

UL420-1 Structural Methacrylate Adhesive

1. DESCRIPTION

UL420-1 is a two-part methacrylate, flexibilized, structural bonding adhesive designed for the structural bonding of various substrates, including fiberglass, steel, aluminum, and various plastics (not low energy surfaces). Combined at a ratio of 10:1, UL420-1 has a working time of 3 to 7 minutes and achieves nearly 90 percent of its ultimate strength in 10 to 15 minutes at room temperature curing. UL420-1 provides high strength and very flexible bonds to the above reference surfaces with generally no preparation effort. UL420-1 bonds very strongly to steel, stainless steel, and aluminum metals and will allow a great deal of movement of the substrates due to CTE (Coefficient of Thermal Expansion) differences. UL420-1 adhesives are **NOT UV STABLE, AND WILL YELLOW OVER TIME** and must not be used to create imperceptible seams in countertops or for seaming countertops. This yellowing will not affect bond performance, but will affect bond appearance.

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2. CHARACTERISTICS:

Room Temperature Cure	Properties
• Working Time	3 to 7 minutes (at 75°F/ 24°C)
• Fixture Time	9 to 15 minutes (at 75°F/ 24°C)
• Can be Moved In	15 to 20 minutes
• Operating Temp.	-60°F to 250°F (-50°C to 120°C)
• Recommended Application Temp.	65°F to 85°F (18°C to 30°C)
• Gap Filling	.50 inches (1/2")
• Mixed Density	8.1 lbs/gal (.96 g/cc)
• Elongation:	Greater than 100%
• Flash Point	51°F (11°C) – See SDS for more safety information

3. CHEMICAL RESISTANCE:

Excellent Resistance to:	Susceptible to:
• Hydrocarbons	Polar Solvents
• Acids and Bases	Super Strong Acids and Bases
• Vinegar	
• Wine and Condiments	
• Most Household Foods	

4. PHYSICAL PROPERTIES:

Uncured:	Resin	Activator
• Viscosity(cps)	150,000 – 150,000	40,000 – 80,000
• Color	Amber	White, various colors
• Density (lbs/gal)	8.2	8.5
• Mix Ratio (wt or vol)	10	1.0
• Mixer Recommendation Cartridge (250/490ml):	MFQX 08-24T – Square 24 element Orange/Green Mix Tips (10:1)	

5. MECHANICAL PROPERTIES:

Tensile Strength (ASTM D638)	Substrate	Results	Failure Type
• Strength, psi	Fiberglass Surfaces	2,500+	Substrate
• Strength, psi	ABS/PVC Sheeting	1,000+	Substrate
• Strength, psi	Steel/Stainless Steel	3,000 – 3,500	Cohesive
• Strength, psi	Aluminum	3,000 – 3,500	Cohesive

6. HANDLING AND APPLICATION:

UL420-1 resin (Part A) and activator (Part B) are flammable. Contents include Methacrylate ester and acids. Keep containers closed after use. Wear gloves and safety glasses to avoid skin and eye contact. Wash with soap and water after skin contact. In case of eye contact, flush with water for 15 minutes and get medical attention. Harmful if swallowed. Keep out of the reach of children. Keep away from heat, sparks, and open flames. Do not smoke cigarettes or anything else while handling or near the product. Refer to the UL420-1 Safety Data Sheet for more complete safety instruction. To assure maximum bond strength, surfaces must be mated together within the specified working time, and all clamps affixed within that time. Use sufficient material to ensure that the joint is completely filled when parts are mated and clamped. Avoid over clamping parts, which may cause a dry joint or a joint starved of adhesive. All adhesive application, part positioning, fixturing, and clamping should occur before the working time of the adhesive has expired. After the indicated working time, parts must remain undisturbed until the fixture time is completed. Components bonded, adhesive, and shop temperature can have a significant effect on the work and fixture time of the adhesive. Application of UL420-1 adhesive at temperatures between 65°F and 85°F (18°C and 30°C) will ensure proper cure. Temperatures below 65°F (18°C) will slow cure and fixture speed. UL420-1 adhesives will still react, but will take longer. Temperatures above 85°F (18°C and 30°C) will increase cure and fixture speeds, and there's a risk that the adhesive will be hardened or too thick to bond materials. The viscosities of UL420-1 adhesives are affected by temperature.

NOTE: Because of the curing features of UL420-1 adhesives, large amounts of heat are generated when large masses of material are mixed at one time. The heat generated by the exotherm resulting from mixing large amounts of adhesive can result in a boiling of the monomer in the adhesive (methyl methacrylate), resulting in the release of trapped air, steam and volatile gasses. To prevent this, use only enough material as needed for use within the working time for the product, and confine the gap or spread out the material to no more than .50 inches.

7. HANDLING AND STORAGE

The shelf life of UL420-1 is twelve (12) months from the date of manufacture based upon continuous storage at room temperature (77°F or 25°C). Storage of UL420-1 adhesives in refrigerated compartments will extend the shelf life even more. Do not store UL420-1 adhesive or any other adhesives in a refrigerator which has food or lunch products in them. Be sure to bring UL420-1 adhesives to room temperature for 24 hours before use, otherwise longer cure and fixture times may be expected. Long-term storage at temperatures above room temperature will shorten the shelf life of UL420-1 adhesives considerably. Storage at temperatures above 100°F or 38°C could shorten the shelf life to less than one month. UL420-1 adhesives contain no water, so freezing of the adhesive for short periods is permissible, but is not encouraged.

8. ADDITIONAL INFORMATION

NOTE: Information contained herein is based on tests we believe to be reliable and accurate. It is offered in good faith for the benefit of the consumer. The Company shall not be liable for any injury, loss, or damage in the use or handling of its chemical products since conditions and use are beyond our control. In every case, we urge and recommend the user conduct tests to determine to their own satisfaction that the product is of acceptable quality and suitability for their particular purpose under their own operating conditions. Statements concerning possible use of our products are not intended as recommendations to use our products in the infringement of any patent, or for any particular purpose or application. These products are intended for industrial use only.