

## Ultralane 780A / 780-74B

### Flexible Urethane Adhesive, Casting, & Encapsulating System

The Ultralane 780A/780-74B is a low viscosity flexible, unfilled polyurethane systems that cures into a polymer exhibiting exceptional electrical insulating properties, excellent performance in cryogenic and high humidity environments, and low outgassing properties suitable for space applications. The cured system has a low elastic modulus and is excellent for use with stress sensitive electronics. This polymer is also very elastic, so it is suitable for casting rubber parts and components, especially one that are resistant to low temperature embrittlement and to moisture exposure.

This system is available in a natural off-white to light yellow color that is easily pigmented, in a standard black version, or in custom colors. The standard system is supplied uncatalyzed and so has a medium to long work-life. Faster setting and curing versions are readily available. Please contact us to discuss your application if you think such a variant would be helpful for your application.

#### **APPLICATIONS & BENEFITS:**

- Potting & impregnation of low voltage electronic devices, such as coils, potentiometers, modules, and hydrophones
- Low modulus reduces stress on stress-sensitive and cryogenic components
- Low outgassing for use in optical, space and other high vacuum environments.
- RoHS and REACH Compliant
- Highly resistant to reversion even with high heat and humidity exposure

<b>HANDLING PROPERTIES</b>	<b>VALUE</b>	<b>TEST METHOD</b>	
Visual Appearance, Part 780A	Clear, yellow to orange liquid		
Density, Part A	1.21 g/cm <sup>3</sup>	ASTM E-201	
Viscosity, Part A, @ 25°C	50 cps	ASTM D-2393	
Visual Appearance, Part 780-74B	translucent liquid or Black		
Density, Part B	0.93 g/cm <sup>3</sup>	ASTM E-201	
Viscosity, Part B, @ 25°C	3500 cps	ASTM D-2393	
Density Mixed, g/cm <sup>3</sup>	1.00 g/cm <sup>3</sup>	ASTM E-201	
Viscosity Mixed, 780A/-74B @ 25°C	1600 cps	ASTM D-2393	
Mix Ratios:	<u>By Weight</u>	<u>By Volume</u>	
780A/780-74B	1A:3B	25A:100B	
<u>Processing Temp.</u>	<u>Gel time</u>	<u>Tack Free time</u>	<u>Full Cure time</u>
25°C	45 -90 minutes	24 hours	7 days
65°C	15 – 25 minutes	2 – 3 hours	8 - 16 hours
95°C	5 –10 minutes	1 – 2 hours	4 - 8 hours

## PHYSICAL PROPERTIES

	<u>VALUE</u>	<u>TEST METHOD</u>
Color	light yellow or Black	Visual
Shore Hardness	70A - 78A	ASTM D-2240
Tensile Strength, psi	1210 psi	ASTM D-638
Tensile Elongation at break	>200%	ASTM D-638
Glass Transition Temp. (Tg)	-62°C	ASTM D-648
Coefficient of Thermal Expansion (CTE):		ASTM E-831
Below Tg / Above Tg	60 ppm/°C / 210 ppm/°C	
Suggested maximum continuous use temp.:	125°C	
Fungus Resistance	Non-Nutrient	Mil-I-46058C
Water Absorption 30 day immersion	0.24%	
Outgassing:		ASTM E-595
Total Mass Loss (TML) %	0.45%	
CVCM %	0.03%	
WVR %	0.01%	
Dielectric Strength at 3 mil	>1500 V/mil	Mil-I-46058C
Insulation Resistance, ohms	>1.0 x 10 <sup>15</sup> ohms	Mil-I-46058C
Dielectric Constant @ 25C		ASTM D-150
@ 1 k Hz / 100 KHz	3.0 / 2.9	
Dielectric Constant @ 100C		ASTM D-150
@ 1 k Hz / 100 KHz	3.6 / 3.2	
Loss tangent @ 25C		ASTM D-150
@ 1 k Hz / 100 KHz	0.014 / 0.015	
Loss tangent @ 100C		ASTM D-150
@ 1 k Hz / 100 KHz	0.024 / 0.027	
Thermal Conductivity	0.22 W/mK	

**NOTE** : Values are based on laboratory or average production results – not for specification purposes.

## **SUGGESTED PROCESSING GUIDELINES:**

To use, weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Mixing containers should preferably be made of polyethylene, glass, or non-corroding metal. (Stainless steel, aluminum, etc.). Always use weighing equipment having accuracy that is ±1% or less of the smallest quantity that you will be weighing. Blend Part A & B thoroughly using a spatula or stirring stick for at least 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Vacuum de-gassing after mixing is helpful to remove air. Vacuum degassed material will produce the strongest possible bonds and provide the best insulation values...

Apply the mixed material to clean, dry surfaces. Suitable application methods include using a brush, spatula, or other tools. This system may also be dispensed from a syringe or meter mix equipment.

## **Stripping / Removal:**

Uncured or partially cured Ultralane 780 series polymers can be removed with acetone, MEK, Ultralane Thinner, or other solvents. Fully cured Ultralane 780 series polymers may be removed using mechanical or chemical methods such as our Ultralane Stripper A/B.

## **STORAGE GUIDELINES:**

Store this material in a clean, cool and dry environment in its tightly closed original container. Protect the Ultralane 780A from extended exposure to temperature below 15°C (59°F). Crystallization may occur if the 780A is exposed to cold for extended periods. If this occurs, heat the entire container of 780A for 4 hours at 70°C to re-liquefy the crystals. Allow to cool to ambient temperature prior to using. Also protect the B-sides from exposure to moisture or high humidity. Tightly re-seal containers after use and blanket with dry nitrogen or another dry inert gas if available. If the recommended storage conditions are observed the products will have a minimum shelf-life of 60 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 780A**

**WARNING! Contains organic isocyanate.** May cause severe eye & skin irritation. Prolonged or repeated skin contact or inhalation of vapors may cause allergic skin or respiratory reactions. Harmful if inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor or mist. Keep containers closed when not in use. Use only with adequate ventilation. Do not take internally.

### **Ultralane 780-74B.**

**Caution!** May cause eye & skin irritation. Prolonged or repeated skin contact may cause allergic skin reactions. Harmful if inhaled or swallowed. Avoid contact with eyes, skin, or clothing. Wear eye protection and impervious gloves when handling. Wash thoroughly after handling. Avoid breathing vapor or mist. Keep containers closed when not in use. Only with adequate ventilation. Do not take internally.

## **FIRST AID**

In case of contact with: **Skin** – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.

**Eyes** – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.

**Inhalation** - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

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

## **DISCLAIMER:**

**IMPORTANT:** The following supersedes Buyer's documents. **SELLER / MANUFACTURER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller / Manufacturer be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results presented are based on controlled or laboratory work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended

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