TECHNICAL DATA SHEET

UR6060 Clear

Revision date: 8/5/2022

N109 W13300 ELLSWORTH DRIVE GERMANTOWN, WI 53022
262-253-5900 FAX 262-253-5919

DESCRIPTION:

ResinLab® UR6060 Clear is a two-part clear, colorless polyurethane that will cure at room temperature. It is commonly used for LED encapsulation, along with other high quality castings. This product has been formulated to provide excellent long-term non-yellowing UV stability, high transparency and water white clarity. It has a low viscosity and is easy to mix and process.

UR6060 Clear was formulated to a 1A:1B volume mix ratio for use in side-by-side cartridges and meter/mix and dispense equipment. *UR6060 Clear* will reach full cure at room temperature within 36 hours. Cure time can be accelerated by the application of heat. Two hours at 60 °C is sufficient to fully cure this product. Time to heat substrate must be taken into account. Cooler temperatures will extend work time and increase cure times.

UR6060 Clear is suitable for use in medical device assembly. It has been tested and is proven non-toxic per ISO 10993-5. Manufacturers should test their own finished product for biocompatibility. Certificates of compliance are available upon request.

TYPICAL PROPERTIES:

All properties given are at 25 °C unless otherwise noted.

Property:	*Value:*	*Test Method or Source:*
Color	Clear Colorless	Visual
Mix Ratio **Mix Ratio by weight** **Mix Ratio by volume**	Part A to Part B 0.96 to 1 1 to 1	Calculated
Cure Schedule	6 hrs @ 25 °C Full cure within 36 hrs @ 25 °C 2 hrs @ 60 °C	
Viscosity - Part A **Viscosity - Part B** **Viscosity - Mixed**	650 cP 700 cP 1,050 cP	TA HR20 Rheometer 25mm parallel plate @ 1/s DCV6100723
Specific Gravity - Part A **Specific Gravity - Part B** **Specific Gravity - Mixed**	1.08 1.13 1.10	Calculated
Pot Life defined as the time it takes for initial mixed viscosity to double	15 minutes	TA HR20 Rheometer parallel plate 25mm @ 1/s DCV6100723
Gel Time 100cc Sample	15 – 20 minutes	
Peak Exotherm	96.5 °C for 40 mL sample	455300005593 by Type K thermocouple
Hardness	80 Shore A	455300006287/ASTM D2240
Glass Transition Temperature/Tg	-2 °C	453560822409 by DSC
Water Absorption	0.21 %	24 hr immersion 457561824543/ASTM D570

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Property:	*Value:*	*Test Method or Source:*
Tensile Properties:		4535601224470/ASTM D638
Strength	400 psi	
Elongation	25 %	
Modulus	1,500 psi	
Lap Shear Strength 0.010" Bond Line, Al to Al	400 psi	4535601224468/ASTM D1002
Thermal Conductivity by LFA	< 0.2 W/m.K	453560822409/ASTM E1461
Electrical Resistivity:		455300006612/ASTM D257 @ 18 °C @ 23 %RH
Volume	1.70 x 10^{15} ohm-cm	
Surface	1.71 x 10^{16} ohm/sq	
Dielectric Constant & Dissipation Factor:		455300006513/ASTM D150
@ 100 Hz	6.3, 0.2	
@ 100 kHz	4.1, 0.05	
AC Dielectric Strength	17.7 kV/mm	DCV6101609; ASTM D149 Method A, immersed in ASTM D3487 Type II Oil Specimen thickness was ~1-2 mm
Coefficient of Thermal Expansion by TMA:		455300005340/ASTM E831 TMA, 5 °C/min
below Tg	88 ppm/°C	
above Tg	203 ppm/°C	
Transmittance	93.4 % @ 6mm	ASTM D1003, Procedure A
Refractive index	1.504	ASTM D542 / 589nm
Biocompatibility Biological Evaluation of Medical Devices	Passes ISO 10993-5	MEM Elution Test
Operating Temperature Range	-40 to 125 °C**	
Relative Thermal Index (RTI)	50 °C	UL746B, Table 7.1 Generic Value Based on Composition

* Asterisk denotes values considered typical to associated resin systems or extrapolated from other test results.
** Operating Temperature Range is based on average design requirements and is not intended as a guarantee of suitability for all applications operating at that temperature.
*** This TDS contains values that have been updated. The values reported in this technical data sheet are typical values of the product, and are highly dependent on test conditions and methodology. We actively seek the most precise and accurate ways to measure and interpret performance of our products, and to update estimated values with measured values. The formula has not been revised or changed in any way. Although the values on paper have changed, you can expect the same performance of the product.

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INSTRUCTIONS:

1. Bring to room temperature prior to use.
2. Cartridge format: Mixer should be attached keeping the cartridge vertical and any air pocket purged this way. After the mixer contains material, the mixer tip can be dropped to dispense pre-bleed amount. Attach a new static mixer with each cartridge, then pre-bleed the first 3 inches of dispensed material or until a uniform color is obtained. Maintain adequate velocity during dispensing to ensure complete mixing.
3. Bulk format: stir until homogeneous weigh and mix parts A and B accurately and thoroughly, scraping sides of container often. Do not pour from mixing container, transfer to a new container as residual unmixed material may cause a tacky spot on the surface of the casting. Maintain adequate velocity during dispensing to ensure complete mixing.
4. Allow to cure undisturbed until product is fully gelled or tack-free to the touch.
5. Clean up uncured resin with suitable organic solvent such as MEK or acetone.

SHELF LIFE AND STORAGE:

6 months at 25 °C Bulk.
12 months at 25 °C in cartridges that are foil bagged and desiccant packed.
Specialty packaging may be less.

Isocyanates are sensitive to moisture and should be kept in their original container or in a volume tank under dry nitrogen blanketing. Many isocyanates are prone to dimerization, the formation of a white precipitate. Products with minor amounts of this precipitate normally cure to full properties. Storage at 20 - 30 °C (68 °F to 86 °F) is recommended to ensure full shelf life.