

LOCTITE HHD 3607BK

May 2019

PRODUCT DESCRIPTION

LOCTITE HHD 3607BK provides the following product characteristics:

Technology	Polyurethane Hot Melt
Chemical Type	Reactive Polyurethane
Appearance	Black
Odor	Slight
Components	One part - requires no mixing
Product Benefits	• Jettable PUR • Fast curing • High impact resistance • High adhesion strength
Cure	Solidification and Moisture
Solids Content, %	100
Application	Device assembly, Structural bonding

LOCTITE HHD 3607BK is a reactive hot-melt adhesive based on polyurethane prepolymers. This product is formulated with a viscosity suitable for robotic jetting applications along with a suitable open time for automatic assembly line processing. Good initial strength is realized immediately after the material solidifies in the bondline. LOCTITE HHD 3607BK material exhibits superior toughness when fully cured and will not remelt.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield - Thermosel, 110 °C, mPa·s (cP):
Spindle 27 6,500

TYPICAL CURING PERFORMANCE

Open Time, minutes ≥ 2
Preheating Schedule 20 to 30 mins @ 110°C
Application Temperature, °C 100 to 120

LOCTITE HHD 3607BK cures exclusively by moisture and gains its final strength in 1 to 7 days. This material, however, exhibits high handling strength instantly after bonding.

Curing is a chemical reaction depending on the following parameters:

- Humidity in the rooms of application and storage
- Moisture content on the substrates
- Permeability of the substrates to be bonded
- Application volume / layer of the adhesive film

Open time is based on room temperature environment under 25°C. Higher temperature will prolong the open time while lower environmental temperatures will shorten the open time.

The above cure profile is a guideline recommendation. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Elongation @ break, %	880
Tensile Modulus, N/mm ²	60
Tensile Strength, N/mm ²	29
Light Transmittance, 0.2 mm @ 550 nm, %	0.38

TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous

Cross Tensile Strength, cured 23°C, 60% relative humidity:
for 2 hours:

PC/20% Glass filler substrate, N/mm ²	2.1
PBT/40% Glass filler substrate, N/mm ²	2.0

for 24 hours:

PC/20% Glass filler substrate, N/mm ²	5.2
PBT/40% Glass filler substrate, N/mm ²	4.8

Lap Shear Strength:

Cured 24 hours @ 23°C, 60% relative humidity:

PC/20% Glass filler substrate, N/mm ²	11.2
PBT/40% Glass filler substrate, N/mm ²	6.5

Hot Strength @ 55°C:

PC/20% Glass filler substrate, N/mm ²	3.8
PBT/40% Glass filler substrate, N/mm ²	2.7

Dupont Impact Strength, cured 3 days @ 23°C, 60% relative humidity:

PC/20% Glass filler + MgAl substrate, mJ	233
PBT/40% Glass filler + MgAl substrate, mJ	119

TYPICAL ENVIRONMENTAL RESISTANCE

Shear Strength

Lap Shear Strength:

PC/20% Glass filler substrate, N/mm ² :	
(*) After HTHH	15.6
(**) After Thermal Cycling	17.6
(***) After High Temperature Resistance	22.8
PBT/40% Glass filler substrate, N/mm ² :	
(*) After HTHH	9.6
(**) After Thermal Cycling	8.9
(***) After High Temperature Resistance	12.6

(*) High Temperature High Humidity Resistance, 500 hours @ 55°C, 95% RH

(**) Thermal Cycle Resistance 500 cycles, 15 mins ramp, -40°C to 85°C + dwell 15 mins; 15 mins ramp, 85°C to -40°C, dwell 15 mins

(***) High Temperature Resistance, 500 hours @ 85°C

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet, (SDS).

Pretreatment:

1. The bonding surfaces must be clean, dry and free of oil and grease.
2. Substrate temperature should not fall below 20°C during application.
3. Lower temperatures will lead to early solidification of the adhesive and to a reduced open time, the adhesive might even flake off.
4. The substrates may be preheated if necessary.

Application:

1. LOCTITE HHD 3607BK can be applied from heating cartridge guns, from usual syringe type melting equipment.
2. At longer rest periods, melting and application temperatures should be decreased. Longer exposure to higher temperatures can lead to a viscosity increase.

STORAGE:

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage : 8 to 28 °C

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

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

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