

## Multi-Cure® 921 Low-Viscosity Potting Resin for Phenolic and Filled Plastics to Glass and Metal

Dymax Multi-Cure® 921 is a high tensile strength, UV-curable resin that is especially well suited when rigid adhesive bonds or potted areas are desired. Multi-Cure® 921 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® 921 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 RoHS directives 2015/863/EU.

| UNCURED PROPERTIES *   |                                       |             |
|------------------------|---------------------------------------|-------------|
| Property               | Value                                 | Test Method |
| Solvent Content        | None - 100% Reactive Solids           | N/A         |
| Chemical Class         | Urethane Acrylate                     | N/A         |
| Appearance             | Clear/Straw Liquid                    | N/A         |
| Solubility             | Alcohols/Chlorinated Solvents/Ketones | N/A         |
| Viscosity, cP (20 rpm) | 750 (nominal)                         | ASTM D1084  |

| ELECTRICAL PROPERTIES *     |                      |             |
|-----------------------------|----------------------|-------------|
| Property                    | Value                | Test Method |
| Dielectric Constant (1 MHz) | 4.10                 | ASTM D1304  |
| Dissipation Factor (1 MHz)  | 0.06                 | ASTM D1304  |
| Dielectric Strength, V/mil  | 1,600                | ASTM D1304  |
| Volume Resistivity, ohm-cm  | $7.5 \times 10^{13}$ | ASTM D1304  |
| Surface Resistivity, ohm    | $2.2 \times 10^{14}$ | ASTM D1304  |

| CURED MECHANICAL PROPERTIES *    |              |             |
|----------------------------------|--------------|-------------|
| Property                         | Value        | Test Method |
| Durometer Hardness               | D75          | ASTM D2240  |
| Tensile at Break, MPa [psi]      | 35.9 [5,200] | ASTM D638   |
| Elongation at Break, %           | 35           | ASTM D638   |
| Modulus of Elasticity, MPa [psi] | [320,000]    | ASTM D638   |

| CURE DATA (USING 365 NM UV LIGHT) |           |                                   |
|-----------------------------------|-----------|-----------------------------------|
|                                   | Cure Time | Lamp (Intensity)                  |
| Tack-Free Cure (1/8-inch bead)    | 35        | 5000-EC (175 mW/cm <sup>2</sup> ) |
| Depth of Cure (1/4 inch)          | 30        | 5000-EC (175 mW/cm <sup>2</sup> ) |
| Fixture Between Glass Slides      | 1-2       | 2000-EC (50 mW/cm <sup>2</sup> )  |

| OTHER CURED PROPERTIES *                          |                              |                        |
|---|------------------------------|------------------------|
| Property  | Value                        | Test Method            |
| Tensile Lap Shear (Steel-to-Steel), psi           | 3,600                        | ASTM D1002             |
| Tensile Compression Shear, psi                    | -                            | -                      |
| Glass-to-Glass                                    | 4,000**                      | DSTM D250 <sup>‡</sup> |
| Glass-to-Steel                                    | 5,000**                      | DSTM D251 <sup>‡</sup> |
| Boiling Water Absorption, % (2 h)                 | 3.0                          | ASTM D570              |
| Water Absorption, % (24 h)                        | 1.1                          | ASTM D570              |
| Linear Shrinkage, %                               | 3                            | DSTM D101 <sup>‡</sup> |
| Coefficient of Linear Thermal Expansion, in/in/°C | $90 \times 10^{-6}$          | ASTM D696              |
| Thermal Limits (brittle/degrades)                 | -43°C to 177°C (-45°/+350°F) | DSTM D200 <sup>‡</sup> |

\* Not Specifications

\*\* Exceeds strength of glass

N/A Not Applicable

‡ DSTM Refers to Dymax Standard Test Method



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Dymax Corporation  
+1.860.482.1010 | info\_de@dymax.com | [www.dymax.com](http://www.dymax.com)

Dymax Europe GmbH  
+49 611.962.7900 | info\_de@dymax.com | [www.dymax.de](http://www.dymax.de)

Dymax Engineering Adhesives Ireland Ltd.  
+353 21.237.3016 | info\_ie@dymax.com | [www.dymax.ie](http://www.dymax.ie)

Dymax Oligomers & Coatings  
+1.860.626.7006 | info\_oc@dymax.com | [www.dymax-oc.com](http://www.dymax-oc.com)

Dymax UV Adhesives & Equipment (Shanghai) Co. Ltd.  
+86.21.37285759 | dymaxasia@dymax.com | [www.dymax.com.cn](http://www.dymax.com.cn)

Dymax UV Adhesives & Equipment (Shenzhen) Co. Ltd.  
+86.755.83485759 | dymaxasia@dymax.com | [www.dymax.com.cn](http://www.dymax.com.cn)

Dymax Asia (H.K.) Limited  
+852.2460.7038 | dymaxasia@dymax.com | [www.dymax.com.cn](http://www.dymax.com.cn)

Dymax Asia Pacific Pte. Ltd.  
+65.6752.2887 | info\_ap@dymax.com | [www.dymax-ap.com](http://www.dymax-ap.com)

Dymax Korea LLC  
+82.2.784.3434 | info\_kr@dymax.com | [www.dymax.com/kr](http://www.dymax.com/kr)

**CURE DATA (USING 365 NM UV LIGHT)**

|                                | <b>Cure Time</b> | <b>Lamp (Intensity)</b>          |
|--------------------------------|------------------|----------------------------------|
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**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  |

**GENERAL INFORMATION**

This product is intended for industrial use only. Keep out of the reach of children. Avoid breathing vapors. Avoid contact with skin, eyes, and clothing. Wear impervious gloves. Repeated or continuous skin contact with uncured material may cause irritation. Remove material from skin with soap and water. Never use organic solvents to remove material from skin and eyes. For more information on the safe handling of this material, please refer to the Safety Data Sheet before use.

The data provided in this document are based on historical testing that Dymax performed under laboratory conditions as they existed at that time, and are for informational purposes only. The data are neither specifications nor guarantees of future performance in a particular application. Dymax does not guarantee that this product's properties are suitable for the user's intended purpose.

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**DISPENSING AND HANDLING ADHESIVE**

Multi-Cure® 921 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 Application 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 an 18-month shelf life from date of manufacture, unless otherwise specified, when stored between 10°C (50°F) and 35°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.