# Product Datasheet

SP&S Specialty Polymers and Services

# Ultralane® 780 A/B(LV)

RoHS 76/769/EEC

**Highly Flexible, Room temperature curing, Urethane Adhesive, Coating, & Encapsulant**

## Typical Properties

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

**Resin / Ultralane 780A Properties:**

| | | |
|---|---|---|
| Appearance | Visual | Amber Liquid |
| Specific Gravity | ASTM-D-1475 | 1.20 g/cm$^3$ |
| Viscosity | ASTM-D-2393 | 50 cP |
| Solid Content | ASTM D 2584 | 100% |
| Flash Point, open cup | ASTM-D-92 | >93°C (199°F) |

**Hardener / Ultralane 780B(LV) Properties:**

| | | |
|---|---|---|
| Appearance | Visual | Translucent liquid* |
| Specific Gravity | ASTM-D-1475 | 0.95 g/cm$^3$ |
| Viscosity | ASTM-D-2393 | 2,200cp |
| Flash Point, closed cup | ASTM-D-92 | >93°C (199°F) |
| Solid Content | ASTM D-2584 | 100% |

**Mix Ratio:**

Parts by weight (volume) 38A : 100B pbw (30A : 100B pbv)

**Mixed Properties:**

| | | |
|---|---|---|
| Pot life (100 g. mass) | FTM-203 | 90 - 120 minutes |
| Viscosity | ASTM-D-2393 | 800 cP |

**Recommended Cure Schedules:**

24 hrs @ 25°C **or** 6 - 8 hr @ 95°C

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.

| | | |
|---|---|---|
| Appearance | Visual | Translucent Amber Solid |
| Shore Hardness | ASTM D-2240 | 80 – 90A |
| Tensile Strength at break | ASTM D-638 | 500 psi |
| Tensile Elongation | ASTM D-638 | 200% |
| Elastic Modulus @ 25°C | | 600 psi |
| Glass Transition Temp. (Tg) | Perkin Elmer Appl. Cast #20 | <-69°C |
| Fungus Resistance | MIL-I-46058C | Non- Nutrient |
| Thermal Conductivity | ASTM D-257 | 3.9 x 10$^{-4}$ cal/cm-sec-°C |
| Coefficient of thermal expansion, mm/mm/°C | ASTM E-381 | |
| Alpha 1/Alpha 2 | | 76 ppm / 170 ppm |
| Suggested Maximum Continuous Use Temperature | ASTM D-2214 | 130°C |
| Volume resistivity | ASTM D- 257 | 9.3 x 10$^{15}$ Ω-cm |
| @ 25°C/ @ 95°C | | 2.0 x 10$^{13}$ Ω-cm |
| Dielectric strength | ASTM D- 149 | 350 V/mil |
| Dielectric constant, | ASTM D- 150 | |
| 60 Hz / 1 MHz | | 3.33 / 2.9 |
| Dissipation factor, 60 Hz / 1 MHz | ASTM D- 150 | 0.027 / 0.025 |
| Arc Resistance | ASTM-D-495 | 75 sec. |
| Insulation Resistance | MIL- I 46058C | 1.0 x 10$^{15}$ |
| Moisture Absoroption (%weight gain) | ASTM D- 570 | |
| 24hrs immersion @ 25C | | 0.06% |
| 7 days immersion @ 25C | | 0.11% |
| **Outgassing @ 10$^{-6}$ Torr & 125°C** | | |
| Total mass loss | ASTM E 595 | 0.41% |
| Collectible volatile condensable materials | ASTM E-595 | 0.03% |

*Also available in custom colors upon request.

Ultralane® 780A/B(LV) is a very low-viscosity, room temperature curing urethane system specifically designed to provide excellent electrical insulation to electrical/electronic parts and for flexible adhesive bonding of many different materials. Ultralane® 780 A/B(LV) is a modification of the standard Ultralane® 780 A/B system that provides significantly reduced viscosity and exceptional flowability with minimal changes to the cured properties of the urethane system.

This system is excellent for bonding, impregnating and encapsulating components due to its low viscosity and excellent wetting properties. The cured polymer's exceptional flexibility and low modulus provides excellent resistance to fracturing under impact or during thermal cycling. In addition, the Ultralane 780A/B(LV) bonds well to itself to allow for repair and rework operations and performs exceptional well in cryogenic environments. The cured polymer is resistant to chemicals and environmental conditions such as high humidity and water immersion.

### Suggested Applications:

- Potting & impregnation of low voltage electronic devices, such as coils, potentiometers, modules, and hydrophones
- Encapsulation of stress-sensitive and cryogenic components including proximity sensors
- Space and high vacuum applications where its very low outgassing properties make it suitable for extended use

### Benefits:

- Low viscosity with excellent flow & wetting characteristics
- 100% solids - no solvents
- Repairable
- Highly flexible with excellent revision resistance under heat and high humidity
- Multiple cure schedules possible

### Storage Guidelines:

Store these materials in a clean, dry environment in their tightly closed original containers. These products are not considered temperature sensitive, and are designed to resist crystallization, but should ideally be stored at temperatures between 18-35°C (64-95°F).

Under these conditions the products will have a minimum shelf-life of 12 months from the date of shipment.

## Processing Guidelines:

### System Preparation

Exposure of Part A to low temperatures or prolonged periods may cause crystallization. Part A must be reliquified by heating to 70ºC (158ºF) maximum.

Heat Part A until clear amber solution is achieved. Slowly allow material to cool to 25–40ºC in a controlled environment; do not force cool. Do not disturb contents.

Use entire bottle of the 780A, if possible so that the remaining material will not be contaminated with moisture. If this is not possible, any remaining material must be well blanketed with dry nitrogen or another dry inert gas and the cap tightened securely. To prevent the cap from becoming bonded in place wipe the bottle lip and the interior of the bottle cap clean prior to resealing.

### Mixing

This system can be mixed manually or using dynamic or static mixing systems. Whatever method is chosen, be sure to accurately weigh both the resin and the hardener prior to mixing them and ensure the correct mix ratio is used.

Container should be plastic, glass, or metal. Paper and wooden containers or utensils are not recommended unless dryness can be ensured. .

Weigh Part B into container first. Add Part A to container. Examine Part A prior to use to ensure it is not crystallized or cloudy if either condition exists, heat as described above to eliminate crystallization.

Slow machine mixing or hand stirring will minimize air entrapment. Thorough mixing of Parts A and B is essential for optimum end properties. To ensure a void free casting, vacuum de-air the mixture after thorough mixing. A vacuum of 28 inches of mercury is generally sufficient to remove the vast majority of entrapped air within 5-10 minutes.

## Handling Precautions:

Use Safety glasses and impervious gloves when handling. If processing large quantities ensure adequate ventilation.

For information on waste disposal and hazardous products of decomposition in the event of fire, refer to the Material Safety Data Sheets (MSDS) for these particular products.

**Ultralane® 780A**

**Warning!** Contains organic isocyanate. Causes severe eye and skin irritation and possible eye burns. Vapor or mist harmful if inhaled. Harmful if swallowed. May cause allergic respiratory and skin reaction.

**Ultralane® 780B(LV)**

**Caution!** May cause eye irritation. Prolonged or repeated skin contact may cause irritation and may cause allergic skin reaction. Harmful if inhaled. Harmful if swallowed.

### 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:

**IMPORTANT**: The following supercedes 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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