal boiling point)	80 J/g
Liquid Density	1.73 g/ml
Kinematic Viscosity	0.50 centistokes
Absolute Viscosity	0.87 centipoise
Liquid Specific Heat	1.05 J g ⁻¹ °C ⁻¹
Liquid Thermal Conductivity	0.060 W m ⁻¹ °C ⁻¹
Coefficient of Expansion	0.0014 °C ⁻¹
Surface Tension	13 dynes/cm
Refractive Index	1.258
Water Solubility	11 ppmw
Solubility in Water	<5 ppmw

Acota™ Performance Fluid PF-5070 Heat Transfer Properties

The following formulas can be used to calculate the specific heat, thermal conductivity, density and vapor pressure of Acota™ Performance Fluid PF-5070 at various temperatures.

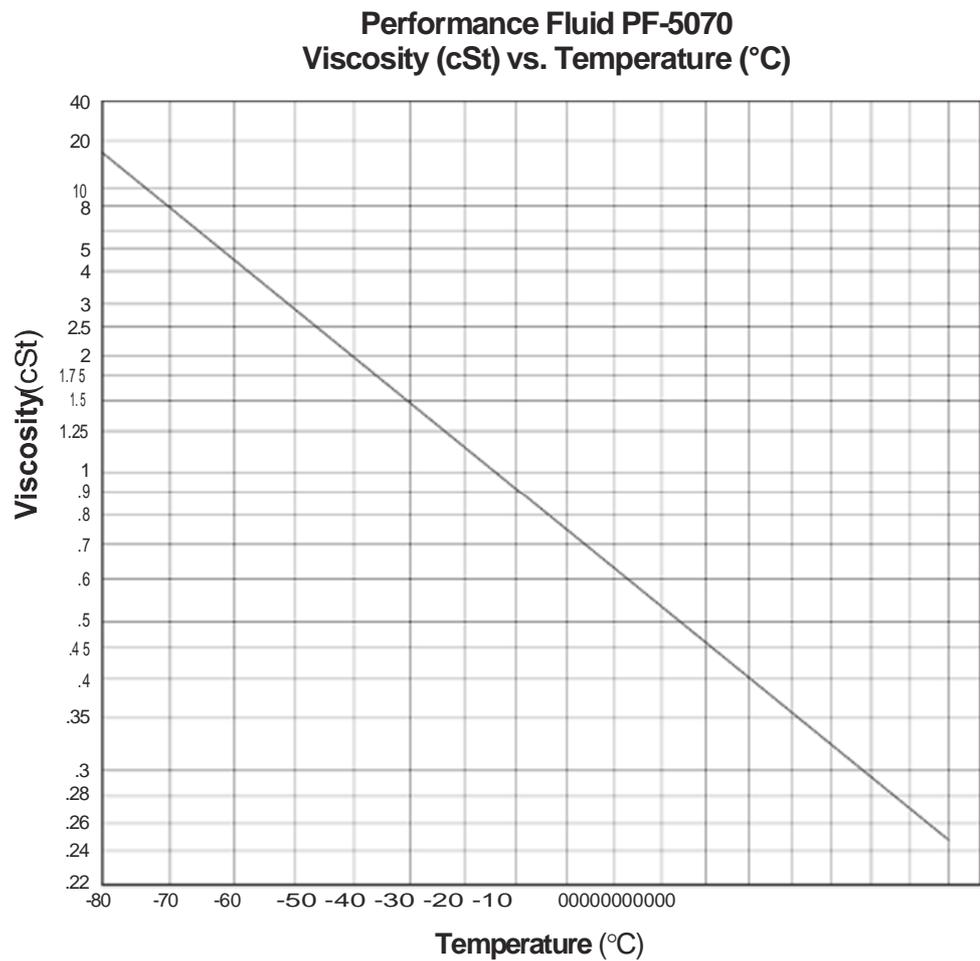
$$\text{Specific Heat (J kg}^{-1} \text{ }^{\circ}\text{C}^{-1}) = 1014 + 1.554 (T, \text{ }^{\circ}\text{C})$$

$$\text{Thermal Conductivity (W m}^{-1} \text{ }^{\circ}\text{C}^{-1}) = 0.063 - 0.00012 (T, \text{ }^{\circ}\text{C})$$

$$\text{Density (kg/m}^3) = 1790 - 2.57 (T, \text{ }^{\circ}\text{C})$$

$$\text{Log}_{10}(\text{Vapor Pressure (Pa)}) = 10.142 - (1824/(T, \text{ K}))$$

The following graph can be used to determine the viscosity of performance fluid PF-5070 over the indicated temperature range.



Acota™ Performance Fluid PF-5070 Materials Compatibility

Acota™ Performance Fluid PF-5070 is compatible with most metals, plastics and elastomers.

Toxicity Profile

PF-5070 fluid is non-irritating to the eyes, minimally irritating to the skin, and is practically non-toxic orally. A Material Toxicity Summary Sheet (MTSS) is available upon request.

Safety and Handling

PF-5070 fluid 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, which is available upon request.

Environmental Properties

PF-5070 fluid has zero ozone depletion potential. The material is exempt from the U.S. EPA and most State definitions of a volatile organic compound (VOC), and does not contribute to ground-level smog formation.

PF-5070 fluid, a perfluorocarbon (PFC), has a high global warming potential and a long atmospheric lifetime. As such, it should be carefully managed so as to minimize emissions.

Acota recommends that users of PF-5070 fluid further limit emissions by employing good conservation practices, and by implementing recovery, recycling and/or proper disposal procedures. Acota offers a program in the U.S. for used fluid return. Guidelines for the safe handling and use of this Acota product are provided in the Material Safety Data Sheet.

Environmental Policy

Acota will recognize and exercise its responsibility to:

- prevent pollution at the source wherever and whenever possible
- develop products that will have a minimal effect on the environment
- conserve natural resources through the use of reclamation and other appropriate methods
- assure that its facilities and products meet and sustain the regulations of all Federal, State and local environmental agencies
- assist, wherever possible, governmental agencies and other official organizations engaged in environmental activities

Acota™ Performance Fluid PF-5070 Used Fluid Return Program

Acota offers a program for free pickup and return of used Acota Specialty Materials. Contact Acota for further details.

Important Notice to Purchaser: The information in this publication is based on tests that we believe are reliable. Your results may vary due to differences in test types and conditions. You must evaluate and determine whether the product is suitable for your intended application. Since conditions of product use are outside of our control and vary widely, the following is made in lieu of all express or implied warranties (including the implied warranties of merchantability and fitness for a particular purpose): Except where prohibited by law, Acota's only obligation and your only remedy, is replacement or, at Acota's option, refund of the original purchase price of product that is shown to have been defective when you received it. In no case will Acota be liable for any direct, indirect, special, incidental, or consequential damages (including, without limitation, lost profits, goodwill, and business opportunity) based on breach of warranty, condition or contract, negligence, strict tort, or any other legal or equitable theory.

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