



# VG-100<sup>®</sup> Fluid

Innovation for energy  
and the environment



Powering reliable solutions for you

**VG-100®** is a biodegradable dielectric fluid developed by **Prolec GE**, with patents granted for its application in electrical transformers. **VG-100®** has been satisfactorily used in more than 500 units since its introduction in 2009, and is an excellent alternative to mineral oil for use in new transformers and retrofill applications.

**VG-100®** fluid is fully biodegradable, and has excellent fire resistance. It has the electrical, physical, and chemical properties necessary to perform as an effective cooling and insulating medium in distribution and power transformers.





# VG-100<sup>®</sup> Fluid

Vegetable Oil for Electrical Transformers

## PRODUCT OVERVIEW

**VG-100<sup>®</sup>** is a dielectric fluid derived from natural esters of edible seeds, formulated using a proprietary process for use in electrical transformers – both new and retrofill. It was developed by **Prolec GE** in 2009 as an environmentally-friendly alternative to existing dielectric fluids. It is 100% natural and biodegradable, and does not contain any synthetic antioxidant, petroleum, or toxic compounds.



**VG-100<sup>®</sup>** fluid complies with international standards and requirements for its application in electrical transformers, such as ASTM and IEEE, and is also certified by FM and UL.



*First biodegradable dielectric fluid  
for transformers made in Mexico*

## TYPICAL PROPERTIES

**VG-100**<sup>®</sup> fluid fully complies with all standards and requirements established for dielectric vegetable oils used in transformers.<sup>1,2,3</sup>

Table 1. Comparison of Typical Values of **VG-100**<sup>®</sup> with mineral oil and alternative fluids.

Properties	Standard	ASTM D6871 New Fluid As-Received	VG-100 <sup>®</sup> fluid <sup>3</sup>	Natural ester fluid-1	Natural ester fluid-2
Breakdown Voltage (kV) at 2mm	ASTM D1816	≥ 35	> 60	> 60	> 60
Dissipation Factor (%) at 25°C	ASTM D924	≤ 0.2	0.08	0.06	0.15
Density (g/cm <sup>3</sup> ) at 25°C	ASTM D1298	≤ 0.96	0.916	0.92	0.91
Viscosity (cSt) at 0°C at 40°C at 100°C	ASTM D445	< 500 < 50 < 15	178 31 6	33 8	300 45 10
Color	ASTM D1500	L1.0	L0.5	L0.5	L0.5
Flash point (°C)	ASTM D92	≥ 275	330	330	330
Fire point (°C)	ASTM D92	≥ 300	352	360	360
Pour point (°C)	ASTM D97	-10	-12 to -15	-21	-15 to -25
Biodegradability (%)	OECD 301F	N/A	100	100	> 97
Toxicity	OECD 203	N/A	Zero mortality	Zero mortality	Zero mortality

1. C57.147. IEEE Guide for Acceptance and Maintenance of Natural Ester Fluids in Transformers

2. ASTM D6871. Standard Specification for Natural Ester Fluids Used in Electrical Apparatus

3. Typical data for new fluid. These values may vary depending on the handling.

For more information, please contact Prolec GE at 1-800 43 77653



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# VG-100® PERFORMANCE

## Fire Safety

- High fire point (>300°C)
- FM and UL certifications
- Self-extinguishing
- Reduces fire risk
- Reduces costs for fire protection

## Increased Environmental Protection

- 100% natural
- Fully biodegradable
- Does not contaminate water
- Non-toxic
- Reduces or eliminates environmental risks

## Enhanced Performance

- Transformer materials compatibility
- Free of corrosive sulphur and PCB compounds
- Alternative for refilling transformers filled with mineral oil
- Increases lifetime of cellulose insulation
- Higher capacity to absorb moisture



### FIRE POINT

VG-100® Fluid

352°C

Silicon Fluid

340°C

Mineral Oil

160°C

### BIODEGRADABILITY

VG-100® Fluid

100%

Silicon Fluid

5%

Mineral Oil

30%





## VG-100® APPLICATIONS

### Distribution Transformers

- Residential (1 phase Pole and 1 phase Pad mounted)
- Commercial (3 phase Pad mounted)
- Industrial (Secondary Substation, Small power)

### Power Transformers

- Generation
- Transmission

### Renewable Energy Transformers

- Wind
- Solar

### Retrofilling

- Transformers in service filled with mineral oil





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For more information about our products and sales  
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