

## Multi-Cure® 9-20558-MSA For Mine Safety Appliances Flexible, Barrier Coating/Encapsulant Conformal Coating

Multi-Cure® 9-20558-MSA, supplied exclusively to Mine Safety Appliances, is a flexible, single-component, 100% solids conformal coating specifically formulated for providing a thick moisture barrier to all electrical devices on the board. Coatings cure almost instantly in layers up to 1/4" thickness. Multi-Cure® 9-20558-MSA exhibits excellent adhesion to a variety of metal, ceramic, and glass-filled epoxy surfaces. Its high viscosity allows it to encapsulate tall components without slumping off. 9-20558-MSA can also be used to touch up, or provide extra protection to, spiked leads and other sensitive areas. It is a high-viscosity coating which can be cured by exposure to UV/Visible light and secondarily with heat for shadowed areas on densely populated circuit boards. The product is ideal for encapsulating components on flexible circuits. This product is in full compliance with RoHS directives 2015/863/EU.

### TYPICAL UNCURED PROPERTIES (not specifications)

Solvent Content	None, 100% Solids	
Appearance	Viscous Liquid	
Color	Clear	
Solubility	Alcohols/Chlorinated Solvents/Ketones	
Flash Point	>93°C (200°F)	
Viscosity (20 rpm)	20,000 cP (nominal)	ASTM D-2556

### TYPICAL CURED PROPERTIES (not specifications)

#### PHYSICAL

Durometer Hardness	D45	ASTM D-2240
Elongation at Break	75%	ASTM D-638
Tensile at Break	1,000 psi	ASTM D-638
Modulus of Elasticity	3,500 psi	ASTM D-638
Water Absorption (24 h)	1.0%	ASTM D-570
Boiling Water Absorption (2 h)	2.4%	ASTM D-570
Coefficient of Thermal Expansion, $\alpha_1$	$95 \times 10^{-6}$ in/in/°C	ASTM E-831
Coefficient of Thermal Expansion, $\alpha_2$	$180 \times 10^{-6}$ in/in/°C	ASTM E-831
Thermal Limits (Brittle/Degrades)	-55 to 175°C (-60/350°F)	DSTM D-200*
Volume Resistivity	$500 \times 10^{12}$ ohm cm	ASTM D-1304
Surface Resistivity	$6,000 \times 10^{12}$ ohm	ASTM D-1304
Dielectric Strength (Liquid)	35 V/mil	ASTM D-1304
Dielectric Strength (Solid)	500 V/mil	ASTM D-1304
Flammability	V-0	UL 94

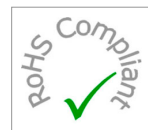
\*DSTM Refers to DYMAX Standard Test Method

### CURE SCHEDULE

UV Cure with 365 nm UV light:

Cure Time (Seconds)	Intensity mW/cm <sup>2</sup>	DYMAX Lamps*
35	175	5000-EC
1	2,000	UVC-6

\*With Fusion D Bulb



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Technical Data Collection Prior to 2009

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### Heat Cure Following UV Exposure

Heat can be used as a secondary cure mechanism where all adhesive cannot be cured with UV light. UV cure must be done prior to heat cure. Application may involve dip, spray, or curtain coat. The following cure schedule may be used:

<u>Temperature</u>	<u>Time</u>
120°C (250°F)	30 minutes
150°C (300°F)	15 minutes

### DISPENSING AND HANDLING ADHESIVE

DYMAX 9-20558-MSA is available in various packages such as syringes, cartridges, bottles, and pails. It may be dispensed from a variety of automatic bench-top syringe applicators or other equipment as required. Pail pumps are recommended for dispensing out of pail containers. Questions relating to dispensing and curing systems for specific applications should be referred to DYMAX Applications Engineering.

This product is known to thicken over time. For spraying or applications where air entrapment is not an issue, gentle stirring in the original container at room temperature will help restore the product to its original flow consistency. Stirring is recommended for bottles and pails only.

### STORAGE AND SHELF LIFE

Store material in a cool, dark place when not in use. Do not expose to UV light or sunlight. Material may polymerize upon prolonged exposure to ambient light. Replace lid immediately after use. This material has an 18-month shelf life from date of manufacture, unless otherwise specified, when stored between 10°C (50°F) and 35°C (90°F) in the original, unopened container.

### CAUTION

This product is intended for industrial use only. Avoid breathing vapors. In case of inhalation, remove to fresh air and seek medical attention if symptoms persist. Avoid contact with skin, eyes, and clothing. In case of inhalation, remove to fresh air and seek medical attention if symptoms persist. In case of skin contact, immediately wash with soap and water for at least 15 minutes. In case of eye contact, flush thoroughly with water and get medical attention. Wash clothing before reuse. Keep out of reach of children. Do not take internally. In case of ingestion, see Material Safety Data Sheet. Workers should wear impervious gloves and eye protection. Repeated or continuous skin contact with uncured adhesive will cause irritation and should be avoided. Never use solvents to remove adhesive from skin and eyes. For specific information, refer to the Material Safety Data Sheet before use.

### 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.

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## ELECTRONIC CIRCUIT BOARD MATERIALS

### 9-20558-MSA Product Data Sheet

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