DYMAX CORPORATION

PRODUCT DATA SHEET

OP-61
OPTICAL ADHESIVE
HIGH STRENGTH/POSITIONING

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.

DESCRIPTION

Dymax OP-61 is a low shrinkage, low outgassing, low CTE adhesive designed for the precise positioning of lenses, prisms, and other optical components. OP-61 cures by exposure to ultraviolet and/or visible cure light. This product is in full compliance with RoHS directives 2015/863/EU.

SUBSTRATES BONDED: **• Metal • Glass • Ceramic • FR-4 • Plastics**

FEATURES: **• Low Shrinkage • Low Outgassing • Low Moisture Absorption • Opaque**
• High Strength Heat Cycle Stable • Complete Cure in Seconds
• No Movement During Cure or Thermal Excursions

APPLICATIONS: **• Optical Alignment Where Minimal or No Movement is Required**

TYPICAL UNCURED PROPERTIES

Solvent Content	None – 100% Solids	
Composition	Urethane Acrylate	
Color	Tan To Gray Gel	
Solubility	Isopropyl Alcohol	
Toxicity	Low	
Flash Point	>95°C (200°F)	
Viscosity (20 rpm)	160,000 cP Gel	ASTM D-2256

TYPICAL CURED PROPERTIES

PHYSICAL

Linear Shrinkage	0.4%	ASTM D-2566
Durometer Hardness	D80	ASTM D-2240
Elongation at Break	0.5%	ASTM D-638
Modulus of Elasticity	2,400,000 psi	ASTM D-570
Tensile at Break	6,400 psi	ASTM D-638
Tensile Compression Shear Glass-to-Glass	3,000 psi (glass shatters)	DSTM D-250*
Glass-to-Steel	2,500 psi (glass shatters)	DSTM D-251*
Boiling Water Absorption (2 h)	3.0%	ASTM D-570
Glass Transition Temp, T_g	70°C	ASTM D-3418
Coefficient of Thermal Expansion, CTE	43 x 10^{-6} in/in/°C	ASTM E-831

*DSTM refers to Dymax Standard Test Method

RECOMMENDED CURING SYSTEMS

Lamp	**2000-EC**	**5000-EC**	**3010-EC**	**Fusion**
Light Type **Lamp Type**	UV/Visible 8" x 8" Flood	UV/Visible 5" x 5" Flood	UV/Visible 3/16" Spot	UV/Visible 1" x 10" Focused Beam
Maximum Lamp Intensity @ 365 nm **Intensity @ time of test @ 365 nm**	150 mW/cm^2 50 mW/cm^2	300 mW/cm^2 150 mW/cm^2	6000 mW/cm^2 2500 mW/cm^2	8000+mW/cm^2 4000 mW/cm^2
Adhesive Absorption Range (nm) **Equipment Output Range (nm)**	300-500 300-500	300-500 300-500	300-500 300-500	300-500 300-500
Cure speed (sec) **Fixture between glass slides** **Tack free surface cure** **Nominal cure depth (4 mm)**	 2 — —	 1 5 60	 1 3 3	 1 1 1

RoHS Compliant

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DYMAX® Adhesives and Light Curing Adhesives

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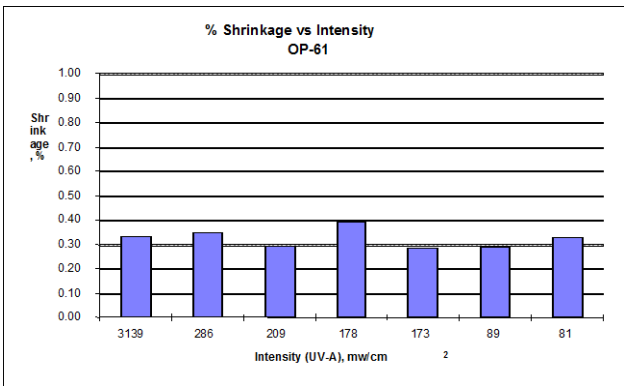
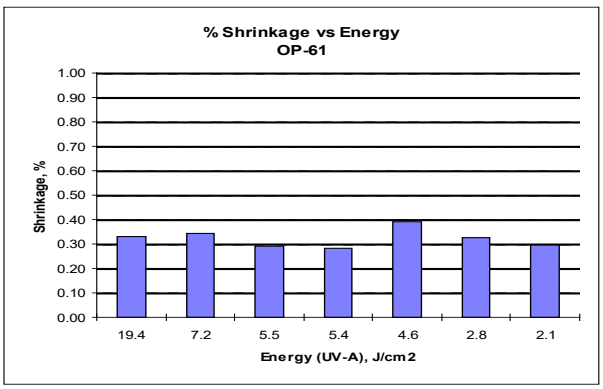
The required intensity and cure time should be determined during the initial process validation stage. Factors that should be considered during process validation which can effect the adhesive cure rate and depth of cure include: part geometry, bond-gap size, percent light transmittance through the substrate at 365 nm and/or 436 nm, distance from the light source to the adhesive bond are, UV and visible light intensity and spectral output of the light source, the desired margin of safety to be built into the process, etc. For specific technical recommendations relating to the application, please call the Dymax Technical Center at (860) 482-1010.





STORAGE AND SHELF LIFE

Store material in 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.

DISPENSING AND HANDLING ADHESIVE

Dymax OP-61 is available in 3ml, 5ml, 10ml, and 30ml manual, or machine ready syringes. It may be dispensed with a variety of automatic bench-top syringe applicators or other equipment as required. Direct questions relating to dispensing and curing systems for specific applications to the Dymax Technical Center at (860) 482-1010.

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.

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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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