

EN 330 Test Report

Report No.: 161680-3 2026



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Order no.:161680
No. of appendices: 2

Assignor: Teknos A/S
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Material: Product under test:
TEKNOL AQUA 1414-01 (Dipping: 180 sec.)
Topcoat:
ANTISTAIN AQUA 5200-00.
AQUATOP 2600-82 RAL 9010.

Sampling: The test material was sampled by the client and received at the Danish Technological Institute 01-11-2022 and 05-12-2023.

Method: EN 330 (2014): Wood preservatives – Field test method for determining the relative protective effectiveness of a wood preservative for use under a coating and exposed out-of-ground contact: L-joint method.

Period: The testing was carried out from 02-02-2023 to 17-04-2026.
The weathering took place from 15-04-2023 to 17-04-2026 at Danish Technological Institute test sight, Malaysia, Borneo.

Result: Vⁿ: Median rating

Treatment	Type of sample		Exposure periods - years				
			1	2	3	4	5
Test system	Non-destructive	V ^e	0	0	0		
	Destructive	V ^e	0	0	0		
		V ⁱ	na	na	na		
Reference treatment 1% TBTO	Non-destructive	V ^e	0	0	0		
	Destructive	V ^e	0	0	0		
		V ⁱ	na	na	na		
Reference Without biocide treatment	Non-destructive	V ^e	1	1	2		
	Destructive	V ^e	1	1	1.5		
		V ⁱ	na	na	na		

V^e: Evaluation of the external surfaces. Vⁱ: Evaluation of the internal condition. Na: Not assessed.

Note: The interpretation and practical conclusions that can be drawn from a test report demand a specialized knowledge of the subject of wood preservation and for these reasons this test report cannot of itself constitute an approval certificate.

Terms: This test was conducted accredited in accordance with international requirements ISO/IEC 17025:2017 and in accordance with the General Terms and Conditions of Danish Technological Institute. The test results solely apply to the tested item. This test report may be quoted in extract only if Danish Technological Institute has granted its written consent.
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Test responsible	Co-responsible



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Treatment and Exposure

Product under test:	Impregnation: TEKNOL AQUA 1414-01 (Dipping: 180 sec.). Topcoat: ANTISTAIN AQUA 5200-00. AQUATOP 2600-82 RAL 9010.
Material Specification:	TEKNOL AQUA 1414-01. ID 10002249, Lot No. T380637 ANTISTAIN AQUA 5200-00. SKU 20 2105864. Lot no.: 381421-301 AQUATOP 2600-82 RAL 9010. SKU 20 2569437. Lot no.: 382955-301
Chemical analysis:	TEKNOL AQUA 1414-01. According to assignor the product contains 0.05% w/w penflufen and 0.5% w/w IPBC. The content of active substances was confirmed by chemical analysis. Chemical analyses were conducted 9-16 November 2022. Results: Penflufen: 0.054% w/w and IPBC 0.54% w/w. Chemical analysis was performed by Danish Technology Institute, Laboratory for Chemistry and Microbiology. Chemical analyses are not part of the accreditation.
Treatment:	TEKNOL AQUA 1414-01 (Dipping: 180 sec.). Dipping for 180 sec. - g/m ² . Treatment carried out on 02-02-2023. Top coat: ANTISTAIN AQUA 5200-00. Spraying 210 - 240 g/m ² . Treatment carried out on 07-03-2023. AQUATOP 2600-82 RAL 9010. Spraying 210 - 240 g/m ² . Treatment carried out on 08-03-2023.
Dilutions:	Impregnation: TEKNOL AQUA 1414-01 (Dipping: 180 sec.). Ready-to-use product Topcoat: ANTISTAIN AQUA 5200-00. Ready-to-use product. AQUATOP 2600-82 RAL 9010. Ready-to-use product.
Wood:	Product under test: Scots pine, sapwood (Pinus sylvestris). Average wood density (Tenon): 493 kg/m ³ . Preservative treated references: Scots pine, sapwood (Pinus sylvestris). Average wood density (Tenon): 524 kg/m ³ . Untreated references: Scots pine, sapwood (Pinus sylvestris). Average wood density (Tenon): 522 kg/m ³ .
Period:	The testing was carried out from 02-02-2023 to 17-04-2026. The specimens were stored in a climate chamber at 20° C and 65% RH prior and after treatment. All specimens were exposed from 15-04-2023 in Malaysia.
No. of Replica:	Number of replicates in Malaysia: 10 for non-destructive evaluation and 5 for each destructive inspection.
Reference product:	1% TBTO. Dipping for 3 min. 163 - 272 g/m ² . Treatment carried out on 03-02-2023. Reference topcoat: ANTISTAIN AQUA 5200-00 Spraying 210 - 240 g/m ² . Treatment carried out on 10-03-2023 AQUATOP 2600-82 RAL 9010 Spraying 210 - 240 g/m ² . Treatment carried out on 13-03-2023.
Exposure site Taastrup:	Danish Technological Institute, Denmark. 55°39´36.4"N; 12°16´34.5"E. Elevation: about 34 m. Average temperatures; maximum: 9-20°C, minimum: -2-5°C. Average annual precipitation: about 672 mm. Humidity: 70-80%. The test site is located in an urban pasture ecosystem without high vegetation.

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Treatment and Exposure

Exposure site Malaysia: Universiti Malaysia Sarawak (UNIMAS), Borneo, Malaysia. 1°27'57.2"N; 110°26'58.9"E. Elevation: about 15.5 m. Average temperatures; maximum: 27-35°C, minimum: 22-25.5°C. Average annual precipitation: about 3900 mm. Humidity: 80-90%.
The test site is located in a secondary tropical forest approaching peat swamp forest ecosystem surrounded by 15-20 m high trees.

Evaluation Date:	Year 1	Malaysia	03-03-2024
	Year 2	Malaysia	12-05-2025
	Year 3	Malaysia	17-04-2026

Evaluation – median fungal attack rating according to EN 330: 2014

Table 1 Grading System		
Rating	Description	Definition
0	Sound	No evidence of decay
1	Slight attack	Visible signs of decay, but no significant softening or weakening of the wood
2	Moderate attack	Areas of decay (softened, weakened wood); typical not more than 3 cm ² and to a depth of 2 mm to 3 mm
3	Severe attack	Marked softening and weakening of the wood typical of fungal decay, typically more than 3 cm ² affected and to a depth of 3 mm to 5 mm or more over a few cm ²
4	Failure	Very severe and extensive rot; joint member(s) often capable of being easily broken

Note: Observations made on specimens for non-destructive inspection will often yield a lower rating than when surfaces created by sawing are available for evaluation.

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Details on retention and evaluation data

Preservative:	TEKNOL AQUA 1414-01 (Dipping: 180 sec.) Topcoat: ANTISTAIN AQUA 5200-00 AQUATOP 2600-82 RAL 9010.	Scots pine, sapwood					
Exposure date:	15-04-2023						
Test site:	Malaysia						
L joint for non-destructive evaluation. V ^e : Evaluation of the external surfaces.	Retention		Visual evaluations –fungal attack rating				
	Tenon	Mortise	Exposure time in years				
Test No	[g/m²]	[g/m²]	1	2	3	4	5
481	222	251	0	0	0		
482	206	231	0	1	1		
483	189	207	0	1	1		
484	277	265	0	0	0		
485	250	222	0	0	0		
486	262	219	0	0	0		
487	257	296	0	0	0		
488	243	258	1	0	0		
489	269	223	0	0	0		
490	247	323	0	0	0		
Average/Vⁿ: median	242/249	250/241	0.1/0	0.2/0	0.2/0		

Preservative:	TEKNOL AQUA 1414-01 (Dipping: 180 sec.) Topcoat: ANTISTAIN AQUA 5200-00 AQUATOP 2600-82 RAL 9010.	Scots pine, sapwood					
Exposure date:	15-04-2023						
Test site:	Malaysia						
L joint for destructive evaluation. Evaluated as non-destructive until the destruction. V ^e : Evaluation of the external surfaces.	Retention		Visual evaluations –fungal attack rating				
	Tenon	Mortise	Exposure time in years				
Test No	[g/m²]	[g/m²]	1	2	3	4	5
491	277	280	0	0	0		
492	239	224	0	0	1		
493	241	218	0	0	1		
494	268	233	0	0	0		
495	165	227	0	0	0		
496	224	228	0	0	0		
497	183	354	1	1	0		
498	208	214	0	0	0		
499	185	264	0	0	0		
500	193	239	0	0	0		
Average/Vⁿ: median	218/216	248/231	0.1/0	0.1/0	0.2/0		

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Details on retention and evaluation data

Preservative:	1% TBTO Topcoat: ANTISTAIN AQUA 5200-00 AQUATOP 2600-82 RAL 9010	Scots pine, sapwood					
Exposure date:	15-04-2023						
Test site:	Malaysia						
L joint for non-destructive evaluation. V ^e : Evaluation of the external surfaces.	Retention		Visual evaluations –fungal attack rating				
	Tenon	Mortise	Exposure time in years				
Test No	[g/m²]	[g/m²]	1	2	3	4	5
501	203	221	0	0	0		
502	181	217	0	0	0		
503	195	220	0	0	0		
504	206	201	0	1	1		
505	164	272	0	0	0		
506	200	220	0	0	0		
507	173	271	0	0	0		
508	237	235	0	0	0		
509	272	196	0	0	0		
510	169	242	0	0	1		
Average/Vⁿ: median	200/198	230/221	0/0	0.1/0	0.2/0		

Preservative:	1% TBTO Topcoat: ANTISTAIN AQUA 5200-00 AQUATOP 2600-82 RAL 9010	Scots pine, sapwood					
Exposure date:	15-04-2023						
Test site:	Malaysia						
L joint for destructive evaluation. Evaluated as non-destructive until the destruction. V ^e : Evaluation of the external surfaces.	Retention		Visual evaluations –fungal attack rating				
	Tenon	Mortise	Exposure time in years				
Test No	[g/m²]	[g/m²]	1	2	3	4	5
511	169	288	0	1	1		
512	246	215	0	0	0		
513	185	239	1	0	0		
514	178	237	0	0	0		
515	182	223	1	1	1		
516	186	211	0	0	0		
517	202	219	0	0	0		
518	163	261	0	0	0		
519	187	243	0	0	0		
520	196	380	0	0	0		
Average/Vⁿ: median	189/185	252/238	0.2/0	0.2/0	0.2/0		

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Details on retention and evaluation data

Preservative:	Untreated		Scots pine, sapwood				
Topcoat:	ANTISTAIN AQUA 5200-00 AQUATOP 2600-82 RAL 9010						
Exposure date:	15-04-2023						
Test site:	Malaysia						
L joint for non-destructive evaluation. V ^e : Evaluation of the external surfaces.	Retention		Visual evaluations –fungal attack rating				
	Tenon	Mortise	Exposure time in years				
Test No	[g/m²]	[g/m²]	1	2	3	4	5
521	0	0	1	1	2		
522	0	0	1	2	2		
523	0	0	1	1	1		
524	0	0	1	1	1		
525	0	0	0	1	1		
526	0	0	1	1	1		
527	0	0	1	1	2		
528	0	0	0	1	2		
529	0	0	1	2	2		
530	0	0	1	1	2		
Average/Vⁿ: median	0/0	0/0	0.8/1	1.2/1	1.6/2		

Preservative:	Untreated		Scots pine, sapwood				
Topcoat:	ANTISTAIN AQUA 5200-00 AQUATOP 2600-82 RAL 9010						
Exposure date:	15-04-2023						
Test site:	Malaysia						
L joint for destructive evaluation. Evaluated as non-destructive until the destruction. V ^e : Evaluation of the external surfaces.	Retention		Visual evaluations –fungal attack rating				
	Tenon	Mortise	Exposure time in years				
Test No	[g/m²]	[g/m²]	1	2	3	4	5
531	0	0	1	2	2		
532	0	0	1	2	3		
533	0	0	1	2	2		
534	0	0	1	1	2		
535	0	0	1	1	1		
536	0	0	1	1	2		
537	0	0	1	1	1		
538	0	0	1	1	1		
539	0	0	0	1	1		
540	0	0	1	1	1		
Average/Vⁿ: median	0/0	0/0	0.9/1	1.3/1	1.6/1.5		