Product Datasheet

Ultralane 780A with Ultralane 780-40HVB, 780-45HVB or 780-60HVB

Flexible Urethane Adhesive, Casting, & Encapsulant Systems

The Ultralane 780A/780-40HVB, 780A/780-45HVB, and 780A/780 -60HVB systems are low viscosity flexible polyurethane systems that cure to form polymers with exceptional electrical insulating properties, excellent cryogenic performance and resistance to moisture and high humidity environments. They also exhibit low outgassing properties suitable for space applications and provide very good chemical resistance. The cured systems are low in modulus and are excellent for use with stress sensitive electronics. These polymers are also quite elastic, so they are suitable for casting rubber parts and components, especially ones that are resistant to low temperature embrittlement and to moisture exposure.

These systems can be supplied in thickened, non-running version for adhesive applications and are available in their natural amber-yellow color, in black , or in custom colors. Also, the standard versions are uncatalyzed and have a medium to long work-life. Faster setting or curing versions are 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

HANDLING PROPERTIES	VALUE	TEST METHOD
Visual Appearance, Part 780A	Clear, yellow to orange liquid	
Density, Part A	1.20 g/cm³	ASTM E-201
Viscosity, Part A, at 25ºC	50 cps	ASTM D-2393
Visual Appearance, Part HVB	translucent liquid or Black	
Density, Part HVB	0.95 – 1.0 g/cm³	ASTM E-201
Viscosity, Part 780-40HVB, at 25ºC	7600 cps	ASTM D-2393
Viscosity, Part 780-45HVB, at 25ºC	7500 cps	ASTM D-2393
Viscosity, Part 780-60HVB, at 25ºC	6800 cps	ASTM D-2393
Density Mixed	approx. 1.00 g/cm³	ASTM E-201
Viscosity Mixed at 25ºC		ASTM D-2393
780A/780-40HVB	4480 cps	
780A/780-45HVB	3700 cps	
780A/780-60HVB	3000 cps	
Mix Ratios:	By Weight	By Volume
780A/780-40HVB	17A:100B	15A:100B
780A/780-45HVB	20A:100B	1A:6B
780A/780-60HVB	25A:100B	21A:100B

Processing Temp.	Gel time	Tack Free time	Full Cure time
25ºC	60 -90 minutes	24 hours	7 days
71ºC	15 – 25 minutes	2 – 3 hours	8 - 12 hours
95ºC	5 –10 minutes	1 – 2 hours	4 - 8 hours

PHYSICAL PROPERTIES

	VALUE	TEST METHOD
Color	yellow-amber or Black	Visual
Shore Hardness, 780-40HVB	40A ± 5A	ASTM D-2240
Shore Hardness, 780-45HVB	45A ± 5A	ASTM D-2240
Shore Hardness, 780-60HVB	60A ± 5A	ASTM D-2240
Tensile Strength, psi*	>400 psi	ASTM D-638
Tensile Elongation at break*	>100%	ASTM D-638
Glass Transition Temp. (Tg)*	≤ -65ºC	ASTM D-648
Coefficient of Thermal Expansion (CTE)*:		ASTM E-831
Below Tg / Above Tg	100 ppm/ºC / 190 ppm/ºC	
Maximum Suggested Continuous Use Temperature: 130ºC		
Fungus Resistance	Non-Nutrient	Mil-I-46058C
Outgassing: (Typical values)*		ASTM E-595
Total Mass Loss (TML) %	0.40%	
CVCM %	0.03%	
WVR %	0.01%	
Dielectric Strength at 3 mil*	>1500 V/mil	Mil-I-46058C
Insulation Resistance, ohms*	>1.0 x 10^{15} ohms	Mil-I-46058C
Dielectric Constant at 25C*		ASTM D-150
at 1 k Hz / 100 KHz	2.5 / 3.0	
Dielectric Constant @ 100C*		ASTM D-150
at 1 k Hz / 100 KHz	3.6 / 3.2	
Loss tangent at 25C*		ASTM D-150
at 1 k Hz / 100 KHz	0.022 / 0.025	
Loss tangent @ 100C		ASTM D-150
at 1 k Hz / 100 KHz	0.024 / 0.027	
Thermal Conductivity*	0.20 W/mK	

NOTE : Values are based on laboratory or average production results – not for specification purposes. *Data marked with an asterisk is estimated based on products with similar chemistry. If you need specific values, please let us know and we will generate the data or have the testing done and provide more specific data.

SUGGESTED PROCESSING GUIDELINES:

To use, weigh out 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 by brush, by spatula, from a syringe, etc.

Stripping / Removal:

Uncured or partially cured Ultralane 780 series polymers can be removed solvents including acetone, MEK, and Ultralane Thinner #1 or #25. Fully cured Ultralane 780 series polymers may be removed using heat or mechanical means or using chemical strippers 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 15ºC (59ºF). Crystallization may occur if the 780A is exposed to cold for extend periods. If this occurs, heat the entire container of 780A for 4 hours at 70ºC to re-liquefy the crystals. Then allow the 780A 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 6 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.

See SDSs for GHS warnings and precautions.

FIRST AID

In case of contact:

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:

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Specialty Polymers & Services, Inc. (SP&S)
27822 Fremont Court **Tel: 661-294-1790**
Valencia, CA 91355 **Fax: 661-294-0640**
www.spolymers.com **info@spolymers.com**