AD 0814
05-07-2016

ASSESSMENT DIRECTIVE

FOR THE

KOMO® PRODUCT CERTIFICATE

FOR

FILMFORMING COATINGS FOR APPLICATION ON TIMBER

Authorized by the Board of Experts of SKH
at 20-05-2016

Accepted by the KOMO quality acceptance committee at 05-07-2016

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GENERAL INFORMATION

This assessment directive has been declared binding on 05-07-2016 by the certification-body SKH in accordance with the Regulations for Certification and shall apply to the issuing of a KOMO® product certificate “Film forming coatings for application on timber”.
This assessment directive supersedes assessment directive 0814 d.d. 03-11-2005.

The Dutch version shall be consulted in case of doubt.

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1 INTRODUCTION

1.1 General

The certification body must be accredited by the Council for Accreditation for the subject of this AD on the basis of NEN-EN-ISO/IEC 17065. The quality declarations to be issued will be denoted as KOMO® product certificate. The quality declarations to be issued are indicated as follows: KOMO® product certificate.

Besides the requirements set out in this assessment directive, the certification- and attestation-bodies have additional requirements in the sense of general procedure requirements for certification and attestation, as laid down in the general certification- or attestation regulations of the body concerned.

This assessment directive supersedes AD 0814 “Film forming coatings for application on timber”, 03-11-2005. The quality declarations issued on the basis of that assessment directive retain their validity until 05-01-2017.

The technical area covered by this AD is E6

1.2 Subject and area of application

This assessment directive gives guidelines for the company, the materials and the manufacturing of opaque and translucent industrial applied film forming primer systems for the application on timber.
It is forbidden to use translucent primer systems (Concept I, according AD 0801) in KOMO® certified materials unless the primer system is upgraded to a mid- or topcoat system (Concept II or III, according AD 0801). Therefore, per August 1st 2015, it is not possible anymore to certify new translucent primer systems according this assessment directive.

1.3 Validity

As of 05-07-2016 it is possible to publish KOMO® Product certificates, in accordance with this assessment directive.

1.4 Relatie met Europese Verordening Bouwproducten (CPR, EU 305/2011)

No harmonized European product standard applies to the products under this assessment directive. To the extent that this assessment directive refers to other assessment directives, no assessment of products will take place under this assessment directive, insofar as they demonstrably meet the requirements set out in the relevant AD. To the extent that this assessment directive refers to harmonized European product standards, the product characteristics as set out in the relevant harmonized European product standards will be verified under this assessment directive.

1.5 Requirements with regard to research institutions

If a supplier provides reports of research institutes or laboratories in order to demonstrate that the requirements of this assessment directive are met, it must be demonstrated that they have been drawn up by an institution that complies with the applicable accreditation standard for the relevant subject, i.e.:

- NEN-EN-ISO/IEC 17020 for inspection bodies;
- NEN-EN-ISO/IEC 17021 for certification bodies that certify systems;
- NEN-EN-ISO/IEC 17025 for laboratories;
- NEN-EN-ISO/IEC 17065 for certification bodies that certify products.

An institution is considered to meet these criteria when an accreditation certificate for the relevant subject can be provided, issued by the Dutch Accreditation Council (RvA) or an accreditation body with which the Accreditation Council has concluded an agreement of mutual acceptance. If no accreditation certificate can be provided, the certification body itself will verify whether the accreditation criteria are met.

1.6 Quality Declarations

The quality declaration to be issued based on this assessment directive is indicated as KOMO® product certificate. The acknowledgement in this quality declaration are based on chapter 4, 5, 6 and 7 of this assessment directive.

The website of the KOMO Foundation (www.komo.nl) lists the requirements the quality certificates to be issued must meet.

KOMO® certification means that the quality system and products are initially assessed or tested against the requirements of this assessment directive by or under the responsibility of an accredited institution, whereby the sampling is the responsibility of the accredited institution. The quality system and the products of the manufacturer are also under the continuous supervision of the accredited institution, whereby the continuous compliance of the product with the requirements set out in this assessment directive is assessed or guaranteed, while random assessments or tests are conducted frequently.

A KOMO® quality declaration provides a legitimate confidence that the product complies with all relevant requirements applicable in the Netherlands.

2 TERMS AND DEFINITIONS

Film forming coatings
A layer of paint with a minimal dry layer thickness of 60 µm. This assessment directive specifically describes translucent and opaque primer systems. Assessment directive 0817 “Film forming mid- and topcoat systems on timber” deals with mid- and topcoat systems.

Industrial coating system
An industrial applied system, consisting of one or more layers of a coating applied in a factory under specific process conditions.

Primer system:
An system consisting of an industrial applied layer or layers of a film forming coating, so the surface of the timber is protected. The primer system has to be finished on the construction site, within six months, with at least two layers of brush applied paint with a minimal dry layer thickness of 50 µm.

Midcoat system:
An industrial applied layer or layers of a film forming coating, so the surface of the timber is protected. The midcoat system has to be finished, within 18 months (6 months for translucent systems) on the construction site with at least one layer of brush applied paint with a minimal dry layer thickness of 30 µm. The colour of the midcoat system has to be set to the colour of the decorative topcoat, so it is possible to realize the final colour in one brush application.

Topcoat system:
An industrial applied layer or layers of an industrial coating system, which doesn’t need an extra final layer applied on the construction site (a fully factory applied system). The colour of the topcoat system is the final colour. In principal the maintenance free period is agreed by the paint manufacturer and the joinery. To guarantee a minimal level of quality a maintenance free period of at least six year for lighter colours, four years for darker colours and two years for translucent systems (with periodic inspections and repairing of damages) should be taken in to account. The actual maintenance free period and periodic inspections will be documented in a maintenance contract.

Upgrade advise:
Advise to upgrade an primer system to a topcoat system, so the minimal technical requirements of a topcoat system in accordance with AD 0817 are met.

3 PROCEDURE FOR OBTAINING A KOMO® PRODUCT CERTIFICATE

An admission investigation will be performed before the KOMO® Product certificate can be issued based on the voluntarily mutual certification agreement between the applicant and the certification body.
When the applicant has several production locations, it has to be clear to which production location it applies.

3.1 Start

The applicant of the KOMO® Product certificate indicates for which substrate and application the translucent and/or opaque film forming coating for application on timber is suited and complies with the requirements as stated in chapter 4. Also the necessary information to draw-up the KOMO® Product certificate will be supplied by the applicant consisting of:

- paint to be used (per layer);
- number of layers in which the paint system has to be applied;
- substrate for which the paint is suited;
- minimal and maximum dry layer thickness (per layer) applied in accordance with the minimal process parameters;
- minimal process parameters (temperature, relative humidity, air velocity and time whereby every layer has to be applied and dried)

The applicant indicates which statements have to be included in the KOMO® Product certificate and provides the evidence for these statements. The report supporting the claims the product passes the requirements as mentioned in chapter 4 has to be drawn-up by an independent and competent laboratory.

3.2 Admission documents

The certification body assesses whether the statements to be included in the KOMO® Product certificate are correct. The admission investigation consist of desk research (admission documents) and investigation at the production site. The desk research consists of:

- verification of the documents supplied (to be supplied) by the applicant, to confirm the requirements as stated in this assessment directive are met;
- determination of the other product characteristics;
- review of the application manual.

The certification body verifies the claimed performance. It has to be checked to what extend the requirements as listed in chapter 4 of this assessment directive are met.

3.3 Evaluation of the quality management system

The certification body assesses whether the statements to be included in the KOMO® Product certificate are correct. The admission investigation consist of desk research (admission documents) and investigation at the production site. The investigation at the production site consists of:

- evaluation of the production process
- evaluation of the internal quality management system
- evaluation of the procedures used.

The certification body evaluates the internal quality management system, whether it complies with the requirements as listed in chapter 7 and 8 of this assessment directive.

3.4 Issueing of the KOMO® Product certificate

The results of the admission investigation will be reported to the decision maker. The decision maker evaluates the results and determines whether the KOMO® Product certificate will be issued or whether additional information/research is needed.

By granting the KOMO® Product certificate the certification body has legitimate trust the internal quality management system:

- complies with the requirements as listed in this assessment directive;
- is evaluated on a regular bases by an independent third party;

and has a legitimate trust, the certified products:

- meet the product requirements as listed in this assessment directive;
- comply with the statements listed in the KOMO® Product certificate.

3.5 External quality management

Once the product certificate has been issued, the certification- and attestation-body carries out inspections as described in chapter 9

4 PRODUCT REQUIREMENTS

4.1 Requirements after minimal drying

The requirements after minimal drying, determined as described in §5.1 and § 5.2, are:

	method	**requirements**
water uptake	SKH-Publ. 08-02	≤ 400 g/m^2
adhesion after water uptake	SKH-Publ. 05-01	maximum class 1

4.2 Requirements after complete drying

The requirements after complete drying, determined as described in §5.1 and § 5.2, are

	method	**requirements**
water uptake	SKH-Publ. 08-02	≤ 300 g/m^2
adhesion after water uptake	SKH-Publ. 05-01	maximum class 1

4.3 Water uptake and freeze stability

After six cycles of alternating steps of water absorption and freezing, determined as described in §5.3, the following properties are tested:

	method	**requirements**
adhesion after sixed freeze cycle	SKH-Publ. 05-01	maximum class 1
blistering	EN-ISO 4628-2	not allowed
cracking	EN-ISO 4628-4	maximum class 1S1
flaking	EN-ISO 4628-5	not allowed

4.4 Outdoor durability primer system

The following properties are tested after six months outdoor weathering, according § 5.4.1:

		requirements	
	method	**opaque**	**translucent**
adhesion	SKH-Publ. 05-01	maximum class 1	maximum class 1
blistering	EN-ISO 4628-2	not allowed	not allowed
cracking	EN-ISO 4628-4	maximum class 1S1	not allowed
flacking	EN-ISO 4628-5	not allowed	not allowed
chalking	EN-ISO 4628-6	maximum class 2	-
decolouration*	Appendix 2	-	not allowed

* only applicable for translucent coatings

4.5 Product changes

All changes to the formulation of the certified material are documented by the manufacturer. On request the manufacturer has to give the certification body access to these documents.
In the case of an significant change (a change in the formulation over 10% per raw material, for example the amount of filler is increased from 10% to 11%, 1/10=10%) the manufacturer has to show the properties of the certified material are the same, or improved, as when the material was certified. This is done by the tests as described in § 5.1, 5.2 and § 5.3.

When the manufacturer wants to use a different test setup this has to be discussed and approved by the certification body.

Remark: *product changes will be tested in RAL 1013 and RAL 7026*

5 TEST METHODS

The properties of the primer system are tested after applying the system in accordance with the minimal QS I conditions*, or as described by the manufacturer.
The number of layers together with the upper and lower limit of the layer thickness (per layer) are specified by the manufacturer. In any case there has to be a closed paint film. Also the paint manufacturer has to give application instructions on how to finish the primer system so it will meet the requirements of a topcoat system.
The colours used to test the properties of opaque systems are RAL 1013 (light) and RAL 7026 (dark). Translucent systems are tested in their most critical tint. The most critical tint is set by the manufacturer and can be determined in case necessary by the method as described in Appendix I.

The application is done in accordance with the application technique as described by the manufacturer.

5.1 Water permeability

The water permeability after minimal and complete drying is determined in accordance with the method described in SKH-Publication 08-02.

5.2 Adhesion

The adhesion is determined in accordance with SKH-Publication 05-01.

5.3 The water uptake and freeze stability

The resistance to alternating cycles of water uptake and freezing are determined in accordance with SKH-Publication 10-01.

5.4 Outdoor durability

The outdoor durability is determined in accordance with EN 927-3. In contrast to EN 927-3 flawless spruce should be used, of which the edges are rounded of (r3) and the primer system is applied on all sides.

6 APPLICATION INSTRUCTIONS

Upon delivery of the primer system the user must have a document with proper application instruction in which the following subjects are dealt with:

- transport and storage;
- application window (minimal and maximum dry layer thickness per layer to be applied);
- application conditions (temperature, relative humidity)
- drying conditions (temperature, relative humidity, air movement/velocityover/around the substrate and drying time)
- application method.

7 REQUIREMENTS REGARDING THE QUALITY SYSTEM.

7.1 General

This chapter includes the requirements with which the producer's quality system must comply.

7.2 Responsibility

The responsibility for the manufacturing process of the product, the internal quality monitoring, and the finished product lies with the manufacturer.

7.3 Manager of the quality system

Within the organizational structure, an official must be appointed who is charged with the management of the quality system.

7.4 Changes in the quality system

The certification body has to be informed about all changes within the quality system, like procedures, formulations, registration of the quality control etc.

7.5 Quality system

7.5.1 Management of documents

The written procedures and work instructions for inspection and testing must be assessed for suitability and effectiveness and approved by authorised persons in the company before they are issued. Document management shall ensure that only valid documents are used during inspections and testing. The documents must be in Dutch, English or German, or in any way setup so they are understandable for the employees and certification body.

7.5.2 Internal quality control

Of all products mentioned in the certificate the manufacturer must have a product file, which will be marked by the certification body. The product file contains at least the following information:

- the formulation of the product, including the formulation of the intermediates and the supplier of the raw materials;
- the product specifications, the tolerance for the specifications are set by the manufacturer;
- changes.

Of every batch produced at least the following properties should be determined:

- viscosity;
- fineness;
- pH;
- density;
- sagging;
- solids content.

How these properties are determined is up to the manufacturer as well as the tolerance.

7.5.3 Internal quality management

The manufacturer must have a quality management system to guarantee the products produced, full fill the requirements of this assessment directive. This internal quality system at least has the following procedures:

- inspection on raw materials;
- work place instruction (including control of the production process);
- inspection of the final product;
- inspection/calibration of measurement equipment;
- complain handling;
- non complying products

7.5.4 Registration

To make it credible the products pass all requirements of this assessment directive, the manufacturer has to have an proper accessible registration of the performed quality control. Records must be kept of the inspections and tests as described in the internal quality control.

Registered data must be kept for at least 10 years, with the exception of retain samples which have to be stored for at least one year. The outcome of an inspection could be the storage time can be shortened or has to extended. (In case the storage time is shortened, the information of the delivery always has to be accessible.)

7.5.5 Calibration

Equipment used for quality control has to be calibrated annually unless the manufacturer of the equipment has set a different time interval. The manufacturer has to keep a registration of the calibration of the equipment used. Calibration can be done internally (calibrated reference equipment has to be used) or by an external company.

7.5.6 Incomming materials

Raw materials, intermediates etc., of which the requirements are mentioned in a different assessment directive have to fulfil the requirements of the corresponding assessment directive. The manufacturer has to keep a registration of the incoming materials and have an inspection on incoming materials mentioned in his internal management system.

7.5.7 Laboratory

To perform a proper quality control of the produced batches the manufacturer has to have a (separate) well equipped space with the specified equipment. When an external laboratory is used this has to be approved by the certification body.
Preferably an external laboratory is accredited on the basis of NEN-EN-ISO/IEC 17025.

Samples used for the production control have to be clearly identified and when applicable the test sequence has to be clear.

Depending on the products made and the tests performed, the manufacturer has to have the following equipment:

- temperature controlled water bath (to bring the samples to the temperature at which it should be tested);
- An oven with an accuracy of ±2 °C;
- A scale and/or balance with an accuracy of ± 0,01 gram;
- pH-meter;
- Viscosity meter;
- Thermometer with an accuracy of ±0,5 °C;

7.5.8 Non complying products

Products or parts of products produced, which don't meet the requirements (non-complying products) have to be clearly recognisable. The manufacturer also has to have a procedure describing the handling of non-complying product. When necessary corrective actions have to be taken.

7.5.9 Complaints

The manufacturer (owner of the quality declaration) has to have a system for the registration and handling of complaints. For every complaint the analyses and handling of the complaint must be clear together with the corrective actions taken to prevent the complaint from happening again.

8 MARKING

The packaging of the coating products has to be marked with:

- the KOMO® mark
- the number of the KOMO® quality declaration
- a unique batch number
- an expiration date or production date with shelf life

Also the product information has to contain information on:

- toxicity;
- application instructions (see chapter 6).

9 REQUIREMENTS TO BE MADE TO THE EXTERNAL INSPECTION

9.1 General

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

9.2 Admission inspection

During the admission inspection, the certification body checks whether the company in question complies with the requirements stated in this assessment directive. A dossier will be drawn up of the admission inspection, based on which the KOMO® product certificate is granted, whether or not under certain conditions.
The dossier has to cover the following:

- ***Completeness***; the dossier gives a statement on all requirements of this assessment directive
- ***Traceability***; the findings on which the statements are made have to be traceable. The decision maker has to be able to make his decision on the statements made in the dossier.

9.3 Annual inspection

The certification body will check, at least 1 x a year, whether the technical specification has been continuously satisfied, whether production meets the specifications laid down by the manufacturer and agreed upon with the certification body, and whether the manufacturer's internal quality control management meets the requirements laid down in Chapter 7

A written report of these controls is prepared.
The aforementioned inspection frequency can be adjusted on the recommendation of the Board of Experts based on arguments.

In addition the certification body has to take samples from the products mentioned in the quality declaration. Of these samples an external laboratory will test whether the requirements after minimal and complete drying, as described in section 4.1 and 4.2 of this assessment directive are still met. If necessary or in case of doubt the certification body can take extra samples. The costs for these annual tests are additional to the standard certification costs and will be billed to the owner of the quality declaration.

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

9.4 Sanctions policy

A sanction policy has to be mentioned in the code of conduct of the certification body, as described in section 10.1 or in a separate document.

10 REQUIREMENTS FOR THE CERTIFICATION BODY

10.1 General

The certification body must be accredited by the Council for Accreditation for the subject of this AD on the basis of NEN-EN-ISO/IEC 17065. Accreditation on the basis of NEN-EN 45011 is permitted until a date to be determined by the Council for Accreditation.

In addition, the body must be accredited by the Council for Accreditation for the topic of this AD or have initiated the application procedure for this.
The certification body must have a set of regulations, or an equivalent document, in which the general rules used for certification are specified. In particular these are:

- The general rules for performing the admission 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 concerning the performance of inspections and the applied inspection aspects;
- The measures to be taken by the certification body in the event of non-conformities;
- The rules for the termination of a certificate;
- The option of lodging an appeal against decisions or measures taken by the certification body.

10.2 Certification staff

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

- Inspector: tasked with carrying out the external inspections;
- Initial inspector: tasked with carrying out the admission inspection and assessing the reports of inspectors and laboratory technicians;
- Assessor: assessment of the inspector and initial inspector; decisions on the need for taking corrective measures;
- Decision-maker: tasked with making decisions based on the admission inspections that have been carried out, continuation of certification on the basis of the completed inspections.

10.3 Qualification requirements

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

Certification staff	Education/training	Expertise and experience
Inspector Initial inspector	Higher professional education level (HBO-level)	- production and application of coatings - training auditor ISO 9001 - two years' experience in the coating industry or equivalent
Assessor	Higher professional education level (HBO-level)	- master or bachelor in chemistry or equivalent - production and application of coatings - minimal two years' experience at management level in the coating industry or equivalent
Decision-maker	Higher professional education level (HBO-level)	- Management experience or equivalent - Certification or equivalent - Accreditation criteria or equivalent - Knowledge of relevant certification systems

10.4 Report to the board of experts

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

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

11 NORMATIVE REFERENCES

SKH-Publicatie 05-01:2005	Determination of the adhesion of paint on wood
SKH-Publicatie 08-02:2015	Determination of the water permeability after critical drying and complete drying of coating systems on timber
SKH-Publicatie 10-01:2015	Water uptake and freeze stability test
NEN-EN 927-3:2012	Paints and varnishes - Coating materials and coating systems for exterior wood - Part 3: Natural weathering test
NEN-EN-ISO 4628-2:2003	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering
NEN-EN-ISO 4628-4:2003	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 4: Assessment of degree of cracking
NEN-EN-ISO 4628-5:2003	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 5: Assessment of degree of
NEN-EN-ISO 4628-6:2011	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 6: Assessment of degree of chalking by tape method

NEN-EN-ISO/IEC 17020:2012	Conformity assessment - General criteria for the operation of various types of bodies performing inspection
NEN-EN-ISO/IEC 17021-1:2015	Conformity assessment - Requirements for bodies providing audit and certification of management systems - Part 1: Requirements
NEN-EN-ISO/IEC 17025: 2005 C1:2007	General requirements for the competence of testing and calibration laboratories
NEN-EN-ISO/IEC 17065: 2012	Conformity assessment - Requirements for bodies certifying products, processes and services
BRL 0801:2011+WB:2014	Houten gevelelementen
BRL 0817:2008+WB2010	Filmvormende voorlak- en aflaksystemen op hout

Duitse Merkblatt Fenster und Fasaden 09.91: UV-Lichtdurchlässigkeit von Anstrichsystemen auf Holz

APPENDIX 1 DETERMINATION OF THE UV LIGHT TRANSMITTANCE

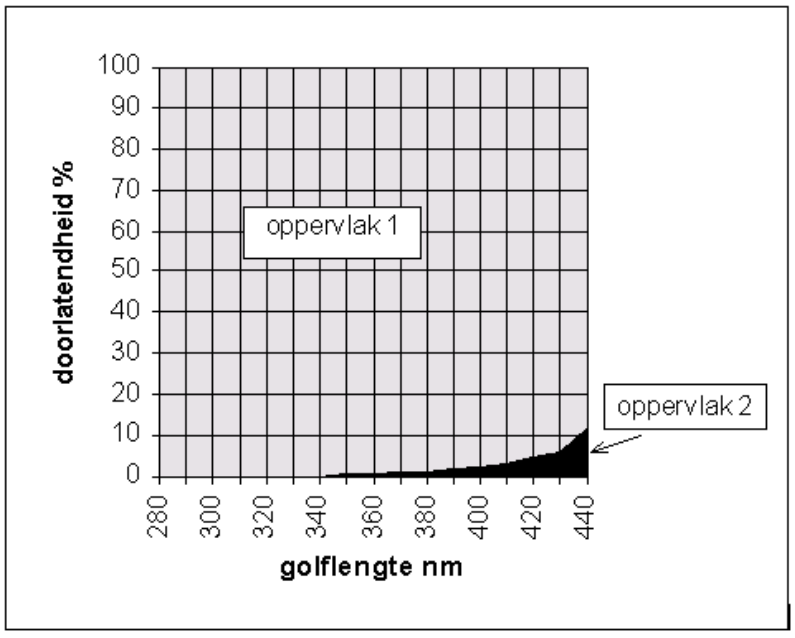
There is no requirement set to the UV light transmitted through the translucent coatings. The manufacturer has to set the most critical colour which is still acceptable.

Of this colour the UV light transmittance should be known. The paint manufacturer also has to set which colours have a higher UV transmittance compared to the tested product. When determining the UV transmittance the 'most critical' colour always has to be part of the test sequence. Colours with an higher UV transmittance can *not* be used on KOMO® certified timber. The UV transmittance is based on an dry layer thickness of 100 µm.

Test method (partly based on the German Merkblatt Fenster und Fasaden 09.91: UV-Lichtdurchlässigkeit von Anstrichsystemen auf Holz):

The product to be tested is applied on an inert substrate (nb glass) by means of an applicator, in two layers with an total dry layer thickness of 100 µm.
After conditioning the applied coating for four weeks at 65 % RV and 20 °C the coating is removed from the substrate and the UV transmittance is determined using a UV-VIS spectrophotometer at a wavelength of 280 – 440 nm. The spectrophotometer has to be equipped with a 'Ulbricht kogel' so also the scattered light is measured (in contrast to the German standard).
The UV transmittance is calculated by determining the surface under the transmittance curve and divide this y the total surface in the range 280 – 440 nm.

$$UV - lichtdoorlatendheid = \frac{Oppervlak\ 2}{Oppervlak\ 1} \times 100\%$$



APPENDIX 2 RATING OF COLOUR CHANGE UNDER THE COATING LAYER

class	Decolourized surface under the coating (%)	Maximum allowed size of the changed decolouration
0	0	Not visible with 10x magnification
1	Maximum 0.1 %	Maximum 1 mm
2	Maximum 0.3 %	Maximum 3 mm
3	Maximum 1 %	Maximum 10 mm
4	Maximum 3 %	Maximum 30 mm
5	Maximum 15 %	> 30 mm

Decolouration has to pass both requirements to fit the specific class. The largest decolourized part is leading.