

Fraunhofer WKI | Bienroder Weg 54 E | 38108 Braunschweig

UPM-Kymmene Wood Oy
Pellos Plywood Mill
Karsikkoniementie 10
52420 Pellosniemi
Finland

Fraunhofer Institute for Wood Research
Wilhelm-Klauditz-Institut WKI

Director
Prof. Dr.-Ing. Bohumil Kasal

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

Bienroder Weg 54 E
38108 Braunschweig

Bettina Meyer
Project manager formaldehyde analytics
Quality Assessment
Phone + 49 531 2155-375 | Fax -907
bettina.meyer@wki.fraunhofer.de
www.wki.fraunhofer.de

Braunschweig,
1 June 2016

Your reference

Your message dated

Our reference
Mey/Pr

Test Report No. QA-2016-1474

Client:
UPM-Kymmene Wood Oy
Pellos Plywood Mill
Karsikkoniementie 10
52420 Pellosniemi
Finland

Method and object of the test:
External supervision of wood based materials regarding formaldehyde release

Content of the test report:	1. Task	Page 2
	2. Material	Page 2
	3. Test method	Page 3
	4. Test results	Page 3
	Appendix	Page 4

The test report comprises 3 pages and 1 appendix.

This test report is not permitted to be published incompletely. A publication in extracts is in any case subject to the previous consent of Fraunhofer-Institut für Holzforschung, Wilhelm-Klauditz-Institut (WKI), Bienroder Weg 54E in 38108 Braunschweig (Germany). The test results exclusively refer to the objects of the test. The test material was used up.



Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., München
Executive Board
Prof. Dr.-Ing. habil. Prof. E.h. Dr.-Ing. E.h. mult. Dr. h.c. Reimund Neugebauer, President
Prof. (Univ. Stellenbosch) Dr. rer. pol. Alfred Gossner
Prof. Dr. rer. publ. ass. iur. Alexander Kurz
Prof. Dr. rer. nat. Georg Rosenfeld

Cheques and transfers payable to:
Deutsche Bank, München
Account 752193300 BLZ 700 700 10
IBAN DE86 7007 0010 0752 1933 00
BIC (SWIFT-Code) DEUTDEMM
V.A.T. Ident No. DE129515865
Tax Number 143/215/20392

1. Task

External supervision of wood based materials according to the "Regulation on the classification and external supervision of wood-based panels regarding formaldehyde emission (DIBt-Richtlinie 100)" version June 1994 resp. to the "Regulation on the Prohibition of Chemicals [Chemikalien-Verbotsverordnung (ChemVerbotsV)]" using the gas analyse method.

The supervision is done according to the contract 915 dated 23 August 2013 between the client and the WKI; corresponding to this contract the attestation no. 928 is valid for the supervision period mentioned.

2. Material

Type of wood-based panels:	plywood, phenol-formaldehyde (PF), unfaced
Technical type:	DIN 68705-3, BFU 100; DIBt 100, E1
Plant category:	WISA-Plywood
Thickness [mm]:	18
Thickness range [mm]*:	≤ 25
Identity No.:	8264

*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 12 mm, 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 boards were sampled on 30 March 2016 by an "Inspecta" representative. Referring to the information given by the customer the samples were produced on 30 March 2016. The sampling was carried out in accordance with the DIBt-Richtlinie 100. The tests were carried out on 24 May 2016. The test material was used up.

3. Test methods

The determination of release was carried out according to gas analysis method DIN EN 717-2:1995-01. Coated boards were tested without a prior conditioning. Uncoated plywood were tested after a four weeks storage in norm climate DIN 50 014 - 20/65-1. The sample size was 400 mm x 50 mm x thickness. The edges of the test pieces were coated with self-adhesive aluminium tape before testing. Moisture content was determined according to DIN EN 322:1993-08.

4. Test results

The test results are made up in following table. The gas analysis value is a mean value of a double testing. The mean value must be less or equal to the limit value of $\leq 3.5 \text{ mg HCHO}/(\text{h}\cdot\text{m}^2)$ and may not exceed the limit value by more than 10 %.

(General limit values see appendix)

Identity-No.	Thickness [mm]	Moisture content [%]	Gas analysis value ^{*)**} [mg HCHO/(h·m ²)]
8264/1	18	8.9	0.1

*) tested with sealed edges

**) coated boards and uncoated glued solid wood panels tested without a conditioning;
uncoated plywood tested after a four weeks storage in norm climate DIN 50 014 - 20/65-1

Concerning the formaldehyde release the requirements were fulfilled.



Bettina Meyer
Officer in charge



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

Appendix (Assessment criterias)

According to the German Prohibition for Chemical Products – "Chemikalien Verbotverordnung" – annex § 1, para 3, in relation with the publication of the Federal Health Office in the journal "Bundesgesundheitsblatt", issue October 1991 (p. 487 – 489), the limit value are as follow:

Table 1: Gas analysis values for uncoated plywood

	Gas analysis values ^{*)} [mg HCHO/(h·m ²)]	
	average value	single value
immediately testing (max. 3 days after production)	5.0	6.0
Testing after a four weeks storage in norm climate DIN 50 014 - 20/65-1	2.5	3.5

^{*)}the average value is defined as rolling half-years average value, the single value is defined as 95 % percentil

Table 2: Gas analysis values for coated boards. The used uncoated wood based panel (particleboard or MDF) has to fulfil the requirements as well.

	single values [mg HCHO/(h·m ²)]	
	coated boards	PF (of core board)
particleboards	≤ 3.5	≤ 10
fibreboards	≤ 3.5	≤ 10
plywood	≤ 3.5	**

** single values of core board look at table1