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Fromsseier Plantage A/S  
Mogens Lunde  
Nørrebyvej 20  
6623 Vorbasse  
DANMARK

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Dresden, 2019-05-27

## Surveillance Report Order no. 2118038

**Client:** Fromsseier Plantage A/S  
Nørrebyvej 20  
6623 Vorbasse  
DANMARK

**Date of order:** 20.09.2018 (Date of first sample delivery)

**Order:** External surveillance testing in framework of the certification program  
"Quality Mark TMT"

**Contractor:** Entwicklungs- und Prüflabor Holztechnologie GmbH  
Laboratory Unit Biological Testing  
Zellescher Weg 24  
01217 Dresden  
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**Engineer in charge:** Dipl.-Ing. Kordula Jacobs



Dr. Wolfram Scheiding  
Head of Laboratory Biological Testing

The report includes 5 pages. Any duplication, even in part, requires a written permission of EPH. The test results are exclusively related to the tested material.

## 1 Task

The EPH was engaged to carry out surveillance tests within the framework of the certification program "Quality Mark TMT". This report refers to the certificate no. TMT 2011-02-10, issued for the product "Celloc® ash exterior" within the category "TMT exterior".

## 2 Test material

- Celloc ash exterior (thermally modified ash) from 2 production (kiln) batches:
  - TMT 1: production batch 1, 20 September 2018
  - TMT 2: production batch 2, 12 October 2018
- untreated ash, delivered 12 October 2018

## 3 Test procedures

This report summarizes the test results of order 2118038 as described in table 1.

**Table 1:** Test procedures

Test, property	Test standard
Wood quality	certification program
Raw density in standard climate 20/65	DIN 52182
Equilibrium moisture content (EMC) at climate 20/65 (as indicator for modification intensity)	EN 13183-1
Maximum swelling ratio $\alpha_{max}$ and anti-swelling efficiency (ASE)	DIN 52184, AA-20-38
Bending strength (MOR) and bending modulus of elasticity (MOE)	EN 408
Biological durability against wood-decay basidiomycetes (relevant for use class 3)	EN 350 CEN/TS 15083-1

## 4 Results

### 4.1 Wood quality

For all samples (boards) it was stated, that they are

- free of pith,
- free of inner cracks,
- completely utilisable, i.e. free of visible, throughout drying cracks.

In result, all requirements on wood quality were fulfilled. No further criteria for the wood quality have been determined by the manufacturer.

## 4.2 Physical and mechanical properties

Summarized results are given in table 2. Single values of the results are deposited at EPH and can be handed out after request.

**Table 2: Mechanical properties**

test method	material	number of specimens	mean value	standard deviation	coefficient of variation [%]
raw density at 20/65 [kg/m <sup>3</sup> ] acc. to DIN 52182	TMT 1	20	0.62	0.02	2.6
	TMT 2	20	0.55	0.03	5.0
	untreated	20	0.68	0.02	2.5
equilibrium moisture content at 20/65 [%] acc. to EN 13183-1	TMT 1	20	8.64	0.67	7.7
	TMT 2	20	8.60	0.70	8.1
	untreated	20	15.50	2.12	13.7
maximum swelling ratio $\alpha_{\max}$ radial [%] acc. to DIN 52184	TMT 1	20	2.86	0.27	9.5
	TMT 2	20	2.92	0.33	11.2
	untreated	20	5.21	0.44	8.4
maximum swelling ratio $\alpha_{\max}$ tangential [%] acc. to DIN 52184	TMT 1	20	5.55	0.54	9.7
	TMT 2	20	5.28	0.52	9.8
	untreated	20	10.21	0.85	8.3
ASE (anti-swelling efficiency) radial [%] acc. to AA-20-38	TMT1	20	44.99	-	-
	TMT2	20	43.88	-	-
ASE (anti-swelling efficiency) tangential [%] acc. to AA-20-38	TMT1	20	45.69	-	-
	TMT2	20	48.28	-	-
modulus of rupture (MOR) according to EN 408, flatwise [N/mm <sup>2</sup> ]	TMT 1	10	87.84	8.34	9.5
	TMT 2	10	51.03	19.49	38.2
	untreated	10	105.86	16.07	15.2
modulus of elasticity (MOE) according to EN 408, flatwise [N/mm <sup>2</sup> ]	TMT 1	10	11,967	1,190	9.9
	TMT 2	10	10,136	587	5.8
	untreated	10	10,881	1,197	11.0

## 4.3 Biological durability against wood decay basidiomycetes (table 1, pos. 5)

### 4.3.1 Test specification

Test method	CEN/TS 15083-1:2005 Durability of wood and wood products – determination of natural durability of solid wood against wood decay fungi, test methods – part 1: basidiomycetes.
Reference timber:	<i>Fagus sylvatica</i> L.
Test fungi:	<i>Coniophora puteana</i> , strain DSM 3085 <i>Trametes (Coriolus) versicolor</i> , strain CTB 863A
Replicates:	30 specimens for each test fungus
Specimen size:	(50×25×15) mm <sup>3</sup>

Ageing prior to test:	Leaching according to EN 84:1997 from 5 to 18 December 2018
Sterilisation:	Water damp
Test duration:	16 weeks
Incubation:	from 23 January 2019 to 15 May 2019 (16 weeks)

#### 4.3.2 Validity of the test

The test was valid, because the required values of mean mass losses with reference wood were exceeded by both test fungi. Summarized validity data are given in table 2.

**Table 2:** Mass loss of reference wood (virulence values)

test fungus	mean mass loss (n = 10)	required minimum mass loss (CEN/TS 15083-1)
<i>Coniophora puteana</i>	31.3 %	≥ 30 %
<i>Trametes versicolor</i>	24.3 %	≥ 20 %

#### 4.3.3 Test results

Summarized results of dry mass loss and the assigned durability classes are shown in table 3. Single values of the results are deposited at EPH and can be handed out after request.

**Table 3:** Results of the durability test according to CEN/TS 15083-1 (basidiomycetes) and EN 350

test fungus	test material	mean dry mass loss [%] (n=30)	median dry mass loss [%] (n = 30)	durability classification (see scheme table 4)
<i>Coniophora puteana</i>	TMT1	0.45 ± 0.7	0.19	DC 1 "very durable"
	TMT2	0.63 ± 0.8	0.40	DC 1 "very durable"
<i>Trametes versicolor</i>	TMT1	0.40 ± 0.4	0.30	DC 1 "very durable"
	TMT2	1.19 ± 1.3	0.82	DC 1 "very durable"

**Table 4:** Scheme for classification of biological durability (CEN/TS 15083-1:2005 Annex D)

durability class	description	median dry mass loss
DC 1	very durable	≤ 5 %
DC 2	durable	> 5 % up to ≤ 10 %
DC 3	moderately durable	> 10 % up to ≤ 15 %
DC 4	slightly durable	> 15 % up to ≤ 30 %
DC 5	not durable	> 30 %

In result of the biological test, the product "Celloc® ash exterior" can be allocated to the durability class 1 "very durable" according to EN 350:2016.

## 5 Non-conformities and obligations

No non-conformities were determined, no obligations are imposed.

## 6 Summary evaluation of the surveillance

The product "Celloc® ash exterior" fulfilled all requirements of the certification programme "Quality Mark TMT", category "TMT exterior".

Dresden, 2019-05-27



Dr. rer. silv. Wolfram Scheiding  
Surveillance Body

## 5 Decision on the certification

In result of surveillance and assessment of certification report, the "Certification Mark TMT" for the product "Novawood Ash Thermo-D", category "TMT exteriorPlus", is

confirmed

not confirmed.

Dresden, 27/05/2019



Dr.-Ing. Rico Emmeler  
Certification Body