



DOW CORNING® 561 Silicone transformer liquid

FEATURES

- Meets the requirements of both IEC 836 and ASTM D 4652-92
- Essentially non-toxic
- Environmentally safe
- Non-halogenated
- Compatible with a wide range of solid electrical insulating materials
- Contains no additives
- Classified as non-hazardous
- High thermal stability and oxidation resistance
- Higher fire point and lower heat release rate than other types of class K insulating liquids
- Good electrical properties and operating capabilities over a wide temperature range
- Non-sludging

Polydimethylsiloxane

APPLICATION

- Cooling and insulating liquid for transformers and other electrical equipment.

TYPICAL PROPERTIES

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales representative prior to writing specifications on this product.

Parameter	Unit	Value
Table 1: Tested to ASTM 4652-92		
Appearance		Crystal clear liquid
Density at 25°C (77°F)	kg/dm ³	0.96
Viscosity at 25°C (77°F)	mm ² /s	50
Water content	ppm	30
Specific heat	kJ/kg.K	1.51
Thermal conductivity	W/(m.K)	0.151
Refractive index at 25°C (77°F)		1.404
Breakdown voltage ¹	kV	50
Permittivity at 25°C (77°F) - 50Hz		2.7
Dissipation factor at 25°C (77°F) - 50Hz		0.0001
Volume resistivity at 25°C (77°F)	ohm.cm	1.0x10 ¹²
Flash point - open cup	°C	>300
	°F	>572
Fire point - open cup	°C	370
	°F	698

1. Breakdown voltage measured as in IEC 156:1995 section 3.4.2.

DESCRIPTION

DOW CORNING 561 Transformer Liquid is a polydimethyl silicone liquid that meets the requirements of:

- * International Electrotechnical Commission (IEC) 836 "specifications for silicone liquid for electrical purposes" (Silicone Type T-1).
- * ASTM D 4652-92 "silicone fluids for electrical insulation".
- * IEC 1100 - "Classification of insulating liquids according to fire point and net calorific value" (class K3).

Liquid has a fire point exceeding the requirements of these documents and is within the IEC 1100 class with lowest net calorific value (heat of combustion).

With excellent electrical insulation properties over a wide temperature range, combined with high thermal stability, DOW CORNING 561 Transformer Liquid is suitable for transformers and other electrical equipment designed to operate at high temperatures or at very low temperatures.

HANDLING PRECAUTIONS

DOW CORNING 561 Transformer Liquid is handled in the same manner, and with the same type of equipment, as other insulating liquids. Wherever possible, equipment used for handling DOW CORNING 561 Transformer Liquid should be reserved for that purpose only. Thorough cleaning of equipment is essential if changing from one insulating liquid to another.

Care must be exercised when selecting pumping equipment, and other items in which sliding movement is involved. Although perfectly satisfactory equipment is available for use with polydimethylsiloxanes, this liquid does not adequately lubricate certain pump designs. The use of improperly designed pumps may result in premature failure and metal particle contamination of the liquid.

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE FROM YOUR LOCAL DOW CORNING SALES REPRESENTATIVE.

USABLE LIFE AND STORAGE

This product should be stored in airtight containers to protect it from moisture and contamination.

When stored at or below 60°C (140°F) in the original unopened containers, this product has a usable life of 36 months from the date of production.

PACKAGING

This product is available in 1000kg containers, 200kg drums and in bulk road tankers.

RECYCLING OR DISPOSAL

Reprocessing procedures for silicone transformer fluid are described in the International Electrotechnical Commission Guide IEC 944 (also available as BS 7713).

Fuel blending is another form of recycling where the "spent" fluid is mixed with compatible solvents or other fuels and used as a feedstock in industrial furnaces such as cement kilns. The silicone fluid will be thermally converted to energy and to a silica residue which may be incorporated into the end product.

Incineration is a viable alternative for direct disposal. Landfilling is not recommended.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

Polydimethylsiloxanes, including DOW CORNING 561 Transformer Liquid rank among the safest of all known industrial chemicals. Their low toxicity to humans, birds and aquatic life is well documented.

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area.

For further information, please consult your local Dow Corning representative.

WARRANTY INFORMATION - PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Dow Corning's products

are safe, effective, and fully satisfactory for the intended end use. Dow Corning's sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Dow Corning specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability. Unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use, Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

Table 2 : Test Requirements of Silicone Type T-1 in IEC 836

<i>Property</i>	<i>Test Method*</i>	<i>Permissible Values</i>	<i>Typical values for DOW CORNING 561 Silicone Transformer Liquid</i>
Physical			
Color	8	Max 35	
Appearance	8	Clear, free from suspended matter and sediment	
Density at 20°C/68°F (kg/dm ³)	9	0.995 to 0.970	
Kinematic viscosity at 40°C/104°F (mm ² /s)	10	40 ± 4	
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	
Pour point (°C/°F)	15	Max -50/-58	
Chemical			
Water content (mg/kg)	16	Max 50	30
Neutralisation value (mg KOH/g)	17	Max 0.02	0.008
Electrical			
Breakdown voltage (kV)	19	Min 40 ¹	50
Dielectric dissipation factor (tg) at 90°C/194°F and 50 Hz	20	Max 0.001 ¹	0.0005
Permittivity at 90°C/194°F	20	2.55 ± 0.05 ²	
d.c. resistivity at 90°C/194°F (G ohm.m)	20	Min 100	1000
*Test methods are described in IEC 836.			
¹ For untreated liquid, as received			
² Only needed as a specification value when used for capacitors			
NOTE: DOW CORNING 561 Transformer Liquid complies with all of the requirements of IEC 836 Silicone Type T-1. The above typical values EXCEED the minimum requirement of IEC 836.			

