



Technical Data Sheet

DOWSIL™ ICL-1000 Fluid

Silicone liquid engineered to meet the demands of a dielectric coolant for data center immersion cooling

Features & Benefits

- Excellent thermal management properties
 - High thermal conductivity
 - High specific heat
- Outstanding thermal-stability and oxidation resistance – long term service
- Compatible with devices and components in server
- Compatible with various materials used in server like hydrocarbon, silicone and metals
- Environment friendly – very low Global Warming Potential (GWP) and zero Ozone Depletion potential (ODP)¹

¹The Life Cycle Assessment including GWP and ODP data is provided to customers under Confidential Disclosure Agreement (CDA) currently, please contact with Dow Sales representative or Technical Support experts.

Composition

- Polydimethylsiloxane

Applications

- Dielectric coolant for immersion or spray cooling of data center servers

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test ¹	Property	Unit	Result
CTM0176	Appearance		Colorless, transparent (> 25°C); hazy (< 25°C)
ASTM D 1481	Specific Gravity @ 25°C	g/ml	0.86
	Boiling Point	°C	No boiling up to 300°C
ASTM D093	Flash Point – Open Cup	°C	240
ASTM D 445 ASTM D 2161	Kinematic Viscosity @ 40°C	cSt	26
CTM1163	Thermal Conductivity @ 40°C	W/m.K	0.18
ASTM E 1269	Specific Heat @ 40°C	J/g.K	2.256
ASTM D 924	Dielectric Constant @ 1 KHz		2.276
ASTM D 924	Dissipation Factor @ 1 KHz		1.7 x10 ⁻⁴

1. CTM: Corporate Test Method, copies of CTM's are available on request.
ASTM: American Society for Testing and Materials.

Typical Properties (Cont.)

Test	Property	Unit	Result
ASTM D877	Dielectric Strength	volts/mil	> 400
ASTM D 1169	Volume Resistivity	ohm-cm	1x10 ¹⁵
ASTM D 1533	Water Content	ppm	110

Description

DOWSIL™ ICL-1000 Fluid is a modified silicone fluid for immersion cooling of server in data center application.

DOWSIL™ ICL-1000 Fluid is specifically engineered for use in immersion cooling server as a single-phase dielectric coolant. The fluid has been thoroughly tested in contact with various electronic devices and components like PCB, CPU, GPU, hard disk, power supply, capacitor, resistor, etc., It exhibits excellent thermal stability, oxidation resistance and compatibility with electronic components in server and the various materials like hydrocarbon, silicone, metals, etc.

DOWSIL™ ICL-1000 Fluid has a combination of outstanding thermal transfer properties including high thermal conductivity and specific heat capacity, relatively low viscosity, and good wetting property on the surface of electronic parts. These allow DOWSIL™ ICL-1000 circulating in server tank and heat exchange system to provide highly efficient thermal management to the immersed server.

From Environment Health and Safety, DOWSIL™ ICL-1000 Fluid safe from a health and operation perspective and also friendly to environment with very low Global Warming Potential (GWP) and zero Ozone Depletion Potential (ODP).¹

Application Methods

Immersion or spray cooling for data center server.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. 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 ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

The product should be stored in its original packaging with the cover tightly attached to avoid any contamination. Store in accordance with any special instructions listed on the product label. The product should be used by the indicated Exp. Date found on the label. The Shelf life of DOWSIL™ ICL-1000 Fluid is 720 days.

Packaging Information

DOWSIL™ ICL-1000 Fluid is supplied with 160 kg drum, 16 kg pail and 50 ml bottle.

Limitations

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

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

dow.com

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