

Multi-Cure[®] OP-24-REV-B Phenolic/Filled Plastics-to-Glass and Metal

INTRODUCTION

Dymax high-performance optical adhesives cure upon exposure to UV or visible light in seconds. Because of their solvent-free and rapid-cure features, they increase productivity, lower assembly cost, and enhance worker safety. When cured with Dymax spot, beam, or flood lamps, they deliver optimum speed and performance for a variety of optical applications. This product is in full compliance with the RoHS Directives 2002/95/EC and 2003/11/EC.

- SUBSTRATES BONDED:** • Phenolic • ABS • Glass • Metal
- FEATURES:**
- Excellent Adhesion to Metal and Glass
 - Impact Resistant
 - Visible Light-Cure in Seconds
- APPLICATIONS:**
- Bonding Glass Lenses to Metal Fixtures or Backings

TYPICAL UNCURED PROPERTIES

Solvent Content	None - 100% Solids	
Composition	Urethane Acrylate	
Appearance	Clear/Straw Liquid	
Solubility	Alcohols/Chlorinated Solvents/Ketones	
Flash Point	>93°C (200°F)	
Density	1.06 g/mL	ASTM D-1875
Viscosity (20 rpm)	800 cP (nominal)	ASTM D-1084

TYPICAL CURED PROPERTIES

PHYSICAL

Durometer Hardness	D80	ASTM D-2240
Elongation at Break	35%	ASTM D-638
Modulus of Elasticity	320,000 psi	ASTM D-638
Tensile at Break	5,200 psi	ASTM D-638
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*
Thermal Range (brittle/degrades)	-40° to +177°C (-40°/+350°F)	DSTM D-200*
Water Absorption (2 h)	1.1%	ASTM D-570
Coefficient of Thermal Expansion	90 x 10 ⁻⁶ in/in°C	ASTM D-696
Linear Shrinkage	0.39%	ASTM D2566

*DSTM refers to Dymax Standard Test Method

CURE DATA - Using 365 nanometer UV light:

	Cure Time (Seconds)	Intensity (mW/cm ²)	Dymax Light-Welder [®] Lamps
Tack-free cure (1/8-inch bead)	10	150	5000-EC
Depth of cure (1/4 inch)	20	150	5000-EC
Fixture between glass slides	1	50	2000-EC

The required intensity and cure time should be determined during the initial process validation stage. Factors that should be considered during process validation which can affect the adhesive cure rate and depth of cure include, but are not limited to, the part geometry, bond-gap size, percent light transmission through the substrate at 365 nm and 436 nm, distance from the light source to the adhesive bond area, UV and visible light intensity and spectral output of the light source, the desired margin of safety to be built into the process, and minimum and maximum exposure times.



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Technical Data Collection Prior to 2003
Rev. 05/14/2012

HEAT CURE DATA (Secondary)

Heat may be used as a secondary cure for shadow areas, but only after product has been cured with UV or Activator 501-E. The following is a guide and is dependent on the amount of material to be cured:

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

OPTICAL PROPERTIES

Refractive Index (25°C) Cured 1.50 ASTM D-1218

STORAGE AND SHELF LIFE

Store the material in a cool, dark place when not in use. Do not expose to light. This product may polymerize upon prolonged exposure to ambient and artificial light. Keep covered when not in 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.

DISPENSING AND HANDLING ADHESIVE

Dymax Multi-Cure® OP-24-REV-B is available in 3-mL, 10-mL, and 30-mL syringes. It 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.

SAFETY

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.

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; 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's Material Safety Data Sheet.