

DYMAX CORPORATION

PRELIMINARY PRODUCT DATA SHEET

OP-4-20663 OPTICAL ADHESIVE Fiber Optical Assembly

INTRODUCTION

Dymax high performance optical adhesives cure upon exposure to UV light in seconds and are designed to increase productivity, lower assembly cost and enhance worker safety. These results were obtained using very high speed Dymax spot, beam and flood lamps. Dymax lamps deliver optimum speed and performance for a variety of optical applications.

DESCRIPTION

Ultra Light-Weld OP-4-20663 is a clear, UV-curable adhesive designed for durable bonding of fiber optic couplings. OP-4-20663 was designed for rigidity and applications requiring high T_g upon cure.

FEATURES:	<ul style="list-style-type: none"> - Low Shrinkage UV Cure (<0.8%) - High T_g (104°C) Upon UV Cure - Excellent Thermal Cycling With Minimal Degradation of Optics or Strength
APPLICATIONS:	<ul style="list-style-type: none"> - Bonding, Fiber Optic Couplings and Prisms

TYPICAL UNCURED PROPERTIES

Solvent Content	None-100% Reactive Solids	
Composition	Acrylate	
Appearance	Clear	
Solubility	Alcohols/Ketones/Chlorinated Solvents	
Toxicity	Low	
Flash Point	Over 93°C (>200°F)	
Viscosity	1,900 cP (nominal)	ASTM D-1084

TYPICAL CURED PROPERTIES

Linear Shrinkage, after UV cure	0.8%	ASTM D-2566
Refractive Index, n _D ²⁰	1.539	ASTM D-1218
Glass Transition, T _g	104°C	ASTM E-831
CTE α ₁ (below T _g)	72 x 10 ⁻⁶ in/in/°C	ASTM E-831
CTE α ₂ (above T _g)	118 x 10 ⁻⁶ in/in/°C	ASTM E-831
CTE (-50°C to 200°C)	257 x 10 ⁻⁶ in/in/°C	ASTM E-831
Durometer Hardness	D85	ASTM D-2240
Tensile at Break	5,600 psi	ASTM D-638
Modulus of Elasticity	2,000,000 psi	ASTM D-638
Elongation at Break	0.7%	ASTM D-638
Tensile Compression Shear, glass to glass	1,500 psi (exceeds glass strength)	DSTM D-250*
Thermal Range (brittle/degrades)	-55° to +200°C (-65 to 400°F)	DSTM D-200*
24 hr Water Absorption	4.2%	ASTM D-570
2 hr Boiling Water Absorption	7.0%	ASTM D-570

*DSTM Refers to Dymax Standard Test Method

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OP-4-20663, 10/2001

CURE DATA

Lamp	PC-3 Ultra	2000-EC	Bond Box	5000-EC
Light Type	UV/Visible	UV/Visible	UV/Visible	UV/Visible
Lamp Type	3/16" Spot	8" x 8" Flood	8" Rotating stage	5" x 5" Flood
Maximum Lamp Intensity @ 365 nm	4,000 mW/cm ²	50 mW/cm ²	150 mW/cm ²	300 mW/cm ²
Intensity @ time of test @ 365 nm	2,500 mW/cm ²	20 mW/cm ²	50 mW/cm ²	150 mW/cm ²
Adhesive Absorption Range (nm)	300-400	300-400	300-400	300-400
Equipment Output Range (nm)	300-500	300-500	300-500	300-500
Typical Cure speed (seconds)				
Fixture between glass slides	1	1	1	1
Tack-free surface cure	2	2	2	1
1/16-inch bead	8	8	8	5

STORAGE & 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. Product has a one-year shelf life when stored below 90°F in the original, unopened container.

DISPENSING & HANDLING ADHESIVE

Dymax OP-4-20663 adhesive is available in 3-mL, 5-mL, 10-mL and 30-mL manual or machine ready syringes and 170-mL cartridges. Machine ready syringes may be dispensed from a variety of automatic bench-top syringe applicators or other equipment as required. Any questions relating to dispensing and curing systems for specific applications should be referred 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. Dymax OP-4-20663 is a developmental product and all properties are not known. Avoid breathing vapors. Avoid contact with eyes and clothing. In case of contact, immediately flush with water for at least 15 minutes; for eyes, get medical attention. Wash clothing before reuse. Keep out of reach of children. Do not take internally. If swallowed, vomiting should be induced at once and a physician called. For specific information, refer to the Material Safety Data Sheet before use.

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