



## MD<sup>®</sup> 1-CN0021

### Flexible PVC Bonding Adhesive with See-Cure Technology

APPLICATIONS	FEATURES	RECOMMENDED SUBSTRATES	BIOCOMPATIBILITY
<ul style="list-style-type: none"> <li>• Tube Sets and Fittings</li> <li>• Face Masks</li> <li>• Tracheal Tubes</li> </ul>	<ul style="list-style-type: none"> <li>• UV/Visible Light Cure</li> <li>• See-Cure Technology</li> <li>• Low Shrinkage</li> <li>• Very Flexible</li> </ul>	<ul style="list-style-type: none"> <li>• PVC</li> <li>• PU</li> <li>• EVA</li> <li>• PC</li> <li>• ABS</li> </ul>	<ul style="list-style-type: none"> <li>• ISO 10993-5 Cytotoxicity</li> </ul>

Dymax MD<sup>®</sup> 1-CN0021 is designed for rapid bonding of plastics typically used in the manufacture of medical devices that require a flexible bond joint. 1-CN0021 combines silicone-like softness with the toughness of acrylic. Products with Dymax patented See-Cure technology dispense translucent blue and transition to colorless upon full cure. This aids in verification of adhesive placement and facilitates in the validation of manufacturing processes. 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	Blue Transparent Gel	N/A
Solubility	Organic Solvents	N/A
Density, g/ml	1.02	ASTM D1875
Viscosity, cP	12,000 (nominal)	ASTM D1084
Shelf Life at Recommended Conditions from Date of Manufacture	12 months	N/A

OTHER CURED PROPERTIES *		
Property	Value	Test Method
Appearance	Clear	N/A
Refractive Index (20°C)	1.5	ASTM D542
Boiling Water Absorption, % (2 h)	2.3	ASTM D570
Water Absorption, % (25°C, 24 h)	1.5	ASTM D570
Linear Shrinkage, %	2.1	ASTM D2566

CURED MECHANICAL PROPERTIES *		
Property	Value	Test Method
Durometer Hardness	A65	ASTM D2240
Tensile at Break, MPa [psi]	4.8 [700]	ASTM D638
Elongation at Break, %	300	ASTM D638
Modulus of Elasticity, MPa [psi]	3.1 [450]	ASTM D638

ADHESION	
Substrate	Recommendation
ABS acrylonitrile-butadiene-styrene	✓
PC polycarbonate	✓
PC/PCTG blend of PD and PCTG	✓
PEI polyetherimide	✓
PET poly(ethylene terephthalate)	✓
PMMA poly(methyl methacrylate)	✓
PS polystyrene	✓
PU polyurethane	o
PVC poly(vinyl chloride)	✓
TPU thermoplastic polyurethane	✓

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

\* Not Specifications  
 N/A Not Applicable  
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 Technical Data Collected PRIOR TO 2008 Rev. 02/10/2023





## CURING GUIDELINES

The vivid blue color of this adhesive transitions to colorless when fully cured. The charts below provide information on cure time required to transition from blue to colorless using different light sources and adhesive thicknesses. Cure rate is dependent upon many variables including lamp intensity, distance from the light source, and required depth of cure. The times and belt speed for the transition listed below are based on lab results and are intended for reference only.

Dymax Curing System (Intensity)	5000-EC (200 mW/cm <sup>2</sup> ) <sup>A</sup>
Adhesive Thickness, mm [mil]	Time to Complete Transition <sup>B</sup>
0.10 [4.0]	8.0 s
0.20 [8.0]	8.0 s
0.41 [16]	9.0 s
0.81 [32]	12.0 s

Dymax Curing System (Intensity)	BlueWave® 200 (10.0 W/cm <sup>2</sup> ) <sup>A,C</sup>
Adhesive Thickness, mm [mil]	Time to Complete Transition <sup>B</sup>
0.10 [4.0]	0.8 s
0.20 [8.0]	1.2 s
0.41 [16]	1.6 s
0.81 [32]	2.2 s

Dymax Curing System (Intensity)	UVCS Conveyor with Fusion F300 (2.5 W/cm <sup>2</sup> ) <sup>D</sup>
Adhesive Thickness, mm [mil]	Belt speed to complete transition, m/min [ft/min] <sup>B</sup>
0.10 [4.0]	4.2 m/min [14 ft/min]
0.20 [8.0]	3.0 m/min [10 ft/min]
0.41 [16]	2.6 m/min [8.5 ft/min]
0.81 [32]	1.7 m/min [5.5 ft/min]

<sup>A</sup> Intensity was measured over the UVA range (320-395 nm) using a Dymax ACCU-CAL™ 50 Radiometer.

<sup>B</sup> Curing from blue to clear and may require longer light exposure at critical wavelengths (320-400 nm for UV light curing; 320-450 nm for UV/Visible light curing). These times/speeds are typical for curing through 100%-light transmitting substrates.

<sup>C</sup> Due to the distance between the end of the lightguide and adhesive, intensity at the curing area was measured as 4.0W/cm<sup>2</sup>.

<sup>D</sup> 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. Higher intensities or longer cures (up to 5x) generally will not degrade Dymax light-curable adhesives.

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 ultimately must determine and qualify the appropriate curing parameters required for their unique application.

## 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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