

AD 2339
dd. 06-09-2012

KOMO[®]
ASSESSMENT DIRECTIVE
FOR
THE KOMO[®] PRODUCT CERTIFICATE FOR
‘ADHESIVES FOR NON-LOAD BEARING APPLICATIONS’

Technical area B3

Approved by Board of Timber Experts on 04-06-2012

Accepted by the Building Harmonisation Committee
of the Foundation for Building Quality
dd. 06-09-2012

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GENERAL INFORMATION CONCERNING THIS PUBLICATION

This assessment directive (AD) was declared binding on 06-09-2012 by the certification body SKH in accordance with the SKH Regulations for Certification and will, as from 06-09-2012, be used for the issuing of a KOMO[®] product certificate for 'Adhesives for non-load bearing applications'.

The assessment directive replaces the assessment directive 2339 'Adhesives for non-load bearing applications' dated 01-02-1999 and the amendment sheet of AD 2339 dated 12-06-2007.



Publisher:

Certification body SKH

P.O. Box 159
6700 AD WAGENINGEN
Telephone +31 (0)317 45 34 25
Fax +31 (0)317 41 26 10
E-mail: mail@skh.org
Website: <http://www.skh.org>

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1. INTRODUCTION

1.1 General

The requirements laid down in this assessment directive are used by the certification bodies accredited for NEN-EN 45011 and authorised by the Council of Accreditation during the handling of an application for, or the maintenance of, a KOMO[®] product certificate for 'Adhesives for non-load bearing applications'. The quality declarations to be issued are indicated as KOMO[®] product certificate.

The certification body lays down supplementary requirements in addition to the requirements specified in this assessment directive in the sense of general procedure requirements for certification as laid down in the general certification regulations of the body concerned.

The test methods and/or assessment methods are explicitly stated or designated by a reference to the appendix, standard or other assigned document.

1.2 Area of application

This assessment directive relates to 'Adhesives for non-load bearing applications' that are used in non-load bearing timber interior and exterior applications.

Adhesives and/or other joining products applied in frame joints do not come within the scope of this assessment directive (AD). The reader is referred to AD 0819.

1.3 Validity

This assessment directive replaces NAD 2339 dated 01-02-1999 and the amendment sheet of NAD 2339 dated 12-06-2007. Product certificates issued on the basis of the assessment directive NAD 2339 dated 01-02-1999 and the amendment sheet of NAD 2339 dated 12-06-2007 lose their validity 6 months after acceptance of this AD by the Building Harmonisation Committee (HCB).

2. PROCEDURE FOR ACQUIRING A PRODUCT CERTIFICATE

2.1 Start

The applicant for the product certificate states whether it supplies adhesives for non-load bearing applications in accordance with the specifications referred to in chapter 4. The applicant supplies the data that are necessary for the drafting of the technical specification.

He indicates which statements have to be included in the quality declaration and supplies the underpinning for these statements.

2.2 Initial inspection

The certification body investigates whether the statements to be included in the product certificate are consistent with chapter 4. A report of the initial inspection is prepared, on the basis of which the KOMO[®] product certificate will be issued, with or without certain conditions.

2.3 Assessment of the applicant's quality system

The certification body investigates whether the applicant's quality system is consistent with chapter 5.

2.4 Issuing of the product certificate

The product certificate is issued in conformity with the model certificate specified by the Building Harmonisation Committee in accordance with the general regulations of the certification body, when the initial inspection (section 2.2) and the assessment of the applicant's quality system (section 2.3) have been concluded with a positive result.

2.5 External quality control

After the product certificate has been issued, checks will be made by the certification body as specified in chapter 7 section 7.3.

3. TERMS AND DEFINITIONS

Capillary split	Opening in the glued joint (delamination). There is said to be a capillary split if a feeler gauge with a thickness of 0.1 mm can be inserted into the glued joint to a depth of more than 1 mm. A fracture in the timber next to the glued joint (cohesive fracture in the timber) is not considered to be a capillary split.
Timber fracture	Percentage of the fracture surface where wood fibres can be seen on the surface. Cohesive fracture in the glue or adhesive fracture of the glue of the timber surface is not considered to be timber fracture.

See the documents referred to in chapter 9 for the meaning of the other terms used in this assessment directive.

4. PRODUCT REQUIREMENTS

Aqueous dispersions, formaldehyde-based polycondensation adhesives and polyurethane adhesives are among the adhesives that can be used for non-load bearing applications.

Appendix 1 contains the assessment model with the different applications and directives that can be used for evaluating the adhesive for non-load bearing applications.

4.1 Exterior application

Adhesives that are used in an exterior application in accordance with use class 3 as described in NEN-EN 335-1 and 335-2 must be assessed in a way that is consistent with the intended application (see also appendix 1). One adhesive may be declared suitable for several applications provided that it has been demonstrated to meet the different performance requirements. Independent of the application, an adhesive for exterior application must at a minimum be assessed in regard to the requirements of moisture and temperature resistance (exterior general) in accordance with section 4.1.1 of this assessment directive. In addition, the requirements specified in sections 4.1.2, 4.1.3 and 4.1.4 can also be met, depending on the desired application (optional).

4.1.1 Exterior general

The moisture resistance of an adhesive determined in accordance with NEN-EN 205 must be D4 in conformity with NEN-EN 204. The shear strength at an elevated temperature (temperature resistance) of the adhesive determined in accordance with NEN-EN 14257 must be at least 5.5 N/mm².

Certification investigation

Compliance of the quality declaration applicant's adhesive with the minimum requirements for moisture and temperature resistance is investigated.

Product certificate

The product certificate states that the requirements of moisture and temperature resistance in accordance with NEN-EN 204 and NEN-EN 14257 have been met.

Note: If an adhesive has only been demonstrated to comply with the requirements of moisture and temperature resistance, it is suitable for an exterior application in which limited requirements are set for the quality of the gluing, such as the gluing of cavity laths or gluing timber on the construction site.

4.1.2 Exterior laminating (optional)

Application in laminating requires the durability of the adhesive to meet the performance requirements of class BGVT as specified in AD 2902.

Determination method

It must be demonstrated for every timber species that the adhesive meets the durability requirements of class BGVT in AD 2902. Contrary to the provisions of AD 2902, the test pieces must be prepared in an independent laboratory in accordance with the processing instructions of the adhesive supplier.

The dimensions of the test pieces are as follows:

Five test pieces made up of three lamellae (30 x 90 x 500 mm) must be prepared using flat and planed timber with a moisture content and timber quality in accordance with SKH-Publication 99-05, glued in accordance with the processing instructions of the adhesive producer. They are used to prepare 10 test pieces measuring 90 x 90 x 50 mm (w x h x l) for the boiling test and 5 test pieces measuring 90 x 90 x 300 mm (w x h x l) for the accelerated weathering test.

The structure and finishing of the test pieces are in accordance with the instructions in AD 2902.

The test pieces must be tested in accordance with the determination methods described in AD 2902 after a hardening period of at least 7 days in a climate with a temperature of 20 ± 2°C and a relative humidity of 65 ± 5%.

Certification investigation

Compliance of the quality declaration applicant's adhesive with the minimum requirements for the durability of the adhesive for application in laminating is investigated.

Product certificate

The product certificate states that the adhesive complies with the durability requirements of the adhesive for application in laminating in accordance with class BGVT of AD 2902.

4.1.3 Exterior finger joints (optional)

For application in finger joints, the durability of the adhesive must meet the class BGVT performance requirements as specified in AD 1704-2.

Determination method

It must be demonstrated for every timber species that the adhesive meets the durability requirements of class BGVT in AD 1704-2. Contrary to the provisions of AD 1704-2, the test pieces must be prepared in an independent laboratory as follows:

Twenty test pieces with dimensions 70 x 120 x 500 mm (h x w x l) must be prepared using flat and planed timber with a moisture content and timber quality in accordance with SKH-Publication 99-05. One side of the test piece must have a finger joint slot with the following dimensions:

- length of finger: 10 ± 1.0 mm;
- width of slot-base: 0.6 ± 0.2 mm;
- pitch: 3.8 ± 0.3 mm.

The preparation of the finger joint can be done in collaboration with a manufacturer or supplier of machines. In order to prevent the finger joint from getting dirty and the timber from drying out, after the finger joint has been milled the test pieces must be sealed until the moment they are glued.

Within 8 hours after the finger joint has been milled, samples must be made of two test pieces with the finger profile glued together with the adhesive under investigation.

The test pieces must be processed and finished in accordance with the instructions in AD 1704-2 after a hardening period of at least 7 days in a climate with a temperature of 20 ± 2°C and a relative humidity of 65 ± 5%. Testing is done in accordance with the determination methods in AD 2902.

Certification investigation

Compliance of the quality declaration applicant's adhesive with the minimum requirements for the durability of the adhesive for application in finger joints is investigated.

Product certificate

The product certificate states that the adhesive complies with the durability requirements of the adhesive for application in finger joints in accordance with class BGVT of AD 1704-2.

4.1.4 Exterior façade joinery (optional).

For application in façade joinery (with the exception of frames), after the ageing as described the durability of the adhesive must meet the following requirements:

- no capillary splits after ageing for 3 cycles or;
- average timber fracture of 80% after ageing for 6 cycles.

Determination method

It must be demonstrated for every timber species that the adhesive complies with the ageing test.

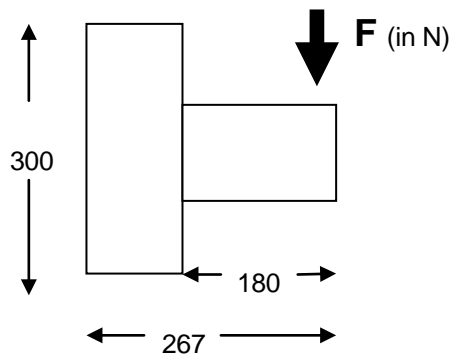
Preparation and execution of the testing must be done by an independent laboratory as follows:

Five test pieces (T-joints) must be prepared using flat and planed timber with a moisture content and timber quality in accordance with SKH-Publication 99-05. The sill part has dimensions 67 x 67 x 300 mm (w x h x l) and the stile part 90 x 67 x 200 mm (w x h x l). A hole with a diameter of 14 ± 0.1 mm is drilled in one of the cross-cut ends of the stile part and one of the longitudinal surfaces of the sill part. The T-joint must be assembled using a dowel that meets the requirements of AD 2908. In the case of hardwood, the dowel used must have a diameter van 14 ± 0.2 mm and in the case of softwood a diameter of 14.2 ± 2 mm.

Gluing of the stile part to the sill part must be done in accordance with the processing instructions of the adhesive supplier. After a hardening period of at least 7 days in a climate with a temperature of $20 \pm 2^\circ\text{C}$ and a relative humidity of $65 \pm 5\%$, the test pieces must be subjected to the following ageing cycle 6 times:

- 8 hours of irradiation using IR lamps (maximum surface temperature $50 \pm 5^\circ\text{C}$, measured on a white surface (colour; RAL 9010));
- 24 hours spraying with water (water temperature $15 \pm 3^\circ\text{C}$);
- 8 hours freezing (space temperature $-10 \pm 2^\circ\text{C}$);
- 8 hours spraying with water (water temperature $15 \pm 3^\circ\text{C}$);
- 16 hours resting (space temperature $20 \pm 2^\circ\text{C}$);
- 8 hours of irradiation using IR lamps (maximum surface temperature $50 \pm 5^\circ\text{C}$, measured on a white surface (colour; RAL 9010));
- 24 hours resting (space temperature $20 \pm 2^\circ\text{C}$).

After 3 cycles any visually observable capillary splits at the front and back of the test piece that occurred during the ageing must be recorded. After 6 cycles the T-joints must be broken open in a test unit at a speed of 10 mm/min as shown diagrammatically in the following figure.



The timber fracture percentage must be assessed after the T-joints have been broken open.

Certification investigation

Compliance of the quality declaration applicant's adhesive with the minimum requirements for the durability of adhesive for application in movable parts is investigated.

Product certificate

The product certificate states that the adhesive complies with the durability requirements of the adhesive for application in movable parts.

Note: Adhesives and/or other joining products applied in frame joints do not come within the scope of this assessment directive. The reader is referred to AD 0819.

4.2 Interior applications

Adhesives that are used in an interior application in accordance with use class 1 or 2 as described in NEN-EN 335-1 and 335-2 must have moisture resistance corresponding to class D1, D2 or D3 of NEN-EN 204, determined in accordance with NEN-EN 205 (see also appendix 1).

Certification investigation

Compliance of the quality declaration applicant's adhesive with the requirements for the declared class for moisture resistance is investigated.

Product certificate

The product certificate states the class moisture resistance requirements in accordance with NEN-EN 204.

5. REQUIREMENTS REGARDING THE QUALITY SYSTEM

5.1 General

This chapter contains the requirements that the producer's quality system must meet.

5.2 Responsibility

The producer is responsible for the production process of the product, for the internal quality control and for the finished product.

5.3 Quality system manager

An individual must be appointed in the company who is responsible for maintaining the internal quality control system.

5.4 Quality system

5.4.1 Document control

The written procedures for inspection and testing must be assessed and approved for suitability and effectiveness by authorised persons in the company before they are issued. Document control must ensure that only valid documents are available for inspection and testing. The documents must be in Dutch, English or German.

5.4.2 Inspection and testing

5.4.2.1 Internal quality control

The producer must maintain an internal quality control system. At least the following aspects and procedures should be included and set down in writing:

- incoming inspection of raw materials;
- workplace instructions (including control of the production process);
- control of the finished product;
- control of measuring equipment;
- recording complaints.

5.4.2.2 Registration

Records must be kept of the inspections and tests as described in the IQC scheme. Registered data must be kept at least 10 years.

5.4.2.3 Calibration

Inspection, measuring and test equipment must be calibrated at least once a year. Records must be kept of this calibration.

5.4.2.4 Supplies

Raw materials, semi-manufactures etc. in regard to which reference is made to another assessment directive must meet the requirements of the assessment directive concerned. The goods received must be inspected according to the IQC scheme.

5.4.2.5 Laboratory

There must be a separate properly equipped area and the prescribed measuring and test equipment for carrying out laboratory activities. If an external laboratory is used, it must be approved by the certification body.

The samples used for inspection and testing are clearly identified. Any testing sequence must be clearly recognisable.

The producer must have the following equipment:

- thermostatic bath (or other means for conditioning samples);
- viscosity meter;
- pH meter;
- drying oven;
- balance;
- tensile strength tester;
- press;
- stopwatch;
- thermometers, including a calibrated thermometer.

5.4.2.6 Non-conformities in products

Products or parts of products that during the production process emerge as not complying with the requirements must be clearly recognisable as such. If necessary corrective measures must be taken.

5.4.3 Handling complaints

The producer (holder of the product certificate) must demonstrably maintain a registration of complaints and how they are handled with regard to the product to which the product certificate and its application relate. There must be a statement regarding every complaint about how the complaint was analysed and dealt with and any appropriate corrective measures subsequently taken.

6. MARKING

The (packaging of) adhesive for non-load bearing applications supplied with the product certificate must be legibly marked with the KOMO[®] mark

- in the form of the KOMO[®] word or logo; minimum size 5 mm;
- product certificate number;

as well as the information relating to:

- a batch number;
- the final processing date or the production date with the maximum storage life;
- the statement:
 - Exterior general; if the adhesive meets the performance requirements according to section 4.1.1.
 - Exterior laminating; if the adhesive meets the performance requirements according to section 4.1.2.
 - Exterior finger joints; if the adhesive meets the performance requirements according to section 4.1.3.
 - Exterior façade joinery; if the adhesive meets the performance requirements according to section 4.1.4.
 - Interior D3 or D2 or D1*; if the adhesive meets the performance requirements according to section 4.2.

*depending on the class that the adhesive complies with.

In the event of road tanker deliveries, the aforementioned information must be on the delivery note.

In addition, the producer's product information sheet must contain at least the following information:

- the timber species that can be glued with the adhesive;
- the relative proportions of the components of the mixture;
- the processing instructions.

7. REQUIREMENTS REGARDING EXTERNAL QUALITY CONTROLS

7.1 General

External quality control is specified by the certification body in accordance with the Regulations for Certification of the certification body.

7.2 Initial inspection

During the initial inspection the certification body checks whether the relevant company complies with the requirements as given in this assessment directive. A report of the initial inspection is prepared, on the basis of which the KOMO[®] product certificate will be issued, with or without certain conditions.

7.3 Annual control

The certification body checks, if possible without prior notice, twice a year whether the production is in accordance with the specifications specified by the producer and agreed upon with the certification body and whether the producer's internal quality control system meets the requirements specified in chapter 5.

A written report of these controls is prepared.

On the recommendation of the Board of Experts, the aforementioned frequency of the checks can be adjusted on the basis of the reasons presented.

Generally speaking the applicant's country must be safe for the certification body's control visits. If there is a travel advisory, the country will not be visited. In that case the products will be inspected upon arrival in the Netherlands. The producer is obliged to notify the certification body, in good time and in writing, of the deliveries, including the time and location of reception.

8. REQUIREMENTS REGARDING THE CERTIFICATION BODY

8.1 General

The certification body must comply with the requirements specified in NEN-EN 45011. In addition, the body must be accredited by the Dutch Accreditation Council or have initiated the application procedure for the scope of this assessment directive.

The certification body must have a set of regulations, or an equivalent document, in which the general rules are specified that are applied to certification. In particular these are:

- the general rules for performing the initial inspection, split up into:
 - the procedure for informing suppliers about the administrative processing of an application;
 - the procedure for implementing the inspection;
 - the procedure for deciding about acceptance based on the initial inspection
- the general rules with respect to performing controls and inspections and the controlled aspects of these inspections;
- the measures to be taken by the certification body in the event of non-conformities;
- the rules for termination of a certificate;
- the option of lodging an appeal against decisions or measures taken by the certification body.

8.2 Certification staff

The staff members concerned with the certification process are as follows:

- inspector: tasked with carrying out the external controls;
- initial inspector: tasked with carrying out the initial inspection and assessing the reports of tests and laboratory analyses;
- assessor: assessment of the initial inspector and controller; decisions on the need for taking corrective measures.
- decision-taker: tasked with taking decisions based on the initial inspections that have been carried out, continuation of certification on the basis of the completed controls.

8.3 Qualification requirements

Staff concerned with the certification process must be demonstrably qualified for the activities required. The following qualification requirements apply in respect of education, training, expertise and experience:

Certification staff	Training	Expertise and experience
Inspector Initial inspector	Senior secondary vocational education level (MBO level)	<ul style="list-style-type: none"> - Production and application of adhesives or equivalent - Training as ISO 9001 auditor - Two years' experience in the timber industry or equivalent
Assessor	Higher professional education level (HBO level)	<ul style="list-style-type: none"> - Chemist or equivalent - Production and application of adhesives - Minimum of 2 years' experience at management level in the timber sector or equivalent.
Decision taker	Higher professional education level (HBO level)	<ul style="list-style-type: none"> - Management experience or equivalent - Certification experience or equivalent - Knowledge of accreditation criteria or equivalent - Knowledge of relevant certification systems

Certification staff must be demonstrably qualified by means of assessing training and experience based on the requirements mentioned above. If qualification is based on different criteria, this must be recorded in writing.

8.4 Report to the Board of Experts

The certification body reports at least annually about the work done for the specific field of certification. In this report the following aspects must be addressed:

- changes in the number of certificates (new/ended);
- number of controls performed in relation to the prescribed control frequency;
- results of the controls and inspections.

9. LIST OF DOCUMENTS REFERRED TO

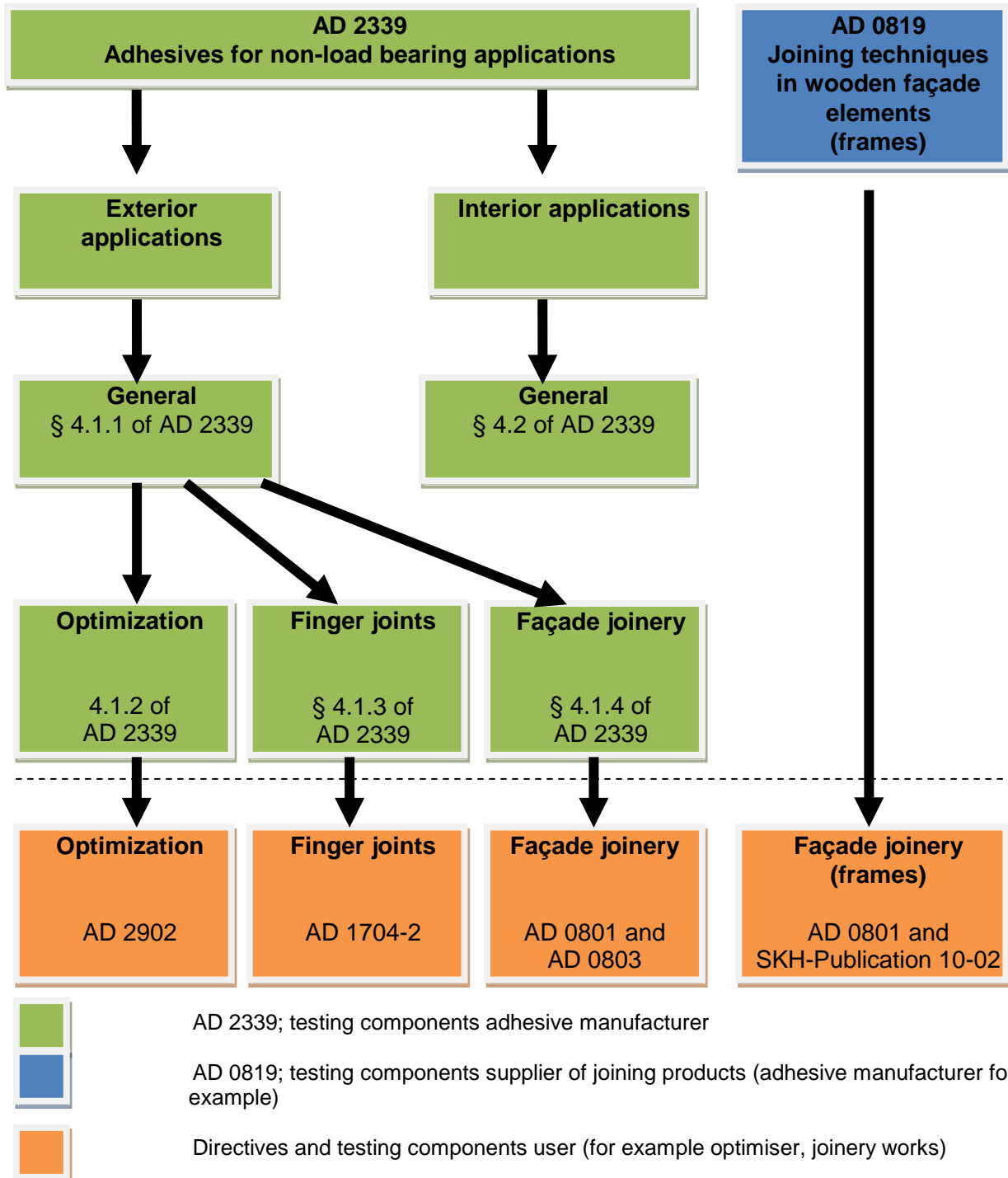
NEN-EN 204:2001	Classification of thermoplastic wood adhesives for non-structural applications
NEN-EN 205: 2003	Glues - Wood glues for non-structural applications - Determination of tensile shear strength and resistance to static load of lap joints.
NEN-EN 335-1: 2006	Durability of wood and wood-based products - Definition of use classes - Part 1: General
NEN-EN 335-2: 2006	Durability of wood and wood-based products - Definition of use classes - Part 2: Solid timber
NEN-EN 14257: 2006	Glues - Wood glues- Determination of tensile strength of lap joints at elevated temperature (WATT'91)
NEN-EN 45011: 1998	General requirements for bodies that operate product certification systems
AD 0801: 2011	Wooden façade elements
AD 0803: 2012	Wooden outer doors
AD 0819: 2012	Joining techniques in wooden façade elements
AD 1704-2: 2012	Finger-jointed timber for non-load bearing applications
AD 2902: 2012	Optimised timber for non-load bearing applications
AD 2908: 2012	Wooden dowels

SKH Publication 99-05:2011 List of approved timber species for application in façade joinery (frames, windows and doors)

*For the correct publication date of the SKH-Publications, please refer to <http://www.skh.org>.

APPENDIX 1 TESTING MODEL

Requirements, which depend on the area of application, are set for gluing systems as shown in the following testing model.



APPENDIX 2 MODEL KOMO® PRODUCT CERTIFICATE

KOMO® product certificate

Name (CB)	Logo (CB)
Address (CB)	
Telephone number (CB)	
Fax number (CB)	

ADHESIVES FOR NON-LOAD BEARING APPLICATIONS	Number:
.....	Issued:
	Replaces:

Certificate holder (Producer)	(Factory at)	(Importer)
--------------------------------------	---------------------	-------------------

Declaration by (CB name)

This product certificate has, on the basis of AD 2339 'Adhesives for non-load bearing applications', dd., been issued in accordance with the (CB name) Regulations for Certification.

(CB name) declares that:

- there is legitimate confidence that the adhesives for non-load bearing applications, manufactured by the producer continuously comply with the technical specifications laid down in this product certificate, provided that the adhesives for non-load bearing applications are marked with the KOMO® mark in the manner indicated in this product certificate.

For CB name, director

This certificate is included in the overview of KOMO-quality declarations on the website of the Stichting KOMO Foundation: www.komo.nl.

Users of this product certificate are advised to check whether this certificate is still valid; please consult the SKH website for this: www.skh.org.

<p>The following has been assessed: - quality system product Periodic control</p>
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1. **PRODUCT SPECIFICATION**

1.1 **Subject**

This product certificate concerns, adhesives for non-load bearing applications

1.2 **Technical specification**

.....

1.3 **Identification code (marking)**

.....

2 **TIPS FOR THE USER**

2.1 **Upon delivery of the adhesives for non-load bearing applications, make sure to check that:**

- what has been delivered corresponds with what was agreed;
- the marks and method of marking are correct;
- the products do not show any visible defects as a result of transport etc.

If the products are rejected on the grounds of any of the above, please contact:

.....

and if necessary:

the certification body SKH
Nieuwe Kanaal 9c, 6709 PA Wageningen
P.O. Box 159, 6700 AD Wageningen, Netherlands
Telephone: +31 (0)317 45 34 25 E-mail: mail@skh.org
Fax: +31 (0)317 41 26 10 Website: http://www.skh.org

2.2 **Product certificate**

The producer is required to ensure that the buyer has a copy of the complete KOMO[®] product certificate and the processing instructions at his disposal at the workplace.

2.3 **Application and use**

Transport, storage and processing are to be carried out in accordance with the processing instructions that are included in this KOMO[®] product certificate.

2.4 **Validity check**

Make sure to check whether the KOMO[®] product certificate is still valid; consult the SKH website: <http://www.skh.org>.