



KOMO[®] attest-with-product certificate

Semi-manufactured product

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ADHESIVES FOR THE FIXING OF FAÇADE PANELS

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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. 15-10-2012 including amendment sheet dd. 31-12-2014 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.
- adhesive for the fixation of 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

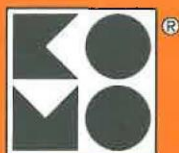
drs. H.J.O. van Doorn, director

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 6 pages.

Consult the Dutch version in case of doubt.



Assessed is:
quality system
product
performance product
in application
Periodical check

ADHESIVES FOR THE FIXING OF FAÇADE PANELS

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 fixation.

1.2 Marking

The packaging shall be marked with the KOMO[®]-mark.

The implementation of this mark is as follows:

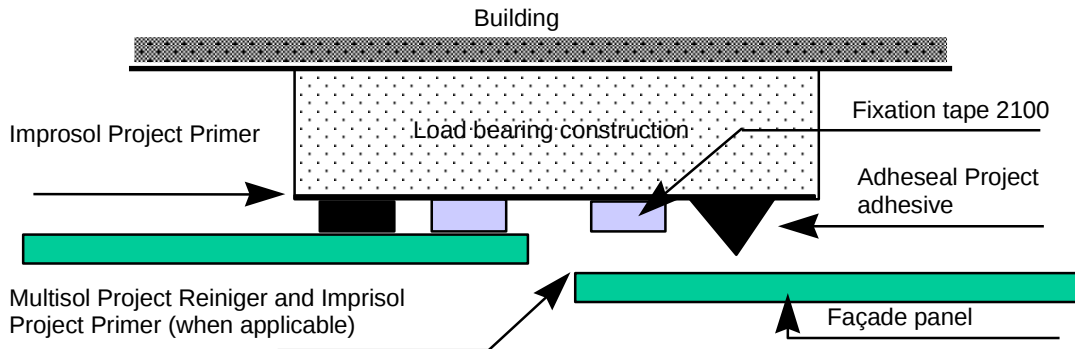
- word KOMO[®] or logo;
- certificate no. **21000**;
- with compulsory indication:
- the expiry date.



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. Should this however happen (e.g. in connection with requirements for the flatness of panels) it shall be done in such a way that good ventilation and drainage of possible moisture shall be guaranteed. This horizontal glue joint shall not be considered to contribute to the strength of the total fixing of the panels to the load bearing construction. 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	Adheseal Project adhesive	
Colour	Black	
Storage life	12 months in an unopened package.	
Maximum movement of the façade panel	2.5 mm	
Type of façade panel	Tensile strength N/mm²	Shear strength N/mm²
Aluminium (composite)		
Alucobond A2 / Alucobond plus	2,53	2,19
Larson PE Alucoil	2,47	2,47
Novelis FF2	2,25	2,14
Reynobond 55 FR	2,80	1,58
Glasfiber reinforced polyester panels		
Steni Colour	2,28	2,35
Steni Vision		
Steni Effect		
HPL-panels:		
Abet Laminati MEG#	1,93	2,11
Max Exterior (Funder Max)	2,81	1,58
Plastica Massief	2,18	2,47
Trespa Meteon ##	1,11	1,42
Ceramic (composite)		
Dekton Ultracompact	2,36	2,34
Grespania Coverlam**	1,21	1,45
Laminam	1,71	2,10
Fibre cement panels:		
Cembrit Metro*	2,26	1,62
Cembrit Patina*	2,40	1,76
Cembrit RAW	2,45	1,75
Cembrit Solid	2,21	1,23
Cembrit Transparent	2,19	1,67
Eternit Carat	1,42	1,70
Fiber C (Rieder)	2,04	1,79
Plywood		
Bruynzeel Garant Okoumé, coated with a waterbased acrylic coating	1,88	1,76
Stainless steel	2,03	2,71
Rock wool fibre panels:		
Rockpanel Colours**	1,97	1,62

* The coating on the backside of these panels needs to be removed by sanding, there where adhesion takes place. Where the coating is removed Imprisol Project Primer needs to be applied before fixing the panels to the loadbearing construction.

** Where adhesion takes these panels should be coated with Imprisol Project Primer.

The backside of these panels (where fixation with the adhesive takes place) needs to be labeled as "standard". If the backside is labeled "CS" or "SEI" fixation isn't possible.

When Trespa Meteon double sided décor is used the backside of the panel needs to be sanded (where adhesion takes place), before fixing the panels to the loadbearing construction.

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.

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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 1)	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 assembly tape Fixation Tape 2100	Tensile strength [N/mm ²]	Shear strength [N/mm ²]	Thickness [mm]	Compression force [N/mm ²]
Aluminium composite	0,30	0,28	12	0,21
Glas fibre reinforced polyester (Steni colour)	0,32	0,70	12	0,21
HPL (Trespa Meteon)	0,30	0,28	12	0,21
Ceramic composite (Dekton Ultracompact)	0,24	0,70	12	0,21
Fibre cement (Fermacell HD)	0,37	0,66	12	0,21
Multiplex (Brunzeel Garant with a acrylic coating)	0,30	0,66	12	0,21
Stainless steel	0,47	1,13	12	0,21
Rock wool fibre	0,37	0,66	12	0,21

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. The wooden load bearing constructions are sufficiently protected against decay, according to the statements in accordance with NPR 3670.

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:
 - fixation;
 - 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;
 - avoidance of direct UV exposure;
 - storing conditions of the adhesive and the assembly tape;
 - the shelf life of both adhesive and assembly tape.

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3 PERFORMANCES

3.1 Strength of the adhesive

When determining the quantity of adhesive per m² 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 Calculation values for Adheseal Project adhesive

Load bearing construction	Façade panel	Pre-treatment	Tensile strength [N/mm ²]	Shear strength [N/mm ²]
Wood: spruce Aluminium	Aluminium (composite)	Treat load bearing construction with Imprisol Project Primer (only in case of untreated spruce)		
	Alucobond A2 / Alucobond plus		0,63	0,22
	Larson PE Alucoil		0,62	0,25
	Novelis FF2		0,56	0,21
	Reynobond 55 FR		0,70	0,16
	Glass fibre reinforced polyester	Clean the façade panel with met Multisol Project Cleaner and dab dry.		
	Steni Colour		0,57	0,24
	Steni Vision			
	Steni Effect			
	HPL:			
	Abet Laminati MEG [#]	The coating on the backside of the panels marked with an asterisk (*) needs to be removed by sanding, there where adhesion is going to take place. After sanding Imprisol Project Primer shall be applied before fixing the panels to the loadbearing construction. Panels marked with two asterisks (**) need to be coated with Imprisol Project Primer where adhesion takes place.	0,48	0,21
	Max Exterior (Funder Max)		0,70	0,16
	Plastica Massief		0,55	0,25
	Trespa Meteon ^{##}		0,28	0,14
	Ceramic (composite)			
	Dekton Ultracompact		0,59	0,23
	Grespania Coverlam**		0,30	0,15
	Laminam		0,43	0,21
	Fibre cement:			
	Cembrit Metro*		0,57	0,16
	Cembrit Patina*		0,60	0,18
	Cembrit RAW		0,61	0,18
	Cembrit Solid		0,55	0,12
	Cembrit Transparent		0,55	0,17
	Eternit Carat		0,36	0,17
	Fiber C (Rieder)		0,51	0,18
	Plywood	Always consult the product guidelines		
	Bruynzeel Garant Okoumé, coated with a water based acrylic coating		0,47	0,18
	Stainless steel		0,51	0,27
	Rock wool fibre:			
	Rockpanel Colours**		0,49	0,16

The backside of these panels (where fixation with the adhesive takes place) needs to be labeled as "standard". If the backside is labeled "CS" or "SEI" fixation isn't possible.

When Trespa Meteon double sided décor is used the backside of the panel needs to be sanded (where adhesion takes place), before fixing the panels to the loadbearing construction.

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.

In the event that on account of the above it should be decided to reject the products, the following organisation(s) should be contacted: PCS Innotec International N.V. and if necessary 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 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.