

Light Cure Adhesives for Assembly Operations



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Assembly Tech Expo
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Agenda



- Introduction
- Cure mechanism
- Light Cure “Families”
- Typical applications
- Light Cure Equipment
- New Developments
- Question and Answer

Introduction: Why Light Cure?

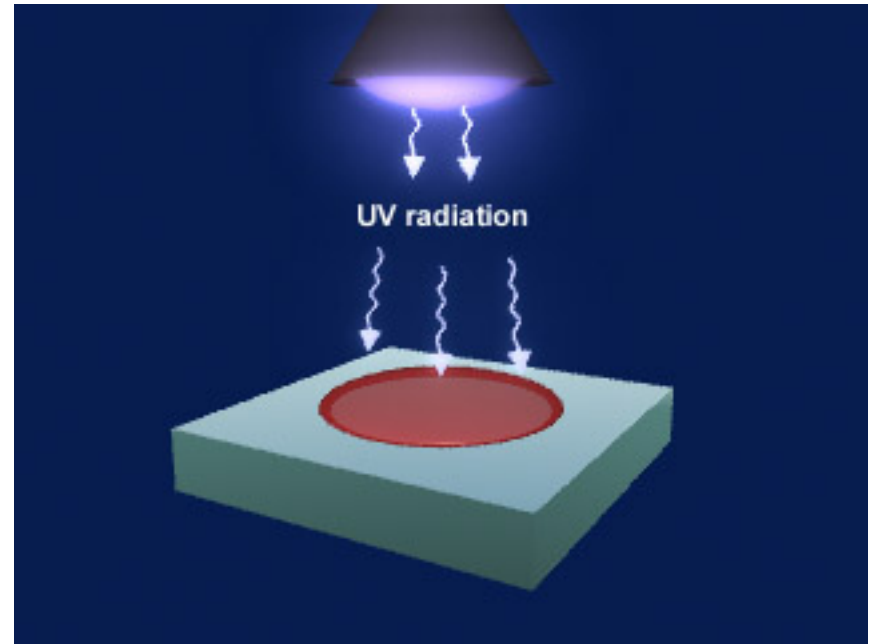
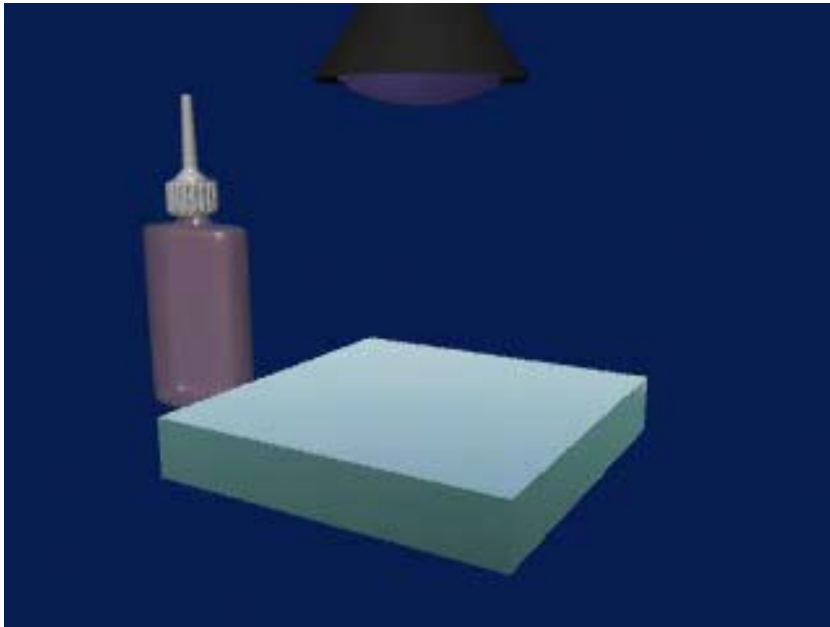


- Cure on command
 - Almost infinite open time
 - Fastest curing of all adhesives (5-30 sec)
- Superior processing
- High adhesion to various substrates
- Most rapidly growing adhesive technology.

Cure Mechanism

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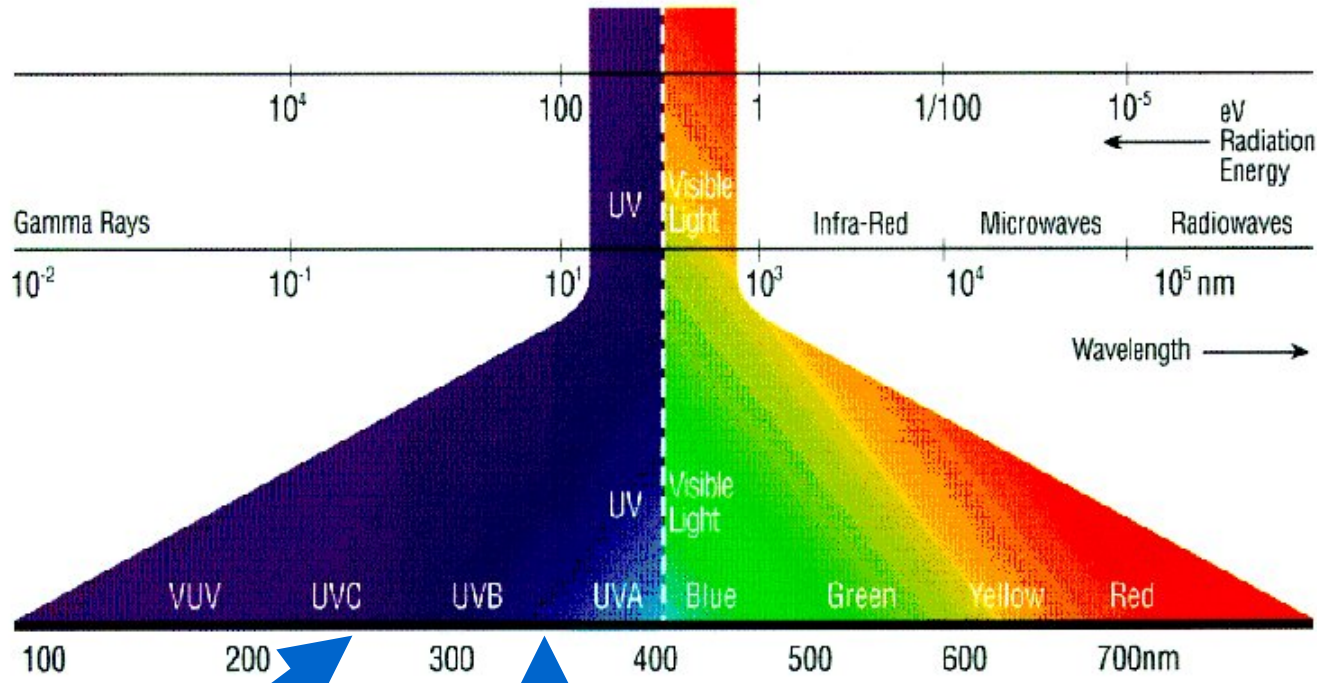
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Electromagnetic Spectrum

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**256 nm
Surface Cure**

**365 nm
Depth of Cure**

**400-760 nm
Visible Light**

Light Cure: Introduction



- **Key Considerations:**

- Light must reach joint
- Opaque substrates
- Interior joints
- Must purchase equipment
- Surface cure may be challenging

Light Cure Adhesives Families

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- Acrylics
- Cyanoacrylates
- Silicones
- Epoxies



Light Cure Adhesives

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- **Acrylics**

- **Fast cure (seconds)**
- **Good adhesion to plastics**
- **Structural strength**
- **Wide range of formulations**
- **Fluorescent grades**
- **Secondary cure: heat and/or activator**



Light Cure Acrylic: Bonding / Sealing

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**Lid to Reservoir Body
Blood Oxygenator
Medos**

**Faceplate to Cushion
Anesthesia Mask**

Light Cure Adhesives



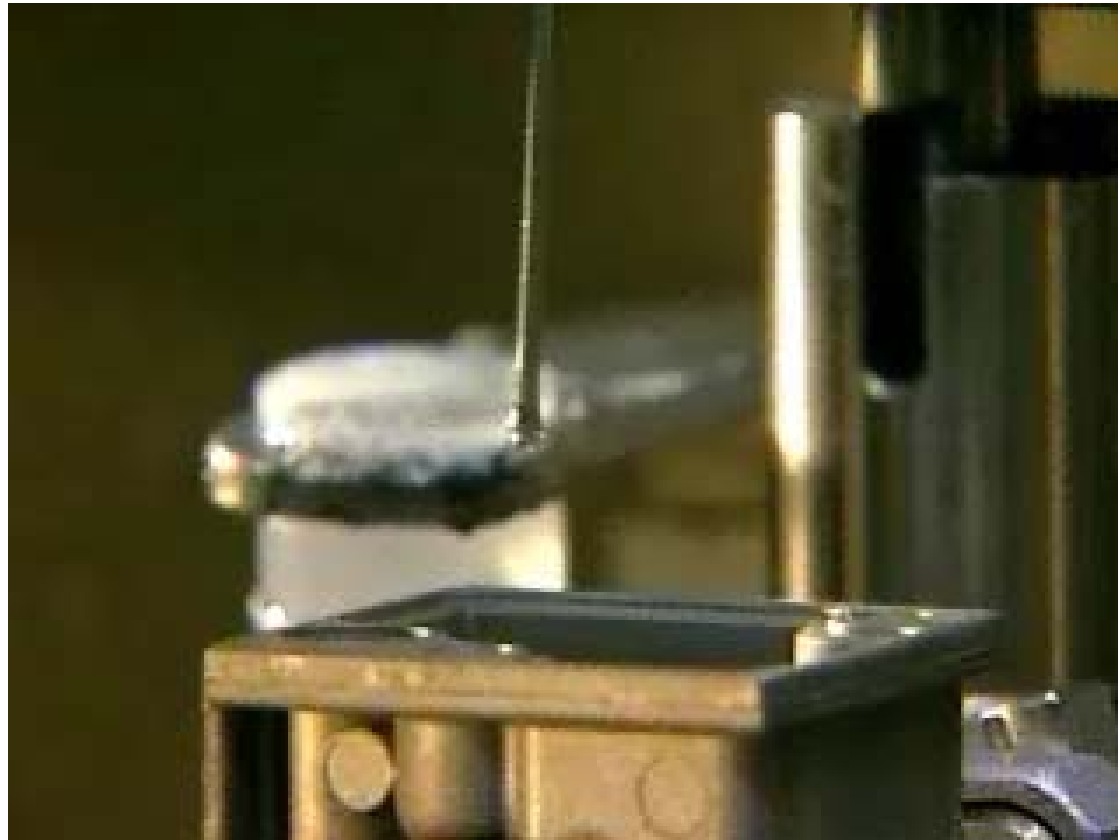
- **Silicones**

- **Secondary moisture cure**
- **Highest flexibility**
- **Highest temperature resistance (450 F)**

UV Silicone: Cured-In-Place Gasket

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**Braking System Timing Cover
Knorr Bremse**

Light Cure Adhesives



- **Cyanoacrylates**
 - **Secondary cyanoacrylate cure**
 - **Fastest light cure**
 - **Immediate surface cure**
 - **Highest adhesion to plastics**

Equipment Video: Robotic Workcell

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Be a friend

**Loctite 4307, 7700
and 203 Robot Video**

Robotic Work cell

Light Cure Adhesives



- **Epoxies**

- **Secondary heat or two-part cure**
- **Structural strengths**
- **High chemical resistance**
- **Good temperature resistance (350 F)**

Typical Applications



- **Bonding**
- **Sealing**
- **Cured-in-Place Gasket**
- **Potting**

Coating

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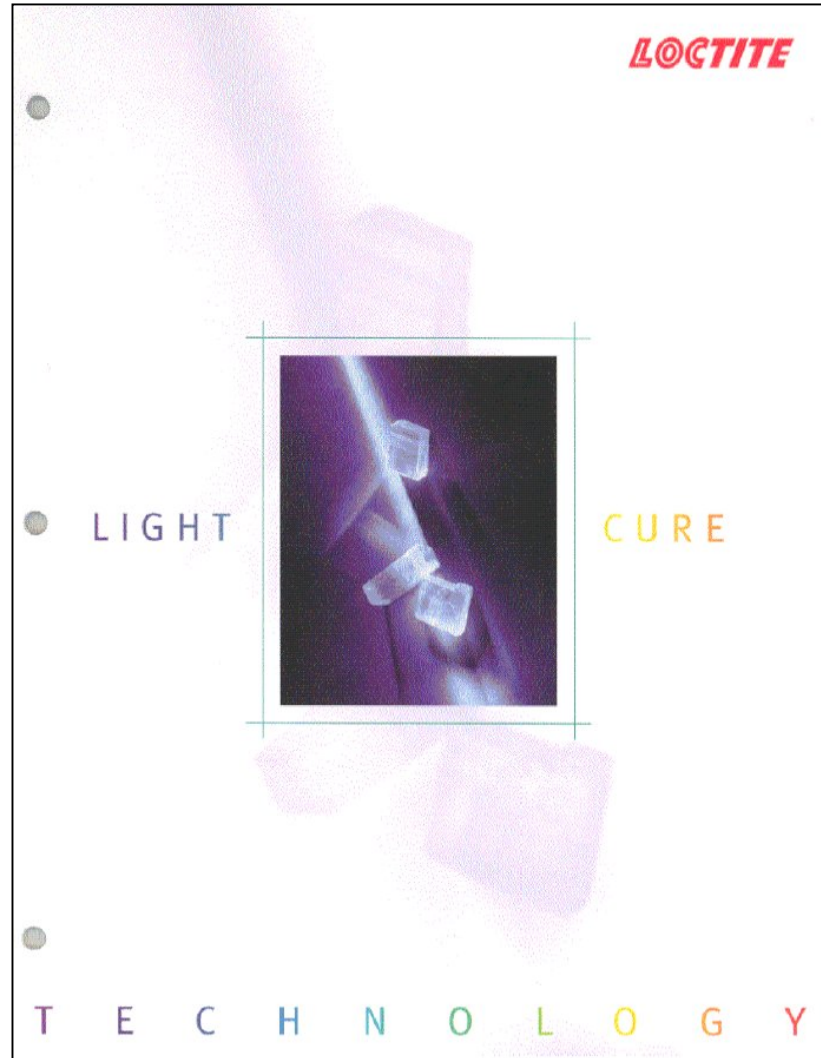


Abrasion Resistant Coating Surface Mounted Road Reflector Avery Dennison

Technical Resource

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Equipment

- **Dispense**
 - Caulking gun
 - Pneumatic cartridge dispenser
 - Pneumatic cartridge pusher
 - Pail system
 - Benchtop robot
- **Light Cure**
 - UV wands
 - UV Flood
 - Visible Flood
 - UV conveyors
 - LED Wands
- **Dispense monitoring**
 - Fluorescence detector



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Light Cure Equipment

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- Chambers and Flood Systems



- Conveyors



- UV Wands



- Light Sources



- Light Meters



WHAT'S NEXT!

New Light Cure Developments



- **UV/Visible Light Technology**
- **Pre-Activated Epoxy**
- **UV Silicones**

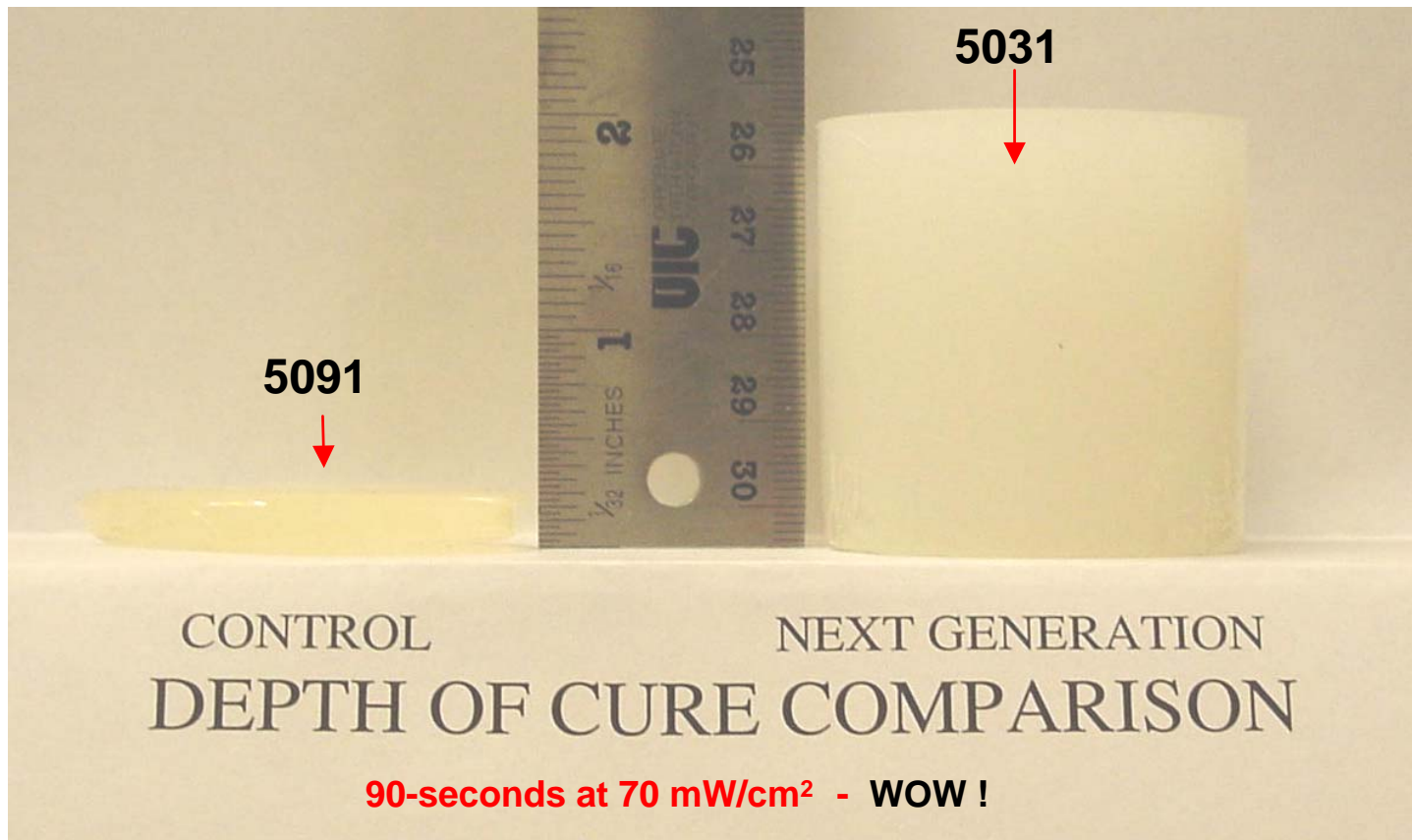
Next Generation UV Silicones

UV-Visible / Moisture - Dual Cure Silicones

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Product Improvement: Depth of Cure



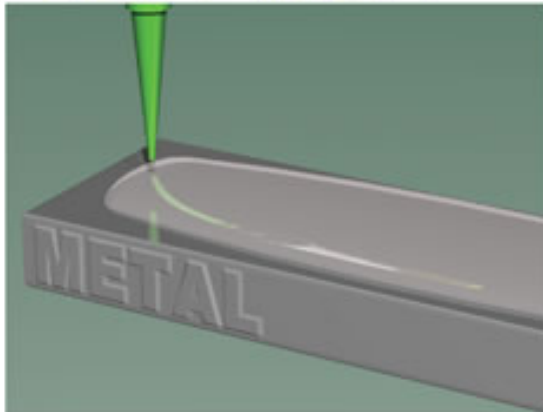
Pre-Activated Epoxy

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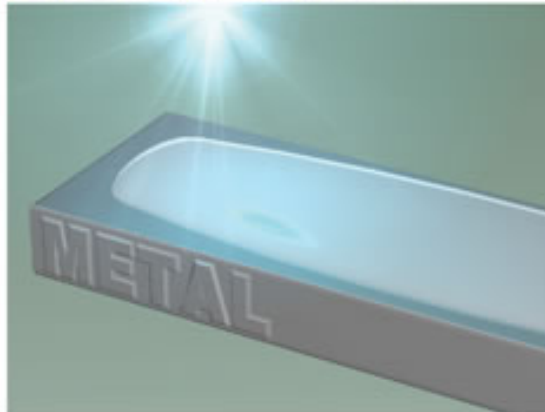
- Provides Light Cure Speed
- On a Non Light Transmitting SUBSTRATE!
 - Dispense directly onto parts
 - Expose the adhesive to light
 - THEN assemble

DISPENSE



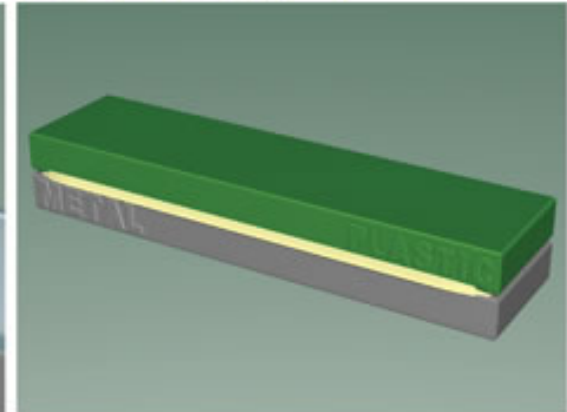
00:01 - 00:02

ACTIVATE



00:02 - 00:18

**ASSEMBLE
& CURE**

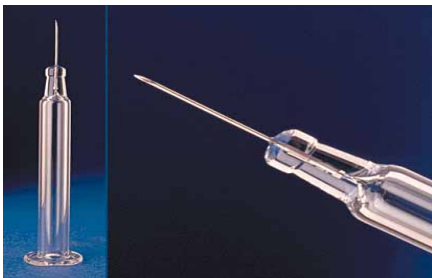


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NEXT GENERATION: Light Cure Technology



- Low Heat Generation
- Increased safety- Non-hazardous radiation
- Lower total system cost
- Ability to cure through some colored plastics!
- We invite YOU to participate in a beta test program



Question and Answer

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