



DOWSIL™ EA-7300 Adhesive

Description

DOWSIL™ EA-7300 Adhesive is a silicone adhesive which cures rapidly at lower temperatures than traditional heat cure products. A secondary moisture cure increases adhesion to create a long lasting, durable bond. High elongation and low modulus provide excellent stress relief for moving joints due to CTE mismatch or other environmental conditions. This product is suited for use in a variety of automotive electronic application such as control units, modules, sensors, and ADAS devices including under hood applications.

Uses / Applications

- Battery pack
- EV controllers
- On-board charger
- Control units
- Autonomous steering
- Automotive electrical housings
- Electronic module assembly
- Inverter/converter
- E-motor
- Electric power steering
- Automotive boards & assemblies
- Housings

Benefits

- Solvent free
- Heat accelerated cure
- Adhesion to common engineering metals
- Robust toughness
- Suitable for use to -45°C or lower
- Deep section cure
- Non-slumping
- Designed to adhere common engineering plastics
- Low modulus for stress relief
- Suitable for long term use at +150°C and shorter term to +200°C or higher

Physical Properties

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

Reference	Property	Result	Unit	Comments
	One or Two Part	One		
CTM ¹ 0176	Color Part A or Base	Gray		
CTM0176	Color as dispensed	Gray		
CTM0097	Specific Gravity of Part A or Base	1.15	g/mL	
CTM0050	Viscosity as dispensed at 25°C	250000	cP	20 rpm, HAT 7
CTM0050	Viscosity as dispensed at 25°C	650000	cP	2 rpm, HAT 7
CTM0905	Thixotropy	3.0		20 rpm/2 rpm
CTM1098	Cure time (to > 90% final adhesion)	30	minutes	105°C
CTM1098	Cure time (to > 90% final adhesion)	5	minutes	125°C
CTM0091	Durometer	20	Shore A	
CTM0137	Tensile Modulus (tensile strength at 100% elongation)	0.34	MPa	ASTM ² D412

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

²ASTM: American Society for Testing and Materials

Physical Properties (Cont.)

Reference	Property	Result	Unit	Comments
CTM0137	Tensile Strength	2.93	MPa	ASTM D412
CTM0137	Elongation	600	%	ASTM D412
CTM0243	Unprimed lap shear adhesion strength to AlClad	1.89	MPa	5 min 125C + 7 day RT; 23 mil thickness
CTM0114	Dielectric Strength (non-dried)	15.7	kV/mm	2.0 mm thickness
CTM0249	Volume Resistivity (non-dried)	1.1E+13	ohm-cm	
CTM0543	Dielectric Constant (Permittivity)	3.1		1 MHz
CTM0543	Dielectric Constant (Permittivity)	3.1		100 kHz
CTM0543	Dielectric Constant (Permittivity)	3.2		100 Hz
CTM0543	Dissipation Factor	0.004		1 MHz
CTM0543	Dissipation Factor	0.002		100 kHz
CTM0543	Dissipation Factor	0.001		100 Hz

Processing and Application Guidelines

DOWSIL™ EA-7300 Adhesive offers several cure cycles to help with processing flexibility. This product should be cured at a minimum temperature of 105°C (212°F) or higher for 30 minutes (time and temperature achieved at bondline). For faster processing, curing at a temperature of 125°C (257°F) for 5 minutes (time and temperature achieved at bondline) is possible. DOWSIL™ EA-7300 adhesive also has a secondary moisture cure which will occur over the course of several days following heat cure. During this secondary moisture cure, physical properties and adhesion will continue to build for approximately 3-7 days, depending on atmospheric conditions. Parts can be moved and handled following the initial heat cure and properties will continue to build during storage or shipping.

Substrate Testing

DOWSIL™ EA-7300 Adhesive has been found to bond well to a very wide variety of plastic and metal surfaces. To ensure maximum bond strength for adhesives on a particular substrate, it is recommended to verify adhesion to each specific substrate. This ensures compatibility of the adhesive with the substrate being considered and can help determine the minimum cure time.

Adhesion

Dow silicone adhesives are specially formulated to provide unprimed adhesion to many reactive metals, ceramics and glass, as well as to selected laminates, resins and plastics. However, good adhesion cannot be expected on non-reactive metal substrates or non-reactive plastic surfaces such as Teflon. Special surface treatments such as chemical etching or plasma treatment can sometimes provide a reactive surface and promote adhesion to these types of substrates. Dow primers can be used to increase the chemical activity on difficult substrates. For best results, the primer should be applied in a very thin, uniform coating and then wiped off after application.

After application, primers should be thoroughly cured prior to application of the silicone elastomer. Small-scale laboratory evaluation of all substrates is recommended before production trials are made. In general, increasing the cure temperature and/or cure time will improve the ultimate adhesion.

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.

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