

## PRODUCT DESCRIPTION

LOCTITE® UK U-10FL is a low-viscosity, industrial grade urethane adhesive. Once mixed, the two-component urethane cures at room temperature to form an ultra-clear, highly flexible bond line, which provides excellent peel strength.

## TYPICAL APPLICATIONS

Ideal for bonding polycarbonate, and a variety of other plastics, as well as glass, and metal. Suited for applications requiring a clear, non-yellowing bond line.

## PROPERTIES OF UNCURED MATERIAL

Resin	Typical	
	Value	Range
Chemical Type	Polyisocyanate	
Appearance	Light colored liquid	
Specific Gravity @ 25°C	1.10	1.0 to 1.2
Viscosity @ 25°C, mPa.s (cP)	10,000	5,000 to 15,000
Flash Point (TCC), °C (°F)	>202 (>395)	

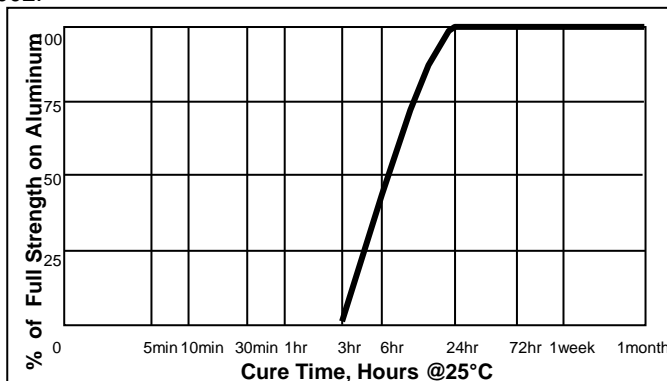
Hardener	Typical	
	Value	Range
Chemical Type	Polyol	
Appearance	Light colored liquid	
Specific Gravity @ 25°C	1.00	0.95 to 1.15
Viscosity @ 25°C, mPa.s (cP)	1,150	600 to 2,000
Flash Point (TCC), °C (°F)	>93 (>200)	

Mixture	Typical Value
	Appearance
Specific Gravity @ 25°C	105
Mix Ratio (R:H) by Weight	100 to 91
by Volume	1 to 1

## TYPICAL CURING PERFORMANCE

### Cure speed

The graph below shows the shear strength developed over time on abraded, acid etched aluminum lap shears with an average bondline gap of 3 to 9 mils and tested according to ASTM D-1002.



## Curing Properties

(@ 25°C unless noted)	Typical Value
Working Life, minutes	10
Tack Free time, hours	3 to 24

## TYPICAL PROPERTIES OF CURED MATERIAL

(@ 25°C unless noted)	Typical Value
<b>Physical Properties</b>	
Dielectric Strength, Volts/Mil	400
Tensile Strength ASTM D638, psi	490
Tensile Elongation ASTM D-638, %	170
Hardness ASTM D-1706, Shore D	45
Glass Transition Temperature, Tg, °C	-20

## PERFORMANCE OF CURED MATERIAL

### Shear Strength vs Substrate

(Substrates cured for 5 days @ 22°C)

Substrate	Typical Value	
Lapshear	N/mm <sup>2</sup>	(psi)
Grit-Blasted Steel	1.1	160
Aluminum (Abraded/Acid Etched, 3 to 9 mil gap)	12.8	1850
Aluminum (Anodized)	1.0	140
Stainless Steel	2.2	320
Polycarbonate	10.8	1570
Nylon	1.6	230
Wood (Fir)	1.1	160

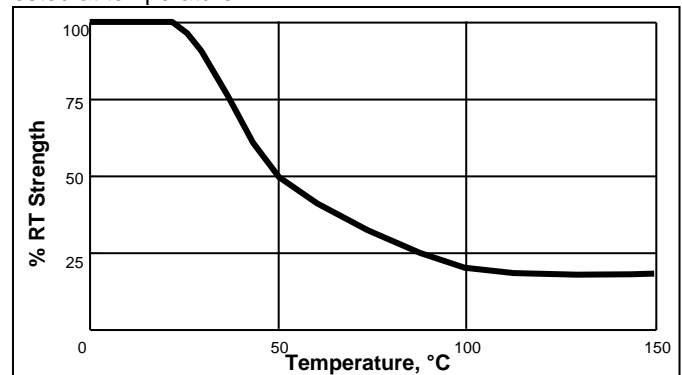
Block Shear	N/mm <sup>2</sup> (psi)	
PVC	7.8	1130
ABS	2.0	290
Epoxy	15.8	2290
Acrylic	2.0	290
Glass	2.4	350

## TYPICAL ENVIRONMENTAL RESISTANCE

### Hot Strength

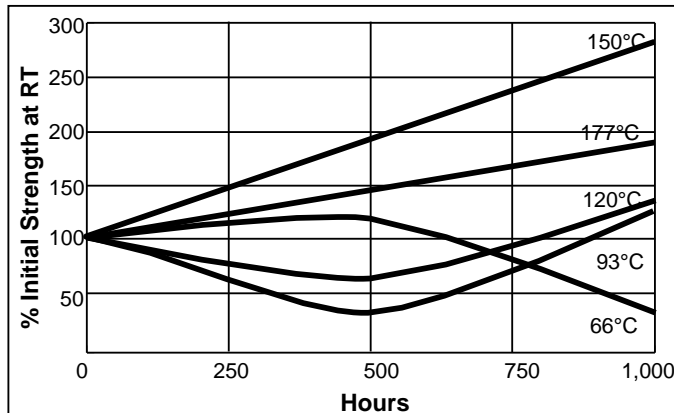
Test procedure :	ASTM D-1002
Substrate:	Abraded, acid etched aluminum
Bondline gap, mils:	3 to 9
Cure procedure:	12 hours at 65°C & 4 hours at 22°C

Tested at temperature.



### Heat Aging

Cured for 5 days at 22°C on steel with no induced gap, aged at temperature indicated and tested at 22°C.



### Chemical / Solvent Resistance

Cured for 5 days at 22°C on steel with no induced gap, aged under conditions indicated and tested at 22°C.

Solvent	Temp	% Initial Strength retained at	
		500 hr	1000 hr
Air	87°C	33	36
Motor Oil (10W-30)	87°C	30	0
Unleaded Gasoline	87°C	60	60
Water/Glycol (50%/50%)	87°C	71	18
Salt/Fog ASTM B-117	22°C	45	0
95% Relative Humidity	38°C	83	107
Condensing Humidity	49°C	25	27
Water	22°C	35	17
Acetone	22°C	0	0
Isopropyl Alcohol	22°C	0	0

### GENERAL INFORMATION

**This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.**

**For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).**

### Directions for use

- For high strength structural bonds, removal of surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
- Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
- Dual Cartridges:** To use simply insert the cartridge into the application gun and start the plunger into the cylinders using light pressure on the trigger. Next, remove the cartridge cap and expel a small amount of adhesive to be sure both sides are flowing evenly and freely. If automatic mixing of resin

and hardener is desired, attach the mixing nozzle to the end of the cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of the adhesive and mix thoroughly. Mix approximately 15 seconds after uniform color is obtained. **Bulk Containers:** Mix thoroughly by weight or volume in the proportions specified in Properties of Uncured Material section. Mix vigorously approximately 15 seconds after uniform color is obtained.

- For maximum bond strength, apply adhesive evenly to both surfaces to be joined.
- Application to the substrates should be made within 10 minutes. Larger quantities and/or higher temperatures will reduce this working time.
- Join the adhesive coated surfaces and allow to cure at 25°C (77°F) for 24 hours for high strength. Heat up to 93°C (200°F), will speed curing.
- Keep parts from moving during cure. Contact pressure is necessary. Maximum shear strength is obtained with a 3-9 mil bond line.
- Excess uncured adhesive can be cleaned up with ketone type solvents.

### Storage

Product shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8°C to 28°C (46°F to 82°F) unless otherwise labeled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused product, do not return any material to its original container. For further specific shelf life information, contact your local Technical Service Center.

### Data Ranges

The data contained herein may be reported as a typical value and/or range. Values are based on actual test data and are verified on a periodic basis.

### Note

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