

1191-M Series

Fluorescing, Flexible, Plastic-Bonding Adhesives

APPLICATIONS	FEATURES	RECOMMENDED SUBSTRATES	BIO-APPROVALS
- Reservoirs - Tube Sets - Stopcocks - Collection Bags	- Solvent Free 100% Solids - Adhesion to a Wide Range of Plastics - Fluorescing for Visual or Automated Inspection - Extremely Fast Curing	- Polycarbonate - PVC - PET - PETG - Polyamide - Acrylic - Polyurethane - SAN	- ISO 10993-Elution Systemic Injection, Intracutaneous, Implantation, Hemolysis - USP Class VI Requirements are Met as a Result of the ISO 10993 Tests Conducted

INTRODUCTION

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 the RoHS Directives 2002/95/EC and 2003/11/EC.

TYPICAL UNCURED PROPERTIES (not specifications)

Solvent Content	None - 100% Solids	
Composition	Urethane Oligomer/(Meth) Acrylate Monomer Blends	
Appearance	Clear/Light Amber Liquid	
Flash Point	>93°C (200°F)	
Solubility	Alcohol, Chlorinated Solvents or Ketones	
Refractive Index	1.48 (20°C)	
Density	1.05 g/mL	
Viscosity (20 rpm)	1191-M-VLV 225 cP (nominal)	ASTM D-1084
	1191-M-SV01 1,000 cP (nominal)	ASTM D-2556
	1191-M-T 5,000 cP (nominal)	ASTM D-2556
	1191-M-VT 11,500 cP (nominal)	ASTM D-2556
	1191-M-GEL 30,000 cP (nominal)	ASTM D-2556

TYPICAL CURED PROPERTIES (not specifications)

PHYSICAL

Durometer Hardness	D60	ASTM D-2240
Tensile at Break	2,600 psi	ASTM D-638
Elongation at Break	115%	ASTM D-638
Modulus of Elasticity	87,000 psi	ASTM D-638
Thermal Range (brittle/degrades)	-55° to 180°C (-65° to +350°F)	DSTM D-200*
Water Absorption (24 h)	14%	ASTM D-570
Boiling Water Absorption (2 h)	7.5%	ASTM D-570
Linear Shrinkage	2.4%	ASTM D-2566

*DSTM Refers to Dymax Standard Test Method



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Technical Data Collection Prior to 2000

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TYPICAL LIGHT-CURE DATA

Lamp	5000-EC	MC-4000	UVC-6 Conveyor*
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	4,000 mW/cm ²	8,000+ mW/cm ²
Intensity @ Time of Test @ 365 nm	150 mW/cm ²	1,800 mW/cm ²	4,000 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	<1	<1	<1
Tack-Free Surface Cure	30	10	<1
Nominal Cure Depth (0.125")	<15	<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 ADHESIVE

This material may be dispensed with a variety of manual and automatic applicators or other equipment as required. Questions relating to dispensing and curing systems for specific applications should be referred to Dymax Application Engineering.

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 12-month shelf life when stored between 10°C [50°F] and 32°C [90°F] in the original, unopened container.

BIOCOMPATIBILITY & STERILIZATION

Dymax MD[®] 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 Material Safety Data Sheet before use.