SKH
INDEPENDENT CERTIFICATION

Semi-manufac-tured product

KOMO® attest-with-product certificate

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TWINBOND PANEL, ADHESIVES FOR THE FIXING OF FAÇADE PANELS

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Producer

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Declaration of SKH
This attest-with-product certificate is based on AD 4101 part 1 'Adhesives for the fixing of façade panels' dd. 01-01-2024 and AD 4101 part 7 'Adhesives for the fixing of façade panels' dd. 25-11-2003 including amendment sheet dd. 07-09-2011, issued by SKH in conformity with the SKH Regulations for Certification.

SKH declares that

- there is a legitimate confidence that the adhesive for the fixation of façade panels, manufactured by the producer complies with the technical specifications laid down in this attest-with-product certificate, provided that the adhesive for the fixation of façade panels are marked with the KOMO®-logo as indicated in this attest-with-product certificate.
- façade panels fixed with the certified adhesive provide performance as described in this attest-with-product certificate, provided that:
  - the production of the adhesive for the fixing of façade panels complies with the technical specifications laid down in this attest-with-product certificate
  - the application conditions laid down in this attest-with-product certificate and provided that the manufacturing of the exterior partition construction takes place according to the work methods laid down in this attest-with-product certificate

Within the framework of this attest-with-product certificate no control shall be executed by SKH on the production of the other components of the external partition construction, nor on the manufacturing of the exterior partition construction.

For SKH drs. H.J.O. van Doorn, director

The certificate is also included in the overview on the website of the KOMO foundation: www.komo.nl.

Users of this attest-with-product certificate are advised to verify whether this certificate is still valid; consult the SKH-website: www.skh.nl.

This attest-with-product certificate consists of 5 pages.

Consult the Dutch version in case of doubt.

KOMO®

The following has been assessed:
- **Quality system**
- **Product**
- **One-off performance in the application**

Periodic check

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1 TECHNICAL SPECIFICATION

1.1 Subject

Adhesive for the fixing of façade panels on the basis of MS-hybrid polymer and assembly tape for the initial securing.

1.2 Marking

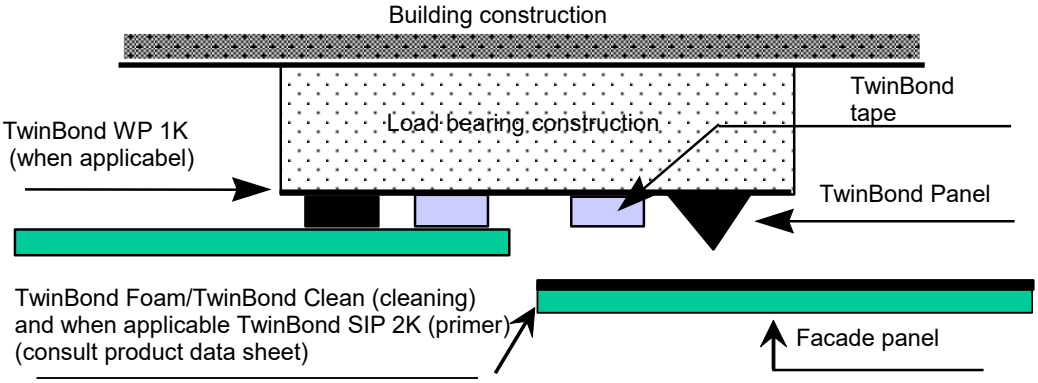
The packaging shall be marked with the KOMO®-mark.
The implementation of this mark is as follows:
- word KOMO® or logo;
- no. **21067**.

with compulsory indication:
- the final date of expiry.

Location of the mark: clearly visible on each unit delivered.

1.3 Principle of the adhesive joint in the application

Horizontal cross-section over the vertical connection.



In order to obtain a good ventilation and drainage of possible moisture behind the façade panel, no horizontal glue joint shall be applied in general. The adhesive provides the performances laid down in table 1 of this attest-with-product certificate when using a minimum width (in assembled state) of 12 mm and a thickness of 3 mm. The glue shall be applied to the load bearing construction in one shot over the full height of the panels to be installed on the load bearing construction.

The assembly tape has a twofold purpose, i.e.
- to take care that the thickness of the quantity of adhesive is constant and sufficient to absorb the movements of the façade panels as a result of swelling and shrinkage;
- to take care of a temporary fixing in the application phase.

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1.4 Product specification

The technical specification of the adhesive and the assembly tape has been summarised in the following tables.

Table 1

Description adhesive	**TwinBond Panel**	
Colour	Black	
Storage life	18 months in original packaging	
Maximum movement of the façade panel	5.6 mm	
Type of façade panel	**Tensile strength N/mm²**	**Shear strength N/mm²**
Aluminium composite:		
Alucobond	**1,61**	**1,68**
HPL-panel:		
Trespa Meteon	**1.77**	**1.98**
Fiber cement panels:		
Equitone Linea*	**1,10**	**1,45**
Equitone Natura*	**1,03**	**1,64**
Equitone Natura Pro*		
Equitone Pictura*		
Equitone Textura*		
Equitone Tectiva*	**1,12**	**1,54**
Swisspearl Patina NXT	**1,65**	**1,91**
Natural stone panels:		
Jura limestone (sedimentary rock)	**1,57**	**1,69**
Ceramic panels:		
Dekton	**1,72**	**1,91**
Neolith	**1,38**	**1,44**

* The facade panel must be impregnated with TwinBond SIP 2K, where the adhesive is applied, consult the product data sheet.

Explanation: the maximum movement of the panel is equal to 40% of the maximum elasticity of the adhesive at a thickness of the glue rill of 3 mm.

Taking into account the maximum allowable movement of the façade panel it follows that the diagonal of the façade panel shall comply with:

$$d_{\max} \leq 2\frac{x_{\max}}{f_{\max}}$$

In this formula is:

d_{max}	maximum diagonal of the façade panel	m
x_{max}	maximum movement of the façade panel (see table 2)	mm
f_{max}	maximum distortion of the façade panel in the climatic range chosen (see product information about façade panel)	mm/m^1

Table 2

Description of assembly tape	**TwinBond tape on HPL- panel (Trespa Meteon)**	**Twinbond tape on Synthetic Fiber Cement (Equitone Natura)**
Tensile strength	0,24 N/mm²	0,26 N/mm²
Shear strength	0,23 N/mm²	0,27 N/mm²
Thickness	3 mm	3 mm
Compressive strength	0,025 N/mm²	0,025 N/mm²

The values given for the assembly tape are relevant during the first 24 h after applying the adhesive.

1.5 Load bearing construction

The load bearing construction and the securing thereof to the building construction at the back is sufficiently strong and stiff to be able to take up the loads according to NEN-EN 1991-1 after assembly of the façade panels when this can be demonstrated by calculation. The load bearing construction is flat and free from twist with a maximum deviation of + or - 1,5 mm, both in respect of the theoretical measurement and the panel to be glued, at the moment of installing the façade panels.

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2 PROCESSING REGULATIONS

The processing regulations contain instructions on:
- the way of pre-treatment of both the load bearing construction at the back and the façade panel;
- the climatic circumstances under which the application of the adhesive is justified;
- the drying times to be adhered to;
- the dimensions to be adhered to and the centre-to-centre distances of the load bearing construction at the back;
- the cleaning of excess rests of adhesive;
- the specially shaped nozzle to be used;
- the applying of the adhesive rill in one operation;
- the assessment and accepting of the basis, in order to be able to control whether has been complied with the requirements of:
  - securing
  - flatness / squareness
  - centre-to-centre distances and measurements;
  - the implementation of the (sub) details in a way which prevents the possibility of rats and/or mice nestling;
  - the avoiding of direct influence of UV;
  - the way the adhesive and the assembly tape shall be stored;
  - the shelf life of both adhesive and assembly tape.

3 PERFORMANCES

3.1 Strength of the adhesive

When determining the quantity of adhesive per m^2 of façade panel surface the allowable values given in table 3 may be used for calculating purposes. These values include the following supplementary safety factors:
- tensile strength: factor 4
- shear strength: factor 10.

Table 3 Type of adhesive: TwinBond Panel

Load bearing construction	Pre-treatment	Façade panel	Tensile strength for calculation (N/mm^2)	Shear strength for calculation (N/mm^2)
Wood: planed untreated pine Aluminium	**Alu. Composite**	Impregnate load bearing construction with TwinBond WP 1K (only in case of untreated pine) Sand lightly if necessary where adhesive will be applied and clean panel with TwinBond Foam/TwinBond clean and impregnate with TwinBond SIP 2K fast (fiber cement panels) Consult the product data sheet		
	Alucobond		**0,40**	**0,17**
	HPL-panel:			
	Trespa Meteon		**0,44**	**0,20**
	Fiber cement panels:			
	Equitone Linea		**0,28**	**0,15**
	Equitone Natura		**0,26**	**0,16**
	Equitone Natura Pro			
	Equitone Pictura			
	Equitone Textura			
	Equitone Tectiva		**0,28**	**0,15**
	Swisspearl Patina NXT		**0,41**	**0,19**
	Natural stone panels:			
	Jura limestone (sedimentary rock)		**0,39**	**0,17**
	Ceramic panels:			
	Dekton		**0,43**	**0,19**
	Neolith		**0,35**	**0,14**

While there isn't a proper test method it is not proven that these properties comply for a period of 50 years (requirement for durability listed in the Building act). For the tensile strength and the shear strength of the assembly tape the value mentioned in table 2 apply. The values for the assembly tape are relevant during the first 24 hours after application of the adhesive.

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4 SUGGESTIONS FOR THE PURCHASER

4.1 On delivery of the adhesives for the fixing of façade panels, inspect whether:
- what has been ordered has been supplied;
- the mark and the method of marking are correct;
- the products show no visible defects as a result of transport etc.

If the products are rejected on the basis of the above, contact shall be made with:
Novatech International N.V. and if desirable: The certification-body SKH.

4.2 Attest-with-product certificate
The producer is obliged to see to it that the purchaser shall have a copy of the complete attest-with-product certificate at his disposal at the construction site.

4.3 Application and use
The adhesives are meant for the fixing of façade panels for the purpose of (house-) construction.

4.4 Period of validity
Consult the SKH website http://www.skh.nl to verify whether the attest-with-product certificate is still valid.