Technical Data Sheet

LOCTITE® HHD 3542™

April 2015

PRODUCT DESCRIPTION

LOCTITE® HHD 3542™ provides the following product characteristics:

Technology	Polyurethane Hot Melt
Chemical Type	Reactive Polyurethane
Appearance (uncured)	Light yellow to amber solid
Components	One component - requires no mixing
Viscosity	Medium
Cure	Solidification and Moisture
Application	Bonding

LOCTITE® HHD 3542™ is a reactive hot-melt adhesive based on polyurethane prepolymers. It is designed for robotic dispensing and has a relatively long open time. Immediately after solidifying in the bond line, the adhesive provides good initial strength. Then the secondary moisture cure cross-links the bonds for excellent elongation and structural durability. Fully cured product does not remelt.

TYPICAL PROPERTIES OF UNCURED MATERIAL

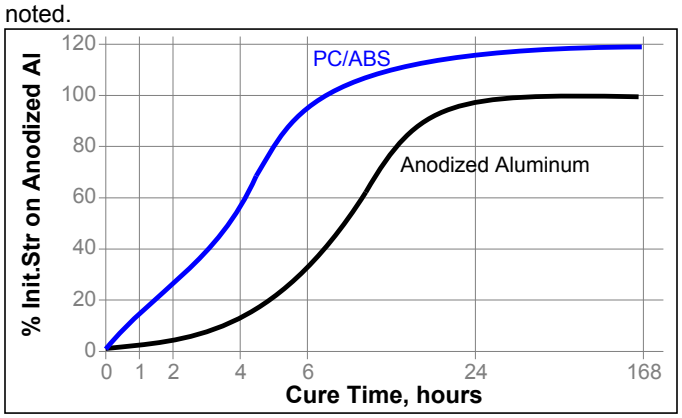
Specific Gravity @ 25 °C	1.1
Viscosity, Brookfield - Thermosel, 100 °C, mPa·s (cP):	
Spindle 27	3,500 to 7,500
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Open Time @ 25 °C, minutes, 1 mm bead	<4
Application Temperature, °C	90 to 110

Cure Speed vs. Time

The graph below shows the cross bond tensile strength developed over time at 22 °C / 50 % RH on the substrates noted.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Glass Transition Temperature, ISO 11359-2, °C		-39
Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}:		
Pre Tg		130×10^{-6}
Post Tg		340×10^{-6}
Shore Hardness, ISO 868, Durometer D		30
Coefficient of Thermal Conductivity ASTM 1530, W/(m·K)		E 0.21
Elongation, at break, ISO 527-2, %		860
Tensile Strength, ISO 527-2	N/mm² (psi)	>8 (>1,225)
Tensile Modulus, ISO 527-2	N/mm² (psi)	91 (13,225)

Electrical Properties:

Dielectric Constant , IEC 60250:	
@ 1,000 KHz	3.48

TYPICAL PERFORMANCE OF CURED MATERIAL

Cured for 7 days @ 22 °C

Lap Shear Strength, ISO 4587:

Aluminum (anodised)	N/mm² (psi)	7.2 (1,045)
PC/ABS	N/mm² (psi)	4.8 (695)

Cross bond performance is determined by stressing a bonded assembly with the application of force perpendicular to the bond area and to the major axis of the test specimen.

Cross bond tensile loading strength:

Aluminum (anodised)	N/mm² (psi)	4.8 (695)
PC/ABS	N/mm² (psi)	5.8 (840)

TYPICAL ENVIRONMENTAL RESISTANCE

Cross bond tensile loading strength:

Anodized Aluminum

After 7 days @ 85°C / 85% RH	N/mm² (psi)	3.9 (570)
After Thermal Cycling*	N/mm² (psi)	7.2 (1,040)
After Heat Shock**	N/mm² (psi)	6.0 (865)

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

		% of initial strength	
Environment	**°C**	**500 h**	**1000 h**
Air	87	150	150
Motor oil	87	115	110
Isopropanol	22	90	85
Water	22	115	150
Water/glycol	87	130	140

Cross bond tensile loading strength:
PC/ABS

After 7 days @ 85°C / 85% RH	N/mm²	4.5
	(psi)	(800)
After Thermal Cycling*	N/mm²	6.4
	(psi)	(935)
After Heat Shock**	N/mm²	5.3
	(psi)	(775)

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

		% of initial strength	
Environment	**°C**	**300 h**	**500 h**
Air	87	115	120
Motor oil	87	100	105
Isopropanol	22	60	60
Water	22	60	55
Water/glycol	87	60	55

***Thermal Cycle Resistance**
27 cycles: 25°C / 95%RH to 65°C / 95%RH (1.5 hr ramp), dwell 4 hours, 65°C / 95%RH to 30°C / 95%RH (1.5 hour ramp), dwell 1 hour

****Heat Shock Resistance**
20 cycles: 1 hour 85°C then 1 hour at -40°C (ramp <3 min)

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. For high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
2. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
3. After heating to recommended application temperature, apply an adequate amount of adhesive to one of the bond surfaces.
4. Join the substrates within the specified open time.
5. Keep parts from moving until adhesive is adequately set. For high strength, allow to cure at 22°C for 24 hours.

Not for product specifications
The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

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

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Reference 0.2