Multi-Cure® 706-H
Acid Strip and Thermal Spray Coating Mask with Heat Cure

APPLICATIONS

- Acid Stripping
- Air Plasma Spray
- Machining
- Sealing Internal Cavities/ Passages

FEATURES

- UV Light Curing
- Secondary Heat Cure
- Resists Acids
- High Adhesion
- Hard/Durable
- Thixotropic Gel
- High Viscosity

RECOMMENDED SURFACES

- Nickel Alloys
- High-Temperature Steel

SPEEDMASK® 706-H UV-curable masking resin is formulated to provide excellent surface and internal cavity protection during acid stripping, air plasma strap operations of turbine components during acid stripping, APS coatings, and machining operations. This resin is specially formulated to cure with heat in applications where shadowed areas exist. SPEEDMASK® resins contain no nonreactive solvents and cure upon exposure to light. This 100% organic resin cures quickly with proper UV energy exposure and is easily removed by incineration at minimum of 650°C [1200°F] leaving a residue free surface with minimal ash from combustion of the maskant. 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 ideal balance of UV and visible light for the fastest, deepest cures. This product is in full compliance with RoHS directives 2015/863/EU.

UNCURED PROPERTIES *

Property	Value	Test Method
Solvent Content	No Nonreactive Solvents	N/A
Chemical Class	Acrylated Urethane	N/A
Appearance	Colorless Translucent Gel	N/A
Soluble in	Organic Solvents	N/A
Density, g/ml	1.07	ASTM D1875
Viscosity, cP (20 rpm)	30,000 (nominal)	ASTM D2556

CURED MECHANICAL PROPERTIES *

Property	Value	Test Method
Durometer Hardness	D75	ASTM D2240
Tensile at Break, MPa [psi]	54 [7,900]	ASTM D638
Elongation at Break, %	3.8	ASTM D638
Modulus of Elasticity, MPa [psi]	900 [130,000]	ASTM D638

OTHER CURED PROPERTIES *

Property	Value	Test Method
Boiling Water Absorption, % (2 hr)	1.9	ASTM D570
Water Absorption, % (25˚C, 24 hr)	0.4	ASTM D570
Linear Shrinkage, %	0.8	ASTM D2566

* Not Specifications
N/A Not Applicable

RoHS Compliant

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CURING GUIDELINES

Cure rate 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/belt speed was determined by a complete, tack-free cure.

Dymax Curing System (Intensity)	Cure Time or Belt Speed
2000-EC (50 mW/cm^2)[A]	30 sec
5000-EC (200 mW/cm^2)[A]	20 sec
BlueWave® 200 (10 W/cm^2)[A]	2 sec
Porta-Ray® 400 (400 mW/cm^2)[A]	5 sec
UVCS Conveyor with Fusion F300S (2.5 W/cm^2)[B]	6.1 m/min [20 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.*

SECONDARY HEAT CURE

Heat can be used as a secondary cure mechanism where the resin cannot be cured with light. The following heat-cure schedule may be used:

Temperature	Time*
110˚C [230˚F]	60 minutes
120˚C [250˚F]	30 minutes
150˚C [300˚F]	15 minutes

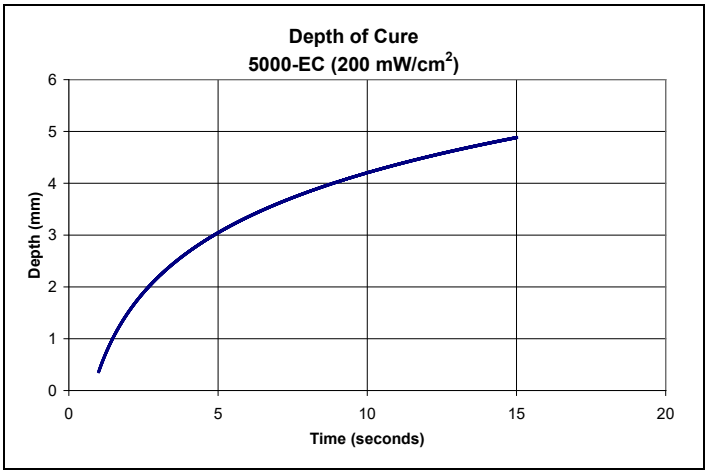
*Note: Actual heat cure time may vary due to part configuration, volume of mask applied, and oven efficiency.

Full cure is best determined empirically by curing at different times, intensities, and temperatures, 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 or heat exposure no longer improves cured properties. Higher intensities or longer cure times may degrade Dymax light-curable masks.

Dymax recommends that customers employ a safety factor by curing longer, at higher intensities, and/or at higher temperatures than required for full cure. Although Dymax Application 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. These depths are only due to light cure.



OPTIMIZING PERFORMANCE AND HANDLING

1. This product cures with exposure to UV light and heat. 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^2) 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.

DISPENSING THE RESIN

This material may be dispensed with a variety of manual, semi-automated and fully automated fluid delivery systems. Dymax' SG family of Regular, High Flow and Super Flow Spray Guns can be utilized for spraying larger surface areas. The fluid delivery systems are supported with various size cartridge containers and ram pumps for larger volume applications. Small area applications including beads and small dots can be achieved using hand-held Dymax dispensing systems like our SD-100 syringe dispenser and our Model 400 needle valve systems. Dymax has several other dispensing systems that may be suitable for use with our masking materials. Questions relating to and defining the best fluid delivery system and curing equipment for specific applications should be discussed with the Dymax Application Engineering Team.

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 18-month shelf life from date of manufacture for all packages except 15LPSTD, when stored between 10°C (50°F) and 35°C (90°F) in the original, unopened container. This material packaged in 15LPSTD has a 9-month shelf life from date of manufacture, when stored between 10°C (50°F) and 35°C (90°F) in the original, unopened container.

CLEANUP

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. Cleanup 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 Safety Data Sheet before use.

The data provided in this document are based on historical testing that Dymax performed under laboratory conditions as they existed at that time, and are for informational purposes only. The data are neither specifications nor guarantees of future performance in a particular application. Dymax does not guarantee that this product's properties are suitable for the user's intended purpose.

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