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Advanced Materials

Araldite® AV 8503 Resin
Hardener HV 8503 Adhesive

EPOXY ADHESIVE PASTE

DESCRIPTION :

Araldite® AV 8503 Resin/Hardener HV 8503 epoxy adhesive is a two-component paste with a one-to-one by volume mix ratio. It is designed for bonding sheet molding compound. Araldite® AV 8503 Resin/Hardener HV 8503 epoxy adhesive fixes itself in one minute on a heated fixture at 240 °F (116 °C). It requires only a dry wipe for surface preparation before bonding.

APPLICATIONS :

- Sheet Molding Compound
- Plastics
- Metals

ADVANTAGES :

- Fast fixture time
- Good flexibility
- Convenient mix ratio
- Minimal surface preparation required
- Good heat resistance

TYPICAL PROPERTIES :

	Resin	**Hardener**
Color/Appearance	Blue paste	Beige paste
Specific gravity @ 77 °F (25 °C)	1.32	1.21
Brookfield Viscosity, cP @ 77 °F (25 °C) (Spindle # @ 10 rpm)	172,000	368,000
Solids content, %	100	100

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PROCESSING PROPERTIES :

Resin/Hardener		
Ratio	(by weight)	100/92
	(by volume)	100/100
Pot Life, minutes @ 77 °F (25 °C) (100 gram. Mass)		30 minutes
Sag resistance, inch (mm) (0.23 in/6mm bead) @77 °F (25 °C)		0.08 (2)
Weldability		Good
Sandability		Fair
Cleaning/flushing solvent		Methylene chloride

TYPICAL BULK PROPERTIES :

Glass transition temperature, °F (°C)	217 (103)
Young's modulus, psi (Mpa) (ASTM D-638)	142,000 (979)
Shear modulus, psi (Mpa) @ 77 °F (25 °C) (Rheometrics RDA-700)	90,300 (623)
Shore D hardness	78
Elongation, % (ASTM D-638)	15
Coefficient of linear expansion, in/in/°C (by TMA)	1.5×10^{-5}
Ultimate tensile strength, psi (Mpa) (ASTM D-638)	3400 (23.4)

CURING CONDITION :

Temperature	**Handling Strength**	**Minimum Cure Time**
77 °F (25 °C)	4 hours	24 hours
250 °F (120 °C)	1 minute	5 minutes

CURED PROPERTIES :

Cured adhesive properties evaluated on SMC (automotive grade, dry wiped) and Aluminum (Acia 2024 T-3) etched per ASTM D-2851 methods. Unless otherwise stated, lap shear testing determined with 0.030 inch (0.76 mm) bond line thickness and 0.5 x 1 inch (12.5 mm x 2.5 cm) joint area.

Lap Shear Strength (ASTM D-1002)
Effect of Test Temperature

Substrate	Cure Cycle	Test Temperature	Shear Strength Psi	Shear Strength MPa
SMC	1 hour @ 250 °F (120 °C)	-40 °F (-40 °C)	630	4
		77 °F (25 °C)	430	3
		140 °F (60 °C)	380	2.5
Aluminum	1 hour @ 250 °F (120 °C)	77 °F (25 °C)	3380	23
		140 °F (60 °C)	2420	17
		179 °F (82 °C)	2370	16
		212 °F (100 °C)	1400	10

Effect of Bond line Thickness

Substrate	Cure Cycle	Bond line Thickness	Shear Strength Psi	Shear Strength MPa
SMC	1 hour @ 250 °F (120 °C)	0.030 in/0.76 mm	430	3
		0.125 in/3 mm	260	2
		0.250 in/6 mm	165	1

Effect of Environmental Conditioning

Substrate	Cure Cycle	Environmental	Shear Strength Psi	Shear Strength MPa
SMC	1 hour @ 250 °F (120 °C)	Initial	430	3
		Salt spray (500 hrs.)	360	2.5
		Water soak (7 days)	310	2
		Scab cycle (20 cycles)	300	2

T-peel Strength, Pli (N/mm) (ASTM D-1876)	10 (1.75)
Wedge Test, Ft.-lb/in. (J/mm) (breack Energy) (SAE J882)	75 (4,003)
Impact Strength, Ft.-lb/in. (J/mm) (GM 9751 P)	50 (2,669)

CAUTION :

Huntsman Advances Materials Americas Inc. maintains up-to-date Material Safety Data Sheet (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material. Copies of the latest MSDS may be requested by calling our customer service group at 800-367-8793 or emailing your request to adhesives_group@huntsman.com

To protect against any potential health risks presented by our products, the use of proper personal protective equipment (PPE) is recommended. Eye and skin protection is normally advised. Respiratory protection may be needed if mechanical ventilation is not available or is insufficient to remove vapors. For detailed PPE recommendations and exposure control options consult the product MSDS or a Huntsman EHS representative.

FIRST AID :

Eyes and skin : Flush eyes with water for 15 minutes. Contact a physician if irritation persists. Wash skin thoroughly with soap and water. Remove and wash contaminated clothing before reuse.
Inhalation : Remove subject to fresh air.
Swallowing : Dilute by giving water to drink and contact a physician promptly. Never give anything to drink to an unconscious person.

KEEP OUT OF REACH OF CHILDREN

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