



HYSOL[®] PC18M

Liquid Printed Circuit Coating

Formerly Dexter

Description

HYSOL[®] PC18M is a solvent based, one component urethane coating which may be cured at room temperature. It is especially recommended for printed board coating.

PC18M is a stable, clear material suitable for continuous operation up to 110°C. It may be applied by brush, dip or spray to electrical parts, for improved moisture and environmental protection. Components and joints may be repaired, by heating the coating with a soldering iron, for easy removal. When fully cured, PC118M exhibits superior toughness, and abrasion and solvent resistance. Even after long exposure to the elements, the coating retains its very light color.

PC18M is qualified to meet requirements of MIL-I-46058C, Type PUR, and is listed on the QPL 46058.

Typical Uncured Properties	PC18M	Test Method
Color, maximum, Gardner	2	STP 4D
Color	Amber	Visual
Free TDI content, %	<1	ASTM D2572
NCO content, %	3.8-4.2	
Flash Point, °C	32	Fisher C.C.
Solids content, %, weight	50 ± 5	ASTM D 115
Specific Gravity @ 25°C (77°F)	1.01 ± .02	STP 9A
Viscosity @ 25°C, (77°F), Brookfield RVF		STP 2A
Spindle 2, Speed 20, cps, max.	300-400	
Shelf Life @ 25°C, (77°F) months (unopened, minimum from date of shipment)	12	

Typical Cured Properties

Values are not intended for use in the preparation of specifications. All determinations are conducted in accordance with MIL-I-46058C and ASTM procedures. All measurements are taken at 25°C, unless otherwise noted.

Cured Physical Characteristics (Per Mil-I-46058C)

Appearance – No blistering, wrinkling, cracking or peeling of film. No discoloration of printed conductors or substrate after thermal shock, or after moisture resistance testing.

Flexibility – No cracking over 1/8” diameter mandrel.

Ruggedization – No cracking or crazing with vibration.

Film thickness – Adjustable from 0.001 to 0.003 inches.

Fungus resistance – Non-nutrient per ASTM G21.

Fluorescent when viewed under ultraviolet light (black light).

Ionic Content:	Chloride – 38ppm	Phosphate (PO ₄) – 28ppm
	Bromine – Below detection limit	Nitrogen (NO ₃) – 5ppm
	Sulfate (SO ₄) – 10ppm	Nitrogen (NO ₂) – Below detection limit

Cured Electrical Properties (Per Mil-I-46058C)

Insulation Resistance, ohms (1 – 3 mil film)	PC18M
Initial (25°C – 50% R.H.)	1 x 10 ¹⁵
4 th Cycle (65°C – 95% R.H.)	4 x 10 ¹⁰
7 th Cycle (65°C – 95% R.H.)	5 x 10 ¹⁰
10 th Cycle (65°C – 94% R.H.)	2 x 10 ¹⁰
24 Hrs after 10 th Cycle (25°C – 50% R.H.)	2 x 10 ¹³

Dielectric withstand at 1,500 volts, 50 Hz – no flash over or breakdown before or after thermal shock and moisture exposure.

Leakage Rate: Less than 10 microamperes before and after thermal shock and moisture exposure.

		PC18M	Test Method
Dielectric Strength, volts/mil		1200	ASTM D149
Dielectric Constant @ 25°C (77°F)	100 KHz	4.2	ASTM D150
Dissipation Factor @ 25°C (77°F)	100 KHz	0.010	ASTM D150
Volume Resistivity		2 x 10 ¹³	ASTM D257

Handling

Drying and curing of the coating depends upon evaporation of the solvent and subsequent reaction of the polymer with moisture in the air at elevated or room temperature. Optimum physical and electrical properties can be obtained with room temperature cure but moisture must be present in the air, at a minimum relative humidity level of 30%.

Air dry coated boards at least 30 minutes at 25°C (77°F) to remove solvents before curing in oven or before applying additional coats.

Cure Schedules

Recommended cure – two hours at 60°C (140°F) in an oven. Place an open container of distilled water in the oven if relative humidity is below 30% and allow to equilibrate at 60°C (140°F) prior to placing the coated parts in the oven.

Alternate cure – at room temperature and average relative humidity to (30% to 50%):

Tack free, hours	1 to 4
Semi-hard film, days	1
Optimum properties, days	7

Some variation in listed values may occur; customer should determine whether cure other than recommended above will give satisfactory results.

Apply by brush, dip or spray for 1 to 2 mil film. Cleanliness of the substrate is paramount in promoting adhesion and preventing under-film corrosion of copper conductors.

Viscosity may be reduced when desired with Hysol® AC0305 thinner. Other solvents such as methyl ethyl ketone, methoxy propyl acetate, xylene and toluene can be used alone or as a mixture depending on how coating will be applied and drying time desired. The evaporation rate of some recommended solvents starting with the fastest are as follows: methyl ethyl ketone – toluene – xylene - Hysol® AC0305 – methoxy propyl acetate. Dilutions of 15-20% will generally be sufficient for most applications.

Uncured PC18M may be cleaned up with ketones or those solvents listed above.

Keep prepolymer containers closed to avoid contamination; moisture may cause polymerization. Contents may solidify, if this occurs, warm to 49°C (120°F) until clear and thoroughly mix before using. Store in dry place at 21°C to 32°C (70°F to 90°F).

For additional information in the Americas, please contact one of the following locations:

New York

TEL: 716.372.6300

FAX: 716.372.6864

Canada

TEL: 905.814.6511

FAX: 905.814.5391

Brazil

TEL: 011.55.11.4143.7000

FAX: 011.55.11.4143.7100

For a complete listing of worldwide locations and information on related products, please visit our website www.loctite.com/electronics

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Users should review the Material Safety Data Sheet (MSDS) and product label for the material to determine possible health hazards, appropriate engineering controls and precautions to be observed in using the material. Copies of the MSDS and label are available upon request
