

PRODUCT DESCRIPTION

LOCTITE® UK U-09FL 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

	Value	Typical Range
Chemical Type	Polyisocyanate	
Appearance	Clear liquid	
Specific Gravity @ 25°C	1.1	1.0 to 1.2
Viscosity @ 25°C, mPa.s (cP)	7,800	5,000 to 15,000
Flash Point (TCC), °C	See SDS	

Hardener

	Value	Typical Range
Chemical Type	Polyol	
Appearance	Clear Liquid	
Specific Gravity @ 25°C	1.00	0.95 to 1.15
Viscosity @ 25°C, mPa.s (cP)	1,100	600 to 2,000
Flash Point (TCC), °C	See SDS	

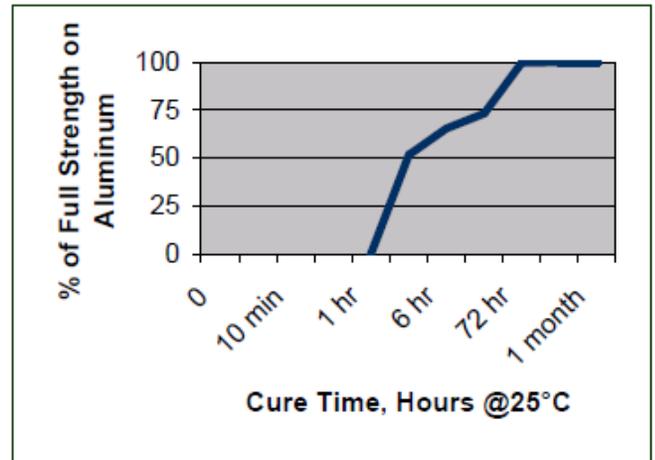
Mixture

	Typical Value
Appearance	Ultra Clear
Specific Gravity @ 25°C	1.0 - 1.2
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 acid etched aluminum lap shears with an average bondline gap of 3 to 9 mils and tested according to STM 700.



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)

Physical Properties

	Typical Value
Dielectric Strength STM 733, Volts/Mil	841
Tensile Strength STM 708, psi	2761
Tensile Elongation STM 708, %	178
Hardness STM 707, Shore D	45
Glass Transition Temperature STM 767, Tg, °C	25.8
CTE pre Tg, STM 767	137ppm
CTE post Tg, STM 767	231ppm

PERFORMANCE OF CURED MATERIAL

Shear Strength vs Substrate

Substrate (Substrates cured for 5 days @ 22°C)	Typical Value
Lapshear STM 700	N/mm ² (psi)
Grit-Blasted Steel	10 1459
Aluminum (Acid Etched, 3 to 9 mil gap)	5.4 777
Aluminum (Anodized)	5.7 821
Stainless Steel	4.0 587
Polycarbonate	3.3 476
Nylon	1.6 239
Wood (Pine)	5.0 734

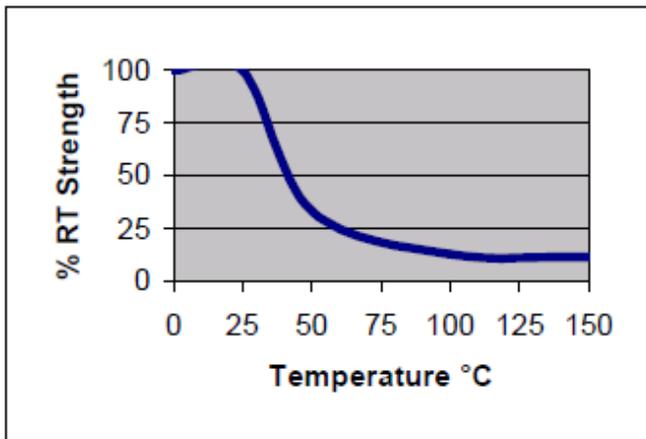
Lap Shear STM 700 (Acid Etched, 3 to 9 mil gap)	N/mm ² (psi)
Substrate cured for 3 hrs at 65°C	2.8 403
Substrate cured for 24 hrs at 65°C	3.9 569
Substrate cured for 72 hrs at 65°C	5.4 774
Substrate cured for 1 week at 65°C	6.7 965

Block Shear STM 726, 5 days at RT	N/mm ² (psi)
PVC	10.4 1511
ABS	1.7 252
Epoxy	16.6 2414
Acrylic	4.0 578

TYPICAL ENVIRONMENTAL RESISTANCE

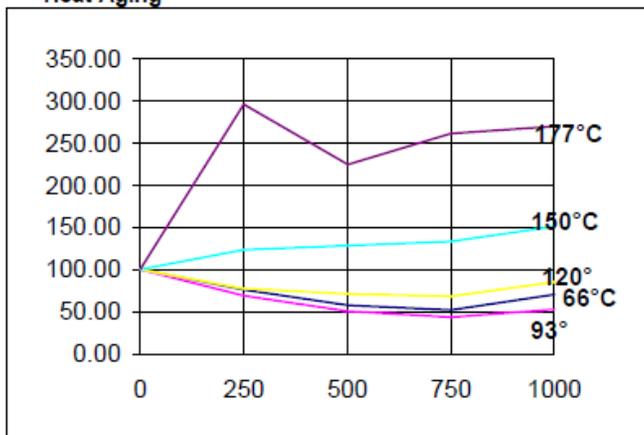
Hot Strength

Test procedure : STM 700
 Substrate: 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	90	140
Motor Oil (10W-30)	87°C	150	155
Unleaded Gasoline	87°C	0	0
Water/Glycol (50%/50%)	87°C	0	0
Salt/Fog ASTM B-117	22°C	0	0
95% Relative Humidity	38°C	25	20
Condensing Humidity	49°C	20	15
Water	22°C	10	25
Acetone	22°C	0	0
Isopropyl Alcohol	22°C	140	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.

6. 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.

7. Keep parts from moving during cure. Contact pressure is necessary. Maximum shear strength is obtained with a 3-9 mil bond line.

8. 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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