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# Product Description Sheet

## Product 3751

Industrial Products, November 1998

### PRODUCT DESCRIPTION

LOCTITE® Lite-Tak® 3751 is a one-part, ultraviolet curable adhesive designed for applications where rapid cure and a dry to the touch surface are desired.

### TYPICAL USES

Lite-Tak products are versatile. They are used for bonding, encapsulating, coating and sealing. They are solvent free materials that cure in seconds when exposed to most types of ultraviolet lights ranging from low intensity black lights to high intensity mercury lamps.

### PROPERTIES OF UNCURED MATERIAL

	Typical Value
Chemical Type	Modified Acrylic Ester
Appearance	Clear, pale yellow liquid
Solids, %	100
Viscosity @ 25°C, cP	10,000
Brookfield RVT Spindle #3 @ 5 rpm	
Flash Point TCC, °F (°C)	189 (87)
Shelf life	1 year

### TYPICAL CURING PERFORMANCE

These products only cure when and where they are exposed to ultraviolet light. If being used to bond parts together, UV light must be able to pass through one of the parts to reach the adhesive. NOTE: Because UV light is at a higher wavelength than visible light, it doesn't penetrate plastics and glass the same. A part that is clear to the eye is not necessarily clear to UV light.

Cure rate and depth of cure will be dependent upon spectral output of UV source, radiation intensity, distance of parts from light source, transmittance of substrates, bondline gap and geometry.

### DEPTH OF CURE

Zeta 7400, 10 seconds, 25 mw/cm <sup>2</sup> @ 365nm	0.14"
Fusion H bulb, 10 seconds, 80 mw/cm <sup>2</sup> @ 365nm	0.15"

### TACK FREE SURFACE CURE

Zeta 7400, 60 seconds 30 mW/cm <sup>2</sup>	PASS
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### TYPICAL PROPERTIES OF CURED MATERIAL

All samples prepared as films .025" - .030" thick and cured for two minutes on each side with a Zeta 7400 having an irradiance of 30 mw/cm<sup>2</sup> @ 365nm.

Resin type:	Thermoset acrylic urethane
Hardness, Shore D-2:	73
Modulus, psi, ASTM D638	92,000
Tensile strength, psi, ASTM D638	
at yield:	3,300
a break	1,600
Elongation, %, ASTM D638	
at yield:	50
at break:	50

### PRODUCT PERFORMANCE

#### Shear strength, ASTM D 1002, psi

(Lapshear samples cured for 120 seconds using a Zeta 7400 with an irradiance of 30 mW/cm<sup>3</sup> @ 365 nm.)

Substrate	Value (psi)
Glass/Glass	740 glass failure
Steel/Glass	760 glass failure
Epoxyglass/glass	700 glass failure
Phenolic/glass	750 glass failure
Polycarbonate/glass	670 glass failure
Polycarbonate/polycarbonate	700 polycarbonate failure
Polycarbonate/epoxyglass	820 polycarbonate failure

#### Torsional Shear Strength, ft-lb.

(Samples cured for 120 seconds using a Zeta 7400 with an irradiance of 30 mW/cm<sup>2</sup> @ 365 nm.)

Grit blasted aluminum hex buttons to glass blocks	60 adhesive failure to glass
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### SOLVENT RESISTANCE

(Cross Hatch Test ASTM D 3359. 4" by 4" epoxy panels coated with 5 mils adhesive and cured for 120 seconds @ 30 mW/cm<sup>2</sup>. All samples conditioned 200 hours @ 25°C except where noted. Results reported in % adhesion retained.)

Automatic transmission fluid	100
Gasohol	95
10W30 Motor oil	100
50/50 glycol / water	100
Acetone	0
Condensing humidity @ 120°F	100
Salt fog @ 100°F	100

### ELECTRICAL PROPERTIES

Dielectric strength, ASTM D 149 (volts/mil)	740
Dielectric constant, ASTM D 150	
100 Hz	5.48
1 kHz	5.29
10 kHz	4.27
Dissipation factor, ASTM D 150	
100 Hz	0.050
1 khz	0.046
10 khz	0.053
Volume resistivity, ASTM D 257 (ohms-cm)	5.4 E14
Surface resistivity, ASTM D 257 (ohms)	1.3 E16

### 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 Sheets, (MSDS).**

**Directions for use**

This product is UV sensitive. Exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling. Product should be dispensed from applicators with black feed lines. For best performance bond surfaces should be clean and free from grease. UV light cure

rate is dependent on lamp intensity, distance from light source, depth of cure needed or bondline gap and light transmittance of the substrate through which the radiation must pass.

Recommended intensity for cure in bondline situation is 5mW/cm<sup>2</sup> minimum (measured at the bondline) with an exposure time of 4-5 times the fixture time at this same intensity. For dry curing of exposed surfaces higher intensity UV is required (100W/cm<sup>2</sup> minimum).

Cooling should be provided for temperature sensitive substrate such as thermoplastics. Plastic grades should be checked for risk of stress cracking when exposed to liquid adhesive. Excess adhesive can be wiped away with organic solvent. Bonds should be allowed to cool before subjecting to any service loads.

**Storage**

Products shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8° to 28°C (46° 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 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**

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Loctite Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Loctite Corporation's products. Loctite Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Loctite Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.