

# LOCTITE® HHD 3591WH

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## PRODUCT DESCRIPTION

LOCTITE® HHD 3591WH provides the following product characteristics:

Technology	Polyurethane hot melt
Appearance	White
Solids content	100%
Odor	Slight
Components	One component - requires no mixing
Cure	Solidification and moisture
Application	Structure bonding

LOCTITE® HHD 3591WH is a reactive hotmelt adhesive based on polyurethane prepolymers. This material is designed to provide high adhesion strength and low modulus after application. It is suitable for use in both automatic or manual assembly processes, for under screen bonding and waterproof sealing of foldable phone.

### Features

- Low bubbles
- High adhesion strength
- Low modulus
- Good press ability

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield Thermosel, @ 110°C, mPa.s (cP)

Spindle 27, speed 20 min<sup>-1</sup> 3,500 - 6,500

## TYPICAL APPLICATION PROPERTIES

Preheating temperature/Time @ 110°C, minutes	20-30
Application temperature, °C	110-130
Open time, minutes	4

Open time can vary with different substrate, application temperature and environment humidity. Higher temperatures will lengthen the open time while lower temperatures can shorten the open time.

LOCTITE® HHD 3591WH cures exclusively by moisture and gains its final strength in 1 to 3 days. This material, however, exhibits suitable handling strength 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

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

## TYPICAL PROPERTIES OF CURED MATERIAL

### Adhesive properties

Lap shear strength, MPa ANAL6013 to ANAL6013 (After 24 hours)	>2
DMA Modulus, MPa sample cured 7 days @ 25°C, 50% RH	<1
Shore A sample cured 7 days @ 25°C, 50% RH	<20
Elongation, %	>500

## GENERAL INFORMATION

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

**This product is not recommended to use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.**

### 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. The adhesive might flake off if open time is reduced.
4. The substrates may be preheated if necessary.

### Application

1. This material can be applied from heating cartridge guns, from usual syringe type melting equipment.
2. At longer rest periods, melting and application temperatures can lead to a viscosity increase.

### Storage

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

**Optimal storage: 8 to 28°C. Storage below 8°C or above 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 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 Henkel representative.

### 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 the specifications of this product.

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

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