



## Technical Data Sheet

### **DOWSIL™ VE-4001 UV Electrode Protective Resin**

One part, translucent, low modulus, low shrinkage, UV curable resins for liquid-based bonding technology product.

#### **Features & Benefits**

- UV curable
- Translucent
- One part
- Solventless
- Flowable; able to fill and self-level after dispensing or jetting
- Low modulus
- Low shrinkage

#### **Applications**

- Designed to protect electrodes on LCD/OLED display module
- Uniquely engineered to provide high reliability in display applications where harsh reliability conditions are required
- Primary target application: vehicular displays

#### **Typical Properties**

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

CTM <sup>1</sup>	Property	Unit	Result
N.A.	UV Curing Energy Condition	mJ/cm <sup>2</sup>	> 500 - Metal Halide - UV LED 365, 395, 405 nm
0050	Viscosity at 25°C with 30 rpm	mPa.s	1,977
N.A.	Density (g/cm <sup>3</sup> ) Before Cure	g/cm <sup>3</sup>	1.1
0099	Hardness (Shore A) After Cure		35
N.A.	Water Absorption after immersing in water at 25°C for 24 hours	%	0.4
0243	Adhesion Strength on Glass at 200um	kgf/cm <sup>2</sup>	19.6
	Storage Temperature	°C	Listed on the product label
	Shelf Life	months	6

1. CTM: Corporate Test Method, copies of CTM's are available on request.

**Description**

DOWSIL™ VE-4001 UV Electrode Protective Resin is a one-part silicone based UV curable precision bonding solution that provides excellent adhesion, reliability, and process-ability for display devices that require high reliability performance. The product provides a controlled flow that satisfies the common dispensing and jetting processes in display industry. And, the low volatility of the product provides consistent hardness and adhesion before/after reliability tests. The cured resin behaves the stress relief while providing the dimensional stability of an elastomer which is increasingly needed for mechanically sensitive components.

**Mixing and De-Airing**

Resins are supplied in a sunlight protected bottle that avoids light exposure to the resin components. Do not apply air pressure directly to the liquid resin surface as the resin material can become supersaturated with air and bubbling can occur when the material is dispensed and cured. The resin can be dispensed manually or by using one of the available types of meter dosing equipment. If possible, the potential for entrapment and incorporation of gas (typically air) should be considered during design of the part and selection of a process to dispense the resin. To prevent any fine air void which is not detected by naked eye, degassing at 80 kpa [absolute] vacuum for 3 hours or at atmospheric pressure for 12 hours may be necessary to ensure a void-free, protective layer.

**Useful Temperature Ranges**

For most uses, silicone product should be operational over a temperature range of -45 to 150°C for long periods of time. However, at both the low and high temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations. For low-temperature performance, thermal cycling to conditions such as -55°C (-67°F) may be possible for most products, but performance should be verified for your parts or assemblies. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history. At the high-temperature end, the durability of the cured silicones is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain useable.

**Repairability**

In the manufacture of PCB system assembly devices, salvage or rework of damaged or defective units is often required. Removal of Dow resins to allow necessary repairs can be assisted by using Micsol series and IPA. After work has been completed, the repaired area should be cleaned with forced air or a brush, dried, and patched with additional silicone resin.

**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 CONSUMER.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. Shelf life ("Use By" date) are indicated on the product label. Keep voiding light exposure to have stable shelf life of product.

## **Packaging Information**

Packages are typically available in a 10 L bottle. The product may be available in all packages, and some additional packages and package sizes may be available through communication with customer.

## **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, [consumer.dow.com](http://consumer.dow.com) or consult your local Dow representative.

## **How Can We Help You Today?**

Tell us about your performance, design, and manufacturing challenges. Let us put our silicon-based materials expertise, application knowledge, and processing experience to work for you.

**For more information** about our materials and capabilities, visit **[consumer.dow.com](http://consumer.dow.com)**.

To discuss how we could work together to meet your specific needs, go to **[consumer.dow.com](http://consumer.dow.com)** for a contact close to your location. Dow has customer service teams, science and technology centers, application support teams, sales offices, and manufacturing sites around the globe.

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