

# Electronic Component Ruggedization

Various technologies are available for ensuring critical components on printed circuit boards remain intact throughout manufacturing, assembly qualification, and service environment for the duration of product lifecycle. Should one ball-grid interconnect fail, an entire device could be compromised. Dymax has

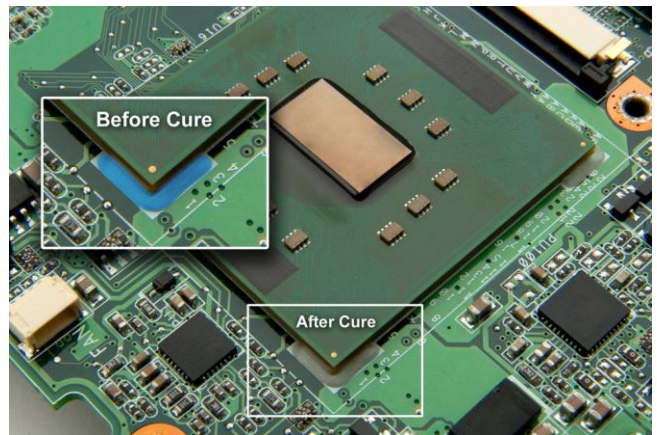
developed the next generation family of ruggedization adhesives engineered specifically for bonding high-value PCB components. Dymax light-curable adhesives dispense and cure in seconds to provide the optimal balance of production efficiency and technical performance.

## BENEFITS of LIGHT-CURABLE ADHESIVES VS UNDERFILL OR HEAT-CURE EPOXIES

- Fast dispense and cure
- Eliminate leadless component (BGA/VGA) interconnect cracking due to CTE mismatch
- Reduce stress on interconnects during push, pull, shock, drop, and vibration
- Enhance PCB life span
- Post reflow, room temperature application
- Easy rework
- Simple visual inspection

## BENEFITS of DYMAX LIGHT-CURABLE LEADLESS COMPONENT REINFORCEMENT ADHESIVES

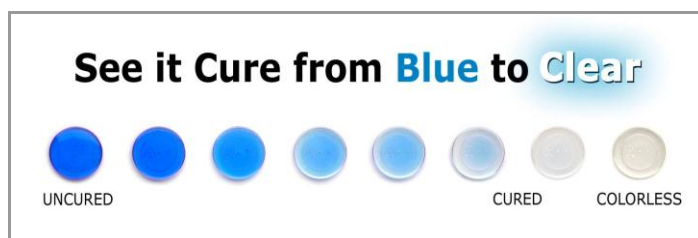
- Cure in seconds
- Engineered bead shape for wetting both board surface and component edge without seeping into shadowed area
- Highly thixotropic for **zero movement** prior to cure
- Low modulus for minimal stress in component interfaces
- Available with **See-Cure** Technology
- Exhibit improved bond strength for die and pry testing
- Halogen free
- Silicone free
- RoHS Compliant



## TYPICAL APPLICATIONS

- Mobile phones, PDAs
- Laptop computers
- Gaming consoles
- GPS (global positioning systems)
- Digital music players

## DYMAX SEE-CURE TECHNOLOGY\*



\*Dymax adhesives with See-Cure Technology have part numbers ending in "SC"

### See It **Dispense**

Easily identify adhesive bead profile and coverage on substrate prior to cure

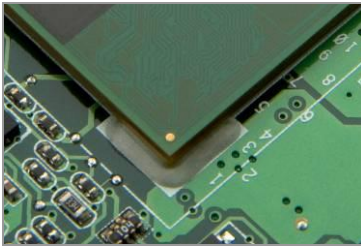
See It **Cure**

Confirm the adhesive has received enough energy to cure



**ENVIRONMENTAL BENEFITS of DYMAX LIGHT-CURABLE MATERIALS:**

- No VOCs
- Solvent free
- HAP free
- No energy required for curing ovens
- Documented Halogen-Free



**TYPICAL COST SAVINGS of DYMAX LIGHT CURABLE MATERIALS:**

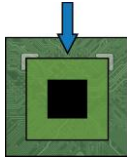
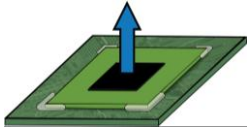
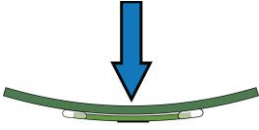
- Cure in seconds; increase throughput
- Minimal floor space requirements
- Simple to dispense – no solvent management or mixing systems required
- No silicone containment required
- Eliminate labor costs associated with:
  - Complex dispensing system maintenance
  - Manual transferring of parts for long cure
- No secondary inspection of bond area



**PRODUCT SPECIFICATIONS**

Product Features		9422-SC
	<b>Typical Applications</b>	Component ruggedization, plastics bonding
	<b>Features</b>	High viscosity/thixotropy for zero flow after dispense
	<b>Viscosity</b>	38,000 cP
	<b>Technology</b>	UV/Visible light cure <b>See-Cure</b>
	<b>Uncured Color</b>	Blue
	<b>Cured Color</b>	Clear
Product Cure Data*		9422-SC
	<b>Lamp</b>	<b>Lamp Intensity</b> <b>Approximate Exposure or Belt Speed</b>
	BlueWave® 200 UV Curing Spot Lamp*	5 W/cm <sup>2</sup> 10 seconds
	BlueWave® 200 UV Curing Spot Lamp*	10 W/cm <sup>2</sup> 5 seconds
	5000-EC Flood Lamp System	200 mW/cm <sup>2</sup> 15 seconds
	UVCS Conveyor with 5000-EC	200 mW/cm <sup>2</sup> 0.9 m/min [3.0 fpm]
	UVCS Conveyor with Fusion D Lamps	2700 mW/cm <sup>2</sup> 1.5 m/min [5.0 fpm]

\* 0.9 mm read height; Cure times based on laboratory conditions.

Typical Bond Strength			
Test	Shear	Tensile	Flex
			
<b>Typical Bond Strength, kgf [lbf]</b>	16 [35]	8.2 [18]	28 [62]



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