



Technical Data Sheet - Developmental

DOWSIL™ ICL-1100 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
Higher flash point
Lower pour point
Outstanding Heat-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

¹ The 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

Modified Polysiloxane

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 Method ²	Property	Unit	Result
CTM0176	Appearance	-	Colorless
ASTM D 4052	Density @25 °C	kg/m ³	918.3
	Boiling Point	°C	NA
ASTM D97	Pour Point	°C	<-57
ASTM D092	Flash point – Open Cup	°C	216
ASTM D 445	Kinematic Viscosity@40 °C	mm ² /s	19
ASTM D 7896	Thermal Conductivity@40 °C	W/m.K	0.143
ASTM E 1269	Specific Heat @40 °C	J/g.K	1.656
ASTM D 924	Dielectric Constant @1KHz, 25 °C	-	2.50
ASTM D 924	Dissipation Factor@1KHz, 25 °C	-	7.4 x10 ⁻⁴

IEC 60156	Dielectric Strength	kV	>38
ASTM D 1169	Volume Resistivity	ohm-cm	2x10 ¹³

2. CTM: Corporate test method, copies of CTM's are available on request.
 ASTM: American society for testing and materials.
 IEC: International Electrotechnical Commission.

Description

DOWSIL™ ICL-1100 Fluid is a modified dimethyl silicone fluid for immersion cooling of server in data center application.

DOWSIL™ ICL-1100 Fluid is specifically engineered and thoroughly tested for use in immersion cooling server as a single-phase dielectric coolant in contact with various electronic devices and components like PCB, CPU, GPU, hard disk, power supply, capacitor, resistor, etc, because of the excellent heat stability, oxidation resistance and compatibility with those electronic parts in server and the various materials like hydrocarbon, silicone, metals, etc.

DOWSIL™ ICL-1100 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. That allows DOWSIL™ ICL-1100 to provide highly efficient thermal management for the server immersed in it by circulating in the server tank and heat exchange system.

Form Environment Health and Safety perspective, DOWSIL™ ICL-1100 Fluid is not only safe to health and operation but also friendly to environment with very low Global Warming Potential (GWP) and zero Ozone Depletion potential (ODP)

Application Methods

Immersion or spray cooling for data center server

Packaging

DOWSIL™ ICL-1100 Fluid is supplied with 160kg drum, 16kg pail and 50ml bottle.

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-1100 Fluid is 720days.

**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.

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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