Technical Data Sheet

LOCTITE® AA 3924™

Known as LOCTITE® 3924™
September 2020

PRODUCT DESCRIPTION

LOCTITE® AA 3924™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	UV acrylic
Appearance (uncured)	Transparent to hazy liquid, Free of undissolved solids[LMS]
Fluorescence	Positive under UV light[LMS]
Components	One component - requires no mixing
Cure	Ultraviolet (UV) / Visible light
Cure Benefit	Production - high speed curing
Application	Bonding
Viscosity	Medium

LOCTITE® AA 3924™ is suitable for a wide variety of applications that require fast cure, flexibility, high adhesion and autoclave resistance. LOCTITE® AA 3924™ cures in seconds when exposed to light of the proper wavelength and intensity and achieves excellent adhesion to glass, plastics and metal. The ability of this product to fluoresce under black light facilitates inspection of bonded assemblies for adhesive presence. LOCTITE® AA 3924™ was specifically designed for bonding stainless steel cannulae into hubs, syringes and lancets for needle assemblies. Suitable for use in the assembly of **disposable medical devices**.

ISO-10993

LOCTITE® AA 3924™ 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

Specific Gravity @ 25 °C 1.06

Flash Point - See SDS

Viscosity, Brookfield - RVT,25°C,mPa·s (cP):
Spindle 2, speed 20 rpm 800 to 1,400[LMS]

TYPICAL CURING PERFORMANCE

Fixture Time

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm² .

UV Fixture Time, Glass microscope slides, seconds:
Black light:
6 mW/cm² , measured @ 365 nm ≤5[LMS]
Zeta® 7410 light source:
30 mW/cm² , measured @ 365 nm <5
Electrodeless, D bulb:
100 mW/cm² , measured @ 365 nm <5

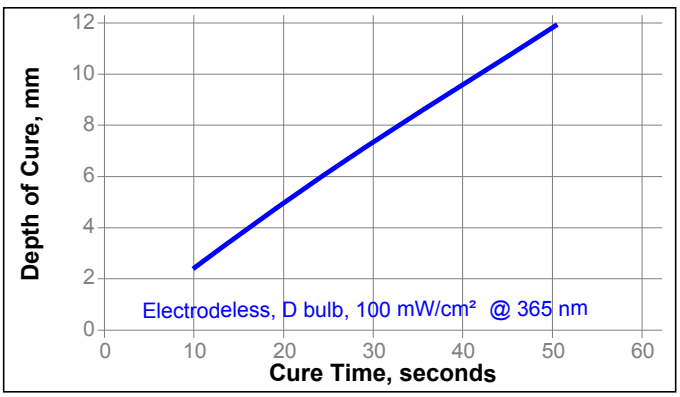
Tack Free Time

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

Tack Free Time, seconds:
Zeta® 7410:
30 mW/cm² , measured @ 365 nm >60
Electrodeless, D bulb:
100 mW/cm² , measured @ 365 nm >60

Depth of Cure

The graph below shows the increase in depth of cure with time at 100mW/cm² as measured from the thickness of the cured product formed in an aluminum weighing dish.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 100 mW/cm² , measured @ 365 nm, for 30 seconds per side using an Electrodless system, D bulb

Physical Properties:
Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}:
Pre Tg 135×10^{-06}
Post Tg 215×10^{-06}
Glass Transition Temperature, ISO 11359-2, °C 61

Water Absorption, ISO 62, %:		
2 hours in water @ 100 °C		5.5
7days in water @ 22 °C		6.4
Linear Shrinkage, in/in		1.9
Shore Hardness, ISO 868, Durometer D		60
Elongation, at break, ISO 527-3, %		280
Tensile Strength, ISO 527-3	N/mm²	18
	(psi)	(2,600)
Tensile Modulus, ISO 527-3	N/mm²	283
	(psi)	(41,100)
UV Depth of Cure, mm:		
Cured @ 100 mW/cm² , measured @ 365 nm, for 10 seconds, using an Electrodeless system, D bulb		≥2.2[LMS]

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured @ 1,000 mW/cm² , measured @ 365 nm, for 10 seconds using an Electrodeless system, D bulb

Needle Pullout Strength:

Material	22 Gauge Cannula	27 Gauge Cannula
ABS	N 142 (lb) (32)	N 71 (lb) (16)
Acrylic	N 142 (lb) (32)	N 80 (lb) (18)
Polycarbonate	N 120 (lb) (27)	N 49 (lb) (11)
Polyethylene	N 13 (lb) (3)	N 13 (lb) (3)
Polyethylene (plasma treated)	N 98 (lb) (22)	N 98 (lb) (22)
Polypropylene	N 22 (lb) (5)	N 22 (lb) (5)
Polypropylene (plasma treated)	N 120 (lb) (27)	N 98 (lb) (22)
Polystyrene	N 93 (lb) (21)	N 49 (lb) (11)
Polyurethane	N 125 (lb) (28)	N 58 (lb) (13)

Cured @ 100 mW/cm² , measured @ 365 nm, for 30 seconds.

Block Shear Strength, ISO 13445:

Acrylic to Glass	N/mm²	4.2
	(psi)	(610)
Acrylic to Acrylic	N/mm²	7.7
	(psi)	(1,120)
G-10 Epoxyglass to Glass	N/mm²	8.6
	(psi)	(1,240)
Nylon to Glass	N/mm²	3.8
	(psi)	(550)
Polybutylene Terephthalate to Glass	N/mm²	6.7
	(psi)	(970)
Polycarbonate to Polycarbonate	N/mm²	16.2
	(psi)	(2,350)
Polyvinylchloride to Glass	N/mm²	4.9
	(psi)	(710)
Aluminum (grit blasted) to Glass	N/mm²	10.0
	(psi)	(1,450)
Steel (grit blasted) to Glass	N/mm²	10.1
	(psi)	(1,460)

TYPICAL ENVIRONMENTAL RESISTANCE

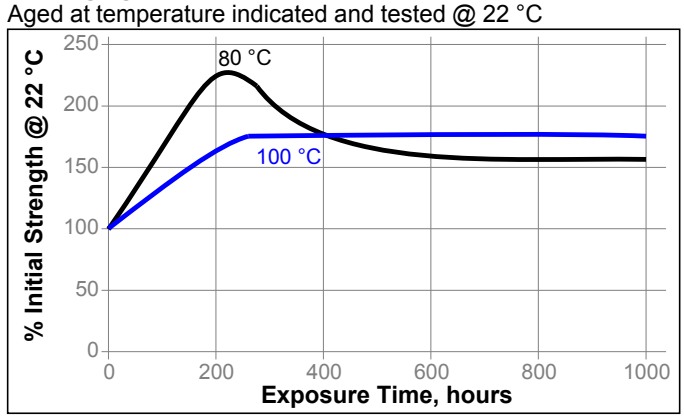
Cured @ 100 mW/cm² , measured @ 365 nm, for 30 seconds

Block Shear Strength, ISO 13445:

Polycarbonate

Heat Aging

Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 23 °C.

		% of initial strength			
Environment	**°C**	**24 h**	**100 h**	**500 h**	**1000 h**
95% RH	40	-----	140	100	110
Water immersion	22		90	90	140
Isopropanol	22	75	-----	-----	-----
Heptane	22	90	-----	-----	-----

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
Polypropylene (plasma treated):		
22 Gauge Cannula	130	80
27 Gauge Cannula	115	100
Polystyrene:		
22 Gauge Cannula	180	165
27 Gauge Cannula	170	140

Sterilization Resistance of Needle Assemblies

Sterilized as indicated and tested @ 22 °C

Needle Pullout Strength, % of initial strength:

	Gamma	**ETO**	**Autoclave**	
	30kGy	1 Cycle	1 Cycle	5 Cycles
Polycarbonate:				
22 Gauge Cannula	155	150	110	130
27 Gauge Cannula	150	135	105	115
Polypropylene (plasma treated):				
22 Gauge Cannula	130	125	115	110
27 Gauge Cannula	110	110	95	80
Polystyrene:				
22 Gauge Cannula	130	130	----	----
27 Gauge Cannula	130	120	----	----

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. 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.

Loctite Material Specification[LMS]

LMS dated June 2, 2003. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

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.

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. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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Reference 1.5