

# PURBOND<sup>®</sup> HB S049

## Single-component polyurethane adhesive for the manufacture of engineered wood products

PURBOND HB S049\_E  
Purbond Technik / 06-2013

### Properties

PURBOND HB S049 is a liquid single-component polyurethane adhesive. The adhesive cures under the action of air humidity and moisture in the wood to yield a strong non-brittle film. Slight foaming of the adhesive during hardening is caused by the chemical reaction and is normal. PURBOND HB S049 is manufactured without the addition of solvents or formaldehyde.

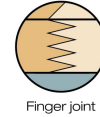
PURBOND HB S049 is classified as a Type I adhesive and is approved and registered according to Page 4 of this data sheet (Section headed Certifications and Registrations).

This technical data sheet was co-ordinated with Stuttgart University MPA, an independent material testing laboratory.

### Product data

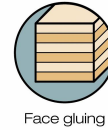
<b>Basis</b>	Isocyanate prepolymer
<b>Consistency</b>	Good flow properties
<b>Assembly time<sup>1</sup></b>	<b>4 minutes</b>
<b>Press time / curing time<sup>1</sup></b>	<b>10 minutes</b>
<b>Brookfield viscosity</b>	Approx. 24,000 mPa.s (Sp.6 / 20 rpm / 20°C, measurement between 16 to 36 hours after production)
<b>Colour shade</b>	Beige
<b>Density</b>	1,160 kg/m <sup>3</sup>
<b>Solids content</b>	100% and free from fibres and abrasive fillers
<b>Fire hazard</b>	Flame resistant
<b>Resistance</b>	To weak alkalis, acids and solvents
<b>Declaration</b>	The Safety Data Sheet (MSDS) for PURBOND HB S049 must be observed and is available at <a href="http://www.purbond.com">www.purbond.com</a> .

<sup>1</sup> Detailed information about assembly time and press time / curing time can be found on pages 2 and 3.



**Application**

<b>Preparation</b>	<p><b>Processing guideline for finger-jointing</b></p> <p>PURBOND HB S049 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 PURBOND HB S049. All machine parts that come into contact with the adhesive must be treated with PURBOND Trennmittel/Release Agent resp. PURBOND Trennpaste/Release Paste before processing.</p>
<b>Wood moisture content</b>	<p>The wood moisture content at the joint surfaces that are to be glued together must be not less than 8%. The permissible upper limit of the wood moisture content is governed by the respective national product standards (e.g. EN 385 / EN 386 or DIN 68140) but must be below 18 %.</p> <p>According to DIN 68140-1, the maximum permissible difference in wood moisture content between the ends of the wood that are to be joined is:</p> <ul style="list-style-type: none"> <li>• for single-piece finger jointed components: max. 5%</li> <li>• for finger jointed lamellas for glued laminated beams: max. 4%</li> </ul> <p>According to EN 385, the maximum permissible difference in wood moisture content between the ends of the pieces that are to be joined is 5%.</p>
<b>Adhesive application</b>	<p>Application of the adhesive takes place via a suitable application system (comb application or contactless application in conjunction with the relevant approvals where necessary). Depending on the application system, the adhesive is applied to one or both sides at the rate of approx. 120 - 160 g/m<sup>2</sup>. Uniform wetting of the finger profile of the compressed finger joint must be guaranteed. The components are pressed together immediately afterwards.</p>
<b>Assembly time</b>	<p>The components to be glued must be assembled together and the press force applied immediately, but at the latest 4 minutes after the start of adhesive application (maximum assembly time). The maximum assembly time of the moisture-reactive PURBOND HB S049 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.</p>
<b>Curing time</b>	<p>The curing time of the adhesive is 10 minutes at 20°C and 65% air humidity.</p>
<b>Press force</b>	<p>The press force applied (depending on the finger length and profile) must guarantee a precisely fitting joint. The specifications in accordance with EN 385 and/or DIN 68140-1 or other national guidelines must be observed in this respect.</p>
<b>Further processing</b>	<p>The components can undergo further processing after the curing time of the adhesive has elapsed.</p>
<b>Storage time after bonding</b>	<p>The bonded components must be stored at a temperature of approx. 20 °C for at least 2 hours after the press time has elapsed.</p>
<b>Additional instructions</b>	<p>The following supplementary instructions must be observed when manufacturing finger joints for load-bearing structural components:</p> <ol style="list-style-type: none"> <li>1. The approvals (see the Section headed Certifications and Registrations).</li> <li>2. The temperature in the production room should be 20°C and must not be lower than 18°C. This applies equally for the wood and the adhesive.</li> <li>3. Suitable quality control scheme in accordance with EN 385 and/or EN 14080 or other national guidelines is recommended to guarantee a high quality of glued joints.</li> </ol>



**Application**

**Processing guideline for face gluing**

**Preparation**

PURBOND HB S049 is a single-component adhesive and is processed in a closed system directly from the container in which it is supplied. The surfaces to be glued together 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 must be treated with PURBOND Trennmittel/Release Agent resp. PURBOND Trennpaste/Release Paste 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%. In accordance with EN 386, the moisture difference between the individual lamellas must not exceed 4%.

**Adhesive application**

PURBOND HB S049 is applied automatically using a special application system in a through-feed process. The adhesive is applied one-sided at the rate of 140-180 g/m<sup>2</sup>. The amount of adhesive applied must guarantee uniform wetting of the joint component surface. Squeeze-out of the adhesive must be present all along the edge of the glued joint. In the event of a quantity of adhesive being in the lower permissible region, this must be coordinated with the adhesive manufacturer.

**Assembly time**

The components to be glued must be assembled together and the press force applied immediately, but at the latest 4 minutes after the start of adhesive application (maximum assembly time). The maximum assembly time of the moisture-reactive PURBOND HB S049 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 press force is applied before any skinning on the adhesive surface and while the adhesive is still capable of adhering.

**Press time**

The press time depends on the temperature and moisture content of the joint components and surroundings. Lower temperature and air humidity delay the curing process, higher temperature and air humidity speed up the curing process. The minimum press time for straight structural beams at 20°C with 65% relative air humidity and a wood moisture content of 12% is 10 minutes, provided optimum fit of the joint components is guaranteed (joint thickness approx. 0.1 mm). If an exactly fitting joint is not guaranteed, the press time must be at least 105 minutes.

**Press force**

The applied press force must guarantee optimum fitting of the joint components. Normally, a press force of 0.6 N/mm<sup>2</sup> to 1.0 N/mm<sup>2</sup>, which is generally customary in glued timber construction, is applied.

**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 a temperature of approx. 20 °C for at least 2 hours after the press time has elapsed.

**Additional instructions**

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

1. The approvals (see Section headed Certifications and Registrations).
2. Glued joints as thin as possible (max. 0.3 mm).
3. In accordance with EN 386, the maximum permissible moisture content of the joint components to be glued together is 15%.
4. The temperature in the production room should be 20°C and must not be lower than 18°C. This applies equally for the wood and the adhesive.
5. Suitable quality control scheme in accordance with EN 386 and/or EN 14080 or other national guidelines is recommended to guarantee a high quality of glued joints.

**Protection/safety and cleaning**

**Occupational safety/protection**

**Plant protection and cleaning**

**Safety precautions and cleaning measures**

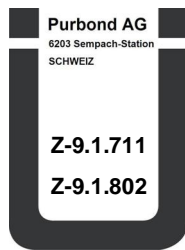
The wearing of protective gloves – PURBOND Arbeitshandschuhe/Handling Gloves – and protective goggles is urgently recommended when handling liquid adhesive and release agent.

PURBOND Trennmittel/Release Agent and PURBOND Trennpaste/Release Paste prevent adhesive adhering to plant and tools. Before bringing a plant into operation, all the parts that come into contact with adhesive must be treated (see the corresponding TDS).

PURBOND Reinigungsmittel/Cleaning Agent is suitable for cured adhesive on tools or machine parts. Compatibility must be checked before using the cleaning agent.

Protective goggles and chemically resistant PURBOND Reinigungshandschuhe/Cleaning Gloves (special black gloves) must be worn when working with PURBOND Reinigungsmittel/Cleaning Agent.

**Certifications and registrations**



**Europa**



**Australia/New Zealand**

**Certifications and registrations**

National Technical Approval by the DIBt (Deutsches Institut für Bautechnik) for the "PURBOND HB S049 PUR adhesive for the fabrication of load-bearing engineered wood components."

Approval Number: **Z-9.1.711**  
**Z-9.1.802**

Confirmation from the MPA Universität Stuttgart on compliance with EN 14080. The adhesive can be used for the fabrication of glued laminated timber pursuant to EN 14080.

National Technical Approval No. ATG 12/2888 by the Union Belge pour l'Agrément Technique dans la Construction (UBAtc).

Classification Type I pursuant to EN 15425 (2008) of PURBOND HB S049 adhesives for finger-jointed and glue-laminated load-bearing wood structures, by the FCBA based on following documents:

FCBA n° LBO/GL/MP/403/09/274  
FCBA n° LBO/GL/MP/403/09/275  
FCBA n° LBO/GL/MP/403/09/276

Certificate from the South African Timber Auditing Services Pty. Ltd. in compliance with SANS 10183 for „exposure class one for finger-jointing“.

Certificate Number: **107**

Fulfils the requirements as a Type I adhesive in accordance with AS/NZS 4364.

JAIA F☆☆☆☆

**Guarantee**

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

Register Number: **JAIA-008438**

This information is based on the test results of the Otto-Graf-Institute (MPA, University Stuttgart), our Purbond application laboratory and our customers' experience.

We guarantee a consistent quality of this product which is manufactured in accordance with ISO 9001 / ISO 14001 guidelines.

The product was found suitable for all applications and uses listed above; for other uses or applications we strongly suggest you to contact our technical support staff.

In general the sales and delivery conditions of Purbond AG apply.