

OP-29 & OP-29V SERIES MULTI-PURPOSE OPTICAL ADHESIVES

INTRODUCTION

DYMAX high performance optical adhesives cure upon exposure to light in seconds. OP-29 Series adhesives are sensitive to UV light only. OP-29V Series adhesives are sensitive to UV and/or visible light. 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.

SUBSTRATES BONDED:

• Glass • Metal • Plastics

FEATURES:

• Resilient • Optically Clear • Low Stress • Resists Yellowing, Thermal Shock, Vibration and Impact

APPLICATIONS:

• Laminations • Tacking • Bonding • Potting • Sealing • Ideal for Large or Small Areas

TYPICAL UNCURED PROPERTIES (not specifications)

Solvent Content	None - 100% Solids	
Composition	Urethane (Meth) Acrylate	
Appearance	Clear	
Solubility	Isopropyl Alcohol\Chlorinated Solvents\Ketones	
Viscosity (20 rpm)	OP-29 & OP-29V	2,500 cP (nominal) ASTM D-1084
	OP-29-T	5,000 cP (nominal) ASTM D-1084
	OP-29-Gel	20,000 cP (nominal) ASTM D-2556
	OP-29V-Gel	110,000 cP (nominal) ASTM D-2556

TYPICAL CURED PROPERTIES (not specifications)

PHYSICAL

Linear Shrinkage	2.8%	ASTM D-2566
Durometer Hardness	D60	ASTM D-2240
Elongation at Break	120%	ASTM D-638
Modulus of Elasticity	35,000 psi	ASTM D-638
Tensile at Break	3,000 psi	ASTM D-638
Thermal Range (brittle/degrades)	-55° to 200°C	DSTM D-200*
Tensile Compression Shear	Glass-to-Glass	2,300 psi (exceeds glass strength) DSTM D-250*
	Glass-to-Steel	1,700 psi (exceeds glass strength) DSTM D-251*
Boiling Water Absorption (2 h)	3.2%	ASTM D-570
Water Absorption (24 h)	1.2%	ASTM D-570

*DSTM refers to DYMAX Standard Test Method

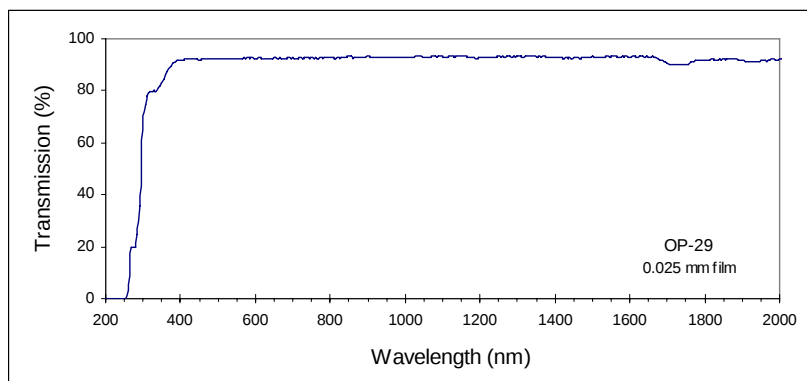
RECOMMENDED CURING SYSTEMS

Lamp	5000-EC	BlueWave® 200	UVC-6/Fusion F-300
Light Type	UV/Visible	UV/Visible	UV/Visible
Lamp Type	5" x 5" Flood	3/16" Spot	1" x 6" Focused Beam
Maximum Lamp Intensity @ 365 nm	300 mW/cm ²	20000 mW/cm ²	8000+ mW/cm ²
Intensity @ Time Of Test @ 365 nm	150 mW/cm ²	3,750 mW/cm ²	4000 mW/cm ²
Adhesive Absorption Range (nm)	300-500	300-500	300-500
Equipment Output Range (nm)	300-500	300-500	300-500
Cure Speed (Sec)			
Fixture Between Glass Slides	2	4	<1
Tack Free Surface Cure	7	5	<1
Nominal Cure Depth (0.125")	1	5	1
Cure Depth In 1 Minute (Inch)	0.75	0.75	1.0

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.

OPTICAL PROPERTIES

Refractive Index (25°C) Uncured	1.477	ASTM D-1218
Refractive Index (25°C) Cured	1.504	ASTM D-1218

**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. These products have a one-year shelf life when stored below 90°F in the original, unopened container.

DISPENSING AND HANDLING ADHESIVES

DYMAX OP-29 & OP-29V Series adhesives are available in 3-ml, 5-ml, 10-ml, and 30-ml manual, or machine ready syringes. They 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 Applications Engineering group 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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