

3M Scotch-Weld™ DP420 Black Epoxy Adhesive

Category : Polymer , Thermoset , Epoxy , Epoxy Adhesive

Material Notes:

3M™ Scotch-Weld™ Epoxy Adhesive are high performance, two-part epoxy adhesives offering outstanding shear and peel adhesion, and very high levels of durability. Information provided by 3M

Order this product through the following link:

http://www.lookpolymers.com/polymer_3M-Scotch-Weld-DP420-Black-Epoxy-Adhesive.php

Physical Properties	Metric	English	Comments
Viscosity	60000 - 130000 cP	60000 - 130000 cP	Accelerator
	190000 - 270000 cP	190000 - 270000 cP	Base

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	75 - 80	75 - 80	
Shear Strength	0.483 MPa	70.0 psi	Overlap, Isopropyl Alcohol Wipe surface prep, Neoprene/Steel
	1.24 MPa	180 psi	Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol surface prep, Neoprene/Steel
	1.31 MPa	190 psi	Overlap, Isopropyl Alcohol Wipe surface prep, Polystyrene
	2.48 MPa	360 psi	Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol surface prep, Polycarbonate
	2.62 MPa	380 psi	Overlap, Isopropyl Alcohol Wipe surface prep, FRP
	2.76 MPa	400 psi	Overlap, Isopropyl Alcohol Wipe surface prep, Polycarbonate
	3.03 MPa	440 psi	Overlap, Isopropyl Alcohol Wipe surface prep, Polyacrylic
	3.10 MPa	450 psi	Overlap, Isopropyl Alcohol Wipe surface prep, ABS PVC
	3.10 MPa	450 psi	Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol surface prep, Polyacrylic
	3.10 MPa	450 psi	Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol surface prep, Polystyrene
3.79 MPa	550 psi	Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol surface prep, ABS PVC	

Mechanical Properties	Metric	English	Comments
			Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol Wipe surface prep, FRP
	4.14 MPa	600 psi	Overlap, Isopropyl Alcohol Wipe surface prep, Phenolic
	7.58 MPa	1100 psi	Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol surface prep, Phenolic
	8.96 MPa	1300 psi	Overlap, Isopropyl Alcohol/Abrade/Isopropyl Alcohol surface prep, SBR/Steel
	9.65 MPa	1400 psi	Overlap, Isopropyl Alcohol Wipe surface prep, SBR/Steel
	12.4 MPa	1800 psi	Overlap, Stainless Steel MEK/abrade/MEK
	15.2 MPa	2200 psi	Overlap, CRS MEK/abrade/MEK
	17.2 MPa	2500 psi	Overlap, Aluminum MEK/abrade/MEK
	19.3 MPa	2800 psi	Overlap, Brass MEK/abrade/MEK
	20.0 MPa	2900 psi	Overlap, Galvanized Steel Hot dipped
	20.7 MPa	3000 psi	Overlap, Galvanized Steel Electrodeposited
	20.7 MPa	3000 psi	Overlap, Antifreeze/H2O (50/50) immersion, 82°C for 30 days
	24.1 MPa	3500 psi	Overlap, Methyl Ethyl Ketone immersion, RT for 30 days
	27.6 MPa	4000 psi	Overlap, Aluminum Oakite degrease
	27.6 MPa	4000 psi	Overlap, Water Vapor, 49°C at 100% RH for 30 days
	27.6 MPa	4000 psi	Overlap, Water Vapor, 93°C at 100% RH for 14 days
	27.6 MPa	4000 psi	Overlap, Skydrol LD-4 immersion, 66°C for 30 days
	29.0 MPa	4200 psi	Overlap, Distilled Water immersion for 30 days
	31.0 MPa	4500 psi	Overlap, Aluminum Etched
	31.0 MPa	4500 psi	Overlap, Isopropyl Alcohol immersion, RT for 30 days
	33.8 MPa	4900 psi	Overlap, RT at 50% RH for 30 days
	34.5 MPa	5000 psi	Overlap, Copper MEK/abrade/MEK
	31.0 MPa	4500 psi	

Mechanical Properties	Metric @ Temperature -55.0 °C	English @ Temperature -67.0 °F	Aluminum Overlap Comments
	31.0 MPa @Temperature 23.0 °C	4500 psi @Temperature 73.4 °F	Aluminum Overlap
	3.93 MPa @Temperature 121 °C, Time 900 sec	570 psi @Temperature 250 °F, Time 0.250 hour	Aluminum Overlap
	8.69 MPa @Temperature 82.0 °C, Time 900 sec	1260 psi @Temperature 180 °F, Time 0.250 hour	Aluminum Overlap
	15.5 MPa @Time 1800 sec	2250 psi @Time 0.500 hour	Aluminum Overlap
	18.5 MPa @Time 14400 sec	2690 psi @Time 4.00 hour	Aluminum Overlap
	20.5 MPa @Time 3600 sec	2980 psi @Time 1.00 hour	Aluminum Overlap
Peel Strength	4.38 kN/m	25.0 pli	CRS, T-Peel, 17-20 mil bondline, MEK/abrade/MEK
	7.01 kN/m	40.0 pli	CRS, T-Peel, 17-20 mil bondline, Oakite degreased
	8.77 kN/m	50.0 pli	Aluminum Etched, T-Peel, 5-8 mil bondline
	10.5 kN/m	60.0 pli	Aluminum Etched, T-Peel, 17-20 mil bondline
	1.63 kN/m @Temperature -55.0 °C	9.30 pli @Temperature -67.0 °F	Aluminum, T-Peel
	3.16 kN/m @Temperature 82.0 °C	18.0 pli @Temperature 180 °F	Aluminum, Bell Peel
	3.51 kN/m @Temperature 82.0 °C	20.0 pli @Temperature 180 °F	Aluminum, T-Peel
	3.51 kN/m @Temperature -55.0 °C	20.0 pli @Temperature -67.0 °F	Aluminum, Bell Peel
	8.77 kN/m @Temperature 23.0 °C	50.0 pli @Temperature 73.4 °F	Aluminum, T-Peel
	14.4 kN/m	82.0 pli	

Mechanical Properties	Metric	English	Aluminum Bell Peel Comments
	@ Temperature 23.0 °C	@ Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	80.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	44.4 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	Below Tg
	194 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	108 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	Above Tg
Thermal Conductivity	0.180 W/m-K	1.25 BTU-in/hr-ft ² -°F	
	@Temperature 45.0 °C	@Temperature 113 °F	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.60e+15 ohm-cm	1.60e+15 ohm-cm	ASTM D257
Dielectric Strength	35.0 kV/mm	888 kV/in	ASTM D149

Descriptive Properties	Value	Comments
Appearance	Amber	Accelerator
	Black	Base
	Black	

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