

SELL SHEET

DOWSIL™ EA-4700 CV Adhesive

Two-part room temperature, fast-curing silicone adhesive

Product overview

DOWSIL™ EA-4700 CV Adhesive is a two-part fast room temperature cure adhesive that increases throughput. This DOWSIL™ adhesive maintains mechanical and electrical properties under a wide variety of operating conditions, improves device reliability and offers years of durability.

Features

- Cures within 2 hours at 25°C
- Cures / promotes adhesion under mild heating
- Within 24 hours attains 100% cohesive failure rate
- Good adhesion to all types of metal and plastic
- Good adhesive reliability even under high heat and high humidity
- Reduced molecular siloxane

Process

- Applied using standard dispenser

Application examples

- Engine control unit (ECU)
- Advanced driver-assistance systems (ADAS)
- Sensors
- Onboard chargers
- Battery assemblies
- EPS controller
- Anti-lock braking system (ABS) / antiskid brake system (ESC) – Safety systems
- Hybrid automobiles (HEV) DC/DC converters
- Transmission control units

Expanded applications

- Cures at room temperatures to adhere plastics and metals in electronic component assemblies when heating ovens are not preferred or cannot be used
- Used when curing / adhesion is required in a short amount of time even when cured at room temperature

Product overview/Typical properties

Test ¹	Properties	Units	Values
Properties before curing			
CTM 0176 B	Mix ratio (weight/volume)	-	1:1
CTM 0176 B	Color A/B	-	white/black
CTM 1094 R	Viscosity at 10 s ⁻¹ , Part A/Part B	Pa·s	24/18
CTM 1094 R	Viscosity at 10 s ⁻¹ , mixed	Pa·s	27
CTM 1094 R	Thixotropic index (25°, 1s ⁻¹ /10s ⁻¹), mixed	-	3.8
CTM 1094 R	Pot life (25°C) ¹	min	17
Curing properties			
CTM 0022 B	Density (cured) at 25°C	g/cm ³	1.16
CTM 0099 M	Hardness (JIS type A) ²	-	19
CTM 0137AAH	Tensile strength ²	MPa	3.7
CTM 0137ABH	Elongation ²	%	630
JIS K 6249	Dielectric strength	kV/mm	25
JIS K 6249	Volume resistance rate	Ω·cm	1.5E+15
JIS K 6249	Dielectric constant @ 1 MHz	-	3.2
JIS K 6249	Dissipation factor @ 1 MHz	-	1.8E-03
CTM 0839 B	Low molecular siloxane (D4-D10) ³	ppm	130

*1: Time required for viscosity to double after mixing A/B

*2: Curing condition 25°C/3 days

*3: Extracted by hexane for 24 hours

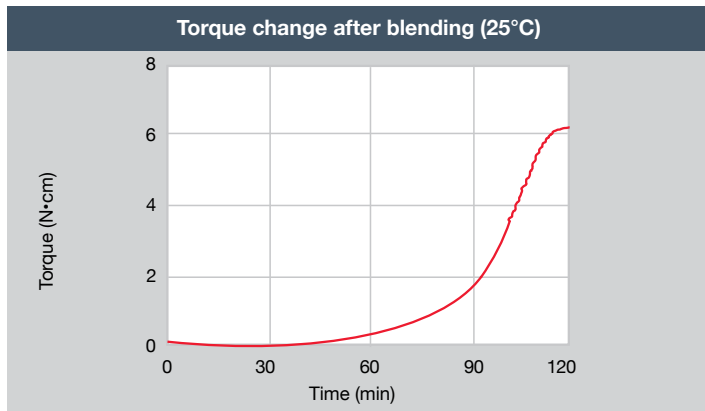
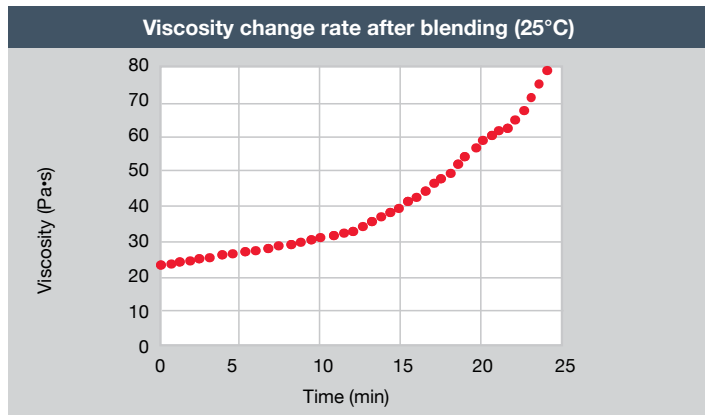
※ Low molecular siloxane (D4-D10) *3

Adhesion

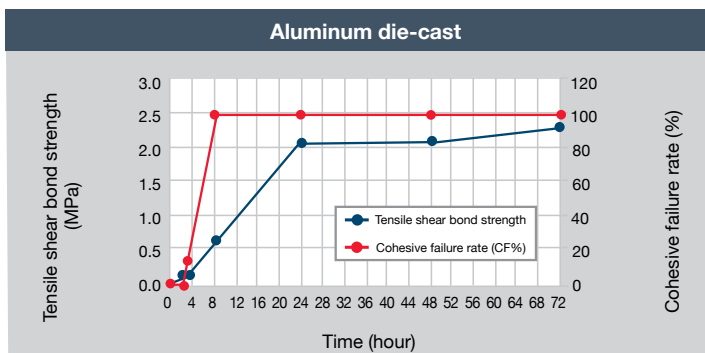
Substrate	Adhesion strength (MPa)
Aluminum (A1050P)	3.39
Aluminum (A5052P)	3.71
Aluminum die-cast (ADC-12)	2.74
Copper	0.99
Nickel plating	0.79
Stainless steel (SUS304)	1.40
PBT	2.46
PPS	2.78
Glass epoxy	2.03
Phenol	2.17
PET	3.41
Polycarbonate	0.66
Nylon 66	2.09
Glass	3.03

Thickness: 1 mm | Cure condition: 25°C / 7 days | Test method: Lap shear CTM 237

Curing properties



Adhesion profile (Tensile shear bond strength)



* Bond line thickness: 1mm
Cure condition: 1 week at 25°C

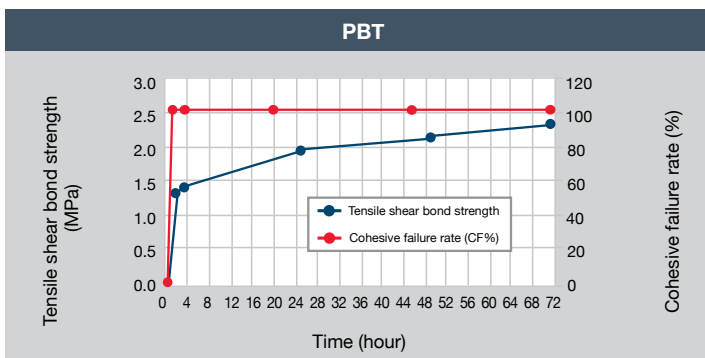


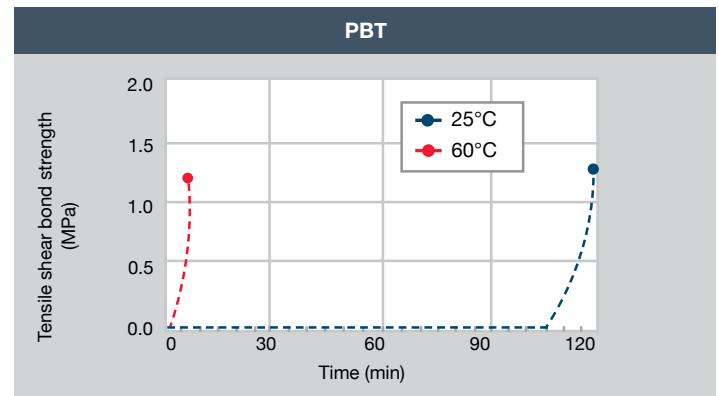
Image: dow_57436402387

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

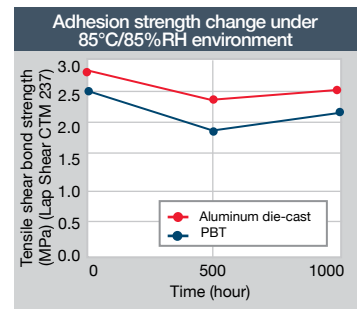
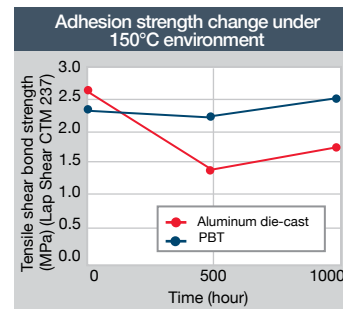
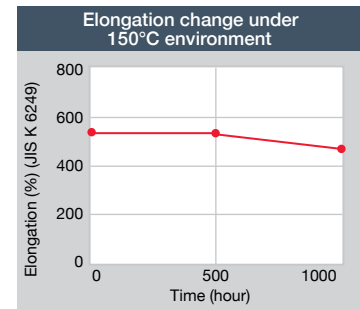
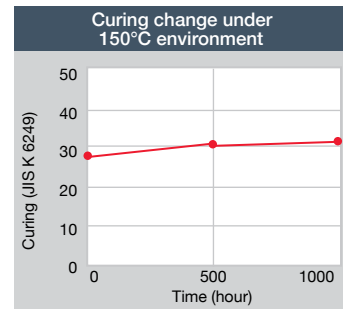
LIMITED WARRANTY INFORMATION - PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Acceleration of adhesion expression through heating



Durability



Cure: 25°C / 7 days
Aging condition: 500, 1000 hours at 150°C and 85°C/85%RH
Substrate: ADC-12, PBT (Unfilled)
Test method: Lap Shear CTM 237

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, we offer specialized knowledge in processes and applications, 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 dow.com/electronics.

DOWSIL™

Dow's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DOW SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

© 2020 The Dow Chemical Company. All rights reserved.

92216

Form No. 11-3987-01-0120 S2D