



MD[®] 1-CN0023 LED-Curable Needle Bonding Adhesive

APPLICATIONS	FEATURES	RECOMMENDED SUBSTRATES	BIOCOMPATIBILITY
<ul style="list-style-type: none"> • Needle Bonding • Medical Device Assembly • Disposable Applications 	<ul style="list-style-type: none"> • LED Cure at 385/405 nm • Tack-Free Cure • Blue Fluorescing • Low Viscosity for Easy Dispense • Moisture Resistant 	<ul style="list-style-type: none"> • SS • PC • PS 	<ul style="list-style-type: none"> • ISO 10993-5 Cytotoxicity

Dymax MD[®] 1-CN0023 is designed to be cured with either a 385 nm or 405 nm UV wavelength light source for very fast bonding of multiple substrates typically used in the manufacture of medical device assemblies and syringes. This product fluoresces blue for in-line inspection under low-intensity black light (365 nm). Dymax MD 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 *		
Property	Value	Test Method
Solvent Content	No Nonreactive Solvents	N/A
Composition	Acrylated Urethane	N/A
Appearance	Colorless Transparent Liquid	N/A
Solubility	Organic Solvents	N/A
Density, g/ml	1.05	ASTM D1875
Viscosity, cP	450 (nominal)	DSTM 502‡
Shelf Life at Recommended Conditions from Date of Manufacture	12 months	N/A

OTHER CURED PROPERTIES *		
Property	Value	Test Method
Refractive Index (20°C)	1.50	ASTM D542
Boiling Water Absorption, % (2 h)	4.4	ASTM D570
Water Absorption, % (25°C, 24 h)	3.1	ASTM D570
Linear Shrinkage, %	0.4	ASTM D2566
Glass Transition Tg, °C	104	DSTM 256‡

CURED MECHANICAL PROPERTIES *		
Property	Value	Test Method
Durometer Hardness	D62	ASTM D2240
Tensile at Break, MPa [psi]	17 [2,500]	ASTM D638
Elongation at Break, %	80	ASTM D638
Modulus of Elasticity, MPa [psi]	367 [53,300]	ASTM D638

ADHESION	
Substrate	Recommendation
ABS acrylonitrile-butadiene-styrene	✓
PA polyamide	✓
PC polycarbonate	✓
PMMA poly(methyl methacrylate)	✓
PP polypropylene	st
PS polystyrene	✓
SS stainless steel	✓

✓ Recommended ○ Limited Applications
st Requires Surface Treatment (e.g. plasma, corona treatment, etc.)

* Not Specifications

N/A Not Applicable

‡ DSTM Refers to Dymax Standard Test Method

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Technical Data Collected PRIOR TO 2013 Rev. 02/10/2023





CURING GUIDELINES

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm² [10 psi] between glass slides. Actual cure time typically is 3-to-5 times fixture time.

Dymax Curing System (Intensity)	Fixture Time or Belt Speed ^A
2000-EC (50 mW/cm ²) ^B	1 s
5000-EC (200 mW/cm ²) ^B	1 s
BlueWave® LED Prime UVA (10 W/cm ²) ^C	0.2 s
BlueWave® 200 (10 W/cm ²) ^B	0.2 s
UVCS Conveyor with 5000-EC (200 mW/cm ²) ^D	8.2 m/min [27 ft/min]
UVCS Conveyor with Fusion F300S (2.5 W/cm ²) ^D	8.2 m/min [27 ft/min]

^A Curing through light-blocking substrates may require longer cure times if they obstruct wavelengths used for light curing (320-400 nm for UV light curing, 320-400 nm for UV/Visible light curing). These fixtures times/belt speeds are typical for curing thin films through 100% light-transmitting substrates.

^B Intensity was measured over the UVA range (320-395 nm) using a Dymax ACCU-CAL™ 50 Radiometer.

^C Intensity was measured over the UVA/Visible range (350-450 nm) using a Dymax ACCU-CAL™ 50-LED Radiometer.

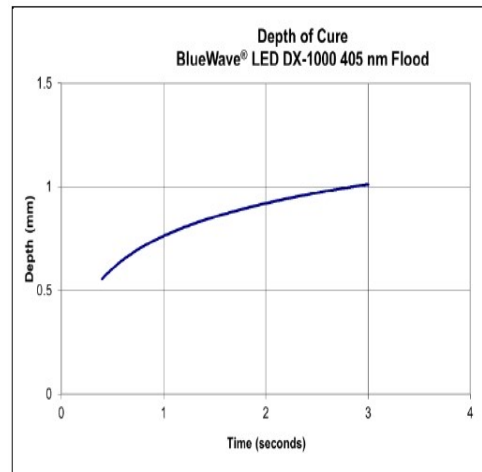
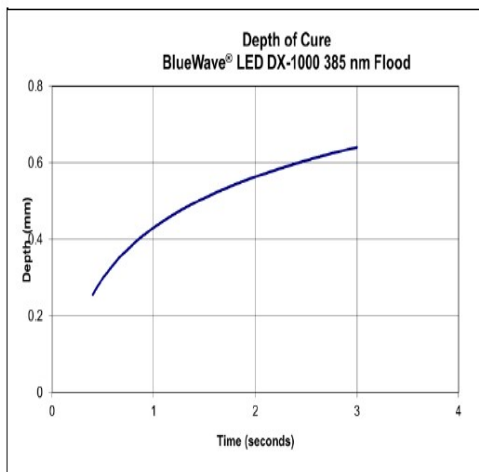
^D At 53 mm [2.1 in] focal distance. Maximum speed of conveyor is 8.2 m/min [27 ft/min]. Intensity was measured over the UVA range (320-395 nm) using the Dymax ACCU-CAL™ 160 Radiometer.

Full cure is best determined empirically by curing at different times and intensities, and measuring the corresponding change in cured properties such as tackiness, adhesion, hardness, etc. Full cure is defined as the point at which more light exposure no longer improves cured properties.

Dymax recommends that customers employ a safety factor by curing longer and/or at higher intensities than required for full cure. Although Dymax Application Engineering can provide technical support and assist with process development, each customer must ultimately determine and qualify the appropriate curing parameters required for their unique application.

DEPTH OF CURE

The graph below shows the increase in depth of cure as a function of exposure time. A 9.5 mm [0.37 in] diameter specimen was cured in a polypropylene mold and cooled to room temperature. It was then released from the mold and the cure depth was measured.



DISPENSING SUPPORT

The Dymax Application Engineering team is ready to discuss your application requirements to provide the most appropriate dispensing and/or spraying solution. Visit our current dispensing equipment portfolio [here](#) or consult our [global contact](#) phone numbers and online chat feature (available in North America only) during normal business hours for instant support.



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 shelf life noted on page 1 of this document, when stored between 10°C (50°F) and 32°C (90°F) in the original, unopened container.

STERILIZATION

Polymerized Dymax MD® Medical Device adhesives are biocompatibility tested in accordance with ISO 10993 and/or USP Class VI. The completed tests are listed on each product data sheet. Copies of the test reports are available upon request. In all cases, it is the user's responsibility to determine and validate the suitability of these adhesives in the intended medical device. These adhesives have not been tested for prolonged or permanent implantation, and are only intended for use in short-term (<29 days) or single-use disposable-device applications. Dymax does not authorize their use in long-term implant applications. Customers using these materials for such applications do so at their own risk and take full responsibility for ensuring product safety and biocompatibility.

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.

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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MD® MEDICAL DEVICE ADHESIVES
1-CN0023 Product Data Sheet

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