Technical Data Sheet

LOCTITE® AA 3342™

Known as LOCTITE® 3342™
November 2015

PRODUCT DESCRIPTION

LOCTITE® AA 3342™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Modified acrylic
Appearance (uncured)	Dark yellow/brown liquid[LMS]
Components	One component - requires no mixing
Viscosity	Medium-High
Cure	Activator
Secondary Cure	Heat
Application	Bonding
Key Substrates	Permanent magnets

LOCTITE® AA 3342™ is designed primarily to provide fast fixture speed on activated surfaces. The product has the capability to provide high tensile strength while maintaining tough durable bonds with excellent impact and high temperature resistance. Typical applications include structural bonding of small rigid parts of dissimilar materials. Particularly suited for applications where excellent impact and heat resistance is required, e.g. bonding ferrites into motor cans. Automated assembly lines with short cycle times will benefit from the rapid cure charecteristics of LOCTITE® AA 3342™.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.085
Flash Point - See SDS	
Viscosity, Brookfield - HBT, 25 °C, mPa·s (cP):	
Spindle TB, speed 2.5 rpm	80,000 to 230,000[LMS]
Spindle TB, speed 20 rpm	50,000 to 130,000[LMS]
Viscosity, EN 12092 - SV, 25 °C, after 180 s, mPa·s (cP):	
Shear rate 20 s^{-1}	55,000 to 95,000
Particle Size, µm:	
Maximum	≤254

TYPICAL CURING PERFORMANCE

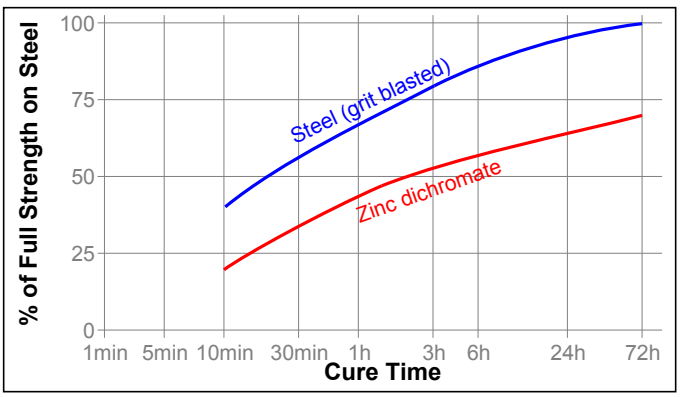
Fixture Time

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

Fixture Time, ISO 4587, seconds:	
Grit Blasted Mild Steel (degreased) with Activator 7380™ on 1 side	≤200[LMS]
Fixture Time, ISO 4587, minutes:	
Steel:	
0.05 mm gap	≤3.5
0.5 mm gap	10 to 15

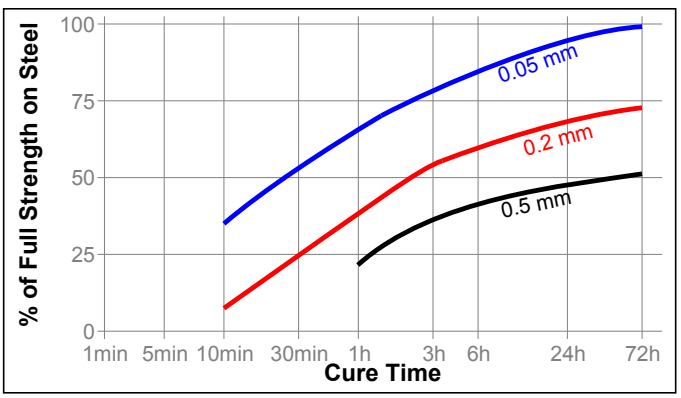
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the shear strength developed with time on steel lap shears with a 0.05 mm gap, compared to different materials and tested according to ISO 4587. (Activator 7380™ applied to one surface)



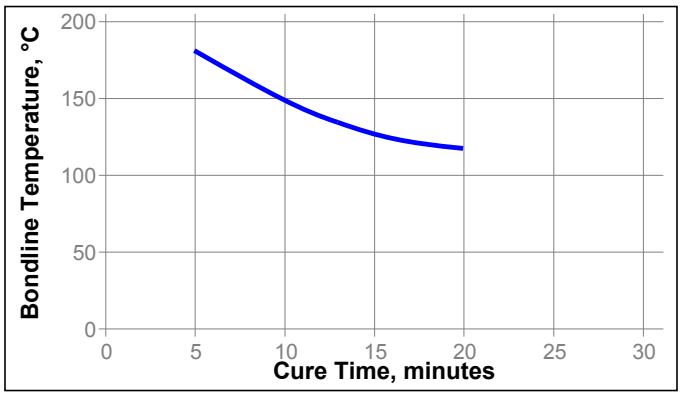
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. The following graph shows the shear strength developed with time on grit blasted steel lap shears at different controlled gaps and tested according to ISO 4587. (Activator 7380™ applied to one surface)



Cure Speed vs. Temperature

Heat can be used to effect or accelerate cure when surface priming operations are undesireable. Typical heat cure conditions consist of heating and maintaining bondline at a temperature shown in the graph below for the corresponding time specified. Optimum conditions for heat cure should be determined on the actual assemblies.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 30 minutes @ 120 °C, Activator 7380™ on 2 sides, 0.5 mm thick film

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}		70×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)		0.3
Glass Transition Temperature, ASTM D 4065, °C		80
Specific Heat, kJ/(kg·K)		0.3
Shore Hardness, ISO 868, Durometer D		71
Elongation, at break, ISO 527-3, %		2.8
Tensile Strength, ISO 527-3	N/mm² (psi)	9.9 (1,435)
Tensile Modulus, ISO 527-3	N/mm² (psi)	478 (69,000)

Cured for 24 hours @ 22 °C

Electrical Properties:

Volume Resistivity, IEC 60093, Ω·cm	18×10^{14}
Surface Resistivity, IEC 60093, Ω	62×10^{15}
Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	2.44 / 0.001
1 MHz	2.43 / 0.003
10 MHz	2.46 / 0.004

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 24 hour @ 25 °C

Lap Shear Strength, ISO 4587:

Grit Blasted Mild Steel (GBMS), as received, with Activator 7380™ on 1 side, no gap	N/mm² (psi)	≥12[LMS] (≥1,740)
Grit Blasted Mild Steel (GBMS), as received, with Activator 7380™ on 1 side, 0.5 mm gap	N/mm² (psi)	≥10[LMS] (≥1,450)

After 72 hours @ 22 °C

Lap Shear Strength, ISO 4587:

Mild steel (grit blasted), with Activator 7380™ on 1 side	N/mm² (psi)	15 to 29 (2,180 to 4,200)
Zinc dichromate	N/mm² (psi)	10 to 18 (1,450 to 2,610)
Aluminum	N/mm² (psi)	7 to 21 (1,020 to 3,050)
Stainless steel	N/mm² (psi)	10 to 18 (1,450 to 2,610)

Compressive Shear Strength, ISO 10123:

Steel pins and collars	N/mm² (psi)	5.5 to 10 (800 to 1,450)

Tensile Strength, ISO 6922:

Steel pin	N/mm² (psi)	4 to 12 (580 to 1,740)

"T" Peel Strength, ISO 11339:

Aluminum (grit blasted)	N/mm (lb/in)	0.7 to 2.5 (4 to 14)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 72 hours @ 22 °C, followed by 1 hour @ 180 °C

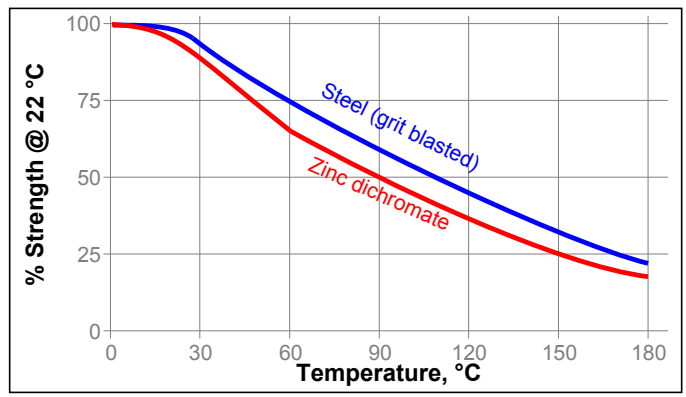
Lap Shear Strength, ISO 4587:

Steel (grit blasted)

Zinc dichromate

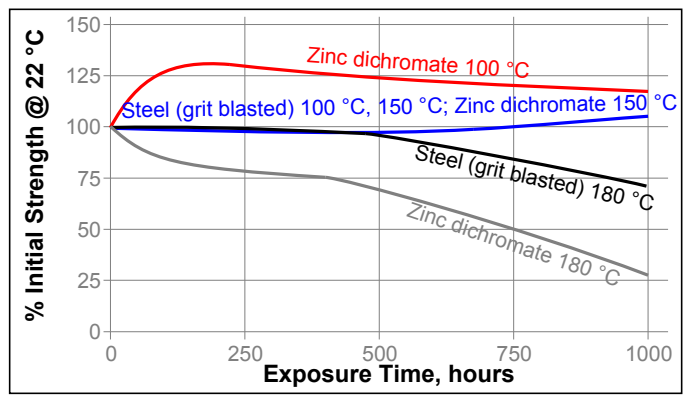
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance
Aged under conditions indicated and tested @ 22 °C.

		% of initial strength		
Environment	**°C**	**100 h**	**500 h**	**1000 h**
Heat/humidity 98% RH	40	90	90	85
Water/glycol 50/50	87	110	105	90
Motor oil (MIL-L-46152)	87	90	95	95

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).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use:

1. For best performance bond surfaces should be clean and free from grease.
2. To ensure a fast and reliable cure, activator should be applied to one of the bond surfaces and the adhesive to the other surface.
3. The recommended bondline gap is 0.1 mm. Where bond gaps are large (up to a maximum of 0.5 mm), or faster cure speed is required, activator should be applied to both surfaces.
4. Parts should be assembled immediately (within 15 minutes).
5. Excess adhesive can be wiped away with organic solvent.
6. Bond should be held clamped until adhesive has fixtured.
7. Product should be allowed to develop full strength before subjecting to any service loads (typically 24 to 72 hours after assembly, depending on bond gap, materials and ambient conditions).

Loctite Material Specification[LMS]
LMS dated November 10, 2010. 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: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °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

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Reference 1.6