

## Ultralane 5781

### One Component Urethane conformal coating

#### Typical Properties

(Not for specification purposes. All tests run at 25°C unless otherwise noted)

##### Properties:

Appearance	Visual	Clear, light amber
Specific Gravity	ASTM-D-1475	1.02 g/cm <sup>3</sup>
Viscosity	ASTM-D-2393	340 cP
Percent Solids	ASTM D 2584	50%
Flash Point, SETA CC	ASTM-D-92	32°C (89.6°F)
Boiling Point		138°C (281°F)
Tack free time, 3 mils, at 75F & 50% RH		1 – 4 hours

#### Recommended Cure Schedules:

2 – 7 days @ 25°C or 30 - 60 minutes @ 25°C + 2 hours @ 60°C in an oven with a dish of distilled water. See below for low outgassing cure schedule.

Please note: any cure schedule selected for use should be confirmed through testing as being appropriate for your particular processing methods and for your intended application.

#### Cured Properties (cured 7 days at 25°C)

Appearance	Visual	Transparent amber
Tensile Modulus	ASTM-D-412	4000 psi
Fungus Resistance	MIL-I-46058C Ty. UR	Passes
Dielectric Withstand Voltage @ 50Hz	ASTM-D-495	>1,500 Volts
Insulation resistance, 2 mil	Mil-I-46058C	1 x 10 <sup>15</sup> ohms
Volume resistivity @ 25°	ASTM D- 257	4 x 10 <sup>13</sup> Ω-cm
Dielectric strength	ASTM D-495	1200 Volts/mil
Dielectric constant, @ 100 Hz	ASTMD- 150	4.2
Dissipation factor, @100 Hz	ASTM D- 150	0.010

**ULTRALANE 5781** is a one-component, room temperature curing urethane conformal coating. It is recommended for use on printed circuit boards where a flexible, abrasion resistant coating is desired. The cured coating improves the electrical insulation values of the components and protects the boards from vibration, moisture, chemicals, and most environmental conditions.

Ultralane 5781 is highly resistant to yellowing and has excellent hydrolytic stability. The coating has excellent adhesion to most surfaces and fluoresces under UV light for optical inspection. The properly cured Ultralane 5781 complies with Mil-I-46058C type UR and NASA outgassing requirements.

#### Benefits:

- One-component, long pot-life & Shelf-life
- Non-TDI<sup>1</sup> or MOCA<sup>2</sup>
- Room temperature or heat curing
- Mil-I-46058C Type UR & NASA Outgassing compliant
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#### Processing Guidelines:

The printed circuit board or other substrate should be clean and free of grease, dirt, or, other contaminants. Although solvent cleaning with Isopropyl Alcohol, MEK, or Freon, is generally sufficient, if excess flux is evident, techniques such as vapor degreasing or a formulated cleaner may be needed to thoroughly clean the board. After cleaning, the boards should be dried for at least 2 hours @ 60C to ensure that no moisture or solvent remains on the board.

Ultralane 5781 may be sprayed, dipped, or brushed on to substrates. When dip coating, an insertion and withdrawal rate of approximately four inches per minute (~10 cm per minute) will provide the recommended coverage. This rate allows complete wetting of all surfaces by the coating and minimizes the run-off during cure. Particularly densely covered boards may require a slower withdrawal rate. For best results spray boards from 4 sides in order to avoid shadowing, which can be caused by large components. If desired, Ultralane Thinner #10 or #20 can be used to thin the coating. In general, thinners allow for thinner coating applications and may make it easier to obtain an even coating with some low pressure spray equipment.

For most applications a total coating thickness of 1-3 mils will be sufficient. If 2 coats are desired, allow the first coat to fully cure prior to applying the second coat.

For Applications requiring low out-gassing we suggest the following cure schedule:

2-16 hrs @ 25C air dry +

16 hrs @ 50C in oven with a bowl of distilled water +  
24 hours in vacuum oven at 125C and full vacuum.

If this cure schedule is followed at TML value of <0.9% and a CVCM of <0.05% can be achieved.

#### Storage Guidelines:

Ultralane 5781 is flammable, store away from open flame, sparks, or excessive heat sources. Store this material in a clean, dry environment in its tightly closed original container. This product is not considered temperature sensitive, but should ideally be stored at temperatures between 18-30°C(64-86°F). Under these

conditions the products will have a minimum shelf-life of 18 months from the date of shipment.

### Handling Precautions:

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding material safety data sheets.

### Personal Hygiene:

#### ULTRALANE 5781

**Danger! Flammable!** May cause eye & skin irritation. Harmful if inhaled. Harmful if swallowed. Keep away from heat, sparks and flames. Ground metal containers before pouring or transferring contents. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid breathing vapor or mist. Use only with adequate ventilation. Do not take internally.

### First Aid

In case of contact:

**Skin** - Wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Discard contaminated shoes and other articles made of leather

**Eyes** - Flush eyes with plenty of water for 15 minutes and get prompt medical attention.

**Inhalation** - Remove person to fresh air

**Ingestion** - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person

### Disclaimer:

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<sup>1</sup> TDI = toluene diisocyanate

<sup>2</sup> MOCA = 4,4' - methylene bis (2-chloroaniline)