

3M Scotch-Weld™ DP820 Acrylic Adhesives

Category : Polymer , Adhesive

Material Notes:

3M™ Scotch-Weld™ Acrylic Adhesive DP820 is a two-part, 1:1 mix ratio, toughened acrylic structural adhesives. They exhibit excellent shear and peel strengths along with good impact and durability and bond well to many metals, ceramics, wood and most plastics. Information provided by 3M

Order this product through the following link:

http://www.lookpolymers.com/polymer_3M-Scotch-Weld-DP820-Acrylic-Adhesives.php

Physical Properties	Metric	English	Comments
Viscosity	45000 cP	45000 cP	Accelerator
	70000 cP	70000 cP	Base

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	75	75	
Elongation at Break	50 - 75 %	50 - 75 %	ASTM D882
Shear Strength	0.00221 MPa	0.320 psi	Overlap, Aluminum-etched
	2.07 MPa	300 psi	Overlap, Aluminum -solvent cleaned only
	2.07 MPa	300 psi	Overlap, CRS/CRS tested after 120°C/2 wks
	4.83 MPa	700 psi	Overlap, Fiberglass Reinforced Plastic
	5.86 MPa	850 psi	Overlap, CRS/CRS tested after 90°C/2 wks/90% RH
	5.86 MPa	850 psi	Overlap, CRS/CRS tested after tap water 1 wk/RT
	6.89 MPa	1000 psi	Overlap, ABS
	6.89 MPa	1000 psi	Overlap, Etched Alum, 93°C/100% RH/2 wks
	7.93 MPa	1150 psi	Overlap, Polycarbonate
	7.93 MPa	1150 psi	Overlap, CRS (oily) 49°C/100% RH/2 wks
	8.27 MPa	1200 psi	Overlap, Galvanized Steel
	8.27 MPa	1200 psi	Overlap, Fir Wood
	8.62 MPa	1250 psi	Overlap, Acrylic

Mechanical Properties	Metric MPa	English psi	Comments CRS/CRS after 7 days of Immersion in IPA
	10.3 MPa	1500 psi	Overlap, CRS/CRS after 7 days of Immersion in Gasoline
	10.3 MPa	1500 psi	Overlap, FR-4/FR-4 tested after tap water 1 wk/RT
	11.0 MPa	1600 psi	Overlap, FR-4/FR-4 tested after 90°C/2 wks/90% RH
	11.4 MPa	1650 psi	Overlap, Etched Alum (oily) 49°C/100% RH/4 wks
	12.1 MPa	1750 psi	Overlap, PVC
	13.4 MPa	1950 psi	Overlap, CRS/CRS after 7 days of Immersion in Machine Oil
	13.8 MPa	2000 psi	Overlap, FR-4 Glass Epoxy
	13.8 MPa	2000 psi	Overlap, FR-4/FR-4 tested after RT aging
	16.5 MPa	2400 psi	Overlap, Cold Rolled Steel (oily)
	17.2 MPa	2500 psi	Overlap, Cold Rolled Steel
	17.2 MPa	2500 psi	Overlap, Control
	17.2 MPa	2500 psi	Overlap, CRS/CRS tested after RT aging
	20.0 MPa	2900 psi	Overlap, Aluminum -etched/oily
	21.4 MPa	3100 psi	Overlap, Aluminum - 120 frit sandpaper
	22.8 MPa	3300 psi	Overlap, FR-4/FR-4 tested after 120°C/2 wks
	10.0 MPa @Temperature 93.0 °C	1450 psi @Temperature 199 °F	Overlap, Etched Alum/Etched Alum
	13.1 MPa @Temperature 83.0 °C	1900 psi @Temperature 181 °F	Overlap, Etched Alum/Etched Alum
	21.4 MPa @Temperature -55.0 °C	3100 psi @Temperature -67.0 °F	Overlap, Etched Alum/Etched Alum
	21.7 MPa @Temperature 23.0 °C	3150 psi @Temperature 73.4 °F	Overlap, Etched Alum/Etched Alum
Peel Strength	1.58 kN/m	9.00 pli	180° T-Peel, Black SBR/CRS
	1.93 kN/m	11.0 pli	180° T-Peel, Neoprene/CRS

Mechanical Properties	Metric	English	Comments
	3.33 kN/m	19.0 pli	180° T-Peel, Etched Al/Etched Al
	3.86 kN/m	22.0 pli	180° T-Peel, Etched Al/Etched Al
	3.86 kN/m	22.0 pli	180° T-Peel, Etched Al/Etched Al
	3.86 kN/m	22.0 pli	180° T-Peel, Etched Al/Etched Al
	3.86 kN/m	22.0 pli	180° T-Peel, Etched Al/Etched Al
	3.86 kN/m	22.0 pli	180° T-Peel, Etched Al/Etched Al
	3.86 kN/m	22.0 pli	180° T-Peel, Nitrile/CRS

Thermal Properties	Metric	English	Comments
CTE, linear	180 $\mu\text{m/m-}^{\circ}\text{C}$	100 $\mu\text{in/in-}^{\circ}\text{F}$	
	@Temperature 20.0 - 70.0 $^{\circ}\text{C}$	@Temperature 68.0 - 158 $^{\circ}\text{F}$	
Glass Transition Temp, Tg	58.0 $^{\circ}\text{C}$	136 $^{\circ}\text{F}$	

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.20e+12 ohm-cm	2.20e+12 ohm-cm	ASTM D257
Surface Resistance	$\geq 1.60\text{e}+14$ ohm	$\geq 1.60\text{e}+14$ ohm	ASTM D257
Dielectric Constant	2.8	2.8	ASTM D150
	@Frequency 10000 Hz	@Frequency 10000 Hz	
	2.8	2.8	
	@Frequency 100000 Hz	@Frequency 100000 Hz	ASTM D150
	3.0	3.0	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	3.1	3.1	ASTM D150
	@Frequency 500 Hz	@Frequency 500 Hz	
Dissipation Factor	0.022	0.022	ASTM D150
	@Frequency 100000 Hz	@Frequency 100000 Hz	
	0.032	0.032	
	@Frequency 10000 Hz	@Frequency 10000 Hz	ASTM D150
	0.065	0.065	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	

Electrical Properties	Metric	English	Comments
	@Frequency 500 Hz	@Frequency 500 Hz	ASTM D150

Processing Properties	Metric	English	Comments
Cure Time	1440 - 2880 min	24.0 - 48.0 hour	Full cure

Descriptive Properties	Value	Comments
Appearance	Off-white	Base
	Pale Yellow	
	Yellow	Accelerator

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