



HYSOL PC18M

May 2012

PRODUCT DESCRIPTION

HYSOL PC18M provides the following product characteristics:

Technology	Urethane
Appearance	Clear amber
Product Benefits	• Reworkable • Solvent resistant • Room temperature cure • Resistance to discoloration • Fluorescent under UV light • No cracking or crazing with vibration • Superior toughness and abrasion resistance • Provides environmental and moisture protection
Operating Temperature - Continuous	up to 110°C
Cure	Heat cure and Room temperature cure
Application	Conformal coating
Typical Assembly Applications	Printed circuit board coating

HYSOL PC18M is a solvent based one component urethane coating which may be cured at room temperature. This material retains its light color after long exposure to elements.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Free TDI content, %	<1
NCO content, %	4.0
Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 2, speed 20 rpm,	350
Solids Content by weight, %	50
Specific Gravity @ 25°C	1.01
Shelf Life, Unopened @ 25°C (from date of manufacture), months	18
Flash Point, °C	32

TYPICAL CURING PERFORMANCE

Cure Schedule

Boards must be air-dried 30 to 45 minutes prior to curing
2 hours @ 60°C, in an oven

Alternative Cure Schedule

Air Dry @ room temperature, @ ave relative humidity of 30 to 50%:	
Tack-free, hours	1 to 4
Semi-hard film, days	1
Optimum properties, days	7

Place an open container of distilled water in the oven if relative humidity is below 30% and allow to equilibrate at 60°C prior to placing the coated parts in the oven.

Drying of the coating depends upon solvent evaporation. For optimum performance, boards should be dried at least 30 minutes at 25°C to remove solvents before final drying in oven (or before applying additional coats).

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 %.

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Extractable Ionic Content, ppm:

Chloride (Cl-)	38
Sulfate (SO4)	10
Phosphate (PO4)	28
Nitrus (NO3)	5
Nitrite (NO2)	N/D
Bromine (Br)	N/D

Electrical Properties - per MIL-I-46058C:

Insulation Resistance, ohms (1 to 3 mil film):	
Cycle 1 25°C/50% R.H.	1×10 ¹⁵
Cycle 4 65°C/95% R.H.	4×10 ¹⁰
Cycle 7 65°C/95% R.H.	5×10 ¹⁰
Cycle 10 65°C/95% R.H.	2×10 ¹⁰
24hours after Cycle 10 25°C/50% R.H.	2×10 ¹³

Leakage Rate:

Before thermal shock, microamperes	<10
After thermal shock, microamperes	<10

Dielectric withstand at 1,500volts, 50Hz:

Before thermal shock and moisture exposure	Pass
After thermal shock and moisture exposure	Pass

Dielectric Constant @ 25°C :

@ 100KHz	4.2
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Dissipation Factor @ 25°C:

@ 100KHz	0.01
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Volume Resistivity, ohms-cm	2×10 ¹³
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Dielectric Strength, volts/mil	1,200
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TYPICAL ENVIRONMENTAL RESISTANCE

Fungus Resistance per ASTM G21	Non nutrient
Appearance of film (after thermal and moisture resistance testing):	
Blistering	None
Wrinkling	None
Cracking	None
Peeling	None
Discoloration	None
Flexibility:	
Cracking over diameter mandrel	None

GENERAL INFORMATION

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

DIRECTIONS FOR USE

If material was stored below 23°C, it MUST be allowed to come to room temperature, in the sealed container, to avoid moisture contamination.

Printed circuits or other objects to be coated should be cleaned in accordance with accepted industry practices. Isopropyl alcohol, or methyl ethyl ketone have been found satisfactory as cleaning agents. If activated flux residues are present, appropriate detergents may be needed to remove any residue.

Application:

1. Moisture may cause polymerization. Contents may solidify. If this occurs, warm to 49°C until clear and thoroughly mix before using.
2. Apply by brush, dip or spray for 1 to 2mil film.

Viscosity:

1. Viscosity may be reduced when desired with Hysol AC0305 thinner.
2. Other solvents such as methoxy propyl acetate, methyl ethyl ketone, xylene and toluene can be used alone or as a mixture depending on how coating will be applied and drying time desired.
3. Dilutions of 15 to 20 % will generally be sufficient for most applications.

Cleaning

1. Uncured HYSOL PC18M may be cleaned up with ketones or the solvents listed above.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage : ≤23 °C

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

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Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Note

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Reference 0.1