

eleset™ UR7001 Clear Technical Data Sheet

12/18/2017

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

DESCRIPTION:

ResinLab®eleset™ UR7001 Clear is a two-part clear polyester polyurethane designed to provide outstanding adhesion to a variety of plastics, as well as metals. This formula is designed for use in cartridges and molding using the MoldMan Systems™ equipment. eleset™ UR7001 Clear provides excellent water and chemical resistance.

eleset™ UR7001 Clear was formulated to a 1A:1B volume mix ratio for use in side-by-side dispensing cartridges and meter/mix and dispense equipment. The product will reach full cure after 24 hours under ambient conditions. The cure can be accelerated through the addition of heat. Cure schedules of 30 minutes at 65 °C or 10 minutes at 100 °C are sufficient.

This formula has been processed on MoldMan System™ Mix on Demand Molding™ equipment. Cycle times of 1.5 minutes can be achieved at a mold temperature of 110 °C. The mold temperature should not exceed 150 °C. Temperatures lower than 110 °C can be utilized but the cycle time will be increased.

eleset™ UR7001 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	Part A to Part B	
By weight	1.02 to 1	
By volume	1 to 1	
Mix On Demand Molding™ Cure Schedule	This product molds well in the temperature range of 100 - 150 °C, which typically provides full cure in less than 2 minutes. Please note that in molding applications, cycle time is highly dependent on volume, mold temperature, and geometry.	
Cure Schedule	24 hours @ 25 °C 30 minutes @ 65 °C 10 minutes @ 100 °C	
Viscosity – Part A	17,000 cps	Rheometer parallel plate 25mm@1/s R050-49
Viscosity – Part B	3,900 cps	
Viscosity - Mixed	10,500 cps	
Specific Gravity – Part A	1.18	Calculated
Specific Gravity – Part B	1.16	
Specific Gravity - Mixed	1.17	
Pot Life	6 minutes	Rheometer parallel plate 25mm@1/s

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		R050-49
Gel Time	8minutes/100cc sample	Gardco Hot Pot Gel Timer
Glass Transition Temperature/Tg	33 °C	R050-61 by DSC
Peak Exotherm	89 °C after 12 minutes for 40mL sample	Thermocouple
Hardness	72 Shore D	R050-17/ASTM D2240
Water Absorption	0.13% after 24 hours	R050-35/ASTM D570
Tensile Properties:		R050-36/ASTM D638
Strength	5,700 psi	
Elongation	9%	
Modulus	280,000 psi	
Lap Shear Strength (0.010" bond line)		R050-37/ASTM D1002
Al to Al	2,100 psi	
304 Stainless Steel to 304 Stainless Steel	2,500 psi	
Polycarbonate to Polycarbonate	1,800 psi	
Acrylic to Acrylic	1,300 psi	
PVC to PVC	1,000 psi	
ABS to ABS	1,000 psi	
Compressive Properties:		R050-38/ASTM D695
Strength	28,000 psi	
Modulus	176,000 psi	
Thermal Conductivity by LFA	<0.10 W / (m.K)	453560822409
Coefficient of Thermal Expansion by TMA	205 ppm/ °C above Tg 71 ppm/ °C below Tg	455300005340 /ASTM E831 TMA, 5 °C/min
Static Mixer Selection	50mL cartridge 400mL cartridge	EA300-026 or EDS6.3-20S EA250-24
Biocompatibility	Passes ISO 10993-5	MEM Elution Test
Biological Evaluation of Medical Devices		
Service Temperature Range	-40 °C to 125 °C**	

**Service Temperature rating is based on average design requirements and is not intended as a guarantee of suitability for all applications operating at that temperature.

INSTRUCTIONS:

1. Bring both components to room temperature prior to mixing.
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: 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.

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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, acetone or other organic solvent.

MIX ON DEMAND MOLDING™ INSTRUCTIONS:

1. Bring both components to room temperature prior to mixing.
2. Cartridge format: A static mixer is needed in the Mold Man® 2050 static mixer assembly to mix the system. Check that the Nordson EFD system is properly pressurizing cartridges to feed material into the machine.
3. Bulk format: Mix part A and part B if there are any signs of settling or separation. Attach bulk dispense system to feed material into the machine.
4. Provide an adequate cycle time based on the chosen processing temperature to allow the material to cure within the mold.
5. Clean up uncured resin with suitable organic solvent such as MEK, acetone or other organic solvent.

SHELF LIFE AND STORAGE:

6 months at 25 °C Bulk.
12 months at 25 °C in cartridges that are foil bagged and desiccant packed.

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 +/- 5 °C (60 °F to 86 °F) is recommended to ensure full shelf life.