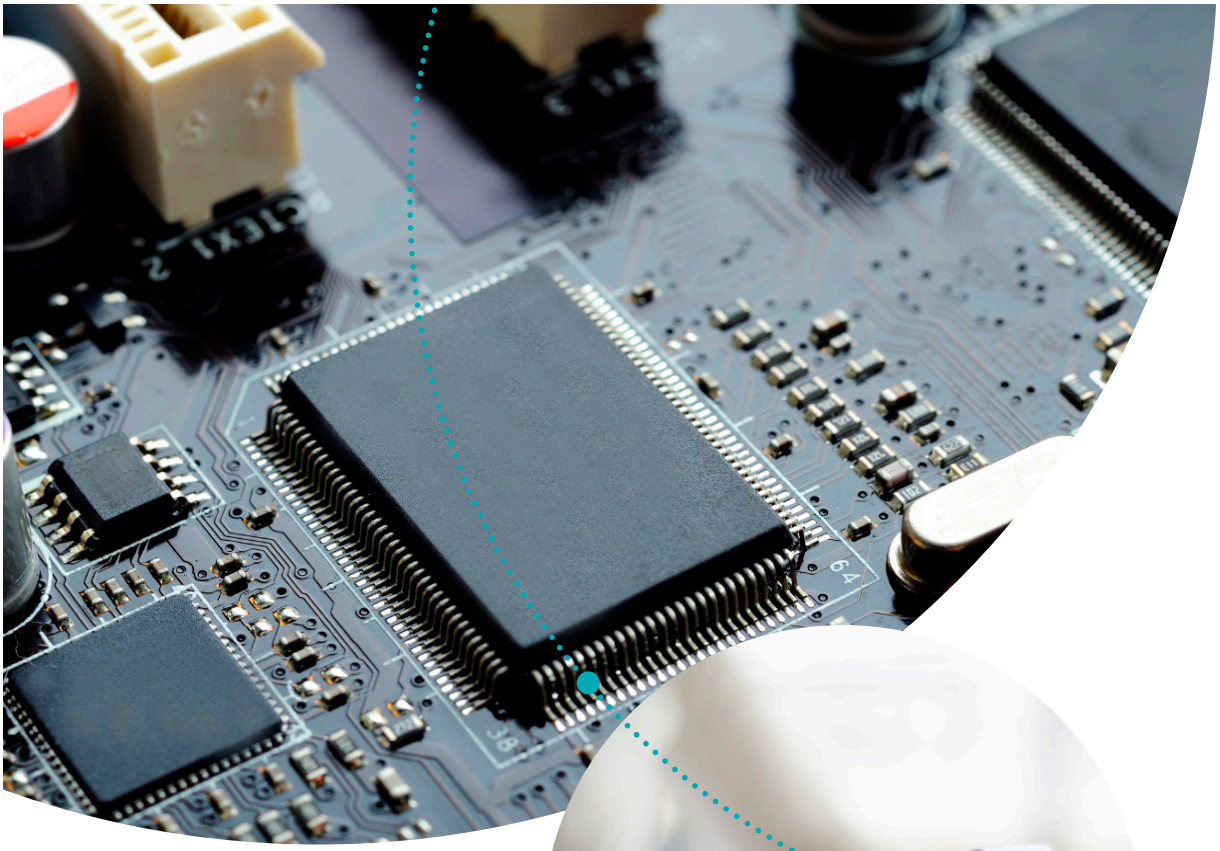
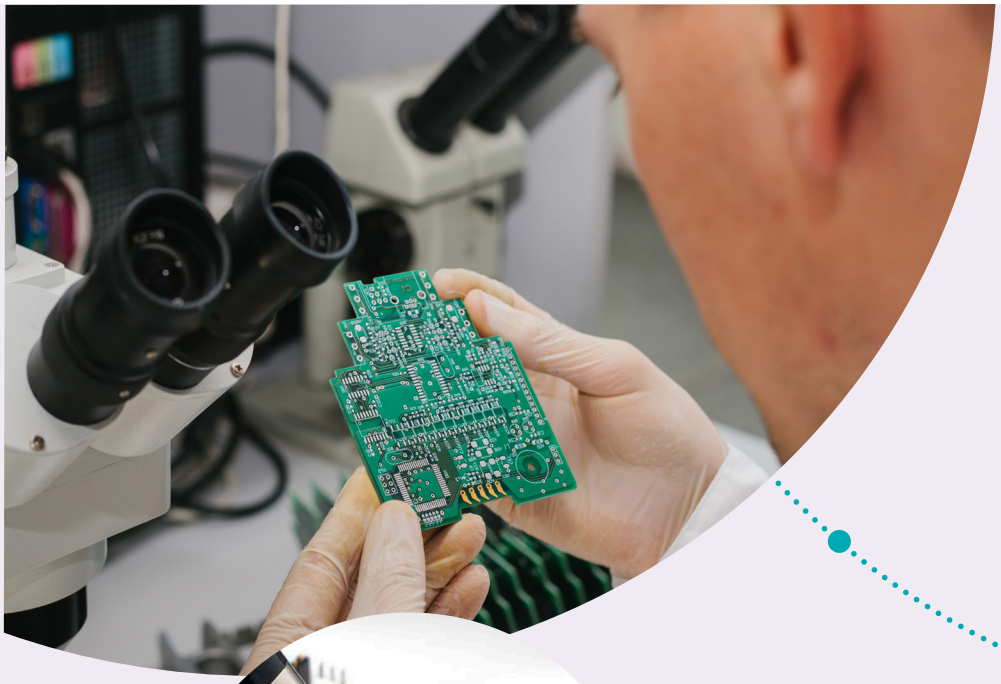
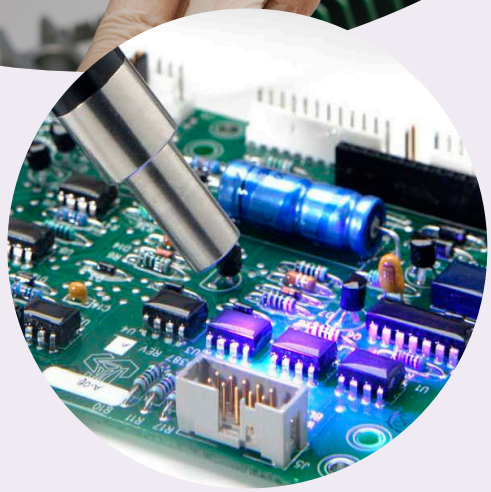


LIGHT-CURABLE MATERIALS FOR ELECTRONICS ASSEMBLY

DYMAX®



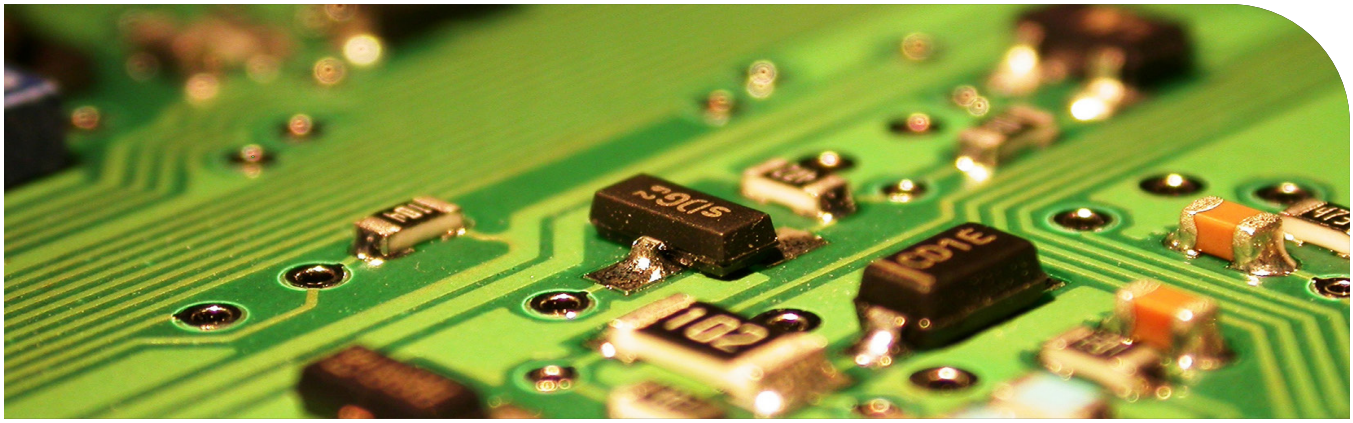


Only Dymax offers expert knowledge of light-cure technology, along with a full array of light-cure products. Dymax is committed to developing a true collaborative partnership — applying our extensive process knowledge to your specific application challenges.

We create custom solutions to ensure that chemistry and equipment work seamlessly together with maximum efficiency. product and process design, equipment selection and integration, testing, evaluation, and pre-production trials throughout the life of the assembly process. Our laboratory is fully equipped to deliver mechanical or electrical testing, as well as specialty testing such as flowers of sulfur, salt spray, or thermal shock to ASTM standards. The lab also has a variety of curing equipment and manual and automated dispensing systems for evaluation.

Dymax Light-Curable Materials for Electronics Assembly

Dymax offers a broad range of light-curable materials for use in circuit protection and electronic assembly applications. These materials cure in seconds for faster processing and higher throughput and are available with many innovative and patented technologies that turn problems like shadow areas, cure confirmation, and difficult inspection into non-issues. The materials are electrically insulating, making them a perfect fit for conformal coating, encapsulation, bonding, thermal management, masking, and many other electronic assembly processes. Dymax light-curable materials are one-part with no added solvents, requiring no mixing or prep before application. Most products are available in multiple-viscosity grades, so the material flow may be tailored to the individual application. IPC approved, MIL-I-46058C and UL listed self-extinguishing grades are available.



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:

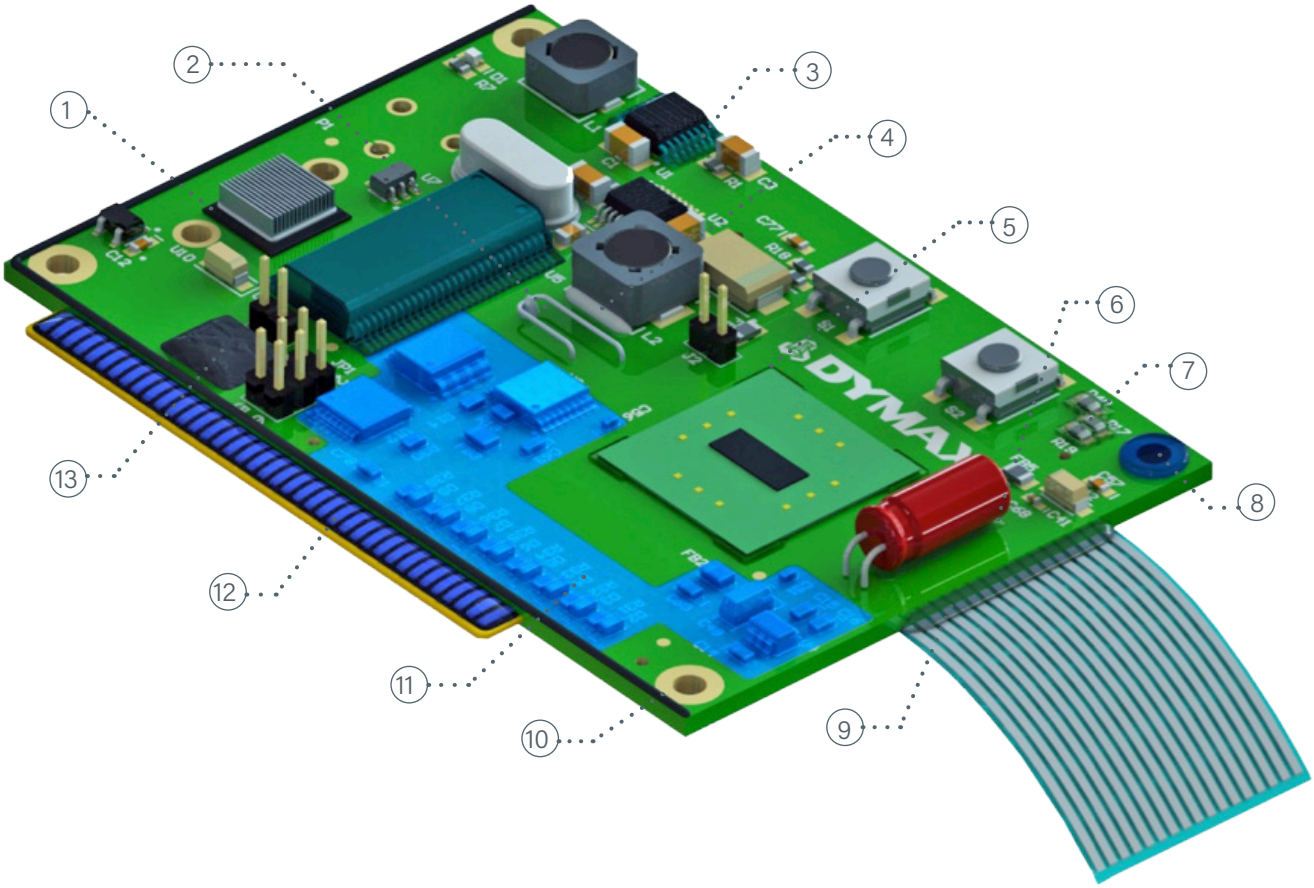
- Materials with no added solvents
- Halogen-free materials
- RoHS compliance
- Eco-friendly, one-component materials

Dymax halogen-free conformal coatings, encapsulants, and adhesives are documented by an independent laboratory to meet or exceed standards set forth in IEC 61249-2-21. This international directive defines halogen-free as <900 ppm for chlorine, <900 ppm for bromine and <1,500 ppm total level of both combined. The current test method used for certification is BS EN 14582:2007.

REACH

Dymax endorses the outcome of the REACH program. We are pleased to report that we have registered all affected substances used at Dymax with the centralized database maintained by the European Chemical Agency (ECHA) in Helsinki.

Typical Applications for Printed Circuit Boards



1. Thermal Interface
2. Wire Tacking
3. Encapsulation
4. Staking
5. Ruggedization/Cornerbond
6. Reinforcement
7. Encapsulation
8. Masking
9. Strain Relief
10. Cure-In-Place Gasket
11. Conformal Coating
12. Peelable Mask
13. Glob Top Encapsulant

Industries Served

Dymax provides light-curable solutions for electronics in many industries, including those below. OEM manufacturers in these industries benefit from using light-curing technologies in their process.

Aerospace & Defense

Bond and protect critical electronic components used in aircraft, missile, satellite, and spacecraft avionics.

Appliance

Typical applications include control boards, sensors, and modules used in handheld power tools, appliance sub-components, small consumer appliances, and major home appliances.

Automotive

Typical applications include speedometer circuitry, engine control modules and sensors, door and window controls, airbag sensors, audio circuitry, and more.

Consumer Electronics

Bond and protect electronic components in cameras, tablets, cell phones, computers, wearables, and many other consumer electronics.

Energy

Typical applications include PCBs in energy storage control systems, stationary auxiliary power units (APU), and batterypack assemblies.

Industrial/Infrastructure

Bond and protect electronic components used in industrial and infrastructure electronics, including data center edge servers.

Optical/Telecom

Our materials are used in the manufacturing of optoelectronic devices, optical modules, and telecom infrastructure.

Conformal Coatings

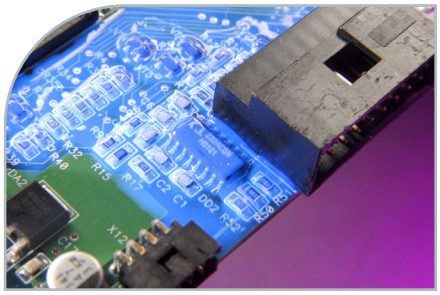
Dymax light-curing conformal coatings are applied to electronic circuitry to act as protection against moisture, dust, chemicals, and temperature extremes that if uncoated (unprotected) could result in a complete failure of the electronic system. Our conformal coatings are available in IPC approved, MIL-I-46058C, and UL listed self-extinguishing grades.

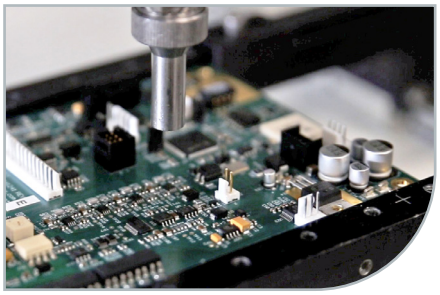
Product	Description	Viscosity, cP	Durometer Hardness	Modulus of Elasticity, MPa (psi)	Dielectric Withstand Voltage, V/mil	Approvals
Dual-Cure Coatings: UV Broad-Spectrum Light Cure + Secondary Moisture Cure						
9481-E-PZ	Low viscosity for thin coatings; low surface energy for difficult-to-wet components and assembly materials; high chemical and abrasion resistance; excellent resistance to corrosion from sulfur	115	D60	1,900 [271,100]	>1,500	MIL-I-46058C IPC-CC-830-B UL 94V-0 Flammability UL 746E
9483-Z	Excellent thermal shock resistance; corrosion resistant; great temperature/humidity performance; blue fluorescing; recommended for automotive applications	750	D60	480 [70,000]	>1,500	MIL-I-46058C IPC-CC-830-B UL 94V-0 Flammability UL 746E
9771	Low ionic content; low outgassing; corrosion and temperature/humidity resistance; blue fluorescing	780	D72	910.3 [132,026]	665	MIL-STD-883 Method 5011 ASTM-E595 Low Outgas MIL-I-46058C IPC-CC-830-B UL 94V-0 Flammability UL 746E NASA MAPTIS material number 09841

Featured Product

Key Attributes

- No added solvents
- Adhesion to flex circuit substrates
- Tack-free UV cures in seconds
- Low stress under thermal cycling
- Excellent environmental resistance
- Rigid and flexible coatings available





Product	Description	Viscosity, cP	Durometer Hardness	Modulus of Elasticity, MPa (psi)	Dielectric Withstand Voltage, V/mil	Approvals
Multi-Cure® Coatings: UV Broad-Spectrum Light Cure + Secondary Heat Cure						
9-20351-F	Isocyanate free; blue fluorescing; optimized for wetting high-profile leads; corrosion resistant	11,000	D60	110.3 [16,000]	500	
9-20557	Isocyanate free; medium viscosity for wetting components; low modulus for enhanced thermal cycling performance	2,300	D60	37.9 [5,500]	>1,500	MIL-I-46058C IPC-CC-830-B UL Flammability UL 746
9-20558-REV-A	Thixotropic, high-viscosity coating; bonds well to FPCs; flexible; can be used as a conformal coating as well as an encapsulant	24,000	D35	2.3 [340]	1,100	UL 94V-0 Flammability
984-LVUF	Isocyanate free; low viscosity for thin coatings; rigid for high chemical and abrasion resistance; optimized for LED curing	160	D85	724 [105,100]	>1,500	MIL-I-46058C IPC-CC-830-B UL 746E UL 94V-0 Flammability
9451	Black color is excellent for hiding components and board features; designed for thin coatings; optimized for single pass coatings up to 0.005"	6,000	D80	717 [104,000]	1,200	UL 94V-0 Flammability
9452-FC	Very low viscosity; ideal for film/flow coating; LED curable; blue fluorescing; excellent wettability; excellent thermal shock resistance	20	D60	1,137 [165,000]	1,000	UL 94V-0 Flammability
9-20557-LV	Isocyanate free; low viscosity for thin coatings; low modulus for enhanced thermal cycling performance	850	D70	310 [45,000]	>1,500	MIL-I-46058C IPC-CC-830-B

Featured Product

Encapsulants & Wire Bonders

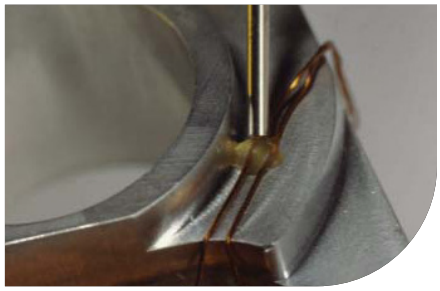
Dymax encapsulants cure in seconds upon exposure to UV and/or visible light to provide tough, flexible protection for bare die, wire bonds, or integrated circuits (IC). The encapsulants' fast cure helps reduce processing and energy costs associated with alternative technologies. The materials are all one part, so no mixing is required and viscosity is consistent.

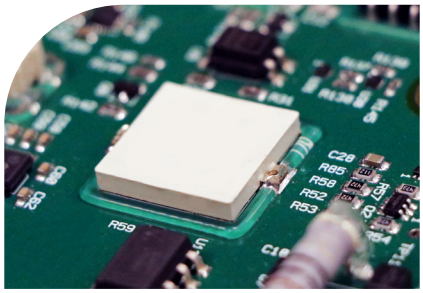
Product	Description	Applications	Durometer Hardness	Viscosity, cP	Elongation at Break, %	Modulus of Elasticity, MPa [psi]
Dual-Cure Encapsulants: UV Broad-Spectrum Light Cure + Secondary Moisture Cure						
9014	Flexible; room temperature stable; blue fluroescing	Chip-on-board; Chip-on-flex; Chip-on-glass; Wire bonding	A70	12,500	63	119 [17,300]
9101	Flexible; moisture and thermal resistance	Chip-on-board; Chip-on-flex; Chip-on-glass; Wire bonding	D30-D50	7,000	38	17.5 [2,550]
9201-W	Wearable device friendly; LED optimized; IBOA free; moisture, thermal, and impact resistance; excellent protection against chemical or environmental exposure	Chip-on-board; Chip-on-flex; Wire bond encapsulation	D20-D40	32,000	178	322 [46,790]
9210-W	Wearable device friendly; IBOA free; moisture resistance; great reliability testing performance	Component encapsulation; FPC reinforcement; Selective protection	D55-D75	29,000	28.2	561 [81,369]
9102	Flexible; moisture and thermal resistance	Chip-on-board; Chip-on-flex; Chip-on-glass; Wire bonding	D30-D50	17,000	34	18.4 [2,670]
9103				25,000	36	17.6 [2,560]

Featured Product **W** IBOA-free for wearable devices

Key Attributes

- No added solvents
- Low stress under thermal cycling
- Instant UV/Visible cures
- Electrically insulating
- High ionic purity
- Room-temperature storage
- Tenacious adhesion to flex circuit substrates (polyimide and PET)
- Thermal shock and moisture resistance





Product	Description	Applications	Durometer Hardness	Viscosity, cP	Elongation at Break, %	Modulus of Elasticity, MPa [psi]
Multi-Cure® Encapsulants: UV Broad-Spectrum Light Cure + Secondary Heat Cure						
9-20558-REV-A	Flexible, high viscosity, thixotropic material; bonds well to FPCs; UL 94V-0 flammability rating	Conformal coating; Chip encapsulation; Wire bonding	D35	24,000	160	2.3 [340]
9001-E-V3.1-REV-B	Flexible, clear encapsulant with improved moisture and thermal cycle resistance; good ionic and electrical properties; low modulus for wire bonding	Chip-on-board; Chip-on-flex; multi-chip modules; wire bonding	D45	4,500	150	17 [2,500]
9037-F	Flexible with excellent moisture and thermal resistance; blue fluorescing	Chip-on-board; Chip-on-flex; Chip-on-glass; Wire bonding	D40	50,000	173	10.7 [1,554]
9-911-REV-B	High viscosity for optimal coverage of wires; solvent resistant; blue fluorescing; high bond strength to circuit board components; compatible with Dymax conformal coatings	Wire tacking	D80	25,000	30	552 [80,000]
9001-E-V3.0	Flexible, clear encapsulant with improved moisture and thermal cycle resistance; good ionic and electrical properties	Chip-on-board; Chip-on-flex; Chip-on-glass; Wire bonding; Bare-die encapsulation	D45	400	200	5.4 [790]
9001-E-V3.1	Flexible, clear encapsulant with improved moisture and thermal cycle resistance; good ionic and electrical properties; low modulus for wire bonding	Chip-on-board; Chip-on-flex; Chip-on-glass; Wire bonding; Bare-die encapsulation	D45	4,500	150	17 [2,500]
UV Broad-Spectrum Light Cure						
9008	Flexible; highly moisture-resistant bonds to diverse surfaces such as polyimide, DAP, glass, epoxy board, metal, PET; high adhesion, even at -40°C	Chip-on-flex; Flex circuit bonding and attachment to PCB and glass	D35	4,500	270	45 [6,500]

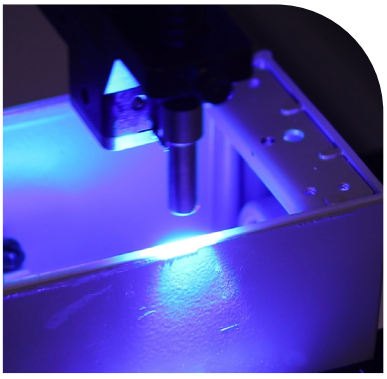
Featured Product

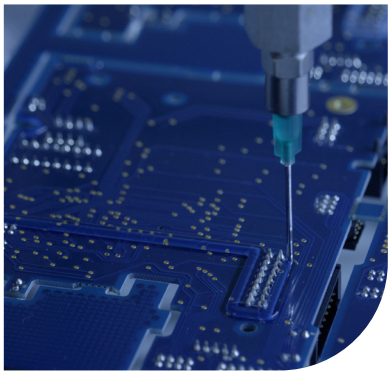
Form-In-Place/Cure-In-Place Gaskets

Light-curable form in place gaskets replace tape, PSA die-cut gaskets, 2K epoxies, silicone rope, and RTV sealants. The gaskets conform to complex and intricate channels, on both vertical and horizontal surfaces, with thixotropic formulations, and flow into channels with Newtonian formulations. Form-in-place gasket materials act as a barrier to prevent absorption or penetration of air, dust, noise, liquids, gaseous substances, or dirt for sound dampening, vibration dampening, moisture protection, chemical protection, air sealing, and gap filling.

Product	Description	Viscosity, cP	Durometer Hardness	Tensile at Break, MPa [psi]	Modulus of Elasticity, MPa [psi]
GA-140	Moisture and chemical resistant; cures soft and tack free; low outgassing; adhesion to plastics	39,000	A35	1.5 [211]	0.71 [104]
GA-201	Tack free after proper cure; moisture and chemical resistant; adhesion to plastics	65,000	A35	0.93 [135]	0.75 [110]
GA-103	Excellent heat, water, and chemical resistance; self-leveling liquid; soft	60,000	00-75	0.9 [130]	0.2 [35]
GA-112	Soft and tack-free; excellent tear resistance; moisture resistant; adhesion to metals	40,000	A50	4.5 [660]	1.3 [190]
GA-120	Flexible; soft and tacky; self-leveling viscosity; greatest deflection	1,000	00-50	0.14 [20]	0.9 [13]
GA-142	Soft, sticky and flexible; good adhesion to nylon, plastics, and metals	40,000	00-55	0.5 [75]	0.1 [23]
GA-142-F	Blue fluorescing; soft, sticky, and flexible; good adhesion to nylon, plastics, and metals	40,000	00-60	0.24 [36]	0.01 [2]

Featured Product





Key Attributes

- Designed for automated dispense
- Conform to complex and intricate channels
- Accommodates engineering changes without expensive tooling investments
- Silicone free

Display Bonding and Laminating

Dymax light-curable adhesives for display lamination and bonding are specifically formulated for applications where durable, crystal-clear, invisible bonds are required. Their fast, on-demand cure allows substrates to be repositioned precisely until parts are ready to be cured. One-part LCD adhesives are ideal for bonding flat panel displays, touch screens, LCD screens, liquid crystal displays, mobile phones, and many other electronic devices.

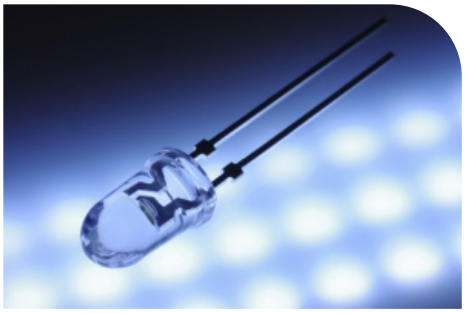
Product	Description	Applications	Viscosity, cP	Durometer Hardness	Tensile at Break, MPa [psi]	Volumetric Shrinkage, %
9701	Excellent re-workability; good thermal shock resistance; low shrinkage; non-yellowing	Optical display lamination and touch screen bonding	200	00-70	0.49 [71]	4.9
9702	Excellent re-workability; good thermal shock resistance; low shrinkage; non-yellowing	Optical display lamination and touch screen bonding	950	00-70	0.89 [129]	4.2
9703	Excellent re-workability; good thermal shock resistance; low shrinkage; non-yellowing	Optical display lamination and touch screen bonding	30,000	00-80	1.85 [268]	4.2

Key Attributes

- One component, no mixing required
- Flexible
- Fast cure
- Bonds various substrates
- Resistant to yellowing
- High optical clarity

LED Encapsulating

Dymax 9600-series materials provide optimal protection for LEDs. These materials resins keep LED lighting brighter over time are are also low stress, so fragile COB wire bonds are not compromised during thermal excursions or normal operating environments.



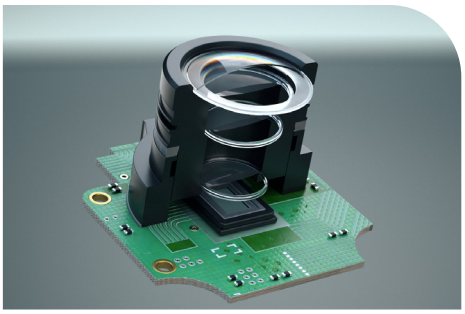
Product	Description	Applications	Viscosity, cP	Duraometer Hardness	Linear Shrinkage
9622	UV/Visible light cure in seconds; no mixing required; heat resistant to 100°C; resistant to long-term UV exposure; high light transmittance; durometer between silicone and epoxy	Instant casting of LEDs; Rapid forming of protective optical lens	12,000	D65	1.6 %
9624	UV light cure in seconds; no mixing or refrigeration required; heat resistant to 100°C; resistant to long-term UV exposure; low viscosity for thin coatings	Conformal coating for LED arrays; Colorless encapsulation of COB LEDs; Instant forming of protective lens for high-intensity LEDs	120	D75	1.0 %

Key Attributes

- One component - no mixing required
- Enhances light transmittance
- Fast cure
- No added solvents
- Resistant to heat-induced yellowing
- Optically clear

Optical Bonding & Positioning

Dymax optical bonding and positioning adhesives deliver fast, reliable bonding with low movement and shrinkage. These adhesives cure rapidly to form optically clear, low-stress joints with high tensile strength and low shrinkage. Single-component, light-curable formulations are engineered for VCSEL potting, lens fixturing, laminating and positioning, and fiber-optic assembly, offering the ability to bond glass, quartz, ceramics, metals, and plastics with minimal movement during cure.



Product	Description	Viscosity, cP	Durometer Hardness	Tensile at Break, MPa [psi]	Modulus of Elasticity, MPa [psi]	Shrinkage, %
9202-W	IBOA-free positioning adhesive for wearable devices; designed for optical alignment; low shrinkage; low CTE; heat cycle stable	260,000	D88	35.9 [5,200]	4,214 [611,150]	0.50 Linear
9803	Very low shrink epoxy; LED curable; UV/Visible light cure and/or low temp. (80-85°C) heat cure; moisture and thermal cycle resistant; cold storage/ship	80,000	D94	36.7 [5,328]	3,983 [578,000]	1.40 Volumeric
OP-29-GEL	UV light-cure; low stress; flexible; optically clear; resists yellowing; ideal for tacking, bonding, sealing, and potting	20,000	D65	24 [3,500]	200 [30,000]	0.79 Linear
9801	Low shrink epoxy; LED curable; UV/Visible light cure and/or low temp. (80-85°C) heat cure; moisture and thermal cycle resistant; cold storage/ship	60,000	D90	45 [6,600]	1,600 [230,600]	1.50 Volumeric
OP-29	UV light-cure; low stress; flexible; optically clear; resists yellowing; ideal for tacking, bonding, sealing, and potting	2,500	D60	22 [3,200]	234 [34,000]	0.79 Linear
OP-60	High stregth positioning adhesive; UV/visible light cure; low shrinkage, outgassing, moisture absorption, and CTE; opaque; heat-cycle stable	150,000	D80	33.7 [4,900]	1,008 [146,250]	0.80 Linear

Featured Product **W** IBOA-free for wearable devices **GEL** Gel Viscosity

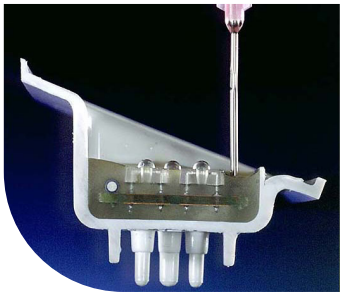
Key Attributes

- Cure in seconds
- Optically clear
- Excellent light transmission properties
- High strength
- Low stress
- Low shrinkage and outgassing properties result in low movement
- One component - no mixing
- No solvents added

Potting Materials

Dymax shallow potting materials cure tack free in seconds upon exposure to UV/Visible light. Each potting compound is engineered to bond different substrates, offering tenacious adhesion to plastics and metals. UV potting resins reduce waste from off-ratio mixing and are free from isocyanates and heavy metals. Processing in seconds eliminates fixtures, jigs, racks, and ovens to increase space and lower total inventory costs.

Product	Description/Applications	Viscosity, cP	Durometer Hardness	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Tensile at Break, MPa [psi]
921-T	Translucent bonds with high adhesion; applications: tamper proofing, connectors, and thermal switches	3,000	D80	50	563 [82,000]	24 [3,600]
921-VT		11,500	D80	35	540 [78,450]	22 [3,200]
921-GEL		25,000	D80	30	583 [84,650]	25 [3,640]

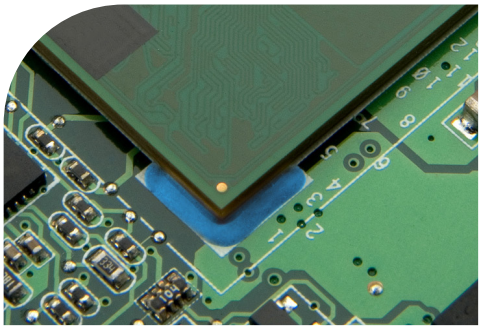


Key Attributes

- Full UV/Visible cure in seconds
- No added solvents
- High adhesion to substrates
- Flexible and rigid products available

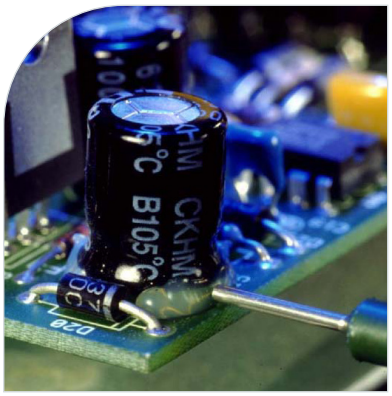
Ruggedizing Materials

Dymax ruggedizing adhesives are specifically formulated to secure critical PCB components. These adhesives deliver an ideal combination of mechanical strength, environmental resistance, and production efficiency. Designed for fast-paced electronic assembly, Dymax adhesives cure in seconds with light, helping manufacturers enhance product durability without sacrificing throughput.



Product	Description	Viscosity, cP	Durometer Hardness	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Tensile at Break, MPa [psi]
9309-SC	Highly thixotropic; formulated with See-Cure technology for easy visual confirmation of full cure	45,000	D57	140	163 [23,800]	22 [3,200]
9422-SC	Formulated with See-Cure color-change technology; highly thixotropic; reduces stress on components; great adhesion to various PCB substrates	38,000	D50	170	98 [14,000]	16 [2,300]
9773	BGA, CSP ruggedizing adhesive; meets ASTM E595 low outgassing; halogen and silicone free; low ionic content (Mil-Std 883 Method 5011 compliant); slump resistance at 90° up to 72 hours; jetting compatible; NASA MAPTIS material number 09907	54,000	D47	85	103 [15,000]	12 [1,700]
9310	UV/Visible light-cure with secondary heat cure for shadow areas; reduces stress on componens; adhesion to various PCB substrates; highly thixotropic	51,000	D60	145.5	103 [15,000]	12 [1,700]

Featured Product **SC** See-Cure Technology



Key Attributes

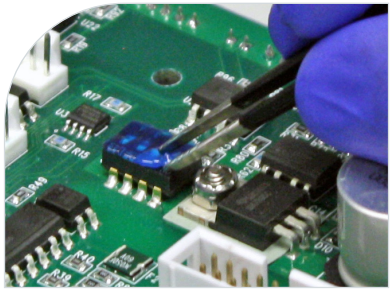
- Fast dispense and cure
- Holds shape after dispense
- Improved bond strength for die and pry testing
- Easy rework
- Jettable
- Reduce stress on interconnects during push, pull, shock, drop, and vibration
- Engineered bead shape for wetting both board surface and component edge without seeping into shadow area

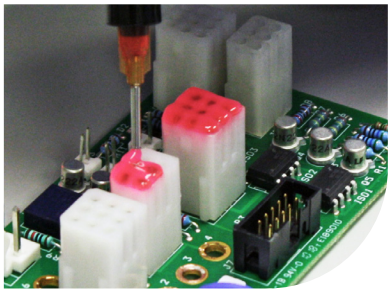
SpeedMask® Temporary Masking Resins

SpeedMask® light-curable temporary maskants provide reliable protection of component surfaces and cavities, PCB connectors, and keep out areas during surface finishing and preparation operations for metal, glass, and some plastics, as well as conformal coating of PCBs. They cure in seconds upon exposure to UV/Visible light and replace traditional masking materials, such as tapes, lacquers, waxes, boots, and caps. SpeedMask resins are easily applied by syringe or through dipping, spraying, or screen-printing, and are available in peelable or burn-off grades that leave component surfaces residue-free.

Product	Description	Viscosity, cP	Durometer Hardness	Tensile at Break, MPa [psi]	Elongation, %	Modulus of Elasticity, MPa [psi]
Protection of Printed Circuit Board Components During Processing						
9-20479-B-REV-A	Ideal for masking board pins and connectors; compatible with gold and copper pins; blue color; thixotropic for manual or automated dispense	115,000	A75	3.37 [490]	140	4.13 [600]
9-7001-REV-A	Ideal for masking PCB keep-out areas and connectors; pink color in uncured state; compatible with gold and copper pins; resistant to solvent-based conformal coatings and primers	42,500	A68	3.2 [464]	208	3.2 [464]
9-7004-REV-A	LED curable (385nm); high-visibility blue color; compatible with gold and copper connector pins; highly thixotropic for manual or automated dispensing	117,500	A63	1.4 [200]	70	4.1 [600]
9-318-F	Highly thixotropic for manual or automated dispensing; silicone free; very low VOCs; blue fluorescing	50,000	A55	3 [440]	130	2 [310]
Protection of Parts During Handling and Surface Treatments						
726-SC	See-Cure blue-to-pink color change technology; spray or dip; easy peel adter exposure to heat	52,000	D40	6.8 [980]	160	3.9 [560]
730-BT	Excellent chemical resistance; moderate adhesion; spray or dip; trimmable after cure; high-visibility blue color; easy peel off	22,000	D35	4.8 [700]	300	3.4 [500]
7601	LED curable; blue fluorscing; color change upon cure; moderate adhesion; trimmable after cure; peelable	25,000	A70	4.1 [600]	180	48.2 [7,000]

Featured Product **SC** See-Cure Technology





Key Attributes

- No added solvents
- Fluorescing and blue grades
- UV/Visible cure in seconds
- One part - no mixing
- No ionic contamination

Typical Masking Applications

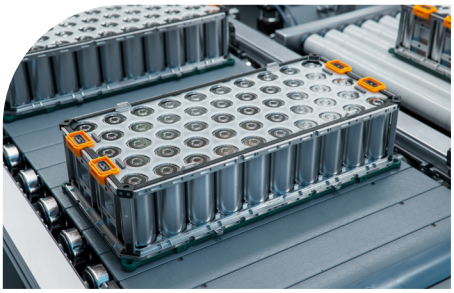
1. Masking PCB components and keep-out areas before conformal coating, wave solder, or reflow processes
2. Masking housing before painting, coating, or anodizing
3. Protect surface while engraving logos and other items or when machining out areas for buttons, speakers, and cameras
4. Mask off delicate parts to protect them from buffing/polishing or handling

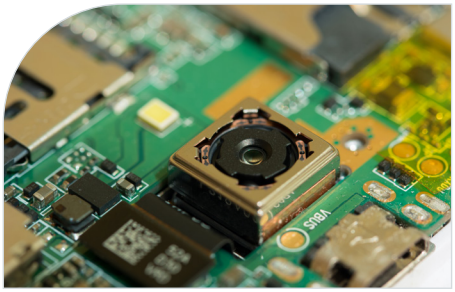
Structural Adhesives

From bonding appliance housings to securing camera module components, Dymax structural adhesives are engineered to deliver strong bonds to a wide variety of glass, metal, and plastic substrates. They are formulated to withstand demanding environments, helping improve product performance and longevity.

Product	Description	Applications	Viscosity, cP	Durometer Hardness	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Tensile at Break, MPa [psi]
3013-T	Rapid bonding of plastics and metals; blue fluorescing; moisture resistant	Plastic Assembly Plastic-to-Metal Bonding Bond Joint Sealing	6,250	D70	127	19 [2,766]	792 [115,000]
3099-VT	Rapid bonding of plastics and glass; strong bonds to PMMA (acrylic)	Appliance Assembly Plastic Housing Assembly Display Assembly	15,000	D75	170	19 [2,800]	400 [58,000]
3094-T-REV-A	Rapid bonding of a variety of plastics; low shrinkage and stress	CCM Assembly Camera Module Barrel Fixturing Appliance Assembly	11,750	D65	184	698 [101,300]	14 [2,000]
3094-GEL-REV-A	Low stress plastic bonder; low shrinkage	CCM Assembly Appliance Assembly Plastic Assembly	30,000	D67	200	12.4 [1,800]	179 [26,000]
431	Rapid bonding of glass, plastic, and metal; high temperature and moisture resistant	Glass Assembly Glass-to-Metal Assembly	500	D70	61	27 [3,900]	570 [82,000]
6-630-T	High adhesion to glass and metal; secondary heat or activator cure; high temperature and moisture resistant; flexible	Structural Glass Assembly Potting	6,000	D70	130	413 [60,000]	28.2 [4,100]
9211-W	IBOA-free adhesive for wearable devices; low stress; adheres to a wide range of plastics	CCM Assembly Camera Module Barrel Fixtures Plastic Assembly Wearable Devices	25,000	D63	191	16.4 [2,378]	700 [101,540]
9501-R	Excellent adhesion to metal and plastic; LED curable (385nm); red color	EV Battery Bonding Battery Potting	10,500	D68	170	640 [92,200]	18.3 [2,700]

Featured Product **GEL** Gel Viscosity **T** Thick **VT** Very Thick **W** IBOA-free for wearable devices **Z** TPO free





Product	Description	Applications	Viscosity, cP	Durometer Hardness	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Tensile at Break, MPa [psi]
3013	Rapid bonding of plastics and metals; blue fluorescing; moisture resistant	Appliance Assembly Plastic Assembly	150	D70	70	350 [50,000]	18 [2,400]
3013-GEL			27,000	D70	144	697 [101,172]	19.9 [2,885]
3094	Low stress plastic bonder; low shrinkage	Appliance Assembly Plastic Assembly	1,000	D62	170	240 [35,000]	14 [2,100]
3099	Rapid bonding of plastics and glass; strong bonds to PMMA (acrylic)	Appliance Assembly Plastic Housing Assembly Display Assembly	150	D75	220	917 [133,000]	21.4 [3,100]
3099-T			10,000	D75	170	400 [58,000]	19 [2,800]
3401	Rapid bonding of plastics and metal; secondary moisture cure; thermal and moisture resistance; blue fluorescing	Appliance Assembly Plastic Assembly	150	D55-D75	13	506 [73,400]	30 [4,400]
429	Rapid bonding of glass, metal, and plastic; optically clear; uv resistant; high impact; resistant to yellowing and thermal shock	Large-Area Bonding Potting Critical Components Metal-to-Glass Bonding	2,500	D60	120	67 [9,700]	21.6 [3,140]
429-GEL			20,000				
429-T			5,000				
431-T	High adhesion to glass and metal; high temperature and moisture resistant;	Glass Assembly Glass-to-Metal Assembly	6,000	D70	86	439 [63,700]	24 [3,500]
6-621-GEL	Forms hard, clear bonds to a variety of substrates including metal, glass, ceramic, and phenolic and filled plastics	Structural Batttery Bonding	25,000	D80	20	730 [106,000]	28 [4,000]
6-630	High adhesion to glass and metal; secondary heat or activator cure; high temperature and moisture resistant; flexible	Structural Glass Assembly Potting	500	D70	93	407 [59,000]	22.4 [3,250]

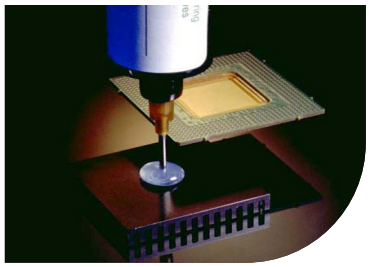
GEL Gel Viscosity **T** Thick **VT** Very Thick

Thermal Interface Adhesives

Dymax thermally-conductive adhesives provide an efficient method of thermal transfer between heat sinks and electronics. They cure in seconds upon exposure to UV/Visible light, providing high-performance characteristics with maximum processing convenience. These adhesives may be used for mounting heat sinks and heat-sensitive electronic components to printed circuit boards or for use in any application where it is desirable to increase thermal conductivity between assembled parts. Thermal management adhesives eliminate the need for mechanical fasteners and clips.

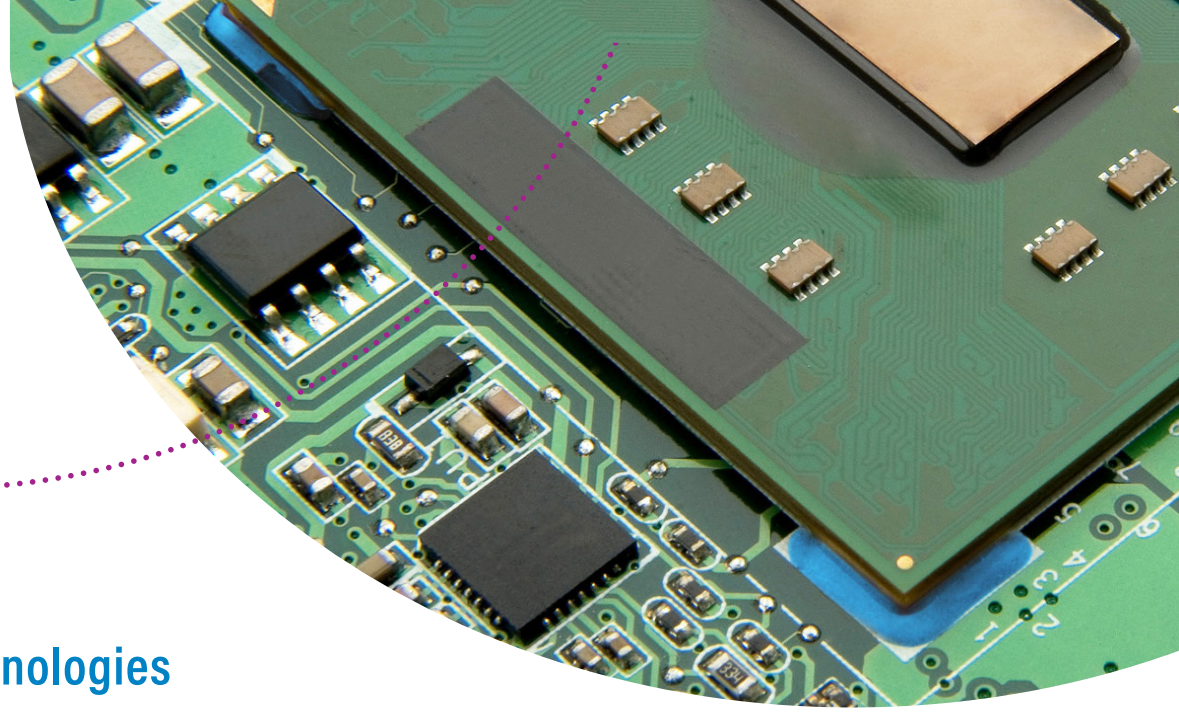
Product	Description	Applications	Thermal Conductivity	Nominal Viscosity, cP	Elongation at Break, %	Tensile at Break, MPa [psi]
9-20801	Light cure in seconds; secondary activator or heat cure for shadow areas*; highly thixotropic for optimal placement	Mounting heat sinks on PCBs; LED heat dissipation	0.9 W/m*K	110,000	NA	14 [2,100]

*Dymax 501-E-REV-A is the recommended activator for shadowed areas



Key Attributes

- Sets in seconds with light exposure
- Highly conductive
- Low stress for mismatched CTE's
- High-strength bonds
- Room-temperature storage and cure



Innovative 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.

Dual-Cure Light/Moisture-Cure Technology

Dual-Cure coatings are formulated to ensure complete cure in applications where shadow areas on high-density circuit boards are a concern. Previously, areas shadowed from light were managed by selective coating – eliminating the need to cure in shadow areas – or a secondary heat-cure process. Shadowed areas cure over time with moisture, eliminating the need for that second process step or concerns of component life degradation due to temperature exposure.

LED Light-Curable Adhesives & Coatings

Dymax offers specially formulated LED light-curable adhesives and coatings for use with Dymax LED UV/Visible light-curing systems. The adhesives range from fast to ultra-fast cure speeds in order to accommodate specific electronic assembly needs.

Multi-Cure® Light/Heat-Cure Technology

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

See-Cure Technology

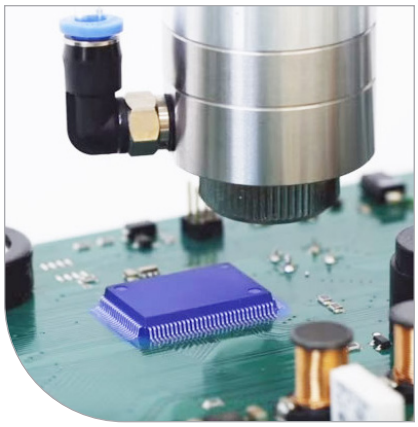
Light-curable adhesives formulated with Dymax patented See-Cure technology have a built-in cure validation that makes it easy for operators or simple automated inspection equipment to confirm cure without investing in additional specialized equipment. See-Cure technology intentionally transitions the color of the adhesive after it has cured and builds a visible safety factor into the assembly process.

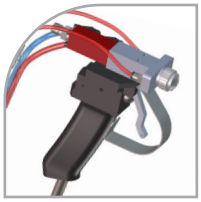
Ultra-Red® Fluorescing Technology

Dymax's patented Ultra-Red® technology enhances bond-line inspection processes and product authentication. Adhesives formulated with Ultra-Red® remain clear until exposed to low-intensity UV light at which point they fluoresce bright red. This is particularly effective while bonding plastics that naturally fluoresce blue, such as PVC and PET. Ultra-Red® technology also produces a unique spectral signature that can be used by manufacturers for product authentication.

Dispensing Equipment

Dymax has developed high-quality, field-proven dispense systems to fit many types of adhesive and fluid dispensing applications. These systems include various automated and manual dispensing valves, spray valves and guns, controllers, material reservoirs, and related components for seamless integration into assembly processes. The systems provide accurate, consistent dispense for a range of low- to high-viscosity fluids. Dispensing systems with adjustable suck-back control and dispensing valves that offer contaminate-free dispensing are available.





SD-200 Digital Syringe Dispenser

This dispensing system is ideal for use as an operator work station and can also be integrated into an automated process if needed. It provides an accurate way to dispense low-to-high viscosity materials from a syringe. The system is easy to set up and operate.

eco-PEN450 Dosing System

The eco-PEN 450 is ideally suited for dispensing very precise volumes of low- to medium-viscosity materials. It offers maximum volumetric precision for both dot and bead applications, making it an excellent choice for masking components on PCB boards or other small-area applications.

eco-SPRAY Precision Micro-Spray System

This micro-spray system is excellent for a wide range of applications and for use with a variety of low- to high-viscosity spray media. Users can achieve a variety of spray volumes, from dot to endless spraying.

SG-200 Super-Flow Spray Gun System

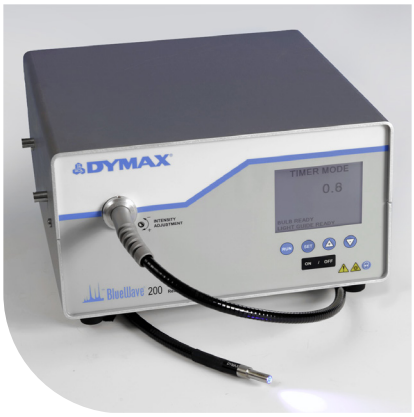
Dymax SG-200 super-flow spray gun systems are designed for masking and coating applications where a significantly higher flow rate is required. The systems are ideal for dispensing fluids with viscosities up to 80,000 cP. If you are manually masking a large area, this is a great option.

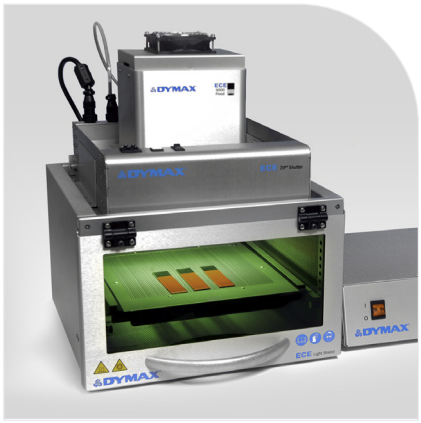
Model 400 Hand-Held Needle Valve System

The Model 400 needle valve is designed for dispensing very precise dots or fine beads of low- to medium-viscosity materials. The valve is hand-held but is compact and lightweight, making it easy and comfortable to handle.

Light-Cure Systems

Dymax designs and manufactures a wide range of curing equipment including spot lamps, flood lamps, and conveyor systems, as well as radiometers and other accessories. Dymax systems are optimized to work with light-curable adhesives to gain process efficiencies by targeting rapid surface curing, depth of cure, and speed of cure, all while delivering light in a rapid and economical way. CE marked equipment is available.





Spot Lamps

Spot lamps provide a variety of methods to deliver light to a very precise location. They can be used manually by an operator or incorporated into a high-speed automated assembly line. Dymax offers multi-spectrum light-emitting lamps which use high-pressure mercury vapor bulbs, as well as light-emitting diode spot lamps, which use an array of surface-mounted LEDs instead of traditional metal halide or mercury bulbs.

Flood Lamps

Static flood-lamp systems are suited for area curing or for curing multiple assemblies. Dymax offers UV models which use moderate- to high-intensity, multi-spectrum UV/Visible light and LED models that use light-emitting diodes for fast curing. Dymax flood lamps can be easily integrated into existing manufacturing processes by mounting the lamps above high-speed assembly lines to achieve rapid cures. Shutter assemblies, mounting stands, and shields are available to create a custom curing system.

Conveyor Systems

Conveyor systems consist of a moving belt that passes through a curing tunnel with multi-spectrum lamps mounted above or on each side for rapid curing of parts. These conveyor systems are designed to offer consistent, fast, and safe curing. They can be outfitted with standard metal halide (longwave UV), mercury (shortwave UV), visible bulbs, or LED flood arrays. Consistent line speed, lamp height, and intensity provide a consistent light-curing process for high throughput.

Radiometers

Measurement of the lamp intensity and dosage is critical to the successful implementation of light-curing technology. Dymax radiometers allow operators to monitor and document a light-curing process.

DYMAX®

www.dymax.com

Americas
USA | +1.860.482.1010 | info@dymax.com
Mexico | +1.915.315.9381 | info-LATAM@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 | info@hanarey.com
Hong Kong | +852.2460.7038 | dymaxasia@dymax.com
Korea | +82.31.608.3434 | info_kr@dymax.com