



LOCTITE® AA 3523™

November 2014

Product description

LOCTITE® AA 3523™ provides the following product characteristics:

|                      |                                                       |
|----------------------|-------------------------------------------------------|
| Technology           | Acrylic                                               |
| Chemical Type        | Modified acrylate                                     |
| Appearance (uncured) | Transparent light to dark amber liquid <sup>LMS</sup> |
| Components           | One component – requires no mixing                    |
| Viscosity            | Medium                                                |
| Cure                 | Ultraviolet (UV) light                                |
| Cure benefit         | Production - high speed curing                        |
| Application          | Bonding                                               |

LOCTITE® AA 3523™ is used to bond, seal or coat metal and glass components in industrial applications. This product is suitable for reinforcement of flexible PCB and for bonding a wide range of materials. When cured, it offers excellent flexibility and toughness, making it highly resistant to vibration and impact forces.

TYPICAL PROPERTIES OF UNCURED MATERIAL

|                                                |                                  |
|------------------------------------------------|----------------------------------|
| Specific Gravity @ 25 °C                       | 1.06                             |
| Refractive index, ASTM D 1218                  | 1.48                             |
| Flash point - see SDS                          |                                  |
| Viscosity, Brookfield - RVF, 25°C, mPa.s (cP): | 16,000 to 24,000 <sup>L</sup> MS |
| Spindle 6, speed 20 rpm                        |                                  |

TYPICAL CURING PERFORMANCE

LOCTITE® AA 3523™ cures when exposed to UV radiation of 365 nm. To obtain full cure on surfaces exposed to air, radiation @ 220 to 260 nm is also required. The speed of cure and depth of cure will depend upon the UV intensity and spectral distribution of the light source, the exposure time and the light transmittance of the substrates.

Tack Free Time

The tack free time is the time the product must be irradiated with light energy to form a tack free surface.

Tack free time, ASTM C679, seconds:

|                                          |                    |
|------------------------------------------|--------------------|
| High pressure Hg Arc:                    |                    |
| 100 mW/cm <sup>2</sup> measured @ 365 nm | ≤20 <sup>LMS</sup> |

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:

|                                        |                    |
|----------------------------------------|--------------------|
| Black light, Zeta® 7500 light source:  |                    |
| 6 mW/cm <sup>2</sup> measured @ 365 nm | ≤8 <sup>LM</sup> S |

Activator Cure

Apply LOCTITE® Activator 7075™ to one surface and the adhesive to the other, mate and clamp. The assembly will reach handling strength in approximately 4 minutes if the gap is small, full cure in 72 hours.

TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 100 mW/cm<sup>2</sup>, measured @ 365 nm for 120 seconds using a high pressure mercury arc light source

Physical properties

|                                                                |                                      |
|----------------------------------------------------------------|--------------------------------------|
| Coefficient of thermal expansion, ISO 11359-2, K <sup>-1</sup> | 150x10 <sup>-6</sup>                 |
| Refractive index, ASTM D542                                    | 1.51                                 |
| Shore hardness, ISO 868, Durometer D                           | 70                                   |
| Water absorption, ISO 62, %:                                   | 2.6                                  |
| Density                                                        | 1.15                                 |
| Shrinkage, %                                                   | 8.4                                  |
| Elongation, at break, ISO 527-3, %                             | 218                                  |
| Tensile Strength, at break, ISO 527-3                          | N/mm <sup>2</sup> (psi) 27 (3,915)   |
| Tensile modulus, ISO 527-3                                     | N/mm <sup>2</sup> (psi) 422 (61,000) |

UV Depth of cure, mm:

|                                                          |                           |
|----------------------------------------------------------|---------------------------|
| 100 mW/cm <sup>2</sup> measured @ 365 nm, for 15 seconds | 1.9 to 2.4 <sup>LMS</sup> |
|----------------------------------------------------------|---------------------------|

Electrical properties

|                                                      |                      |
|------------------------------------------------------|----------------------|
| Volume resistivity, IEC 60093, Ω.cm                  | 2×10 <sup>15</sup>   |
| Surface resistivity, IEC 60093, Ω                    | 1.4×10 <sup>15</sup> |
| Dielectric constant / Dissipation factor, IEC 60250: |                      |
| 10 kHz                                               | 5.2 / 0.04           |
| 1 MHz                                                | 4.7 / 0.04           |
| 10 MHz                                               | 4.4 / 0.04           |
| Dielectric breakdown strength, kV/mm                 | 16                   |



## TYPICAL PERFORMANCE OF CURED MATERIAL

### Adhesive properties

Cured @ 100 mW/cm<sup>2</sup> measured 365 nm,  
for 40 seconds using a high pressure  
mercury arc light source

Tensile strength, ISO 6922:

|                                   |                            |               |
|-----------------------------------|----------------------------|---------------|
| Steel pin (grit blasted) to glass | N/mm <sup>2</sup><br>(psi) | 19<br>(2,755) |
|-----------------------------------|----------------------------|---------------|

Cured for 24 hours @ 22°C, Activator  
7075™ on 1 side

Lap shear strength, ISO 4587:

|                      |                            |                                |
|----------------------|----------------------------|--------------------------------|
| Steel (grit blasted) | N/mm <sup>2</sup><br>(psi) | ≥15 <sup>LMS</sup><br>(≥2,715) |
|----------------------|----------------------------|--------------------------------|

## TYPICAL ENVIRONMENTAL RESISTANCE

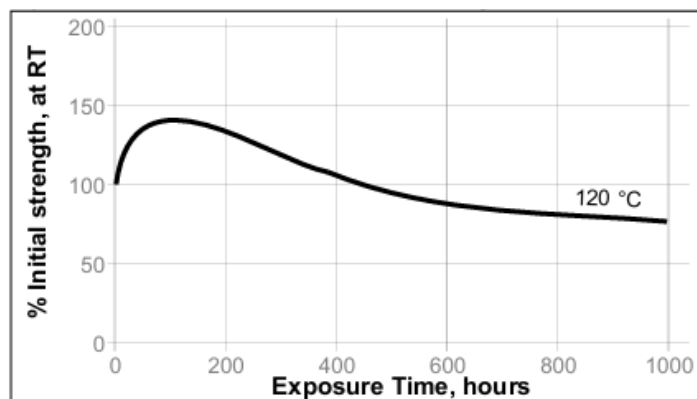
Cured @ 100 mW/cm<sup>2</sup> measured 365 nm for 40 seconds  
using a high pressure mercury arc light source

Tensile strength, ISO 6922:

Steel pin (grit blasted) to glass

### Heat aging

Aged at temperature indicated and tested @ 22°C.



### Chemical/solvent resistance

Aged under conditions indicated and tested @ 22°C.

| Environment | % of initial strength |       |        |
|-------------|-----------------------|-------|--------|
|             | °C                    | 500 h | 1000 h |
| 85% RH      | 85                    | 100   | 75     |

## 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 transmission 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.

## Conversions

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

## 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



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## Reference 1