Technical Data Sheet

LOCTITE® UK M-06FL

September 2020

PRODUCT DESCRIPTION

LOCTITE® UK M-06FL provides the following product characteristics:

Technology	Urethane
Chemical Type (Resin)	Polyisocyanate
Chemical Type (Hardener)	Polyol
Appearance (Resin)	Yellow viscous liquid
Appearance (Hardener)	Cloudy white liquid
Appearance (Mixture)	Off-white
Components	Two part - Resin & Hardener
Viscosity	Medium
Mix Ratio, by weight - Resin : Hardener	100 : 200
Mix Ratio, (by volume) Resin : Hardener	1 : 2
Cure	Room temperature cure after mixing
Application	Structural adhesive, Structural bonding

LOCTITE® UK M-06FL is a medium viscosity industrial grade 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 include bonding a variety of metals, as well as plastics, glass and elastomers.

ISO-10993

LOCTITE® UK M-06FL has been tested to Henkel's test protocols based on ISO 10993 biocompatibility standards, as a means to assist in the selection of products for use in the medical device industry.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin:

Specific Gravity @ 25 °C	1.1
Viscosity @ 25°C, mPa·s (cP)	640

Hardener:

Specific Gravity @ 25 °C	1.1
Viscosity @ 25°C, mPa·s (cP)	35,000

Mixed Properties:

Specific Gravity @ 25 °C	1.1

TYPICAL CURING PERFORMANCE

Sample cured @ 25°C (unless noted)

Working Life

Working life, minutes	5

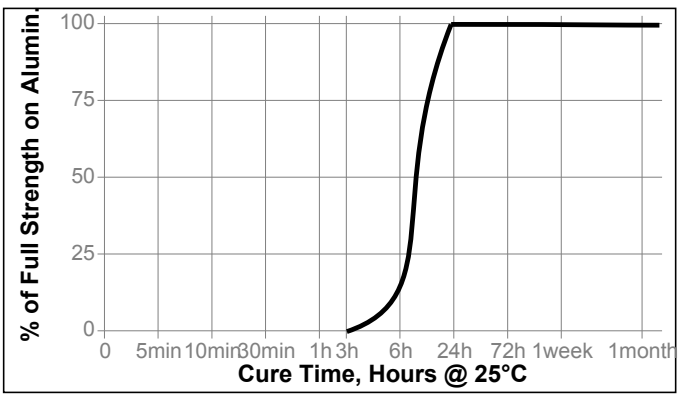
Tack Free Time

Tack Free Time is the time required to achieve a tack free surface

Tack Free Time, minutes	160

Cure Speed vs. Time

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.



TYPICAL PROPERTIES OF CURED MATERIAL

Sample cured @ 25°C (unless noted)

Physical Properties

Hardness (Shore D), ASTM D-1706		45
Glass Transition Temperature (Tg), °C		48
Tensile Elongation, ASTM D638, %		74
Tensile Strength , ASTM D638	N/mm²	8.96
	(psi)	(1,300)

Electrical Properties

Dielectric Strength, Volts/Mil	400

TYPICAL PERFORMANCE OF CURED MATERIAL

Sample cured 5 days @ 22°C

Shear Strength vs Substrate

Lap Shear Strength, ASTM D1002:

Grit-Blasted Steel	N/mm²	6.4
	(psi)	(930)
Aluminum (Abraded/Acid Etched, 3 to 9 mil gap)	N/mm²	14.6
	(psi)	(2,120)
Aluminum (Anodized)	N/mm²	5.2
	(psi)	(750)
Stainless Steel	N/mm²	6.3
	(psi)	(910)
Polycarbonate	N/mm²	13.6
	(psi)	(1,970)
Nylon	N/mm²	3.7
	(psi)	(530)
Wood (Fir)	N/mm²	9.6
	(psi)	(1,390)

Block Shear Strength, ASTM D 4501:

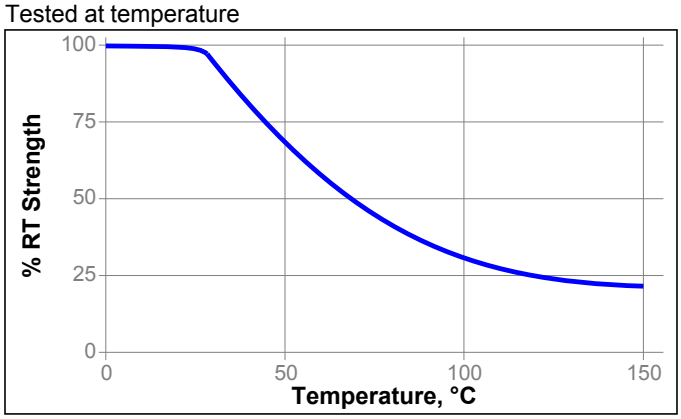
PVC	N/mm²	8.5
	(psi)	(1,230)
ABS	N/mm²	6.4
	(psi)	(930)
Epoxy	N/mm²	21.4
	(psi)	(3,110)
Glass	N/mm²	9.2
	(psi)	(1,340)

TYPICAL ENVIRONMENTAL RESISTANCE

Hot Strength

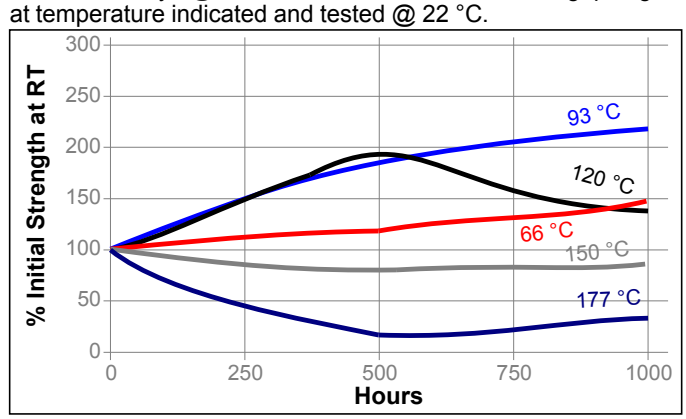
Test Procedure:	ASTM D-1002
Substrate:	Abraded, acid etched aluminum
Bondline gap, mils:	3 to 9
Cure Procedure:	12 hours @ 65°C & 4 hours @ 22°C

Tested at temperature



Heat Aging

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



Chemical/Solvent Resistance

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

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Air	87	144	105
Motor oil (10W30)	87	95	180
Unleaded gasoline	87	57	69
Water/glycol 50/50	87	130	108
Salt/Fog ASTM B-117	22	97	82
95% RH	38	102	112
Condensing Humidity	49	111	86
Water	22	107	108
Acetone	22	47	68
Isopropanol	22	54	57

Effects of Sterilization

In general, products similiar in composition to LOCTITE® UK M-06FL subjected to standard sterilization methods, such as EtO and Gamma Radiation (25 to 50 kiloGrays 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.

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 Safety Data Sheet (SDS).

Directions For Use:

1. For high strength structural bonds, remove 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 for 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 for 24 hours for high strength. Heat up to 93 °C, will speed curing.
7. Keep parts from moving during cure. Contact pressure is neccesary. Maximum shear strength is obtained with a 3 to 9 mil bond line.
8. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.
Optimal Storage: 8°C to 28°C. Storage below 8°C or greater than 28°C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Product Specification

The technical data contained herein are intended as reference only and are not considered specifications for the product. Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and Certificate

Please contact Henkel representative for related approval or certificate of this product.

Data Ranges

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

Temperature/Humidity Ranges: 23 °C / 50% RH = 23±2 °C / 50 ±5% RH.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note:
The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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Reference 0.1

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