Technical Data Sheet

DOWSIL™ EA-3838 Fast Adhesive

A two-part, fast room temperature curing thixotropic adhesive

Features & Benefits

- Two-part, non-corrosive, neutral, alkoxy cure adhesive/sealant
- Fast and homogeneous cure in depth and early adhesion development at room temperature
- Non self-leveling, paste consistency
- Fast cure allows rapid handling of bonded components and a fast assembly process
- Good, durable adhesion to a wide variety of substrates
- Excellent weathering and U.V. resistance
- Excellent temperature stability: -50°C to 180°C

Applications

- DOWSIL™ EA-3838 Fast Adhesive has been developed to provide durable adhesive bonding and sealing for components which exhibit different thermal expansion rates, and /or where fast homogeneous cure throughout the adhesive cross section and an early adhesion development is needed.
- Can be used for various automotive and automotive electronics assembly applications, where a flexible strong adhesive bond is needed.
- DOWSIL™ EA-3838 Fast Adhesive is a perfect solution for appliances manufacturing, for bonding glass to metal, glass to painted metal or glass to plastic at ovens, refrigerators and small home appliances.

Typical Properties

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

CTM[1]	Standard Test Method	Property	Unit	Result
		DOWSIL™ EA-3838 Fast Adhesive Base, Black: As Supplied		
0176 B		Appearance		Black viscous liquid
0022	ASTM[2] D 0792	Specific Gravity		1.34
1094 C	DIN[3] 5302	Viscosity (1 s^{-1})	Pa.s	350.000–450.000
1094 C	DIN 5302	Viscosity (10 s^{-1})	Pa.s	150.000–200.000

1. CTM: Corporate Test Method, copies of CTM's are available upon request
2. ASTM: American Society for Testing and Materials
3. DIN: Deutsche Industrie Norm

Form No. 11-4117-01-1220 S2D

Typical Properties (Cont.)

CTM[1]	Standard Test Method	Property	Unit	Result
		DOWSIL™ EA-3838 Fast Adhesive Catalyst: As Supplied		
0176 B		Appearance		White paste
0022	ASTM D 0792	Specific Gravity		1.60
1094 C	DIN 5302	Viscosity (1 s^{-1})	Pa.s	550.000–700.000
1094 C	DIN 5302	Viscosity (10 s-1)	Pa.s	75.000–100.000
		DOWSIL™ EA-3838 Fast Adhesive: As Mixed by 2:1 (Base:Catalyst) Volume Ratio		
0176 B		Appearance		Black non-slump paste
0092 AA		Snap Time (25°C, 50% R.H.)	minutes	2–3
0095 A	MIL[4]-S-8802E	Tack-free Time (25°C, 50% R.H.)	minutes	5–8
0062		Vertical Flow	mm/60 sec	< 2
		DOWSIL™ EA-3838 Fast Adhesive: As Mixed by 4:1 (Base:Catalyst) Volume Ratio		
0176 B		Appearance		Black non-slump paste
0092 AA		Snap Time (25°C, 50% R.H.)	minutes	4–6
0095 A	MIL-S-8802E	Tack-free Time (25°C, 50% R.H.)	minutes	13–18
0062		Vertical Flow	mm/60sec	< 2
		DOWSIL™ EA-3838 Fast Adhesive Properties After Full Cure, 2:1 by Volume Ratio – 7 Days at 23°C – Measured on 2 mm Sheets		
0099	ASTM D 2240	Durometer Hardness	Shore A	40
0137 A	ASTM D 412	Tensile Strength	MPa	> 1.5
0137 A	ASTM D 412	Elongation at Break	%	> 250
		Early Adhesion via Lap Shear		
0243	ASTM D 1002	**Lap Shear Strength Build Up, 2 mm Adhesive Thickness**		
		Glass / Stainless Steel @ 15 Minutes @ 60 Minutes @ 24 Hours @ 7 Days	 MPa 	 ≥ 0.5 0.7 1.0 1.4
		Adhesion via Lap Shear – 7 days at 23°C		
0243	ASTM D 1002	**Lap Shear Strength, 2 mm Adhesive Thickness**		
		Glass / Stainless Steel, Steel, Galvanized Steel	MPa	1.4
		Glass / Aluminum, Eloxal Coated Aluminum	MPa	1.2
		Glass / PC, PA	MPa	1.2
		Glass / ABS, PBT	MPa	1.0
1007 M		**Cohesive Failure**		
		Glass / Stainless Steel, Steel, Galvanized Steel	%	100 / 100
		Glass / Aluminum, Eloxal Coated Aluminum	%	100 / 100
		Glass / PC, PA	%	100 / PC:50, PA:100
		Glass / ABS, PBT	%	100 / 100

4. MIL: Military Specification and Standards

Description

DOWSIL™ EA-3838 Fast Adhesive is a two-part, non-self-leveling adhesive with fast cure at room temperature. The product has been developed to show good, durable adhesion to a wide range of clean substrates including plastics, metals and glass.

How to Use

Mixing

The adhesive is designed to be used in a mixing ratio between 2 parts base: 1 part catalyst by volume, (or 1.7 parts Base: 1 part Catalyst by weight) and 4 parts base: 1 part catalyst by volume, (or 3.4 parts Base: 1 part Catalyst by weight). Other mixing ratios between these limits can be used but Dow should be consulted prior to use. Suitable meter/mix equipment should be equipped with gear or piston metering pumps for base and catalyst, and a suitable static or a dynamic mixer.

The presence of light-colored streaks, or marbling, indicates inadequate mixing. Automated airless dispense equipment can be used to reduce or avoid the need to de-air.

Curing Conditions

The adhesive cures at room temperature and develops adhesion rapidly to glass, plastic and metal substrates.

The surfaces to be bonded should be clean, and free of any extraneous matter, dust or dirt. Adhesion is normally good to most substrates without the use of a primer, or of other surface activation methods. If desired, adhesion may be enhanced via use of flame or plasma treatment or corresponding primers on the surfaces to be bonded.

The cure and adhesion strength can also be further accelerated by the application of moderate heat up to 60°C.

Temperature, Hot and Humid Resistance

DOWSIL™ EA-3838 Fast Adhesive shows good adhesive resistance to hot and humid conditions, for example 7 days in water at 70°C.

DOWSIL™ EA-3838 Fast Adhesive shows good adhesive resistance up to 180°C and can resist higher temperatures for short-term peaks.

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.

Usable Life and Storage

When stored at or below 30°C, DOWSIL™ EA-3838 Fast Adhesive Catalyst has a usable life of 12 months from the date of production.

When stored at or below 30°C, DOWSIL™ EA-3838 Fast Adhesive Base, Black has a usable life of 12 months from the date of production.

Prolonged exposure to high temperatures during storage may result in a slowdown of the cure speed, which can be substantiated by using a higher catalyst mixing ratio in most cases.

Packaging Information

This product is available in different standard container sizes. Detailed container size information should be obtained from your nearest Dow Sales Office or Dow Distributor.

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.

How Can We Help You Today?

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

For more information about our materials and capabilities, visit **dow.com**.

To discuss how we could work together to address your specific needs, go to **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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