



MD[®] 1-CN004

UV/Visible Light-Curable Adhesive for Bonding Plastics and Metals

APPLICATIONS	FEATURES	RECOMMENDED SUBSTRATES	BIOCOMPATIBILITY
<ul style="list-style-type: none"> Needle Bonding 	<ul style="list-style-type: none"> UV/Visible Light Cure Passed ISO 10993-5 Cytotoxicity Testing Low Shrinkage & Low Stress 	<ul style="list-style-type: none"> PC ABS PVC PS Stainless Steel 	<ul style="list-style-type: none"> ISO 10993-4 Hemolysis ISO 10993-5 Cytotoxicity ISO 10993-6 Implantation ISO 10993-10 Intracutaneous ISO 10993-11 Systemic Toxicity

Dymax MD[®] 1-CN004 is designed for fast bonding of metals and plastics typically used in the manufacture of medical devices. 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
Chemical Class	Acrylated Urethane	N/A
Appearance	Clear Transparent Liquid	N/A
Solubility	Organic Solvents	N/A
Viscosity, cP	90 (nominal)	ASTM D1084
Density, g/ml	1.10	ASTM D1875
Shelf Life at Recommended Conditions from Date of Manufacture	18 months	N/A

CURED MECHANICAL PROPERTIES *		
Property	Value	Test Method
Durometer Hardness	D75	ASTM D2240
Tensile at Break, MPa [psi]	18 [2,600]	ASTM D638
Elongation at Break, %	46	ASTM D638
Modulus of Elasticity, MPa [psi]	380 [55,000]	ASTM D638

OTHER CURED PROPERTIES *		
Property	Value	Test Method
Boiling Water Absorption, % (2 h)	3.2	ASTM D570
Water Absorption, % (25°C, 24 h)	1.5	ASTM D570
Linear Shrinkage, %	0.4	DSTM 614†

ADHESION	
Substrate	Recommendation
PC polycarbonate	✓
ABS acrylonitrile-butadiene-styrene	✓
PVC poly(vinyl chloride)	✓
PS polystyrene	✓
SS stainless steel	✓

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

* Not Specifications

N/A Not Applicable

† DSTM Refers to Dymax Standard Test Method

© 2023 Dymax Corporation. All rights reserved.

All trademarks in this guide, except where noted, are the property of, or used under license by Dymax Corporation, U.S.A.

Technical Data Collected PRIOR TO 2008 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 ^B
2000-EC (50 mW/cm ²) ^A	<1 s
5000-EC (200 mW/cm ²) ^A	<1 s
BlueWave® 200 (10 W/cm ²) ^A	<0.2 s
UVCS Conveyor with 5000-EC (200 mW/cm ²) ^C	8.0 m/min [26 ft/min]
UVCS Conveyor with Fusion F300S (2.5 W/cm ²) ^C	>8.2 m/min [>27 ft/min]

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

^B Curing through light-blocking substrates may require longer cure times if they block wavelengths use for curing (320-450 nm). These fixture times/speeds are typical for curing thin films through 100% light-transmitting substrates.

^C 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.

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 35°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.

Numerous factors—including, without limitation, transport, storage, processing, the material with which the product is used, and the ultimate function or purpose for which the product was obtained—may affect the product's performance and/or may cause the product's actual behavior to deviate from its behavior in the laboratory. None of these factors are within Dymax's control. Conclusions about the behavior of the product under the user's particular conditions, and the product's suitability for a specific purpose, cannot be drawn from the information contained in this document.

It is the user's responsibility to determine (i) whether a product is suitable for the user's particular purpose or application and (ii) whether it is compatible with the user's intended manufacturing process, equipment, and methods. Under no circumstances will Dymax be liable for determining such suitability or compatibility. Before the user sells any item that incorporates Dymax's product, the user shall adequately and repetitively test the item in accordance with the user's procedures and protocols. Unless specifically agreed to in writing, Dymax will have no involvement in, and shall under no circumstances be liable for, such testing.

Dymax makes no warranties, whether express or implied, concerning the merchantability of this product or its fitness for a particular purpose. Nothing in this document should be interpreted as a warranty of any kind. Under no circumstances will Dymax be liable for any injury, loss, expense or incidental or consequential damage of any kind allegedly arising in connection with the user's handling, processing, or use of the product. It is the user's responsibility to adopt appropriate precautions and safeguards to protect persons and property from any risk arising from such handling, processing, or use.

The specific conditions of sale for this product are set forth in Dymax's [General Terms & Conditions of Sale](#). Nothing contained herein shall act as a representation that the product use or application is free from patents owned by Dymax or any others. Nothing contained herein shall act as a grant of license under any Dymax Corporation Patent.

Except as otherwise noted, all trademarks used herein are trademarks of Dymax. The "®" symbol denotes a trademark that is registered in the U.S. Patent and Trademark Office.

The contents of this document are subject to change. Unless specifically agreed to in writing, Dymax shall have no obligation to notify the user about any change to its content.

CONTACT DYMAYX

www.dymax.com

Americas

USA | +1.860.482.1010 | info@dymax.com

Europe

Germany | +49 611.962.7900 | info_de@dymax.com

Ireland | +353 21.237.3016 | info_ie@dymax.com

Asia

Singapore | +65.67522887 | info_ap@dymax.com

Shenzhen | +86.755.83485759 | dymaxasia@dymax.com

Hong Kong | +852.2460.7038 | dymaxasia@dymax.com

Korea | +82.31.608.3434 | info_kr@dymax.com