

3M Scotch-Weld™ DP-105 Epoxy Adhesive

Category : Polymer , Thermoset , Epoxy , Epoxy Adhesive

Material Notes:

3M™ Scotch-Weld™ Epoxy Adhesive DP105 Clear is a fast setting, very flexible 1:1 mix ratio epoxy adhesive/sealant. Its flexibility when cured makes it ideal for applications involving dissimilar surfaces where thermal coefficient of expansion may be a problem. It is also unique in that it retains its clear, colorless properties even when cured in larger masses where many clear epoxy systems will often turn amber from the reaction exotherm. Information provided by 3M

Order this product through the following link:

http://www.lookpolymers.com/polymer_3M-Scotch-Weld-DP-105-Epoxy-Adhesive.php

Physical Properties	Metric	English	Comments
Brookfield Viscosity	1000 - 5000 cP	1000 - 5000 cP	Base, RVF #7 spindle, 20 rpm @ 27°C
	8000 - 16000 cP	8000 - 16000 cP	Accelerator, RVF #7 spindle, 20 rpm @ 27°C

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	39	39	ASTM D2240
Tensile Strength at Break	4.14 MPa	600 psi	ASTM D882
Elongation at Break	120 %	120 %	ASTM D882
Shear Strength	0.552 MPa	80.0 psi	Overlap, Polypropylene
	1.38 MPa	200 psi	Overlap, Glass, Borosilicate
	1.72 MPa	250 psi	Overlap, +3M Primer 3901
	1.72 MPa	250 psi	Overlap, Acrylic
	2.07 MPa	300 psi	Overlap, Wood, Fir
	2.07 MPa	300 psi	Overlap, ABS
	2.76 MPa	400 psi	Overlap, Polycarbonate
	3.59 MPa	520 psi	Overlap, PVC
	8.96 MPa	1300 psi	Overlap, Cold Rolled Steel
	9.65 MPa	1400 psi	Overlap, Fiberglass
10.3 MPa	1500 psi	Overlap, Sanded Aluminum	
13.8 MPa	2000 psi	Overlap, Etched Aluminum	
1.03 MPa	150 psi		

Mechanical Properties	Metric @Temperature 82.0 °C	English @Temperature 180 °F	Overlap Comments
	1.72 MPa	250 psi	Overlap
	@Temperature 66.0 °C	@Temperature 151 °F	
	2.76 MPa	400 psi	Overlap
	@Temperature 49.0 °C	@Temperature 120 °F	
	13.8 MPa	2000 psi	Overlap
	@Temperature 21.0 °C	@Temperature 69.8 °F	
	24.1 MPa	3500 psi	Overlap
	@Temperature -53.0 °C	@Temperature -63.4 °F	
Peel Strength	0.175 kN/m	1.00 pli	180°
	0.351 kN/m	2.00 pli	180°
	0.526 kN/m	3.00 pli	180°
	0.877 kN/m	5.00 pli	180°
	6.14 kN/m	35.0 pli	180°

Thermal Properties	Metric	English	Comments
CTE, linear	181 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	101 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 40.0 - 140 °C	@Temperature 104 - 284 °F	
Thermal Conductivity	0.147 W/m-K	1.02 BTU-in/hr-ft ² -°F	ASTM C177
	@Temperature 44.3 °C	@Temperature 112 °F	
Glass Transition Temp, Tg	8.00 °C	46.4 °F	Onset
	15.0 °C	59.0 °F	Mid-Point

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.50e+10 ohm-cm	1.50e+10 ohm-cm	ASTM D257
Dielectric Constant	9.2	9.2	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	18.3 kV/mm	465 kV/in	ASTM D149
	@Thickness 0.762 mm	@Thickness 0.0300 in	
Dissipation Factor	0.22	0.22	ASTM D150

Electrical Properties	@Frequency 1000 Hz Metric	@Frequency 1000 Hz English	Comments
Processing Properties	Metric	English	Comments
Cure Time	10.0 min	0.167 hour	Tack free
	20.0 min	0.333 hour	Handling Strength
	2880 min	48.0 hour	

Descriptive Properties	Value	Comments
Appearance	Clear	Base
	Clear	Accelerator
	Clear	

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