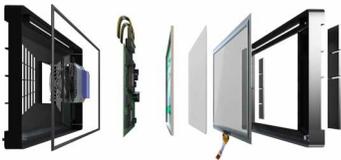




Product Information

# DOWSIL™ VE-6001 UV Optical Bonding Material

## A One-part UV-cure Optical Bonding Material for More Reliable Automotive Displays



Compared to most displays, those used in automotive interiors endure harsh environmental conditions, including extreme temperatures, high humidity and prolonged UV exposure. They consequently demand more robust adhesive materials that still support simple, cost-effective processing. DOWSIL™ VE-6001 UV Optical Bonding Material offers a more reliable alternative to conventional organic optical bonding solutions. This simple one-part UV cured silicone adapts easily to incumbent optical bonding processes, and delivers superior photothermal stability, mechanical properties and optical performance for optimized processing and performance of your next automotive display design.

### Description

DOWSIL™ VE-6001 UV Optical Bonding Material is a one-part UV-curable, optically clear silicone adhesive that reliably bonds a variety of cover window materials – including glass, PMMA and PC – to automotive LCD display modules. Its excellent optical properties helps displays deliver superb performance properties, such as high (> 99%) transmittance, low (< 0.01) haze, minimal (< 0.3) yellowing and superior reliability under common automotive environment test conditions.

### Key Features

- Simple one-part UV cure
- Photothermally stable for excellent reliability
- Low modulus prevents Mura issues
- Low shrinkage suitable for large displays
- Excellent optical properties
- Less sensitive to oxygen inhibition
- Odorless
- Stable viscosity and weight in vacuum conditions at 1kPa

### Potential Uses

- Optical bonding material for display devices

### Typical Applications

- Optical bonding of cover glass/plastic and LCD / OLED module
- Encapsulation of optical PCB module components
- Shock and stress releasing elements

### Material Properties

Property	Unit	Result	
UV cure energy conditions	mJ/cm <sup>2</sup>	>4,000 Metal Halide UV LED 365-, 385-, 405- nm	
Viscosity	cps	3,600	
Density (g/cm <sup>3</sup> ) before cure	g/cm <sup>3</sup>	1.11	
Volume shrinkage	%	< 1.0	
Refractive index at 589.3 nm	–	1.53	
Transmittance (%)	%	> 99	
Shore 00	–	49	
Tg	°C	-25	
Shear modulus (G')	Pa	1.0 x10 <sup>4</sup>	
Adhesion strength [Lap shear – glass to glass with 200 μm]	kgf/cm <sup>2</sup>	8.9	
Dielectric constant	At 100 kHz	–	3.09
	At 1 MHz	–	2.94
Storage temperature	°C	10-30	
Shelf life	Month	6	

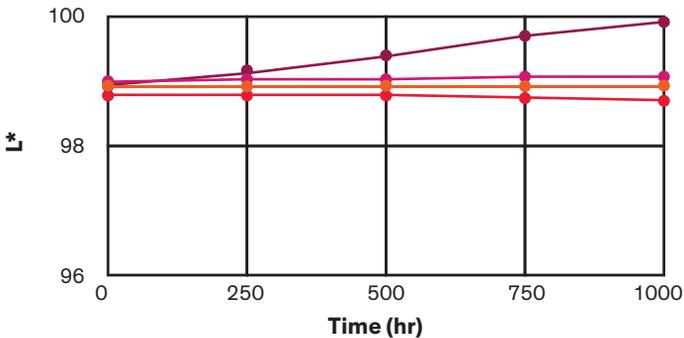
**Specification Writers:** These values are not intended for use in preparing specifications.

Imagine

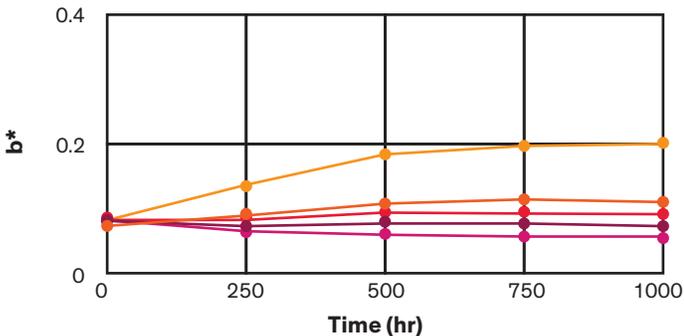
## Performance Data

### Reliability Tests

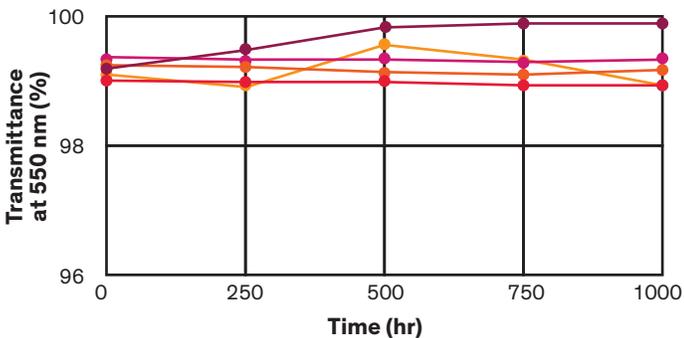
#### Yellow Index (L\* Value)



#### Optical Transmittance Percentage



#### Yellow Index (b\* Value)



DOWSIL™ VE-6001 Optical Bonding Material in:

- 85°C / 85%<sub>RH</sub>    ● 105°C    ● UVA at 50°C
- TC (-40°C ~ 95%)    ● -40°C



Cleaning by IPA  
or MICSOL 1620



### Reworkability Test

1. De-bond cover window and LCD module using wire
2. Spray solvent on the residual adhesives or the cloth wiper covering the residual adhesives (recommended solvents: IPA or MICSOL 1620)
3. Wait five minutes when residual adhesives become softer
4. Rub with the plastic blade to remove residual adhesives
5. Spray solvent and clean with cloth wiper

### Learn More

We bring more than just an industry-leading portfolio of advanced silicone-based materials. As your dedicated innovation leader, we bring proven process and application expertise, a network of technical experts, a reliable global supply base and world-class customer service.

To find out how we can support your applications, visit

[consumer.dow.com/pcb](http://consumer.dow.com/pcb).

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