

## INNERBOND 2010 SILICONE FLUIDS

Innerbond 2010 Silicone Fluids are Polydimethylsiloxane polymers that are available in viscosities from 1 to 100,000 cs. They are clear, water-white, oily fluids that are chemically inert, essentially nontoxic, tasteless and odorless. Their unique chemical structure makes them highly resistant to attack by temperature extremes, oxidation, shear stresses and chemicals. These and other properties allow them to perform in a multitude of applications where other fluids would not be suitable.

Some of the outstanding advantages offered by Innerbond 2010 Silicone Fluids include:

- Certifiable to VV-D-1078B in most viscosities.
- Exceptionally stable with little viscosity change over a wide temperature range.
- Impressive thermal, oxidation and shear stability.
- Chemically inert and non-corrosive.
- Low flammability and surface tension.
- High compressibility, damping action, dielectric strength and water repellency.
- Excellent thermal conductivity.

### USES

Innerbond 2010 Silicone Fluids have virtually hundreds of uses in almost every industry. Typical end uses include (but are not limited to):

- Damping, power transmission and hydraulic fluid.
- Plastics and rubber lubricant.
- Base fluid for greases and penetrating oil ingredient.
- Cosmetic, household, or personal care product ingredient.
- Heat transfer and electrical insulating fluid.
- Rust prevention additive for metal cleaners and oils.
- Release agent for molds and wire/cable slips.
- Textile finishing and water repellency additive.
- Antifoam, paint and coating additive.
- Rubber and plastics additive, to include use as an extrusion aid.
- Specialty chemical products ingredient or surface active agent.

### LIMITATIONS

Innerbond 2010 Silicone Fluids are not intended for food or medical use. They are intended for use by industrial manufacturers.

### HOW TO USE

Since the applications for these fluids are numerous and varied, application methods and recommended concentration levels must be considered on an individual basis.

## **CONTAMINATION AND FIRE PREVENTION**

At elevated temperatures, Innerbond 2010 Silicone Fluids are sensitive to contamination by strong acids, bases, some metallic compounds and oxidizing agents. These contaminants may cause an accelerated rate of volatile by-product formation. Oxidizing agents can also cause an increase in fluid viscosity. When these conditions may exist, it is recommended that the flash point of the fluids be checked periodically to monitor operational safety. Also, ignitable conditions may exist if the fluid is giving off smoke.

## **SAFE HANDLING INFORMATION**

Innerbond 2010 Silicone Fluids may cause temporary eye discomfort.

Inland neither represents nor tests this material for medical device applications or for pharmaceutical end-use. Not for human injection.

**PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE BY WRITING TO INLAND OR CALLING CUSTOMER SERVICE AT (502) 737-6757.**

## **STORAGE AND SHELF LIFE**

Stored in the original unopened container at or near room temperature (approximately 25°C or 77°F), Innerbond 2010 Silicone Fluids will meet specification requirements for a period of 12 months from date of shipment. Continued storage beyond this time does not necessarily mean that the material may not be used. However, testing of critical properties and redetermination of suitability for use of the product are imperative whenever the material is to be used beyond the stated shelf life.

## **PACKAGING**

Innerbond 2010 Silicone Fluids are supplied in 1-pint, 1-quart, 1-gallon and 5-gallon, containers, and 55-gallon drums. Custom container sizes are also available upon request. Caution: Containers will have product residues when emptied. Follow precautions recommended for handling these products when disposing of the container. Containers are not intended for reuse.

## **NOTE**

The information and data contained herein are believed to be accurate and reliable; however, it is the user's responsibility to determine suitability of use. Since Inland, Inc. cannot know all of the uses to which its products may be put or the conditions of use, it makes no warranties concerning the fitness or suitability of its products for a particular use or purpose.

Thorough testing of our product on any proposed use should be conducted prior to each application. It is the responsibility of the consumer to evaluate the performance of our product in each given application. Likewise, if the manner in which our products are used requires governmental approval or clearance, it is the user's responsibility to obtain it.

Inland, Inc. warrants only that each product will meet its specifications. There is no warranty of merchantability or fitness for use, nor any other expressed or implied warranties. The user's exclusive remedy and Inland, Inc.'s sole liability is limited to replacement of any product shown to be otherwise than as warranted. Inland, Inc. will not be liable for incidental or consequential damages of any kind.

Suggestions of uses should not be taken as inducements to infringe any patents.

## 2010 FLUID AS SUPPLIED

### IN CENTISTOKES

TYPICAL PROPERTIES**	1.5	2.0	5.0	10	20	50	100
Appearance							
Specific Gravity at (25°C) 77°F	0.851	0.872	0.913	0.935	0.949	0.960	0.964
Refractive Index at (25°C) 77°F	1.3874	1.3904	1.3960	1.3989	1.4009	1.4022	1.4030
Color, APHA	5	5	5	5	5	5	5
Flash Point, closed cup, (°C) °F	135 (56)	189 (87)	272 (134)	211 (411)	246 (474)	318 (605)	>326 (>620)
Acid Number, BCP	nil	nil	trace	trace	trace	trace	trace
Melt Point (°C) °F	-76 (-105)	-84 (-119)	-100 (-148)	-60 (-76)	-52 (-62)	-41 (-42)	-28 (-18)
Pour Point (°C) °F	-100(-148)	-100 (-148)	-100 (-148)	-100(-148)	-84(-119)	-70 (-94)	-65 (-85)
Surface Tension at (25°C) 77°F,dynes/cm	18.0	18.7	19.7	20.1	20.6	20.8	20.9
Viscosity Temperature Coefficient	0.46	0.48	0.55	0.56	0.59	0.59	0.60
Coefficient of Expansion, cc/cc/(°C)	0.00134	0.00117	0.00105	0.00108	0.00107	0.00104	0.00096
Thermal Conductivity at (50°C) 122°F, g cal/cm sec (°C)	---	0.00026	---	0.00032	0.00034	---	0.00037
Boiling Point at 760mm, (°C) °F	192 (378)	---	---	---	---	---	---
Boiling Point at 0.5mm, (°C) °F	---	70-100(158-212)	120-160(248-320)	---	---	---	---
Specific Heat at (25°C) 77°F, cal/g/cm	0.410	0.410	---	0.360	---	---	0.352
Solubility Parameter, Fedors Method	7.0	7.1	7.1	7.2	7.3	7.3	7.4
Solubility in Typical Solvents:							
Chlorinated Solvents	High	High	High	High	High	High	High
Aromatic Solvents	High	High	High	High	High	High	High
Aliphatic Solvents	High	High	High	High	High	High	High
Dry Alcohols	Good	Good	Good	Poor	Poor	Poor	Poor
Water	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Fluorinated Propellants	High	High	High	High	High	High	High
Dielectric Strength at (25°C) 77°F, volts/mil	350	350	375	375	375	400	400
Volume Resistivity at (25°C) 77°F, ohm-cm	5.0 x 10 <sup>14</sup>	5.0 x 10 <sup>14</sup>	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>

**2010 FLUID AS SUPPLIED**

**IN CENTISTOKES**

<b>TYPICAL PROPERTIES**</b>	<b>200</b>	<b>350</b>	<b>500</b>	<b>1,000</b>	<b>10,000</b>	<b>12,500</b>	<b>30,000</b>
Appearance							
Specific Gravity at (25°C) 77°F	0.967	0.968	0.969	0.970	---	---	0.971
Refractive Index at (25°C) 77°F	1.4032	1.4034	1.4034	1.4035	1.4036	1.4036	1.4037
Color, APHA	5	5	5	5	5	5	5
Flash Point, closed cup, (°C) °F	>326 (>620)	>326 (>620)	>326 (>620)	>326 (>620)	>326 (>620)	>326 (>620)	>326 (>620)
Acid Number, BCP	trace	trace	trace	trace	trace	trace	trace
Melt Point (°C) °F	-27 (-17)	-26 (-15)	-26 (-15)	-25 (-13)	-24 (-11)	-24 (-11)	-23 (-9)
Pour Point (°C) °F	-65 (-85)	-65 (-85)	-50 (-58)	-50 (-58)	---	-46 (-51)	-43 (-45)
Surface Tension at (25°C) 77°F, dynes/cm	21.0	21.1	21.1	21.2	---	21.5	21.5
Viscosity Temperature Coefficient	0.60	0.60	0.60	0.61	---	0.61	0.61
Coefficient of Expansion, cc/cc/(°C)	0.00096	0.00096	0.00096	0.00096	---	0.00096	0.00096
Thermal Conductivity at (50°C) 122°F, g cal/cm sec (°C)	---	0.00038	---	0.00038	---	0.00037	---
Boiling Point at 760mm, (°C) °F	---	---	---	---	---	---	---
Boiling Point at 0.5mm, (°C) °F	---	---	---	---	---	---	---
Specific Heat at (25°C) 77°F, cal/g/cm	---	0.350	---	0.349	---	---	---
Solubility Parameter, Fedors Method	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Solubility in Typical Solvents:							
Chlorinated Solvents	High	High	High	High	High	High	High
Aromatic Solvents	High	High	High	High	High	High	High
Aliphatic Solvents	High	High	High	High	High	High	High
Dry Alcohols	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Water	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Fluorinated Propellants	High	High	High	High	High	High	High
Dielectric Strength at (25°C) 77°F, volts/mil	400	400	400	400	---	400	400
Volume Resistivity at (25°C) 77°F, ohm-cm	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>	---	1.0 x 10 <sup>15</sup>	1.0 x 10 <sup>15</sup>

**\*\*TYPICAL PROPERTIES**

These values are not intended for use in preparing specifications. Inland does not routinely test all these physical properties. Users should independently test these properties when they are critical in the application.