

Cure Point 9440-A/B

Fast Curing UV Silicone Potting Material

APPLICATIONS

- **Potting**

FEATURES

- **UV/Visible Light Cure**
- **No VOC**
- **Solvent-free**
- **Low Viscosity**
- **Tack-Free Surface Cure**
- **Low Durometer**

OTHER FEATURES

- **Negligible Shrinkage**
- **Long Mix Life**
- **Processable After UV Exposure**
- **High Chemical Resistance**
- **Superior Thermal Shock Resistance**

DYMAX Cure Point 9440-A/B is designed for rapid potting of electronic components. DYMAX Cure Point 9440-A/B contains no nonreactive solvents and cures upon exposure to light. Its ability to cure in seconds enables faster processing, greater output, and lower processing costs. When cured with DYMAX light curing spot lamps, focused beam lamps, or flood lamps, they deliver optimum speed and performance for potting. DYMAX lamps offer the optimum balance of UV and visible light for the fastest, deepest cures. This product is in full compliance with the RoHS Directives 2002/95/EC and 2003/11EC.

TYPICAL UNCURED PROPERTIES (CROSSLINKER)*

Property	Value	Test Method
Solvent Content	No Nonreactive Solvents	N/A
Chemical Class	Silicone	N/A
Appearance	Clear	N/A
Soluble in	Organic Solvents	N/A
Density, g/ml	0.97	ASTM D1875
Viscosity, cP (20 rpm)	1,000 cP nominal	ASTM D1084

TYPICAL UNCURED PROPERTIES (CATALYST)*

Property	Value	Test Method
Solvent Content	No Nonreactive Solvents	N/A
Chemical Class	Silicone	N/A
Appearance	Clear	N/A
Soluble in	Organic Solvents	N/A
Density, g/ml	0.97	ASTM D1875
Viscosity, cP (20 rpm)	1,000 cP nominal	ASTM D1084

CURED MECHANICAL PROPERTIES

Property	Value	Test Method
Durometer Hardness	00-40	ASTM D2240

OTHER CURED PROPERTIES *

Property	Value	Test Method
Boiling Water Absorption, % (2 h)	Pending	ASTM D570
Water Absorption, % (25°C, 24 h)	Pending	ASTM D570
Linear Shrinkage, %	<0.1%	ASTM D2566

* Not Specifications
 N/A Not Applicable

ELECTRICAL PROPERTIES *

Property	Value	Test Method
Dielectric Strength, kV/mm [V/mil]	23 [580]	IEC 243
Volume Resistivity, ohm-cm	10 ¹⁶	IEC 93

ADHESION

Substrate	Recommendation
ABS acrylonitrile-butadiene-styrene	✓
PA66 polyamide 6,6	✓
PBT poly(butylene terephthalate)	✓
PC polycarbonate	✓
PC/ABS blend of PC and ABS	✓
PC/PCTG poly(cyclohexylene dimethylene terephthalate)glycol	✓
PEI polyetherimide	✓
PET poly(ethylene terephthalate)	✓
PETG poly(ethylene terephthalate)glycol	✓
PMMA poly(methyl methacrylate)	✓
PPO poly(phenylene oxide)	✓
PS polystyrene	✓
PU polyurethane	✓
PVC poly(vinyl chloride)	✓
SAN styrene-acrylonitrile	✓
GL glass	o
AL aluminum	o
SS stainless steel	✓

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

CURING GUIDELINES

Cure time is defined as the time required to reach maximum physical properties. The next section outlines the relationship between exposure duration and cure.

DYMAX Curing System (Intensity)	Exposure Time	Tack-Free Cure Time ^B
2000-EC (50 mW/cm ²) ^A	30 s	< 2 m
5000-EC (200 mW/cm ²) ^A	15 s	<1 m
BlueWave [®] 75 (5.0 W/cm ²) ^A	5 s	<5 s
BlueWave [®] 200 (10 W/cm ²) ^A	5 s	<1 m
UVCS Conveyor with Fusion F300S (2.5 W/cm ²) ^C	1.5 m/min [5 fpm]	<3 m

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 obstruct wavelengths used for light curing (320-400 nm for UV light curing, 320-450 nm for UV/visible light curing). These fixture times/belt speeds are typical for curing thin films through 100% light transmitting substrates.

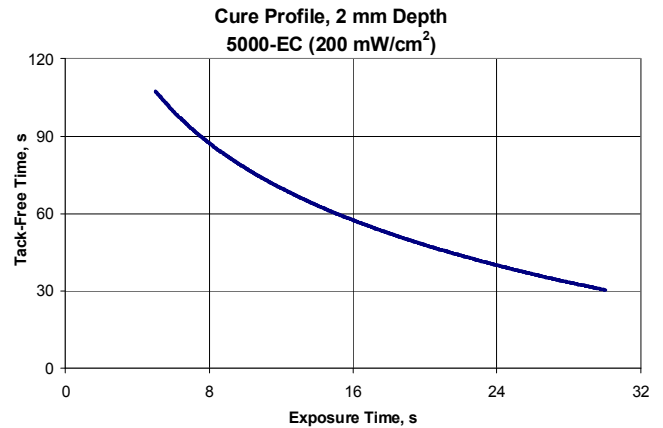
C At 53 mm [2.1 in] focal distance. Maximum speed of conveyor is 8.2 m/min [27 ft/min]. Intensity was measured over the UVA range (320-395 nm) using the DYMAX ACCU-CAL™ 100 Radiometer.

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. Higher intensities or longer cures (up to 5x) generally will not degrade DYMAX light curing materials.

DYMAX recommends that customers employ a safety factor by curing longer and/or at higher intensities than required for full cure. Although DYMAX Applications Engineering can provide technical support and assist with process development, each customer ultimately must determine and qualify the appropriate curing parameters required for their unique application.

EXPOSURE DURATION

The graphs below show the relationship between UV/visible light exposure and tack-free cure. The following was generated with a 5000-EC flood system. A 0.2 mm [0.1 in] slab was exposed for various times in order to evaluate cure. Longer exposure durations result in shorter tack-free cure time. Typical cure depth measured 15 seconds after a 30 second exposure is 2.0 cm [0.8 in].



OPTIMIZING PERFORMANCE AND HANDLING

1. This product cures with exposure to UV and visible light. Exposure to ambient and artificial light should be kept to a minimum before curing. Dispensing components including needles and fluid lines should be 100% light blocking, not just UV blocking.
2. All surfaces in contact with the material should be clean and free from flux residue, grease, mold release, or other contaminants prior to dispensing the material.
3. Cure speed is dependent upon many variables, including lamp intensity, distance from the light source, required depth of cure, thickness, and percent light transmission of components between the material and light source.
4. Parts should be allowed to cool after cure before testing and subjecting to any loads or electrical testing.
5. Light curing generally produces some heat. If necessary, cooling fans can be placed in the curing area to reduce the heating effect on components.
6. At the point of curing, an air exhaust system is recommended to dissipate any heat and vapors formed during the curing process.
7. Cure Point 9440-A/B contains a platinum catalyst. When uncured, the catalyst may be poisoned by various materials. Results may include severely inhibited or minimal cure. These materials include DYMAX acrylate urethanes, plasticizers, residual solvents, amines, anti-slip agents, nitrogen, sulfur, tin, phosphorous, arsenic, antimony, selenium and tellurium. If a substrate's ability to inhibit cure is unknown, a small scale test is recommended to determine compatibility.

MIXING & AIR REMOVAL

Component A contains the crosslinker, component B contains the platinum catalyst. The mix ratio is 10:1 [A:B] and be measured either by weight or volume. Even traces of platinum may cause gelling of the crosslinker. Tools for handling each component should be kept separate. Mixing under a hood or yellow lights is recommended to prevent polymerization from ambient light once mixed.

A vacuum may be used to remove any air entrapped introduced during the mixing process.

DISPENSING THE MATERIAL

This material may be dispensed with a variety of manual and automatic applicators, or other equipment as required. Questions relating to dispensing and curing systems for specific applications should be referred to DYMAX Applications Engineering.

CLEAN UP

Uncured material may be removed from dispensing components and parts with organic solvents. Cured material will be impervious to many solvents and difficult to remove. Clean up of cured material may require mechanical methods of removal.

PERFORMANCE AFTER TEMPERATURE EXPOSURE

Light cured Cure Point 9440-A/B has a lower thermal limit of -40°C [-40°F] and an upper limit of 200°C [400°F]. Many DYMAX products can withstand temperatures outside of their recommended ranges for short periods of time, including typical wave solder processes and reflow profiles. Please contact DYMAX Applications Engineering for assistance.

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 has a one-year shelf life when stored between 5°C [41°F] and 30°C [86°F] in the original, unopened container.

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 Material Safety Data Sheet before use.

RECOMMENDED DYMAX LITERATURE

LIT010A	Guide to Selecting and Using UV Light Curing Systems
LIT019	Light Curing Materials for Electronic Assembly
LIT077	Chemical Safety
LIT133	UV Light Curing System Safety Considerations
LIT159	ACCU-CAL™ 50 Radiometer
LIT206	Flood and Focused Beam UV Light Curing Systems
LIT218	BlueWave® 200 UV Light Curing Spot Lamp

Literature is available through our website www.dymax.com, or by calling any DYMAX location.

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