

## Multi-Cure<sup>®</sup> 921-GEL Gel Adhesive/Potting Resin for Phenolic and Filled Plastics to Glass and Metal

### DESCRIPTION

DYMAX Multi-Cure<sup>®</sup> 921-GEL is a high tensile strength, UV-curable resin that is especially well suited when rigid adhesive bonds or potted areas are desired. Multi-Cure<sup>®</sup> 921-GEL was designed to bond a wide variety of substrates including metal, glass, ceramic, and many thermoset plastics. This resin cures clear and deep. Multi-Cure<sup>®</sup> 921-GEL can be cured with UV light, and shadowed areas can be cured with heat. DYMAX adhesives comply with the Montreal Protocol and U.S. Clean Air Act of 1990. This product is in full compliance with the RoHS Directives 2002/95/EC and 2003/11EC.

### TYPICAL UNCURED PROPERTIES (not specifications)

Solvent Content	None - 100% Reactive Solids	
Chemical Class	Urethane Acrylate	
Appearance	Clear/Straw Liquid	
Solubility	Alcohols/Chlorinated Solvents/Ketones	
Viscosity (20 rpm)	25,000 cP (nominal)	ASTM D-1084

### TYPICAL CURED PROPERTIES (not specifications)

Durometer Hardness	D75	ASTM D-2240
Tensile at Break	5,200 psi (35.9 MPa)	ASTM D-638
Elongation at Break	35%	ASTM D-638
Modulus of Elasticity	320,000 psi	ASTM D-638
Tensile Lap Shear (steel-to-steel)	3,600 psi	ASTM D-1002
Tensile Compression Shear		
Glass-to-Glass	4,000 psi (exceeds strength of glass)	DSTM D-250*
Glass-to-Steel	5,000 psi (exceeds strength of glass)	DSTM D-251
Water Absorption (24 h)	1.1%	ASTM D-570
Boiling Water Absorption (2 h)	3.0%	ASTM D-570
Linear Shrinkage	3%	DSTM D-101
Coefficient of Linear Thermal Expansion	$90 \times 10^{-6}$ in/in/°C	ASTM D-696
Thermal Limits (brittle/degrades)	-43° to 177°C (-45°/+350°F)	DSTM D-200

\*DSTM refers to DYMAX Standard Test Method

### ELECTRICAL

Dielectric Strength	1,600 V/mil	ASTM D-1304
Volume Resistivity	$7.5 \times 10^{13} \Omega \cdot \text{cm}$	ASTM D-1304
Surface Resistivity	$2.2 \times 10^{14} \Omega$	ASTM D-1304
Dissipation Factor, 1 MHz	0.06	ASTM D-1304
Dielectric Constant, 1 MHz	4.10	ASTM D-1304



**CURE DATA (Using 365 nanometer UV light):**

	<u>Cure Time (Seconds)</u>	<u>Intensity (mW/cm<sup>2</sup>)</u>	<u>DYMAX Light-Welder® Lamps</u>
Tack-Free Cure (1/8-inch bead)	35	175	5000-EC
Depth of Cure (1/4 inch)	30	175	5000-EC
Fixture Between Glass Slides	1-2	50	2000-EC

**Shadowed areas can be cured with activator or heat.**

Activator is placed on one surface and the adhesive on the mating surface. Curing takes place at room temperature when the parts are mated. Activator requires well-mated parts (up to 0.010-inch gap). Well-mated parts fixture (achieve handling strength) in less than a minute. See DYMAX Technical Bulletin "Guidelines for Activator Curing" for complete instructions for all activators.

Heat may be used after UV cure to cure shadowed areas or, after activator cure, to accelerate cure. The following guidelines depend on the amount of adhesive:

<u>Minimum Adhesive Temperature</u>	<u>Time</u>
110°C (225°F)	60 Minutes
120°C (250°F)	30 Minutes
150°C (300°F)	15 Minutes

**DISPENSING AND HANDLING ADHESIVE**

Multi-Cure® 921-GEL adhesive may be dispensed with a variety of automatic bench-top syringe applicators or other equipment as required. Questions relating to dispensing and curing systems for specific applications should be referred to DYMAX Applications Engineering.

Wear impervious gloves and/or barrier cream. Repeated or continuous skin contact with liquid adhesive will cause irritation and should be avoided. Do not wear absorbent gloves. Remove adhesive from skin with soap and water. Never use solvents to remove adhesive from skin or eyes.

**STORAGE AND SHELF LIFE**

Store material in a cool, dark place when not in use. Do not expose to UV light or sunlight. Material may polymerize upon prolonged exposure to ambient light. Replace lid immediately after use. This material has a minimum 12-month shelf life from date of shipment, unless otherwise specified, when stored between 10°C [50°F] and 32°C [90°F] in the original, unopened container.

**CAUTION**

For industrial use only. Avoid breathing vapors. Avoid contact with eyes and clothing. In case of contact, immediately flush with water for at least 15 minutes and get medical attention. Wash clothing before reuse. Keep out of reach of children. Do not take internally. If swallowed, induce vomiting at once and call a physician. Repeated or continuous skin contact with liquid adhesive will cause irritation and should be avoided. For specific information, refer to the product Material Safety Data Sheet.

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