Product Datasheet

SP&S Specialty Polymers and Services

Ultralane® 741A/B

Polyurethane Potting & Molding System Conforming to Mil-M-24041-C

Ultralane® 741A/B is a two component, high performance polyurethane system. It was developed to replace MbOCA based polyurethanes and conforms to Mil-M-24041 category B. The system has very good heat, ozone, and hydrolytic resistance. It also provides fungus resistance and excellent mechanical and electrical properties over a wide temperature range. The Ultralane 741 system has a natural amber color and is also available in black and custom colors.

Many other custom variations are available to meet your requirements including thickened and thinned versions, accelerated versions, and version with enhanced adhesion. Please contact us to discuss your application if you'd like to receive samples of a custom color or to discuss the development of a custom variant that would be suitable for your application.

SUGGESTED APPLICATIONS:

- Casting and Molding parts with high mechanical strength
- Potting and Encapsulation especially of modules, wire wound devices, and strain sensitive components.
- Coating and Sealing electrical components and circuit boards

HANDLING PROPERTIES	VALUE	TEST METHOD
Ultralane 741A (resin)		
Visual Appearance	Translucent amber, liquid	
Density, Part A	0.97 g/cm³	ASTM E-201
Viscosity, Part A, @ 25ºC	10,000 cps	ASTM D-2393
Flash Point	>93°C	ASTM D-92
Ultralane 741B (hardener)		
Visual Appearance	Amber liquid	
Density,	1.00 g/cm³	ASTM E-201
Viscosity, Part B, @ 25ºC	800 cps	ASTM D-2393
Flash Point	>93°C	ASTM D-92
Mix Ratio by weight and volume:	100A : 17.5B by weight (100A:17B by volume)	
Mixed Viscosity @ 25ºC	8,000 - 10,000 cps	ASTM D-2393

Viscosity development @ 25ºC	initial	10 min.	20 min.	30 min.	40 min.	50 min.	60 min.
	8,000	8,750	12,250	26,000	70,000	200,000	250,000

Gel Time, 4oz/150 gram mass	> 90 minutes			
	25ºC/77ºF	60ºC/140ºF	80ºC/176ºF	100ºC/212ºF
Demolding Time (minimum)	24 hours	5-6 hours	4 hours	2 hours
Full Curing Time	3-7 days	24 hours	16 hours	8 hours

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CURED PROPERTIES	VALUE			TEST METHOD
Density	64 lb./ft^3 (1.01 g/cm^3)			ASTMD-792
Hardness, Shore A	90±5			ASTM D-2240
Ultimate Tensile Strength	2,050 psi			ASTM D-638
Tensile Elongation	375 %			ASTM D-624
Tear Strength (Die C)	300 pli			ASTM D-624
Linear Shrinkage during cure*	0.01 in/in			ASTM D-624
Moisture Absorption (24 hrs @ 200ºF)	0.55%			Mil-M-24041C
Water Absorption (24 hrs at 25ºC)	0.20%			ASTM D-570
Ozone Resistance, 50 pphm	> 9 weeks			ASTM D-518
Fungus Resistance	Non-nutrient			Mil-E-5272C
Thermal Shock, -70ºC to + 130ºC	> 10 cycles			Mil-I-16923E
Compression Set	50%			ASTMD-395
Electrical Properties	25C	100C	130C	
Dielectric Constant at 100 Hz	3.03	4.00	3.80	ASTM D-150
at 1 KHz	2.95	3.90	3.80	
at 1 MHz	2.80	3.05	3.15	
Dissipation Factor at 100 Hz	0.030	0.028	0.018	ASTM D-150
at 1 KHz	0.034	0.025	0.030	
at 1 MHz	0.010	0.045	0.062	
Volume Resistivity (ohm-cm)	3.4 X 10^{15}	3.4 X 10^{11}	3.2 X 10^{11}	ASTM D-257
Surface Resistivity (ohms)	>1.0 X 10^{15}	1.5 X 10^{12}	1.7 X 10^{10}	ASTM D-257
Insulation Resistance (ohms)	>2.5 X 10^{13}	1.7 X 10^{10}	1.7 X 10^{10}	Mil-M-24041C
Dielectric Strength (V/mil @ 1/16")	600			ASTM D-149
Arc Resistance (seconds)	>120			Mil-M-24041C
Flame Resistance, 55 amps DC	Pass (no ignition)			Mil-M-24041C

PROCESSING AND APPLICATION INSTRUCTIONS :

Please note that the 741 part A may crystallize if exposed to temperatures below about 59F/15C. Crystallize part A will appear thicker than normal, may be completely opaque, and may have a distinct semi-crystalline appearance especially when poured. If crystallization has occurred, heat the container of the 741 part A to 60C for at least 2-4 hours to liquefy the pre-polymer. Allow to cool to ambient temperature than shake or stir to completely re-mix prior to use.

When ready to use, weigh Part A and Part B into a clean mixing container. Mixing containers should preferably be made of polypropylene, 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 Parts A & B thoroughly using a spatula or stirring stick for at least 2 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture.

For applications requiring superior adhesion our Primax series of Primers may be helpful. Primax S is helpful on many metals and fiber reinforced plastics. Primax SF is excellent on most surfaces, and other primers can be suggested for specific surfaces. Contact us for assistance if

you have any questions. The mixed Ultralane 741A/B can be used for many adhesive and bonding application, but for some substrates, special coupling agents may be required that can be supplied already incorporated into the Ultralane 741 system. If this is of interest please contact us to discuss your applications and we can supply samples for evaluation.

PACKAGING AVAILABLE:

This product is available in pint, quart, gallon, and 5-gallon pail kits.

It can also be ordered in pre-mixed and frozen syringes and cartridges from 1cc up to 300cc in net volume. However these syringes require shipment with dry ice and storage at -40C or colder to maintain their shelf-life.

Please call use with any special packaging requests or for information on custom kitting.

STORAGE GUIDELINES:

Store these materials in a clean, cool and dry environment in their tightly closed original containers. Protect 741 part A from extended exposure to temperatures below 15ºC (59ºF). Crystallization may occur if the material is exposed to cold for extend periods. If this occurs, heat the entire container for 2-4 hours at 60ºC to re-liquefy the material. Tightly re-seal containers after use. If the recommended storage conditions are observed the products will have a minimum shelf-life of 12 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 741A

WARNING! Contains Toluene Diisocyanate (TDI). Vapor extremely Irritating. Harmful if inhaled. May causes allergic skin or respiratory reaction. Can cause skin irritation, eye irritation, allergic respiratory reaction, and allergic skin reaction. 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 741B

DANGER! May Cause eye burns. Harmful if inhaled. May causes skin irritation or allergic skin reaction. 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.

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 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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