

## SPEEDMASK® 729 Plating and Harsh Chemical Mask

### APPLICATIONS

- Acid Stripping
- Plating
- Harsh Chemical Processing

### FEATURES

- UV/Visible Light Cure
- Resists Acids and Alkalis
- High Adhesion
- Hard/Durable
- Spray or Dip

### RECOMMENDED SURFACES

- Nickel Alloys
- High-Temperature Alloys

**SPEEDMASK® 729** UV/Visible light-curable masking resin is formulated to provide excellent surface and cavity protection of turbine components during acid stripping, high-temperature plating processes, and other harsh chemical operations. This 100% organic resin cures quickly and is easily removed by incineration at 650°C [1200°F]+. **SPEEDMASK®** resins contain no nonreactive solvents and cure upon exposure to light. Their 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 many masking applications. 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.

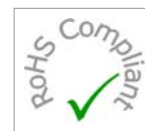
| UNCURED PROPERTIES *   |                         |             |
|------------------------|-------------------------|-------------|
| Property               | Value                   | Test Method |
| Solvent Content        | No Nonreactive Solvents | N/A         |
| Chemical Class         | Acrylated Urethane      | N/A         |
| Appearance             | Clear Translucent Gel   | N/A         |
| Soluble in             | Organic Solvents        | N/A         |
| Density, g/ml          | 0.96                    | ASTM D1875  |
| Viscosity, cP (20 rpm) | 20,000 (nominal)        | ASTM D2556  |

| OTHER CURED PROPERTIES *           |       |             |
|------------------------------------|-------|-------------|
| Property                           | Value | Test Method |
| Boiling Water Absorption, % (2 hr) | 1.7   | ASTM D570   |
| Water Absorption, % (25°C, 24 hr)  | 0.4   | ASTM D570   |
| Linear Shrinkage, %                | 0.4   | ASTM D2566  |

| CURED MECHANICAL PROPERTIES *    |              |             |
|----------------------------------|--------------|-------------|
| Property                         | Value        | Test Method |
| Durometer Hardness               | D70          | ASTM D2240  |
| Tensile at Break, MPa [psi]      | [3,200]      | ASTM D638   |
| Elongation at Break, %           | 30           | ASTM D638   |
| Modulus of Elasticity, MPa [psi] | 240 [35,000] | ASTM D638   |

\* Not Specifications

N/A Not Applicable



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### CURING GUIDELINES

Cure speed is dependent upon many variables, including lamp intensity, distance from the light source, and required depth of cure. The cure times below are based on lab results and are intended for reference only. Testing was performed using a 0.38 mm [0.015 in] coating thickness. Time/Speed was determined by a complete, tack-free cure.

| DYMAX Curing System (Intensity)                                       | Cure Time or Belt Speed |
|---|-------------------------|
| 2000-EC (50 mW/cm <sup>2</sup> ) <sup>A</sup>                         | 45 sec                  |
| 5000-EC (200 mW/cm <sup>2</sup> ) <sup>A</sup>                        | 30 sec                  |
| BlueWave® 200 (10 W/cm <sup>2</sup> ) <sup>A</sup>                    | 15 sec                  |
| Porta-Ray® 400 (400 mW/cm <sup>2</sup> ) <sup>A</sup>                 | 30 sec                  |
| UVCS Conveyor with Fusion F300S (2.5 W/cm <sup>2</sup> ) <sup>B</sup> | 2.1 m/min<br>[7 ft/min] |

**A** Intensity was measured over the UVA range (320-395 nm) using a DYMAX ACCU-CAL™ 50 Radiometer.

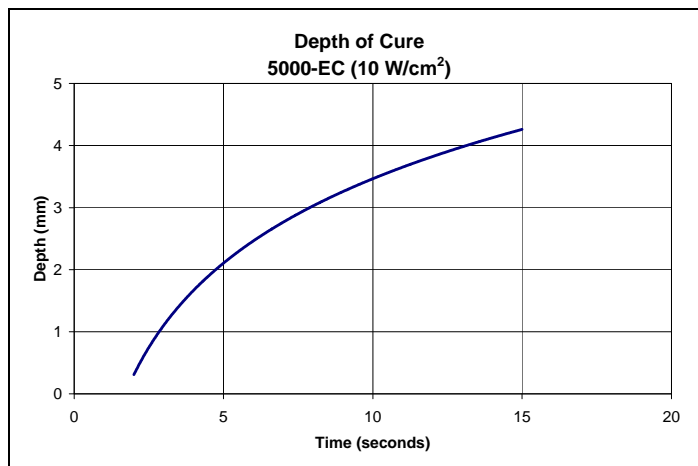
**B** At 53 mm [2.1 in] focal distance. Maximum speed of conveyor is 8.2 m/min [27 ft/min]. Intensity was measured over the UVA range (320-395 nm) using a DYMAX ACCU-CAL™ 100 Radiometer.

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 cure times (up to 5x) will generally not degrade DYMAX light-curable masks.

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 must ultimately determine and qualify the appropriate curing parameters required for their unique application.

### DEPTH OF CURE

The graph below shows the increase in depth of cure as a function of exposure time. A 9.5 mm [0.37 in] diameter specimen was cured in a polypropylene mold and cooled to room temperature. It was then released from the mold and the cure depth was measured.



### 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 to be masked should be clean and free from grease, mold release, or other contaminants prior to dispensing the resin.
3. Oxygen in the atmosphere may inhibit surface cure. Surfaces exposed to air may require higher intensity UV (>100 mW/cm<sup>2</sup>) to produce a tack-free cure. Flooding the bond area with an inert gas, such as nitrogen, can also reduce the effects of oxygen inhibition.
4. Part should be allowed to cool after cure before 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.

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**DISPENSING THE RESIN**

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.

**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 minimum six-month shelf life from date of shipment, unless otherwise specified, when stored between 10°C [50°F] and 32°C [90°F] in the original, unopened container.

**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.

**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**

|                |  |
|----------------|--|
| <b>LIT010A</b> | Guide to Selecting and Using UV Light-Curing Systems |
| <b>LIT013</b>  | <i>SPEEDMASK®</i> Selector Guide                     |
| <b>LIT077</b>  | Chemical Safety                                      |
| <b>LIT133</b>  | UV Light-Curing System Safety Considerations         |
| <b>LIT159</b>  | ACCU-CAL™ 50 Radiometer                              |
| <b>LIT172</b>  | Porta-Ray® 400 UV Curing System                      |
| <b>LIT206</b>  | Flood and Focused-Beam UV Light-Curing Systems       |
| <b>LIT218</b>  | BlueWave® 200 UV Light-Curing Spot Lamp              |

Literature is available through our website, [www.dymax.com](http://www.dymax.com), or by calling any DYMAX location.

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