Product Datasheet

SP&S Specialty Polymers and Services

Ultralane 780A / 780-30B

Highly Flexible Urethane Adhesive, Casting, & Encapsulant Systems

The Ultralane 780A/780-30B is a low viscosity flexible polyurethane system that cure 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 is very low in its elastic modulus and excellent for use with stress sensitive electronics. This system is quite elastic, so it is suitable for casting rubber parts and components, especially one 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 by request. These are just some examples of the variations possible. The standard version is uncatalyzed and so have a medium to long work-life. Faster setting or 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

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 B	translucent liquid or Black	
Density, Part B	0.95 g/cm³	ASTM E-201
Viscosity, Part B, at 25ºC	3200 cps	ASTM D-2393
Density Mixed, g/cm³	1.00 g/cm³	ASTM E-201
Viscosity Mixed, at 25ºC	~ 2400 cps	ASTM D-2393
Mix Ratios:	13A:100B by weight or 10A:100B by volume	

Processing Temp.	Gel time	Tack Free time	Full Cure time
25ºC	60 - 90 minutes	24 hours	7 days
65ºC	15 – 25 minutes	2 – 3 hours	8 - 16 hours
95ºC	5 –10 minutes	1 – 2 hours	4 - 8 hours

PHYSICAL PROPERTIES	VALUE	TEST METHOD
Color	yellow-amber or Black	Visual
Shore Hardness, 780-30	30A - 35A	ASTM D-2240
Tensile Strength, psi	>400 psi	ASTM D-638
Tensile Elongation at break	>150%	ASTM D-638
Glass Transition Temp. (Tg)	<-69ºC	ASTM D-648
Coefficient of Thermal Expansion (CTE):		ASTM E-831
Below Tg / Above Tg	100 ppm/ºC / 180 ppm/ºC	
Maximum Suggested Continuous Use Temperature:	130ºC	
Fungus Resistance	Non-Nutrient	Mil-I-46058C
Outgassing:		ASTM E-595
Total Mass Loss (TML) %	0.40%	
CVCM %	0.03%	
WVR %	0.01%	
Dielectric Strength @ 3 mil	>1500 V/mil	Mil-I-46058C
Insulation Resistance, ohms	>1.0 x 10^{15} ohms	Mil-I-46058C
Dielectric Constant @ 25C		ASTM D-150
@ 1 k Hz / 100 KHz	2.5 / 3.0	
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	0.022 / 0.025	
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 by brush, by spatula, from a syringe, etc.

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 methods or using 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. 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 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.

PERSONAL HYGIENE:

Ultralane 780 - 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 780-30B - Warning! 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: **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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