TECHNICAL DATA SHEET

UR6001 Black

Revision date: 3/4/2024

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

DESCRIPTION:

Resinlab® UR6001 Black is an economical, two-part flame retardant urethane suitable for potting and encapsulation of electronic devices. The mixed product is low in viscosity and durometer and exhibits greater thixotropic behavior than other similar urethane potting products.

UR6001 Black was formulated to a 2A:1B by volume mix ratio for use in side by side dispensing cartridges and meter/mix and dispense equipment. This low viscosity formulation gels in 6 hours at a volume of 100 mL and reaches full cure within 72 hours at room temperature. Cure time can be accelerated by the application of heat. Times and temperatures from 3 hours at 65 °C to 1 hour at 100 °C are typical for most applications. Time to heat substrate must be taken into account. Cooler temperatures will extend work time and increase cure times.

UR6001 Black is recognized under the Component Recognition Program of Underwriters Laboratories Inc., (File# E186034) for UL Standard 94. *UR6001 Black* qualifies for a vertical burn rating of V-0 at 3mm thickness.

This formula contains soft, low-abrasion fillers which can separate over time, although they have good resistance to hard settling.

TYPICAL PROPERTIES:

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

Property:	*Value:*	*Test Method or Source:*
Color	Black	Visual
Mix Ratio **Mix Ratio by weight** **Mix Ratio by volume**	Part A to Part B 2.21 to 1 2 to 1	Calculated
Cure Schedule	72 hrs @ 25 °C 3 hrs @ 65 °C 1 hr @ 100 °C	
Viscosity - Part A **Viscosity - Part B** **Viscosity - Mixed**	24,000 cP 200 cP 6,800 cP	TA HR20 Rheometer 25mm parallel plate @ 1/s DCV6100723
Specific Gravity - Part A **Specific Gravity - Part B** **Specific Gravity - Mixed**	1.38 1.25 1.34	Calculated
Pot Life defined as the time it takes for initial mixed viscosity to double	25 minutes	TA HR20 Rheometer parallel plate 25mm @ 1/s DCV6100723
Gel Time 100cc Sample	6 hours	455300005339/Gardco Gel Timer
Peak Exotherm	35 °C for 40 mL sample	455300005593 by Type K thermocouple
Hardness	60 Shore A	455300006287/ASTM D2240
Glass Transition Temperature/Tg	-26 °C	453560822409 by DSC

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Property:	*Value:*	*Test Method or Source:*
Water Absorption	0.10 %	24 hr immersion 457561824543/ASTM D570
Tensile Properties:		4535601224470/ASTM D638
Elongation	15 %	
Flame Resistance	Passes with V-0 Rating @ 3.0 mm	45376013225560/UL94V
UL Certified, File #E186034		
Thermal Conductivity by LFA	0.14 W/m.K	453560822409/ASTM E1461
Electrical Resistivity:		455300006612/ASTM D257
Volume	1.7 x 10^{12} ohm-cm	@ 20 °C @ 21 %RH
Surface	5.5 x 10^{14} ohm/sq	
Dielectric Constant & Dissipation Factor:		455300006513/ASTM D150
@ 100 Hz	7.9, 0.09	
@ 100 kHz	5.2, 0.08	
AC Dielectric Strength	15 kV/mm	DCV6101609; ASTM D149 Method A, immersed in ASTM D3487 Type II Oil Specimen thickness was ~1-3 mm
Coefficient of Thermal Expansion by TMA:		455300005340/ASTM E831 TMA, 5 °C/min
below Tg	120 ppm/°C	
above Tg	220 ppm/°C	
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. A power mixer is suggested such as a 500-1000 rpm device with a mix paddle sufficient to turn material and disperse any filler. 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 DOP at 5 °C in cartridges that are foil bagged and desiccant packed.
Store cartridges horizontally.
Invert cartridges every two weeks.
6 months at 25 °C Bulk.
Specialty packaging may be less.
Bulk containers should be inverted every two to three weeks to reduce the accumulation of the fillers on the bottom of the containers.
This system is prone to settling due to high filler content. Inventory should be rotated on a FIFO (first in, first out) basis.

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.