



Technical Data Sheet

DOWSIL™ DA 6503 Adhesive

DOWSIL™ DA 6503 Adhesive is a translucent, thixotropic adhesive with self-priming adhesion

Features & Benefits

- Low Young's modulus

Composition

- 1-part
- Polydimethylsiloxane adhesive

Applications

- Pressure Sensor, Crystal Oscillators, CCD

Typical Properties

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

Property	Unit	Result
Viscosity	cP	7300
	mPa-sec	7300
	Pa-sec	7.3
Thixotropy	NA	1.8
Pot Life (change in viscosity) after 35°C/24 hrs	%	115
Rheometer T90 Cure Time @ 150°C	minutes	19.8
Heat Cure Time @ 150°C	minutes	60
Durometer Shore A		33
Tensile Strength	psi	285
	MPa	2
	kg/cm ²	20
Unprimed Adhesion–Lap Shear (Al)	psi	80
	MPa	0.6
	N/cm ²	60
Dielectric Strength	volts/mil	675
	kV/mm	27
Dielectric Constant at 1 MHz		2.7
Dissipation Factor at 1 MHz		0.0005
Volume Resistivity	ohm*cm	4.0E+16

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Typical Properties (Cont.)

Property	Unit	Result
Impurity (Na+)	ppm	0.1
Impurity (K+)	ppm	0.2
Impurity (Cl-)	ppm	0.5
Volatile Content	%	0.05
Shelf Life @ -15°C	months	7

Description

Dow silicone microelectronics adhesive products are designed to meet key criteria in the micro- and optoelectronic packaging industry, including high purity, moisture resistance and thermal and electrical stability. Dow silicone microelectronics adhesive products deliver outstanding stress relief and high-temperature stability, with excellent primerless adhesion to a wide range of substrate materials and components. These products are ideally suited for microelectronic devices requiring low-modulus materials, for lead-free solder reflow temperatures (260°C), or other high-reliability applications. With both wet dispensed and pre-cured film product forms available these materials meet a wide range of needs for device packaging applications. Dow silicone microelectronics adhesive products are supplied as convenient, one-part materials, with specific formulations developed for electrical conductivity, electrical insulation or thermal conductivity, all of which cure via heat without byproducts.

Preparing Surfaces

All surfaces should be thoroughly cleaned and/or degreased with solvents such as Dow OS fluids, naphtha, mineral spirits, or methyl ethyl ketone (MEK). Light surface abrasion is recommended whenever possible, because it promotes good cleaning and increases the surface area for bonding. A final surface wipe with acetone or IPA is also useful to remove residues that may be left behind by other cleaning methods. On some surfaces, different cleaning techniques will give better results than others. Users should determine the best techniques for their applications.

Substrate Testing

Due to the wide variety of substrate types and differences in substrate surface conditions, general statements on adhesion and bond strength are impossible. To ensure maximum bond strength on a particular substrate, 100 percent cohesive failure of the adhesive in a lap shear or similar adhesive strength is needed. This ensures compatibility of the adhesive with the substrate being considered. Also, this test can be used to determine minimum cure time or to detect the presence of surface contaminants such as mold release agents, oils, greases and oxide films.

Compatibility

Certain materials, chemicals, curing agents and plasticizers can inhibit the cure of addition cure adhesives. Most notable of these include: organotin and other organometallic compounds, silicone rubber containing organotin catalyst, sulfur, polysulfides, polysulfones or other sulfur containing materials, unsaturated hydrocarbon plasticizers, and some solder flux residues. If a substrate or material is questionable with respect to potentially causing inhibition of cure, it is recommended that a small scale compatibility test be run to ascertain suitability in a given application. The presence of liquid or uncured product at the interface between the questionable substrate and the cured gel indicates incompatibility and inhibition of cure.

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Repairability	Removal of Dow materials to allow for failure analysis can be assisted with Dow OS fluids.
Packaging Information	Storage and Handling of Syringes Transportation typically takes 2–4 days and is shipped using blue ice with a temperature recorder. The recorder should not exceed 10°C at any time during the shipment and should be stored at the recommended condition, -10 to -25°C, immediately upon arrival. Repeated freezing and thawing should be avoided. To prepare a syringe of material for use, please follow the following directions in order. Allow the syringe to sit at least one hour at room temperature on its side and without opening the plastic bag. Upon opening the bag, remove the syringe dust cap right away. The tip plug should be removed just prior to placing the syringe in the dispenser. Air pressure from 10–30 psi should be used.
Usable Life And Storage	Shelf life is indicated by the “Use By” date found on the product label. For best results, Dow adhesives should be stored at or below the maximum specified storage temperature. Special precautions must be taken to prevent moisture from contacting these materials. Containers should be kept tightly closed and head or air space minimized. Partially filled containers should be purged with dry air or other gases, such as nitrogen. Any special storage and handling instructions will be printed on the product containers.
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 WWW.CONSUMER.DOW.COM , OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.
Health And Environmental Information	<p>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.</p> <p>For further information, please see our website, www.consumer.dow.com or consult your local Dow representative.</p>
Limitations	This product is neither tested nor represented as suitable for medical or pharmaceutical uses.
How Can We Help You Today?	<p>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.</p> <p>For more information about our materials and capabilities, visit www.consumer.dow.com.</p> <p>To discuss how we could work together to meet your specific needs, go to www.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.</p>

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