

## Technical Data Sheet

### TIF-315 Transformer Insulation Fluid

TIF-315 is a 100% linear polydimethylsiloxane silicone liquid without additives that meets both International Electrotechnical Commission IEC 836 “specifications for silicone liquid for electrical purposes” and ASTM D 4652-92 “silicone fluids for electrical insulation” covering both physical and electrical properties for fluids used in dielectric applications.

Our transformer insulation fluid offers excellent electrical insulation properties including a high flash point, low vapor pressure, and high thermal stability over a wide temperature range making it ideal for transformers and other electrical equipment operating at high or very low temperatures.

### Features & Benefits

- Meets IEC 836 and ASTM D 4652-92
- Environmentally safe, essentially non-toxic
- Classified as non-hazardous
- Contains no additives
- Non-halogenated
- Environmentally superior to PCBs
- High dielectric strength
- High flash point >300°C
- Chemically inert, oxidation resistance
- Self-extinguishing
- Non-sludging
- Compatible with a wide range of existing transformer insulation systems
- Longer service life compared to conventional transformer oils

### Applications

TIF-315 is used as a cooling and insulating liquid for transformers and other electrical equipment where toxicity, safety, and environmental hazards are of concern.

## Typical Properties

Property	Unit	Value
Appearance		Crystal clear liquid
Density at 25°C (77°F)	kg/dm <sup>3</sup>	0.96
Viscosity at 25°C (77°F)	mm <sup>2</sup> /s	50
Water content	ppm	50
Refractive index at 25°C (77°F)		1.404
Dielectric Breakdown voltage	KV	50
Permittivity at 25°C (77°F) – 50 Hz		2.7
Dissipation factor at 25°C (77°F) – 50 Hz		0.0001
Volume resistivity at 25°C (77°F)	ohm.cm	1.0 x 10 <sup>14</sup>
Flash point open cup	°C °F	> 300 > 572
Fire point – open cup	°C °F	370 698
Specific heat	KJ/kg.K	1.51
Thermal conductivity	W/(m.K)	0.151

## Requirements of Silicone Type T-1 in IEC 836

Property	Test Method <sup>1</sup>	Permissible Value	Typical Value
Physical			
Color	8	Max 35	
Appearance	8	Clear	Clear, no suspended matter
Density at 20°C (68°F) (kg/dm <sup>3</sup> )	9	0.995 to 0.970	0.96
Kinematic viscosity at 40°C (104°F) (mm <sup>2</sup> /s)	10		50

Flash point (°C/°F) (closed cup)	11	Min 240/464	260/500
Fire point (°C/°F) (open cup)	12	Min 330/626	370/698
Refractive index at 20°C (68°F)	13	1.404 ± 0.002	1.404
Pour point (°C/°F)	15	Max -50/-58	-55/-67
<b>Chemical</b>			
Water content (mg/kg)	16	Max 50	<50
Neutralization value (mg KOH/g)	17	Max 0.02	0.008
<b>Electrical</b>			
Breakdown voltage (kV)	19	Min 40	50
Dielectric dissipation factor (tg) at 90°C (194°F) and 50 Hz	20	Max 0.001	0.0005
Permittivity at 90°C (194°F)	20	2.55 ± 0.05	
D.c. resistivity at 90°C (194°F) (G ohm.m)	20	Min 100	1000

1. Test methods are described in IEC 836

NOTE: TIF-315 transformer insulation fluid complies with all requirements of IEC 836 Silicone Type T-1.

## Contact Information

For more information about TIF-315, please contact us:

ECO USA  
 One Bridge Plaza North, Suite 275  
 Fort Lee, NJ 07024  
 U.S.A

Tel: (201) 282 - 5900  
 Fax: (201) 482 - 5385  
 Email: [support@ecousaind.com](mailto:support@ecousaind.com)  
 Website: [www.ecousaind.com](http://www.ecousaind.com)