

190-M

MOISTURE RESISTANT ADHESIVE

INTRODUCTION

Dymax MD adhesives are solvent-free and cure only upon exposure to UV light. Their ability to cure in seconds enables faster processing, greater output, and lower assembly costs. When cured with Dymax *MEDI-CURE*[®] spot, focused beam, or flood lamps, they deliver optimum speed and performance for medical device assembly while enhancing worker safety.

DESCRIPTION

MD Medical Device Adhesive 190-M is a very fast UV curing adhesive developed for use in bonding a variety of plastic medical devices in which moisture resistance is critical. Bond strengths on polycarbonate and rigid and flexible PVC usually exceed the strength of those substrates. Bond lines are clear and colorless. Cured MD Medical Device Adhesive 190-M passes USP Class VI and cytotoxicity testing.

UNCURED PROPERTIES

Solvent Content	None	
Composition	Urethane Oligomer/(Meth)Acrylate Monomer Blends	
Appearance	Clear/Light Amber	
Flash Point	>79°C (175°F)	
Solubility	Alcohol/Chlorinated Solvents/Ketones	
Toxicity	Low	
Density	1.05 g/mL	
Viscosity ^[1]	75 cP (nominal)	ASTM D-1084

CURED PROPERTIES

PHYSICAL

Durometer	D80	ASTM D-2240
Tensile at Break	6,000 psi	ASTM D-638
Elongation at Break	2%	ASTM D-638
Water Absorption (24 hr)	1%	ASTM D-570
Thermal Limit (brittle/degrades)	-54° to 177°C (-65° to +350°F)	
Linear Shrinkage	3%	ASTM D-2566

SEQUENTIAL MOISTURE RESISTANCE TEST RESULTS

After 2 Hours Boiling Water 180° Hot Peel Test	180° Peel Test Following Cool Down	2 Days Hot Water Soak
No Separation	No Separation	No Separation Vinyl Degraded

TEST METHOD

Substrates: 1/2" x 4" x 1/8" polycarbonate plastic and 1" x 2" x 10 mil flexible vinyl plastic sheeting.

Procedure: A 1" bead of 190-M was applied to the polycarbonate and overlaid with the vinyl, squeezing to obtain a 1" x 1/2" laminate. The assembly was cured by a five second exposure to a Dymax

2000-EC UV lamp at a distance of 2".

190-M, 2/03

CURE DATA – Using 365 nanometer UV light ^[2]:

	Time Seconds	Intensity ^[3] mW/cm ²	Dymax Light-Welder [®] Lamps
Fixture between glass slides	1	20	2000-EC
Tack free surface	30	200	3000-EC
Nominal Cure Depth	30	150	5000-EC

STORAGE AND SHELF LIFE

Store material in a cool dark place when not in use. Do not expose to UV light source or sunlight. MD Medical Device Adhesive 190-M has a minimum one year shelf life when stored below 32°C (90°F) out of sunlight in original, unopened container.

NOTES

- [1] Measured at 20 rpm and 25°C using a Brookfield Model RVF Viscometer.
- [2] Use of lamps that emit high levels of shortwave light (for example, more than 15% 200-300 nanometers UV light) are not recommended.
- [3] Nominal intensity taken at a pre-determined distance. This reading does not reflect the maximum intensity capabilities emitted from each unit.

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.

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; 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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