1181-M-GEL
Fluorescing Polycarbonate Adhesive

APPLICATIONS

- **Reservoirs**
- **Transducers**
- **General Plastic Assembly**

FEATURES

- **Solvent Free**
- **Extremely Fast Curing**
- **Fluoresces For Visual or Automated Inspection**
- **Cures Through UV-Blocked Plastics**

BONDS

- **PC**
- **PEUR**
- **CAP**
- **PVC**
- **PS**
- **PETG**
- **ABS**

BIO-APPROVALS

- **ISO 10993-Elution, Systemic Injection, Intracutaneous, Implantation, Hemolysis**
- **USP Class VI Requirements Are Met as a Result of the ISO 10993 Tests Conducted**

DYMAX MD® Medical Device adhesives are solvent free and cure only upon exposure to UV or visible light. Their ability to cure in seconds enables faster processing, greater output, and lower assembly costs. When cured with DYMAX spot, focused-beam, or flood lamps, they deliver optimum speed and performance for medical device assembly while enhancing worker safety. This product is in full compliance with RoHS directives 2015/863/EU.

TYPICAL UNCURED PROPERTIES

Solvent Content	None - 100% Reactive Solids	
Composition	Urethane (Meth) Acrylate	
Appearance	Clear/Straw	
Flash Point	>93°C (200°F)	
Solubility	Alcohol/Chlorinated Solvents/Ketones	
Density	1.15 g/mL	ASTM D-1875
Viscosity (20 rpm)	27,000 cP (nominal)	ASTM D-1084

TYPICAL CURED PROPERTIES

PHYSICAL

Durometer Hardness	D80	ASTM D-2240
Tensile at Break	6,000 psi (13.8 N/mm^2)	ASTM D-638
Elongation at Break	55%	ASTM D-638
Modulus of Elasticity	500,000	ASTM D-638
Refractive Index	1.52	ASTM D-542
Glass Transition, Tg	102°C	DSTM 256*
Coefficient of Thermal Expansion	77 x 10^{-6} in/in°C	ASTM D-696
Water Absorption (24 h)	4.7%	ASTM D-570
Linear Shrinkage	1.2%	ASTM D-2566

*DSTM Refers to DYMAX Standard Test Method

ELECTRICAL

Dielectric Strength	800 V/Mil	ASTM D-149
Surface Resistivity	1.9 x 10^{15} Ω	JIS x 6911

RoHS Compliant

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TYPICAL LIGHT-CURE DATA

Lamp	MC-5000	MC-4000	UVC-6 Conveyor*
Light Type Lamp Type	UV/Visible 5" x 5" Flood	UV/Visible 3/16" Spot	UV/Visible 1" x 6" Focused Beam
Maximum Lamp Intensity @ 365 nm Intensity @ Time Of Test @ 365 nm	300 mW/cm^2 150 mW/cm^2	4,000 mW/cm^2 1,800 mW/cm^2	8,000+ mW/cm^2 4,000 mW/cm^2
Adhesive Absorption Range (nm) Equipment Output Range (nm)	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 (0.125")	 1 10 3	 1 30 1	 <1 <5 <1
Cure Depth In 1 Minute (Inch)	>0.250	>0.250	>0.250

*Equipped with Fusion “D” bulb

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.

DISPENSING & HANDLING ADHESIVES

This material may be dispensed with a variety of manual and automatic applicators or other equipment as required. DYMAX 1181-M-GEL adhesive should not be used with dispensing systems which place a shear force on the adhesive (i.e. positive displacement). Questions relating to dispensing and curing systems for specific applications should be referred to DYMAX Applications Engineering.

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 also 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.

BIOCOMPATIBILITY & STERILIZATION

DYMAX Medical Device adhesives are subjected to various biocompatibility tests in accordance with USP Class VI and/or ISO 10993 recommendations for disposable medical devices. The completed tests are identified on each Product Data Sheet, certificate copies of which are available upon request. Unless otherwise noted on the PDS, these adhesives have not been tested for prolonged or permanent implantation. In all cases, it is the user’s responsibility to determine and validate the suitability of these adhesives in the intended medical device.

SME Technical Paper #AS91-397, 1991 advises that "All adhesives are toxic in their raw or uncured state. Complete cure...is required to retain Class VI certification status." It is recommended that biocompatibility testing of the completed device be done following sterilization to eliminate the effects of minor process variations and contamination during assembly. The sterilization methods of choice are gamma irradiation and ethylene oxide. Sterilization by autoclaving may be limited to certain applications. Gamma irradiation is known to polymerize unsaturated systems. However, it remains the user’s obligation to ascertain the effectiveness of such a procedure.

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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