



Hysol[®] PC18M

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PRODUCT 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, PC18M 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

Color, maximum	Gardener 2
Color	Amber
Free TDI content, %	<1
NCO content, %	3.8 – 4.2
Flash point, °C	32
Solids content, %, weight	50
Specific gravity @ 25°C	1.01
Viscosity @ 25°C, Brookfield RVF Spindle 2, Speed 20, cps, max.	300-400
Shelf Life @ 25°C, months from date of manufacture (unopened)	18

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.

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
	Bromine	below detection limit
	Sulfate (SO ₄)	10ppm
	Phosphate (PO ₄)	28ppm
	Nitrogen (NO ₃)	5ppm
	Nitrogen (NO ₂)	below detection limit

CURED ELECTRICAL PROPERTIES

Per Mil-I-46058C

Insulation resistance, ohms (1-3 mil film)	
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-95% 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.

Dielectric Constant @ 25°C	
100 kHz	4.2
Dissipation Factor @ 25°C	
100 kHz	0.010
Volume Resistivity	2 x 10 ¹³
Dielectric Strength, volts/mil	1,200

HANDLING

Printed circuits or other objects to be coated should be cleaned in accordance with accepted industry practices. Isopropyl alcohol, P.S. freon or methyl ethyl ketone have been found satisfactory as cleaning agents.

Applications should be performed in a well-ventilated area. It is also recommended that Hysol bulletin entitled "Suggested Precautions for Handling HYSOL Liquid Products" be read.

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 SCHEDULE

Air-dry coated boards for 30-45 minutes prior to curing.
Recommended cure – 2 hrs 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

NOT FOR PRODUCT SPECIFICATIONS
THE TECHNICAL DATA CONTAINED HEREIN ARE INTENDED AS REFERENCE ONLY.
PLEASE CONTACT HENKEL CORPORATION QUALITY DEPARTMENT FOR ASSISTANCE AND RECOMMENDATIONS ON SPECIFICATIONS FOR THIS PRODUCT.

Some variation in listed values may occur; customer should determine whether cure other than recommended cure 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 the 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).

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

STORAGE

Liquid Storage – Liquids should be stored at 23°C or below, in closed containers. If stored below 23°C, the material MUST be allowed to come to room temperature, in the sealed container, to avoid moisture contamination.

DATA RANGES

The data contained herein may be reported as a typical value and/or range values based on actual test data and are verified on a periodic basis.

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each

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