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Braunschweig,
May 5, 2020

Test Report No. QA-2020-1606

Client:	Sonae Arauco Beeskow GmbH Radinkendorfer Straße 71 15848 Beeskow Germany										
Objective of the test:	Supervision of wood-based materials referring to requirements of IKEA Specification IOS-MAT-0003 - Formaldehyde release and content - Quarter 1 / 2020										
Product name:	MDF BASIC (AB79T)/MDF ST (AB79B, AB7B9, AB7FB)/MDF SUPERLACK (AB74B)/MDF NOVOLACK (AB79S, AB7PC, AB7FS)/HDF FLOORING (AB75D, AB79D, AB74D)										
WKI-Identity-Number:	4007										
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The test report comprises 5 pages and 1 appendix.

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1. Task

External supervision of wood-based materials according to the IKEA specification IOS-MAT-0003 "Formaldehyde requirements of wood, wood-based and wood-like natural materials and products " version no. AA-10899-14 dated 2019-03-11, using the ASTM chamber and perforator method.

The supervision is done according to the contract 641 dated November 5, 2008 between the client and the WKI; corresponding to this contract the attestation no. 641 is valid for the supervision period mentioned.

2. Test material and data of receipt

Product:	MDF, UF/MUF, unfaced
Product name:	MDF BASIC (AB79T)/MDF ST (AB79B, AB7B9, AB7FB)/MDF SUPERLACK (AB74B)/MDF NOVOLACK (AB79S, AB7PC, AB7FS)/HDF FLOORING (AB75D, AB79D, AB74D)
Thickness [mm]:	10
Thickness range [mm]	> 8 mm ≤ 50 mm
acc. to contract*:	
WKI-Identity-No:	4007
Audit date:	March 24, 2020
Sampling date:	March 24, 2020
Production date:	March 18, 2020
Date of receipt:	March 30, 2020

*Reference note:

According to the DIBt-Richtlinie 100 the manufacturer is allowed to differentiate between the following thickness ranges in order to enable him to restrict test and evaluation criteria: up to 12mm, more than 12 mm up to 25 mm, more than 25 mm up to 40 mm, more than 40 mm up to 60 mm, more than 60 mm.

The sample material was selected by the customer corresponding to the WKI's guidelines, marked and sent to the WKI for examination. The test material was used up.

3. Execution of tests

3.1 Determination of formaldehyde release according to ASTM D 6007

Referring to chamber test according to ASTM D 6007 three samples with a total surface area of 0.43 m² (for particleboard or plywood) or 0.26 m² (for MDF) capable of emission were positioned vertically standing with a minimum distance of 0.15 m between each specimen in a closed chamber with a volume of 1 m³ or 0.225 m³.

The conditioning of the samples was done for seven days \pm 3 h at a temperature of (24 ± 3) °C and a relative humidity of (50 ± 5) %. The air exchange rate was adjusted to 2 AC/h.

Subsequent to seven-day-conditioning period the 1 m³ chamber was operated at 25 ± 1 °C, a relative humidity of (50 ± 4) % and an air exchange rate of (0.5 ± 0.05) AC/h.

The formaldehyde concentration in the chamber was measured by taking air samples at a test period of 19 and 20 hours. To this end a gas quantity of at least 0.12 m³ at a rate of approximately 2 L/min was taken from the ambient air using gas sampling equipment and led through gas washing bottles filled with absorption liquid. The absorbed formaldehyde was determined photometrically and/or fluorimetrically according to the acetyl/acetone method described in EN 717-1:2005-01.

3.2 Determination of formaldehyde content according to perforator method

The determination of formaldehyde content was carried out without a prior conditioning of the samples according to the perforator method EN ISO 12460-5 "Wood-based panels - Determination of formaldehyde release - Part 5: Extraction method (called the perforator method)". Moisture content was determined according to ISO 16979.

The number of individual determinations and assessment of results was done by taking IKEA Specification "IOS-TM-0010 (AA-325858-2):2011-05-13 in consideration.

4. Test results

4.1 Formaldehyde release according to ASTM chamber method

The results of ASTM chamber tests as reported values corrected to 25°C/50%RH are mentioned in the following table 1 as individual test results for each sample set and as average value of all three samples tested:

Table 1: ASTM chamber test results *

Identity No.		4007	
Test date		April 15, 2020	
Sample set 1	Sample set 2	Sample set 3	Average value
0.05 ppm	0.05 ppm	0.05 ppm	0.05 ppm

* corrected to 25°C/50%RH

4.2 Formaldehyde content according to perforator method

The test results of formaldehyde content determination are mentioned in table 2 below. The perforator values are specified as individual values and as average value from repeated determination.

Table 2: Perforator test results

Identity No.		4007					
Test date		April 21, 2020					
Identity No.	Thickness [mm]	Density [kg/m³]	Moisture content [%]	Formaldehyde content* Perforator method EN ISO 12460-5 [mg HCHO/100 g oven dry board]			
				individual values A	average value A	individual values B	average value B
4007/1	10	760	4.5	2.4 2.2	2.3	3.0 2.8	2.9
4007/2	10	745	4.6	2.5 2.4	2.5	3.1 3.2	3.1
4007/3	10	754	4.5	2.2 2.2	2.2	2.8 2.8	2.8
\bar{x}	10	753	4.5		2.3		2.9

* A: determined perforator value

B: perforator value converted to 6.5% moisture content

5. Assessment of the test result

The limit values referring to IKEA Specification "IOS-MAT-0003 (AA-10899-14):2019-03-11" are listed in the appendix - see table 3.

Based on the test results the tested material complies with IOS-MAT-0003 requirements.

A supervision contract exists.

K. Huslage

Dipl.-Ing. (FH) Kathrin Huslage
Official in charge



H. Schwab

Dipl.-Ing. Harald Schwab
Head of Testing, Supervision and
Certifying Body

Table 3: Limit values according to IKEA Specification "IOS-MAT-0003 (AA-10899-14):2019-03-11"

Section 1.4. Requirements for flat particleboard and flat dry process fibreboard			
- CARB Phase 2 and US EPA § 770.10 product limit values -			
Material (uncoated)	Test method	Limit	Documentation
Particleboard CARB P2 & US EPA § 770.10	ASTM E 1333 or ASTM D 6007	0.09 ppm	All of the following: • TPC certificate related to US EPA TSCA Title VI § 770.10 • Proof of continued TPC certification for US EPA TSCA Title VI § 770.10 , not older than 5 months (as required in section 4.1.1.1). Documentation available at board manufacturer for a minimum 5 years and to be provided to IKEA on request - both of the following: • Production test results of formaldehyde • Quarterly test report from TPC
	EN ISO 12460-5 Perforator	4.0 mg/100 g	
Dry process fibreboard CARB P2 & US EPA § 770.10 (except for flooring ≤ 8 mm)	ASTM E 1333 or ASTM D 6007	0.11 ppm *	One of the two following options: i. Compliance to this limit as part of the TPC’s certification program for US EPA TPC Title VI § 770. The half-yearly verification document can be any of the following: - attestation of compliance with IOS-MAT 0003 version 14, - attestation of compliance with this limit, - audit report or notification letter has carried out the following points: - verify test records from production control tests - carry out own test by the same test method - test report showing compliance with the limit and containing statement that it is made in connection with the certification. In order to use this option, the TPC shall be IKEA approved lab for EN ISO 12460-5.
	EN ISO 12460-5 Perforator	5.0 mg/100 g	
Dry process fibre- board used for IKEA flooring CARB P2 & US EPA § 770.10 with maximum thick- ness 8 mm (used for IKEA flooring)	ASTM E 1333 or ASTM D 6007	0.13 ppm	ii. Mill batch test.
	EN ISO 12460-5 Perforator	8.0 mg/100 g	
All boards shall either be: • Certified by an IKEA-approved TPC regarding CARB and US EPA TSCA Title VI. • Exempt from certification with CARB approval and exempt from certification with TPC approval according to US EPA TSCA VI. All of the following shall be available: • US EPA Declaration for final IKEA article containing such board material • General Statement of Compliance along the supply chain • Statement of Compliance from IKEA supplier (in ECIS or EDI, or if not possible scanned invoice or bill of lading) • Markings on IKEA product Requirements for documentation and marking along the supply chain are described in section 4.4. TPC which is not IKEA-approved: If there is a need to use a TPC which is not IKEA-approved, then each mill batch shall be tested according to ASTM D6007.			
* the limit by ASTM E 1333 or ASTM D 6007 for dry process fibreboard with maximum thickness 8 mm (no matter for floor or not), is changed to 0.13 ppm.			