

**LOCTITE**<sup>®</sup>**Loctite<sup>®</sup> 3924AC<sup>™</sup>**

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**ASSURE CURE DESCRIPTION**

AssureCure is designed to be used directly on a manufacturing line to quantitatively determine that a light cure acrylic adhesive has cured. The AssureCure system combines a newly developed adhesive with detection equipment and a software package.

The system is designed to optically measure changes during polymerization. By applying a special algorithm to this measurement, the degree of cure is obtained without destructive testing. The measurement is obtained in as little as 20 milliseconds.

**ADHESIVE DESCRIPTION**

LOCTITE<sup>®</sup> Product 3924AC<sup>™</sup> provides the following product characteristics:

Chemical Type	UV acrylic
Appearance (uncured)	Transparent to hazy liquid, Free of undissolved solids
Fluorescence	Positive under UV light
Components	One component - requires no mixing
Cure	Ultraviolet (UV)/ visible light
Application	Bonding
Viscosity	Medium

LOCTITE<sup>®</sup> 3924AC<sup>™</sup> adhesive can be used in conjunction with detection equipment to quantitatively determine that the adhesive has cured.

LOCTITE<sup>®</sup> 3924AC<sup>™</sup> is suitable for a wide variety of applications that require fast cure, flexibility, high adhesion and autoclave resistance. LOCTITE<sup>®</sup> 3924AC<sup>™</sup> cures in seconds when exposed to light of the proper wavelength and intensity and achieves excellent adhesion to glass, plastics and metal.

LOCTITE<sup>®</sup> 3924AC<sup>™</sup> was specifically designed for use in the assembly of disposable medical devices.

**SYSTEM DESCRIPTION**

The AssureCure system is comprised of a fiber optic light source and detection equipment. The fiber optic light source momentarily illuminates the adhesive and the response is analyzed by the detection system. By applying a specially developed algorithm to the response signal, a direct correlation to the adhesives degree of cure is obtained. The data is collected, analyzed, and can be displayed on an existing PC or PLC using the AssureCure software package. Results can be displayed numerically, corresponding to the degree of cure, or as a pass / fail measurement.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

Specific Gravity @ 25 °C	1.06
Flash Point - See MSDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 2, speed 20 rpm	800 to 1,400

**TYPICAL CURING PERFORMANCE****Fixture Time**

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm<sup>2</sup>.

UV Fixture Time, Glass microscope slides, seconds:

Zeta@ 7410 light source:

30 mW/cm<sup>2</sup>, measured @ 365 nm <5

**Tack Free Time**

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

Tack Free Time, seconds:

Zeta@ 7410:

30 mW/cm<sup>2</sup>, measured @ 365 nm >60

**TYPICAL PROPERTIES OF CURED MATERIAL**

Cured @ 100 mW/cm<sup>2</sup>, measured @ 365 nm, for 30 seconds per side using an Electroless system, D bulb

Physical Properties:

Glass Transition Temperature, ISO 11359-2, °C	61
Shore Hardness, ISO 868, Durometer D	60
Elongation, at break, ISO 527-3, %	280
Tensile Strength, ISO 527-3	N/mm <sup>2</sup> 18
	(psi) (2,600)
Tensile Modulus, ISO 527-3	N/mm <sup>2</sup> 283
	(psi) (41,100)

**TYPICAL PERFORMANCE OF CURED MATERIAL****Adhesive Properties**

Cured @ 1,000 mW/cm<sup>2</sup>, measured @ 365 nm, for 10 seconds using an Electroless system, D bulb

Needle Pullout Strength:

Material	22 Gauge Cannula	27 Gauge Cannula
Polycarbonate	N 120	N 49
	(lb) (27)	(lb) (11)

Cured @ 100 mW/cm<sup>2</sup>, measured @ 365 nm, for 30 seconds

Block Shear Strength, ISO 13445:

Polycarbonate to Polycarbonate	N/mm <sup>2</sup> 16.2
	(psi) (2,350)
Polyvinylchloride to Glass	N/mm <sup>2</sup> 4.9
	(psi) (710)
Steel (grit blasted) to Glass	N/mm <sup>2</sup> 10.1
	(psi) (1,460)

**TYPICAL ENVIRONMENTAL RESISTANCE****Thermal Stability of Needle Assemblies**

Aged @ 60°C and tested @ 22 °C

Needle Pullout Strength, % of initial strength 4 weeks 8 weeks:

Polycarbonate:

22 Gauge Cannula	165	110
27 Gauge Cannula	115	115

**Sterilization Resistance of Needle Assemblies**

Sterilized as indicated and tested @ 22 °C

Needle Pullout Strength, % of initial strength:

	Gamma 30kGy	ETO 1 Cycle	Autoclave	
			1 Cycle	5 Cycles
Polycarbonate:				
22 Gauge Cannula	155	150	110	130
27 Gauge Cannula	150	135	105	11

**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:**

1. This product is light sensitive; exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
2. The product should be dispensed from applicators with black feedlines.
3. For best performance bond surfaces should be clean and free from grease.
4. 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.
5. Cooling should be provided for temperature sensitive substrates such as thermoplastics.
6. Plastic grades should be checked for risk of stress cracking when exposed to liquid adhesive.
7. Excess uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
8. Bonds should be allowed to cool before subjecting to any service loads.

**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 21 °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.

**Note**

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**Conversions**

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$   
 $\text{kV/mm} \times 25.4 = \text{V/mil}$   
 $\text{mm} / 25.4 = \text{inches}$   
 $\mu\text{m} / 25.4 = \text{mil}$   
 $\text{N} \times 0.225 = \text{lb}$   
 $\text{N/mm} \times 5.71 = \text{lb/in}$   
 $\text{N/mm}^2 \times 145 = \text{psi}$   
 $\text{MPa} \times 145 = \text{psi}$   
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$   
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$   
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$   
 $\text{mPa}\cdot\text{s} = \text{cP}$



**Loctite Industrial**

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