

**55000-SERIES ADHESIVES  
FOR MEDICAL DEVICE ASSEMBLY**





Only Dymax offers expert knowledge of light-cure technology, along with a full array of light-cure products. Dymax is committed to developing a true collaborative partnership — applying our extensive process knowledge to your specific application challenges.

We create custom solutions to ensure that chemistry and equipment work seamlessly together with maximum efficiency. Our application engineering team works side-by-side with our customers, providing assistance with formulation, testing, evaluation, and pre-production trials. We also offer an extensive inventory of curing equipment, manual and automated dispensing systems to help you achieve a more efficient, cost-effective manufacturing process.



## About Dymax 55000-Series Medical Products

Dymax MD® medical adhesives are specially formulated for disposable medical device assembly and used in a variety of applications including catheter, syringe, anesthesia mask, reservoir, tube set, and medical electronics assembly. Our adhesives help optimize assembly speeds enabling faster processing, greater output, and in-line inspection of bond lines. Our adhesives are solvent-free and RoHS-compliant, and meet ISO 10993 bio-compatibility standards\*.

### Typical Cost Saving of Dymax Light-Curable Materials

- Cure in seconds; increase throughput
- Minimal floor space requirements
- Simple to dispense – no solvent management or mixing systems required
- No silicone containment required
- Eliminate labor costs associated with complex dispensing system maintenance and manual transferring of parts for long cure



### Environmental Benefits of Light-Curing Materials

Dymax understands that safe, ecologically friendly products benefit our customers, the environment, and us. We have created materials that minimize ecological impact. These attributes include:

- Solvent-free materials
- Halogen-free materials
- RoHS compliance
- REACH - no substance of very high concern (SVHC)
- Eco-friendly, one-component materials

\* 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.

# 55000-Series Products

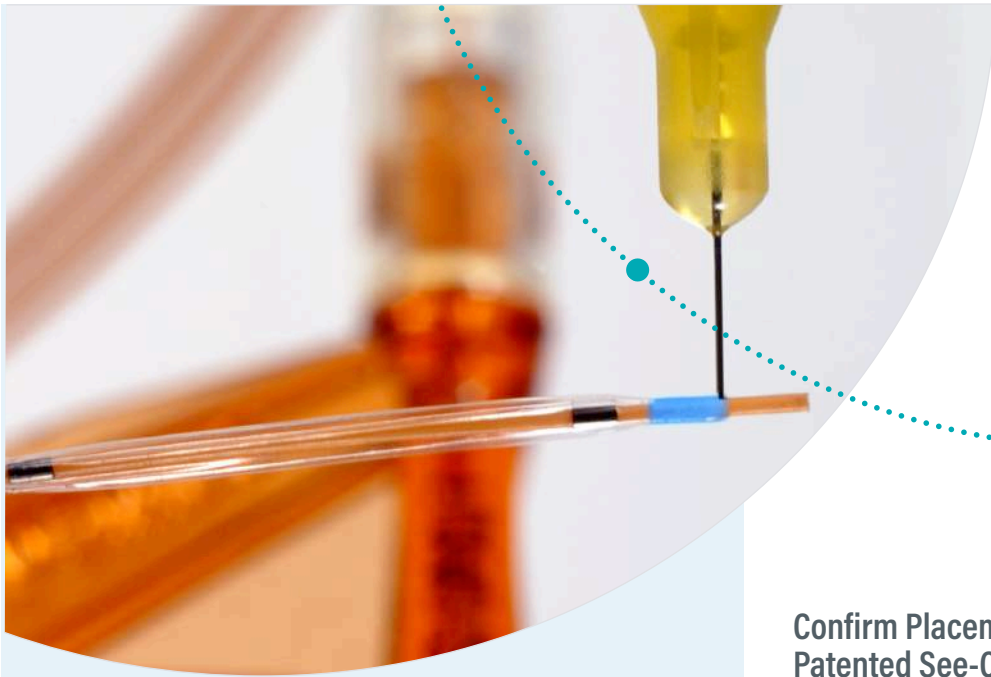
Product	Typical Application	Features	Nominal Viscosity, cP	Durometer Hardness	Tensile Break, MPa [psi]	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Fluorescing*
55101	 Medical Electronics	UV/Visible or UV LED light-curable at 385 nm; secondary heat cure for shadow areas; suitable for both flexible and rigid substrates; Meets UL 94 V-0 Flammability	3,000	A67	1.7 [240]	40	10.3 [1,500]	Blue
55201	 Catheter Assembly	UV/Visible or UV LED light-curable at 385 nm; flexible; excellent adhesion to flexible and rigid plastics	500	D58	17.2 [2,500]	260	193.1 [28,000]	Blue
55202	 Catheter Assembly	UV/Visible or UV LED light-curable at 385 nm; flexible; excellent adhesion to plastics and metals	300	D70	13.1 [1,900]	140	599.8 [87,000]	Blue
55203	 Catheter Assembly	UV/Visible or UV LED light-curable at 385 nm; designed for difficult-to-bond plastics, like PEBA and Nylon 12; Encompass® technology; flexible; reduced shrinkage/stress during cure	1,100	D50	10.3 [1,500]	390	151.7 [22,000]	Ultra-Red®
55204	 Catheter or Endoscope Assembly	Cationic epoxy; UV/Visible or UV LED light-curable at 365, 385, or 405 nm; heat curable at 80-85°C; semi-opaque white color; high modulus and durometer; extremely low shrinkage	58,000	D90	51.7 [7,500]	2	1,800 [261,000]	No
55301	 Microfluidic or Reservoir Assembly	UV/Visible or UV LED light-curable at 385 nm; very soft, flexible, and tacky; bonds plastics including COC and COP; moisture resistant	1,100	A70	4.6 [660]	550	7.6 [1,100]	Ultra-Red
55302	 Medical Device Assembly	UV/Visible or UV LED light-curable at 385 or 405 nm; moisture resistant; excellent adhesion to a variety of plastics but excels with PVC- and SEBS; Encompass technology	1,200	D60	14.5 [2,100]	180	461.9 [67,000]	Ultra-Red
55401	 Medical Device Assembly	UV/Visible or UV LED light-curable at 385 or 405 nm; cures through UV-blocked plastics; excellent adhesion to plastics and metals	5,000	D80	37.2 [5,400]	30	1477.9 [210,000]	Blue
55402	 Needle Bonding	UV/Visible or UV LED light-curable at 385 or 405 nm; Encompass technology; excellent adhesion to plastics and metals; works well for larger bond gaps or potting with higher viscosity	7,000	D70	19.3 [2,800]	180	758.4 [110,000]	Ultra-Red
55403	 Needle Bonding	UV/Visible or UV LED light-curable at 385 or 405 nm; excellent adhesion to plastics and metals; strong aging performance; moisture resistant; resists yellowing; ideal for thin cannulas	150	D70	15.2 [2,200]	150	965.3 [140,000]	Blue

Individual Product Data Sheets (PDS) list complete test data, with copies of test reports available upon request.

Product	Preferred Wavelength	Fixture Time*			Substrate Bonding Guide																
		BlueWave® 200 10 W/cm²	BlueWave® MX-150 PrimeCure® (385 nm) 15 W/cm²	BlueWave® MX-150 VisiCure® (405 nm) 15 W/cm²	ABS acrylonitrile- butadiene-styrene	PA polyamide	PC polycarbonate	PET poly(ethylene terephthalate)	PETG poly(ethylene terephthalate)glycol	PI polyimide	PMMA poly(methyl methacrylate)	PS polystyrene	PU polyurethane	PVC poly(vinyl chloride)	TPU thermoplastic polyurethane	NiTi nickel titanium	SS stainless steel	PCB printed circuit board	CER Ceramic		
55101	UV/VIS, UV-LED 385nm	0.2 s	0.2 s	-		○			○					●		○	●			●	
55201	UV/VIS, UV-LED 385nm	0.2 s	0.2 s	-	●		●	○		●	○	●	●	●							
55202	UV/VIS, UV-LED 385nm	0.4 s	0.4 s	-	●	○	●	●	●	○	●	●	○	○		●	●				
55203	UV/VIS, UV-LED 385nm	0.2 s	0.2 s	-	●	●	●	●	●	○	●	●	●	●	●						
55204	UV/VIS, UV-LED 385/405	0.8 s	1.0 s	0.8s	●		●	○	●	○				●	●	●				●	
55301	UV/VIS, UV-LED 385nm	0.2 s	0.2 s	-	●	●	●	●	●	○	●	●	●	○	●	●				●	●
55302	UV/VIS, UV-LED 385/405	0.2 s	0.2 s	0.2 s	●		●		●					●		●	●				
55401	UV/VIS, UV-LED 385/405	0.2 s	0.2 s	0.2 s	●		●								●	●			●		
55402	UV/VIS, UV-LED 385/405	0.2 s	0.2 s	0.2 s	●	○	●	●	●	○	●	●	●	●	●	●	●			●	●
55403	UV/VIS, UV-LED 385/405	0.2 s	0.2 s	0.2 s	●		●		●		●	●				●	●			●	

\* Between glass slides

● Recommended adhesive ○ Limited applications



## Adhesive Technologies

As an innovator in the adhesive and coating industries, Dymax strives to create new technologies that help manufacturers increase process efficiency, productivity, and throughput while decreasing costs and inventory. Through the years, our dedication to innovation has resulted in over 30 oligomer, adhesive, and equipment patents and numerous awards for our innovative technologies and service.

Our R&D experts are always striving to create new technologies that will help manufacturers improve their processes and minimize risk. Our current portfolio of technologies provide a variety of benefits including easier bond line inspection and cure confirmation for better quality control, faster cures for quicker processing, and curing in shadowed areas to eliminate concerns about uncured material.

### Confirm Placement & Cure - Patented See-Cure Technology

Dymax adhesives formulated with See-Cure technology have built-in cure validation that makes it easy for operators or simple automated inspection equipment to confirm cure without investing in additional specialized equipment. These materials are bright blue in their uncured state, making them highly visible when dispensed onto substrates. Workers can easily confirm the adhesive placement and quantity with just their eyes.

After the adhesive is exposed to light, the color transitions from blue to colorless. This cure indicator ensures the adhesive is completely cured, providing a critical safety feature for manufacturing processes.



### Speed up Production with Faster Cures - LED Light-Curing Technology

Dymax offers specially formulated LED light-curable adhesives that are optimized to work seamlessly with Dymax LED light-curing systems. The adhesives range from fast to ultra-fast cure speeds in order to accommodate specific assembly needs. LED-curing equipment is available in a number of different styles including spot lamps, flood lamps, and conveyors to accommodate various process requirements.

## Enhance Bond-Line Inspection - Ultra-Red® Technology

Adhesives formulated with Ultra-Red remain colorless until exposed to low-intensity UV light (360-380 nm), at which point they fluoresce bright red. This is ideal when bonding plastics that naturally fluoresce blue. Ultra-Red fluorescence does not absorb the same wavelengths as those used to cure the adhesive, resulting in faster, deeper cures when compared to blue fluorescing products.

The Ultra-Red fluorescing compound is patented and exclusive to Dymax. When measured, this compound produces a unique energy peak that cannot be reproduced by other fluorescing compounds. This offers manufacturers the ability to assemble or mark their products so they can be positively identified.

## Enhance Bond-Line Inspection - Blue Fluorescing Technology

In addition to Ultra-Red fluorescing adhesives, Dymax also manufactures products that fluoresce blue under low-intensity "black" light (365 nm). The fluorescing characteristic of these materials is ideal for in-line inspection, allowing bond lines to be inspected easily.

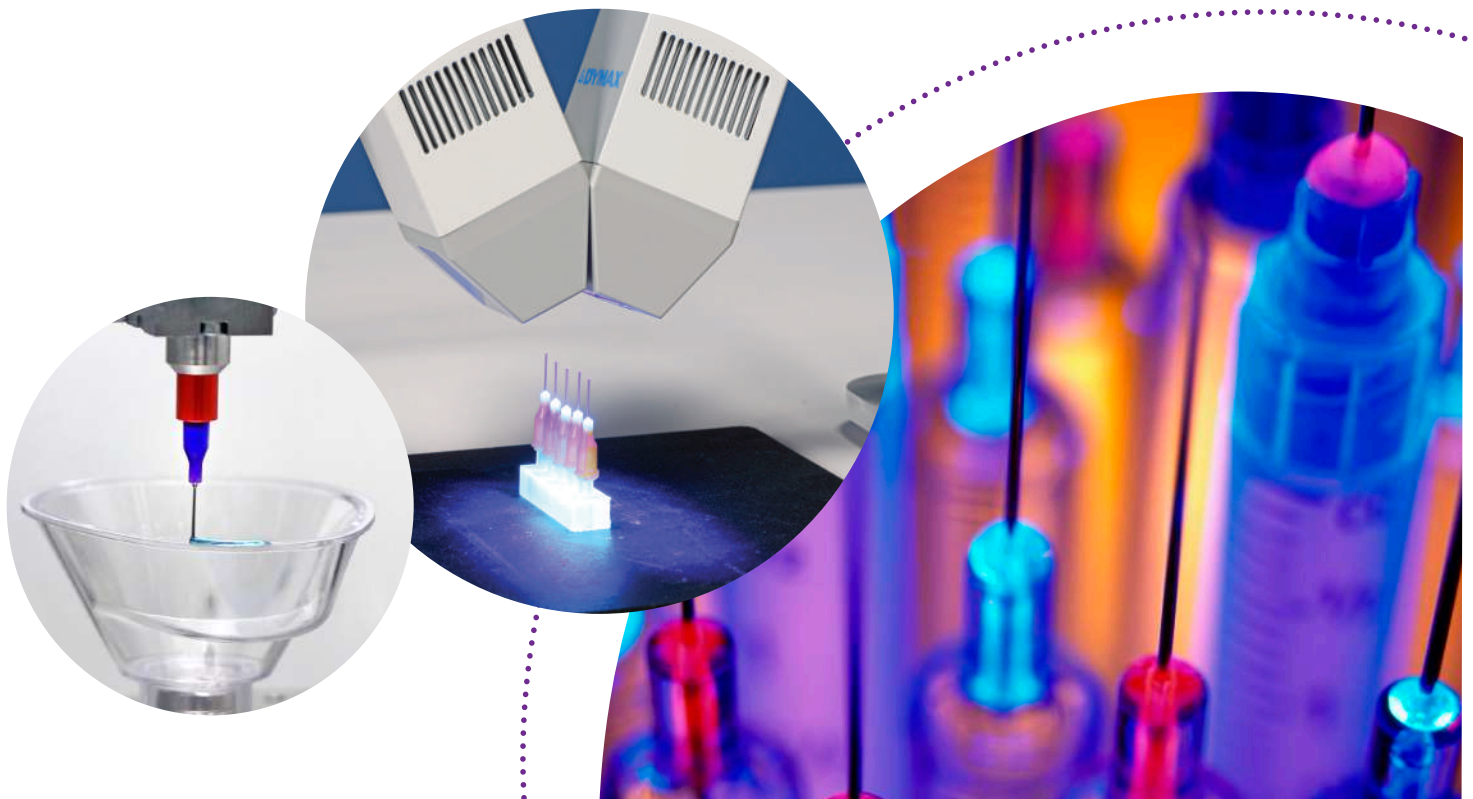
## Enhance Bond-Line Inspection & Confirm Cure - Encompass® Technology

Dymax adhesives formulated with Encompass technology incorporate Dymax exclusive Ultra-Red fluorescing and See-Cure color-change technologies into one light-curable product. As a result, manufacturers gain efficiencies from rapid on-demand curing with easy cure confirmation and post-cure bond-line inspection.



## Cure in Shadows - Multi-Cure® Light/Heat Cure Technology

Multi-Cure adhesives and coatings combine the high-speed cure of UV or UV/Visible light with secondary cure mechanisms that enhance polymerization. Secondary cure mechanisms, which include moisture, thermal, or activator cure, are useful when light can only reach a portion of the bond line, or when tacking a part prior to final cure to allow easier handling and transport during the manufacturing process.



# Dispensing & Curing Equipment

Dymax dispensing and light-curing systems are perfectly matched to our adhesives' chemistry. Our field-proven dispense solutions are designed to fit many adhesive dispensing applications and include various automatic and manual dispense systems, spray valves, and related components for seamless integration into your assembly process.

We offer a complete line of conventional and LED light-curing equipment including spot, flood, and conveyor systems, as well as radiometers for measuring light intensity. Our equipment can be configured as stand-alone units or integrated into existing manufacturing assembly lines for fast processing.



## BlueWave® MX-Series Systems

BlueWave MX-Series curing systems feature all the benefits of LED-curing technology in smaller, more versatile units. These systems are uniquely designed to offer higher, more consistent curing intensity than traditional spot or flood curing systems. They are comprised of a power supply, a controller with an easy-to-use control interface, and an emitter. Emitters are available in three models, the MX-150 (spot), MX-250 (flood), and MX-275 (line) as well as in three different curing wavelengths, 365, 385, and 405 nm.

## BlueWave® 200 Spot-Cure System

The BlueWave 200 spot-curing lamp delivers UV and visible energy (300-450 nm) for curing adhesives, coatings, and encapsulants. The lamp uses a patented intensity adjustment feature that allows users to deliver the optimized level of energy for their application requirements. The system contains an integral shutter which can be actuated by a foot pedal or PLC making it ideal for both manual and automated processes.



## BlueWave® AX-550 LED Flood Lamp

The BlueWave AX-550 combines a controller, emitter, and power supply into a compact, all-in-one LED flood-curing system. Eliminating the need for a large, traditional-style controller and bulky cables, this unit has a greatly reduced footprint and is easily integrated into automated processes.

The system features a large 5" x 5" (12.5 x 12.5 cm) curing area, which is controlled by an user interface with push-button controls or through a PLC interface. Dymax offers the system with three different wavelength emitters (365, 385, and 405 nm), which are field-upgradeable by customers so they can switch to another wavelength easily if needed.



## UVCS Conveyor Systems

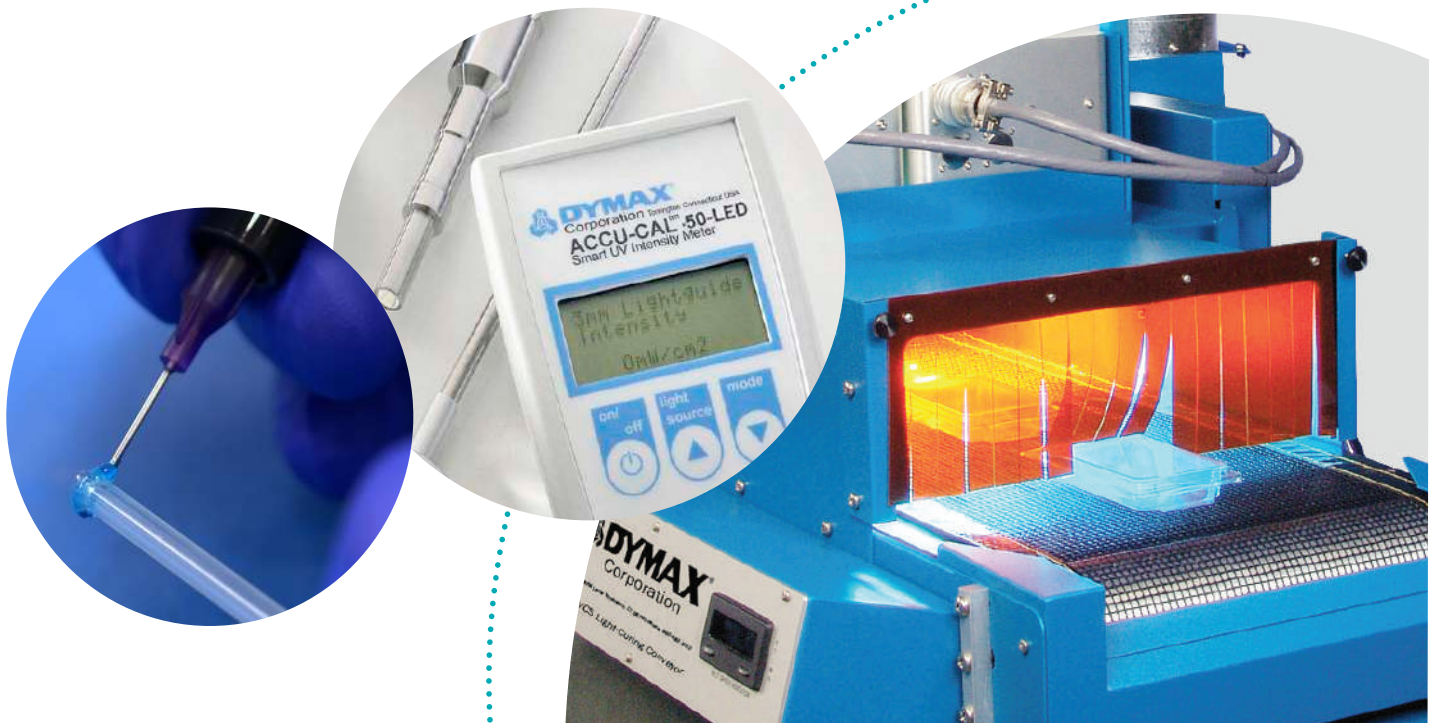
Dymax conveyor systems use high-intensity light sources for fast curing of adhesives, coatings, inks, and encapsulants. UVCS bench-top conveyors can be outfitted with up to four UV or LED flood lamps, or for higher energy requirements, can be configured with microwave-driven light sources. All configurations have adjustable belt speeds of 1 to 32 feet per minute, and adjustable lamp-to-belt distance to address a variety of application requirements. When combined, the UVCS conveyors' consistent intensity, fast curing, and adjustable line speeds create an optimized UV-curing process that enables high throughput.

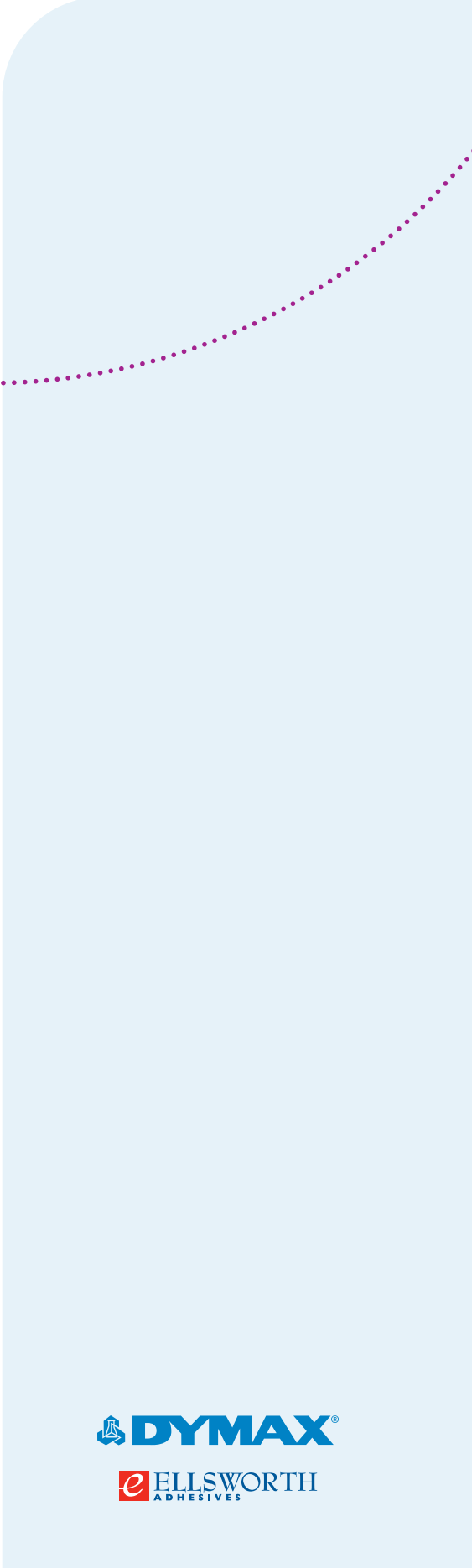
## ACCU-CAL™ Radiometers

ACCU-CAL radiometers allow operators to monitor, document, and maintain a reliable light-curing process, while ensuring the system is providing the intensity and dosage levels required for successful curing. A radiometer can signal an operator to replace a curing system's degrading bulb, reflector, or lightguide to help prevent incomplete cures from happening. ACCU-CAL radiometers can also measure the intensity of stray or reflected energy and confirm that operators are properly shielded from light exposure.

## SD-200 Syringe Dispenser

The Dymax Model 200 is a manually controlled dispensing system. Accurate dispensing is achieved through the use of a unique normally-closed, hand-held diaphragm valve. The diaphragm valve is designed with a wand-style body to make it more ergonomic for users. Dymax hand-held dispensing systems can be used for a variety of applications including dot, bead, and potting applications. Dymax hand-held fluid dispensing systems are engineered for optimal performance and long service life.





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