

## PRODUCT DESCRIPTION

LOCTITE® UK M-06FL is a medium-viscosity, urethane adhesive. Once mixed, the two-component urethane cures at room temperature to form an off-white, highly flexible bond line which provides excellent peel and shear strength.

## TYPICAL APPLICATIONS

Ideal for bonding a variety of metals, as well as plastics, glass and elastomers. LOCTITE® UK M-06FL complies with the Loctite ISO-10993 Biocompatibility test program. Certificates of Compliance are available through the Loctite Quality Department. Suitable for use in assembly of disposable medical devices.

## PROPERTIES OF UNCURED MATERIAL

Resin	Typical	
	Value	Range
Chemical Type	Polyisocyanate	
Appearance	Yellow viscous liquid	
Specific Gravity @ 25°C	1.10	1.0 to 1.2
Viscosity @ 25°C, mPa.s (cP)	640	300 to 1,100
Flash Point (TCC), °C (°F)	188 (370)	

Hardener	Typical	
	Value	Range
Chemical Type	Polyol	
Appearance	Cloudy white liquid	
Specific Gravity @ 25°C	1.10	0.9 to 1.1
Viscosity @ 25°C, mPa.s (cP)	35,000	15,000 to 40,000
Flash Point (TCC), °C (°F)	>93 (>200)	

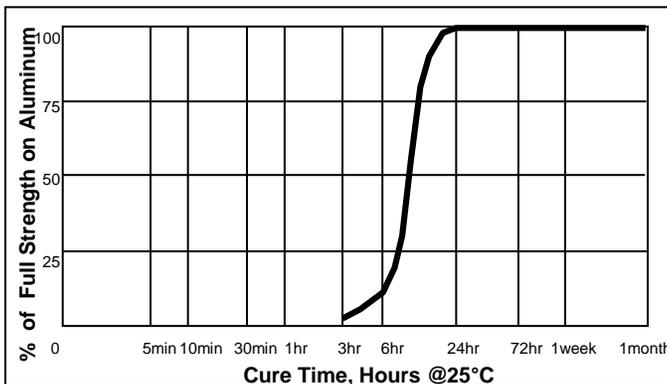
  

Mixture	Typical Value	
	Appearance	Off-White
Specific Gravity @ 25°C	1.10	
Mix Ratio (R:H) by Weight	100 to 200	
by Volume	1 to 2	

## 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.



## Regulatory Notice

**This product is regulated by the United States Department of Commerce and may not be exported without license from that organization. See the Material Safety Data Sheet for details.**

## Curing Properties

	Typical Value
(@ 25°C unless noted)	
Working Life, minutes	5
Tack Free time, minutes	160

## TYPICAL PROPERTIES OF CURED MATERIAL

(@ 25°C unless noted)

Physical Properties	Typical Value
Dielectric Strength, Volts/Mil	400
Tensile Strength ASTM D638, psi	1,300
Tensile Elongation ASTM D-638, %	74
Hardness ASTM D-1706, Shore D	45
Glass Transition Temperature, Tg, °C	48

## PERFORMANCE OF CURED MATERIAL

### Shear Strength vs Substrate

(Substrates cured for 5 days @22°C.)

Substrate	Typical Value	
Lapshear (ASTM D 1002)	N/mm <sup>2</sup>	(psi)
Grit-Blasted Steel	6.4	930
Aluminum (Abraded/Acid Etched, 3 to 9 mil gap)	14.6	2120
Aluminum (Anodized)	5.2	750
Stainless Steel	6.3	910
Polycarbonate	13.6	1970
Nylon	3.7	530
Wood (Fir)	9.6	1390

### Block Shear (ASTM D 4501)

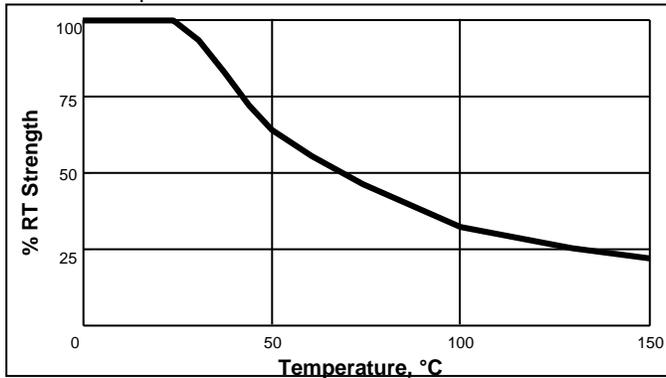
	N/mm <sup>2</sup> (psi)	
PVC	8.5	1230
ABS	6.4	930
Epoxy	21.4	3110
Glass	9.2	1340

## TYPICAL ENVIRONMENTAL RESISTANCE

### Hot Strength

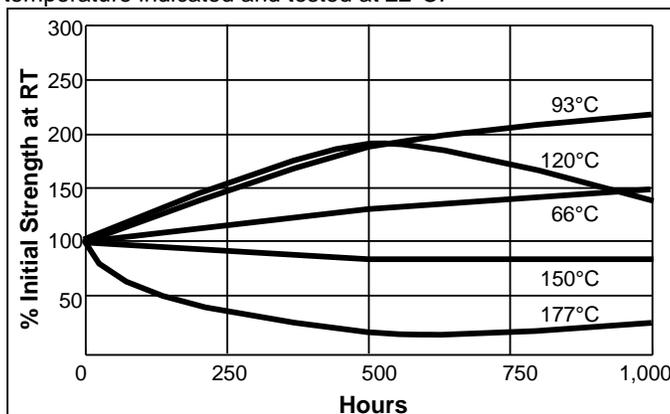
Test procedure : ASTM D-1002  
 Substrate: Abraded, acid etched aluminum  
 Bondline gap, mils: 3 to 9  
 Cure procedure: 12 hours at 65°C & 4 hours at 22°C

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	144	105
Motor Oil (10W-30)	87°C	95	180
Unleaded Gasoline	87°C	57	69
Water/Glycol (50%/50%)	87°C	130	108
Salt/Fog ASTM B-117	22°C	97	82
95% Relative Humidity	38°C	102	112
Condensing Humidity	49°C	111	86
Water	22°C	107	108
Acetone	22°C	47	68
Isopropyl Alcohol	22°C	54	57

## 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).

## APPROVALS

LOCTITE® UK M-06FL has been tested to ISO-10993. It is particularly suited for use in disposable medical device assemblies.

## Effects of Sterilization

In general, products similar in composition to LOCTITE® UK M-06FL subjected to standard sterilization methods, such as EtO and Gamma Radiation (25 to 50 kilorays cumulative) show excellent bond strength retention. LOCTITE® UK M-06FL maintains bond strength after 1 cycle of steam autoclave. It is recommended that customers test specific parts after subjecting them to the preferred sterilization method. Consult with Loctite for a product recommendation if your device will see more than 3 sterilization cycles.

## Directions for use

1. For high strength structural bonds, removal of surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
2. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
3. **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.

4. For maximum bond strength apply adhesive evenly to both surfaces to be joined.
5. Application to the substrates should be made within 3 to 5 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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