



## SpeedMask® 750-SC

### Thermal-Spray Coating Maskant with See-Cure Technology

#### APPLICATIONS

- High-Temperature Plasma Spray
- Aggressive Grit Blasting
- HVOF
- Wire Arc Spray
- Thermal-Spray Coatings
- Orthopedic Implant Protection

#### FEATURES & BENEFITS

- UV/Visible Light Cure
- Purple-to-Pink Upon Sufficient Exposure to UV/Visible Light
- High Adhesion
- Hard and Durable, Cures Tack Free
- Resilient to Blast Media
- Sprayable
- ISO 10993-5 Cytotoxicity

#### RECOMMENDED SURFACES

- Nickel Alloys
- Titanium Alloys
- Cobalt Chrome

SpeedMask® 750-SC UV/Visible light-curable masking resin is formulated to provide excellent surface protection during higher temperature thermal spray coating, plasma spray, and HVOF processes as well as aggressive grit blasting. The purple transitions to pink upon exposure to sufficient light energy indicating full cure has been achieved. This 100% organic resin cures quickly and is easily removed by peel or incineration in an air furnace at a minimum temperature of 650°C [1200°F]. The removal of the cured maskant can be aided with the use of a hand tool (plastic, anti-static or metal), heat aided to localize area, an ultrasonic bath, dry ice blast or embrittlement, water jet blast, incineration, when applicable or automated grippers. Please reach out to Dymax Application Engineering for details on these removal options. 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 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	Translucent Purple Gel	N/A
Soluble in	Organic Solvents	N/A
Density, g/ml	1.06	ASTM D1875
Viscosity, cP	30,000 (nominal)	DSTM 502†
Shelf Life @ RT (22°C to 25°C) from Date of Manufacture	12 months	N/A

#### OTHER CURED PROPERTIES \*

Property	Value	Test Method
Boiling Water Absorption, % (2 hr)	2.1	ASTM D570
Water Absorption, % (25°C, 24 h)	0.87	ASTM D570
Linear Shrinkage, %	1.5	ASTM D2566
Glass Transition Tg, °C	54	ASTM D5418

#### CURED MECHANICAL PROPERTIES \*

Property	Value	Test Method
Durometer Hardness	A85	ASTM D2240
Tensile at Break, MPa [psi]	4.5 [659]	ASTM D638
Elongation at Break, %	124	ASTM D638
Modulus of Elasticity, MPa [psi]	29 [4,250]	ASTM D638

\* Not Specifications

N/A Not Applicable

† DSTM Refers to Dymax Standard Test Method

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## CURING GUIDELINES

The purple color of this Dymax SpeedMask® resin with See-Cure technology transitions to pink when it is fully cured. Full cure is achieved when additional light exposure does not improve the cured properties. The chart below provides information on how long it takes to complete the transition from purple to pink, using different light sources. Cure rate is dependent upon many variables, including lamp intensity, distance from the light source, and required depth of cure. The times and belt speed for the transition listed 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 and transition from purple to pink.

Dymax Curing System (Intensity)	Time or Belt Speed to Complete Transition From Purple to Pink
5000-EC (250 mW/cm <sup>2</sup> ) <sup>A</sup>	10 s
PortaRay 400 (400 mW/cm <sup>2</sup> ) <sup>A</sup>	3 s
UVCS Conveyor with Fusion F300S (2.5 W/cm <sup>2</sup> ) <sup>B</sup>	3 m/min [10 ft/min]

<sup>A</sup> Intensity was measured over the UVA range (320-395 nm) using a Dymax ACCU-CAL™ 50 Radiometer.

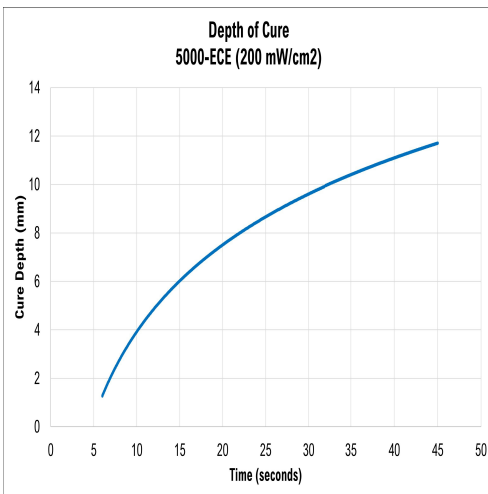
<sup>B</sup> At 53 mm [2.1 in] focal distance. Maximum speed of conveyor is 8.2 m/min [27 ft/min]. Intensity was measured over the UVA range (320-395 nm) using a Dymax ACCU-CAL™ 160 Radiometer.

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 may degrade Dymax light-curable maskants.

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. Cured part should be allowed to cool 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.



## SPEEDMASK® MASKING RESINS 750-SC Product Data Sheet

### DISPENSING SUPPORT

The Dymax Application Engineering team is ready to discuss your application requirements to provide the most appropriate dispensing and/or spraying solution. Visit our current dispensing equipment portfolio [here](#) or consult our [global contact](#) phone numbers and online chat feature (available in North America only) during normal business hours for instant support.

### 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 shelf life is noted on page 1 of this document, 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. Cleanup of cured material may require mechanical methods such as ultrasonic bath, water jet, vacuum tweezers, air knife, and/or warming to aid in the 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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