

# LOCTITE HB X602 PURBOND

November 2020

## PRODUCT DESCRIPTION

LOCTITE HB X602 PURBOND provides the following product characteristics:

Technology	Polyurethane
Product Type	Assembly Glue
Application	Engineered Wood
Components	One-component
Basis	Isocyanate prepolymer
Condition	Solvent-free, formaldehyde-free
Appearance	amber, liquid, (after curing: wood tone, solid)
Curing	Under the action of air humidity and moisture in the wood

## Application Areas

- Manufacturing of engineered wood products
- Finger joint
- Face gluing



## Product Properties

- Flame retardant properties depending on specific testing
- Resistant to weak alkalis, acids and solvents
- Good flow properties
- Free from fibres and abrasive fillers

## Technical Data

### LOCTITE HB X602 PURBOND:

Solid Content, %	100
Viscosity, Brookfield; 68°F (20°C), mPa.s	20,000 to 32,000
Spindle 5, speed 20 rpm, after 1 min	

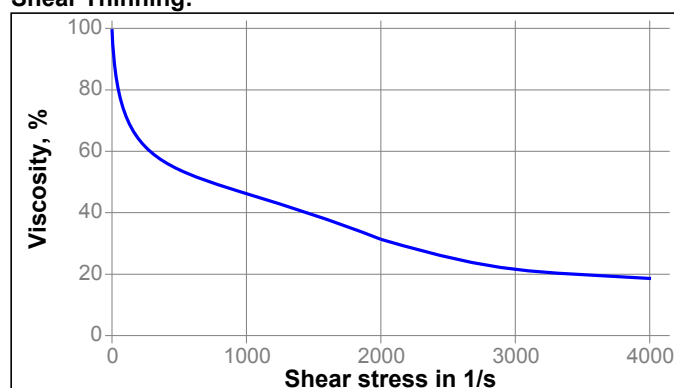
## Typical Properties

Density, lb/ft³ (kg/m³)	~72 (~1.15)
Maximal assembly time, minutes	60
68°F (20°C) with 65% relative air humidity and a wood moisture content of 12%	
Minimal press time / curing time, minutes	150
68°F (20°C) with 65% relative air humidity and a wood moisture content of 12%	

Slight foaming of the adhesive during hardening is caused by the curing reaction and is normal.

The adhesive shows shear thinning behaviour. Please see an exemplary viscosity – shear stress – relationship in the graph below.

## Shear Thinning:



## DIRECTIONS OF USE

### Preliminary Statement

Prior to application it is necessary to read the **Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed. Please also refer to the local safety instructions and contact Henkel for analytical support.

### Application

#### Processing guideline for finger-joints (end-joints)



### Preparation

LOCTITE HB X602 PURBOND is a single-component adhesive and is processed in a closed system directly from the container in which it is supplied. Automatic finger joint machines must be specially equipped with an appropriate application system to process LOCTITE HB X602 PURBOND adhesives. All machine parts that come into contact with the adhesive should be treated with a suitable release agent before processing.

**Wood moisture content**

The wood moisture content at the joint surfaces that are to be glued together must be not less than 8% and not more than 17%.

12% moisture content is the optimal condition for this product.

The difference in wood moisture content between the pieces that are to be joined should not be more than 5%.

**Adhesive application**

Application of the adhesive takes place via a suitable application system (comb application or contactless application in conjunction with the relevant approvals where necessary).

Application rate for glue line thicknesses up to 0.1 mm:

20 to 33 lbs/1,000 ft<sup>2</sup> (100 to 160 g/m<sup>2</sup>)  
(data may differ in specifically defined cases)

The exact amount within the above defined range is dependent upon the quality of wood and process equipment. Depending on the application system, the adhesive is applied to one or both sides. Uniform wetting of the finger profile must be guaranteed. Proper application rate is evidenced by very slight and even squeeze-out along the entire glue line. The components are pressed together immediately afterwards.

**Assembly time**

The components to be glued must be assembled together and the press force applied immediately, but at the latest 60 minutes after the start of adhesive application (maximum assembly time for elements at 68°F (20°C) with 65% relative air humidity and a wood moisture content of 12%).

The maximum assembly time of the moisture-reactive LOCTITE HB X602 PURBOND is influenced by the climate conditions prevailing in the room during processing. Higher temperature and higher air humidity shorten the assembly time.

It is absolutely essential that the adhesive is still capable of adhering when the press force is applied.

**Curing time**

The curing time of the adhesive is 150 minutes at 68°F (20°C) with 65% relative air humidity and a wood moisture content of 12%.

For lower temperatures, the curing time may be significantly higher.

**Press force**

The press force applied (depending on the finger length and profile) must guarantee a precisely fitting joint. The specifications in accordance with production standards must be observed in this respect.

**Further processing**

The components can undergo further processing after the curing time of the adhesive has elapsed.

**Storage time after bonding**

The bonded components must be stored at room temperature for at least 10 hours after the press time has elapsed (value determined at 68°F (20°C), 65% air humidity and a wood moisture content of 12%).

For lower temperatures, the required storage time after bonding may be significantly higher.

**Additional instructions**

The following supplementary instructions must be observed when manufacturing finger joints for load-bearing structural components:

1. The approvals (see the section headed Certifications and Registrations)
2. The temperature in the production facility should be 68°F (20°C).  
This applies equally for the wood and the adhesive.
3. A suitable quality control scheme in accordance with production standards is recommended to guarantee a high quality of glued joints.

**Application****Processing guideline for face-joints (lamination)****Preparation**

LOCTITE HB X602 PURBOND is a single-component adhesive and is processed in a closed system directly from the container in which it is supplied. Surfaces must be clean and free from adhesive-repellent substances such as oils, greases or release agents. All machine parts that come into contact with the adhesive should be treated with a suitable release agent before processing.

**Wood moisture content**

The wood moisture content at the joint surfaces that are to be glued together must be not less than 8% and not more than 17%.

12% moisture content is the optimal condition for this product.

The difference in wood moisture content between the pieces that are to be joined should not be more than 5%.

**Adhesive application**

LOCTITE HB X602 PURBOND is applied automatically using a special application system in a through-feed process.

When face-bonding with LOCTITE HB X602 PURBOND adhesive, it is required to pre-treat the planed surfaces of both mating components with LOCTITE PR 3105 PURBOND primer solution. Please refer to the specified Application Instruction for each wood species.

Application rate for glue line thicknesses up to 0.1 mm:

27 to 37 lbs/1,000 ft<sup>2</sup> (130 to 180 g/m<sup>2</sup>)  
(data may differ in specifically defined cases)

The exact amount within the above defined range is dependent upon the quality of wood and process equipment.

Uniform wetting of the joint component surface must be guaranteed.

The adhesive is applied one-sided.

Proper application rate is evidenced by very slight and even squeeze-out along the entire glue line.

**Assembly time**

The components to be glued must be assembled together and the press force applied immediately, but at the latest 60 minutes after the start of adhesive application (maximum assembly time for elements at 68°F (20°C) with 65% relative air humidity and a wood moisture content of 12%).

The maximum assembly time of the moisture-reactive LOCTITE HB X602 PURBOND is influenced by the climate conditions prevailing in the room during processing. Higher temperature and higher air humidity shorten the assembly time.

It is absolutely essential that the adhesive is still capable of adhering when the press force is applied.

**Press time**

The press time depends on the existing climatic conditions of the surrounding and on the present temperature of the material.

The minimum press time at 68°F (20°C) with 65% relative air humidity and a wood moisture content of 12% is 150 minutes for glue line thicknesses up to 0.1 mm. For larger glue line thicknesses or lower temperatures, the press time may be significantly higher.

**Press force**

The applied press force must guarantee optimum fitting of the joint components with a glue line thickness of 0.1 mm or less. Normally, a press force of 116 to 203 psi (0.8 to 1.4 N/mm<sup>2</sup>), which is generally customary in glued timber construction, is applied.

For cross laminated timber CLT (production), a press force of 73 to 116 psi (0.5 to 0.8 N/mm<sup>2</sup>) is common.

In case of CLT production with vacuum presses, the minimum press force is 12 psi (0.08 N/mm<sup>2</sup>).

**Further processing**

The components can undergo further processing immediately after the press time has elapsed.

**Storage time after bonding**

The bonded components must be stored at room temperature for at least 10 hours after the press time has elapsed (value determined at 68°F (20°C), 65% air humidity and a wood moisture content of 12%).

For larger glue line thicknesses or lower temperatures, the required storage time after bonding may be significantly higher.

**Additional instructions**

The following supplementary instructions must be observed when manufacturing load-bearing structural components:

1. The approvals (see the section headed Certifications and Registrations)
2. The temperature in the production facility should be 68°F (20°C).  
This applies equally for the wood and the adhesive.
3. A suitable quality control scheme in accordance with production standards is recommended to guarantee a high quality of glued joints.

**Protection and cleaning****SAFETY PRECAUTIONS**

The use of protective gloves is highly recommended. Best practice makes gloves and safety glasses mandatory when handling the adhesive or any chemicals associated with the manufacturing process.

**CLEANING**

Prior to bringing a plant into initial operation, Henkel recommends the use of release agents to prevent adhesive adhering to equipment and tools. Henkel can make recommendations upon request, but all release agents should be appropriate for the adhesive and materials to which they are applied.

**Quality Assurance**

Henkel guarantees the consistently high quality of this product which is manufactured according to ISO 9001 and 14001; it has been tested and found suitable for the recommended applications under the conditions described herein.

However, material and processing parameters can significantly influence the properties of the product. For this reason, the processor must perform tests prior to actual applications.

For other applications or processing conditions, please contact your Henkel project manager.

**CERTIFICATIONS & REGISTRATIONS**

LOCTITE HB X602 PURBOND fulfils the requirements of ASTM E119.

LOCTITE HB X602 PURBOND fulfils all requirements of AITC 405-2008 (Standard for Adhesives for Use in Structural Glued Laminated Timber) and can be used for the production of Glued Laminated Timber according to ANSI/AITC A190.1-2007 and for Cross Laminated Timber (CLT) according to ANSI/APA PRG 320-2017.

Formaldehyde Classification:

JAIA (Japan Adhesive Industry Association) Independent Control Standard against Indoor Air Pollution.

Register Number: JAIA-013010

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**STORAGE**

Store in the original tightly closed packaging in a cool, dry place.

**Shelf life**

Shelf-life (in unopened original packaging), 6 months

**Classification**

Please refer to the corresponding **safety data sheets** for details on:

**Hazardous Information**

**Transport Regulations**

**Safety Regulations**



## ADDITIONAL INFORMATION

### Disclaimer

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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### Reference 0.0

Henkel AG & Co. KGaA  
40191 Düsseldorf, Germany  
Phone: +49-211-797-0

Henkel Corporation  
Bridgewater, NJ 08807, USA  
Phone: +1-908-685-7000

Henkel Diadema  
Diadema - SP, Brasil  
Phone: +55-11-3205-8955

Henkel (China) Co.Ltd.  
201203 Shanghai, China  
Phone: +86-21-2891-8000

Henkel Jebel Ali FZCO  
Dubai, UAE  
Phone: +971-4-3893333