

Test Report

CEN/TS 15119-1: 2018

Report No.: 323705_111 days of dipping.



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Material: Product under test (tested with and without topcoat):
TEKNOL AQUA 1412-01 – batch ID 447029-401/2025.02.25
AQUATOP 2600-82 RAL 9010
The test specimens were treated according to assignor's instructions:
Tested with topcoat:
TEKNOL AQUA 1412-01. Dipping. Mean target retention of 135 g/m²
AQUATOP 2600-82 RAL 9010. Spraying. Mean target retention of 175 g/m²
Tested without topcoat:
TEKNOL AQUA 1412-01. Dipping. Mean target retention of 135 g/m²

Method: CEN/TS 15119-1: 2018: "Durability of wood and wood-based products – Determination of emissions from preservative treated wood to the environment – Part 1: Wood held in the storage yard after treatment and wooden commodities exposed in Use Class 3 (not covered, not in contact with the ground) – Laboratory method"

Period: The testing was carried out from 18-06-2025 to 08-10-2025. The test is ongoing.

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 analysis report/ test report may be quoted in extract only if Danish Technological Institute has granted its written consent.
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Detailed results

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Substrate: Test specimens were flat sawn from Scots pine sapwood (*Pinus sylvestris*) having a dimension of 25 × 50 × 15 mm. The wood was straight grained and did not contain any defects such as cracks, knots and waness. Annual rings between 2.5 – 8 per 10 mm.
Each specimen had an exposed surface area of 40 cm², as the end grains were sealed twice with DEMODOX 45 B00/HARDENER 860 mixed in a 9:1 ratio.
The wood specimens were stored in a climate chamber at 65% relative humidity and 20°C prior to testing. At 12% moisture content, the specimens had an average density of 576.77 kg/m³.

Test setup: Two replicate samples, each consisting of five specimens (with a total surface area of 200 cm²), were prepared along with one set of five untreated control specimens. The samples were immersed in 500 mL of water in a glass jar for one minute, three times during the immersion day (at 8:00, 11:00, and 14:00). After each immersion, the water was collected in a high-density polyethylene (HDPE) bottle and stored in a refrigerator at +5°C until chemical analyses were conducted. The wood surface area to water ratio at each immersion event was 40 m²/1 m³

Material specification: Preservative:
TEKNOL AQUA 1412-01.
Topcoat:
AQUATOP 2600-82 RAL 9010.

Chemical analysis of product(s): Chemical analysis of the product was performed by Danich Technological Institute, Chemical Characterisation and Services, Aarhus.
Batch Certificate No.: 325158-1 – dated 13-06-2025

Name of the product	Name of the a.s.	CAS no.	Results
			Concentration [w/w %]
Teknol Aqua 1412-01 – batch ID 447029-401	PBC	76114-73-3	0.00
	IPBC	55406-53-6	0.27

*Total IPBC = IPBC + 1.81 × PBC.

Treatment:

Product	Application method and date	Recommended; amount and drying conditioning
TEKNOL AQUA 1412-01 with topcoat AQUATOP 2600-82 RAL 9010 (set-up no T1 and T2)	Dipping 18-06-2025	135 g/m ² ±5% Minimum 2 hours at room temperature
	Spraying (topcoat) 18-06-2025	175 g/m ² ±5% Minimum 2 hours at room temperature
TEKNOL AQUA 1412-01 without topcoat (set-up no T3 and T4)	Dipping 18-06-2025	135 g/m ² ±5% Minimum 2 hours at room temperature

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Results treatment:

Set-up no.:	Specimen no.:	Density of wood	Treatment	
			TEKNOL AQUA 1412-01	AQUATOP 2600-82 RAL 9010
		[kg/m ³]	[g/m ²]	[g/m ²]
T1	1	713.07	128.42	176.84
	2	561.07	128.42	183.16
	3	553.60	128.42	176.84
	4	541.87	128.42	168.42
	5	568.53	128.42	183.16
Average		587.63	128.42	177.68
Std.dev.		61.7	0	5.42
T2	8	552.00	138.95	166.32
	9	713.07	141.05	181.05
	10	530.67	128.42	181.05
	11	739.20	128.42	170.53
	12	543.47	132.63	168.42
Average		615.68	133.89	173.47
Std.dev.		89.36	5.26	6.33
T3	15	563.20	128.42	
	16	544.53	138.95	
	22	558.93	128.42	
	23	534.93	130.53	
	25	542.93	141.05	
Average		548.91	133.47	
Std.dev.		11.78	5.42	
T4	26	554.67	138.95	
	27	530.13	141.05	
	28	572.80	132.63	
	31	561.60	141.05	
	32	555.20	141.05	
Average		554.88	138.95	
Std.dev.		15.64	3.26	

Chemical analysis of leachate:

Chemical analysis of the leachates was performed by Danich Technological Institute, Chemical Characterisation and Services, Aarhus.

IPBC / PBC:

Leachate samples were analyzed for IPBC/PBC using liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS). After addition of an internal standard, the compounds were separated on a biphenyl column and detected by electrospray ionization in positive mode. Quantification was performed using external calibration standards. The total amount of IPBC was calculated by adding the IPBC concentration to the PBC concentration transformed to the corresponding IPBC concentration:

$$[\text{PBC concentration}] \times [\text{molecular weight of IPBC}] / [\text{molecular weight of PBC}]$$

$$\text{Total IPBC} = [\text{IPBC}] + 1.81 \times [\text{PBC}]$$

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Results Leaching:

Product: TEKNOL AQUA 1412-01 with topcoat AQUATOP 2600-82 RAL 9010

Set-up No.:	Period	Total leachate volume per immersion regime	IPBC/PBC	
	Day	[mL]	[mg/L]	[mg/m ²]
T1	Day 1	1494.78	0.0218	1.6272
T2		1494.77	0.0281	2.0965
T1	Day 3	1497.00	0.0172	1.2860
T2		1498.90	0.0256	1.9201
T1	Day 5	1496.34	0.0119	0.8938
T2		1496.41	0.0198	1.4819
T1	Day 8	1495.12	0.0142	1.0600
T2		1495.81	0.0243	1.8168
T1	Day 10	1496.34	0.0144	1.0796
T2		1495.93	0.0211	1.5796
T1	Day 12	1496.34	0.0120	0.9010
T2		1496.58	0.0193	1.4410
T1	Day 15	1496.96	0.0127	0.9526
T2		1496.75	0.0188	1.4035
T1	Day 17	1497.37	0.0125	0.9378
T2		1497.04	0.0181	1.3552
T1	Day 19	1496.27	0.0152	1.1376
T2		1495.90	0.0171	1.2776
T1	Day 21	1497.08	0.0134	1.0059
T2		1495.79	0.0211	1.5810
T1	Day 24	1496.03	0.0129	0.9659
T2		1496.51	0.0228	1.7047
T1	Day 26	1495.44	0.0145	1.0871
T2		1496.21	0.0255	1.9104
T1	Day 28	1497.03	0.0119	0.8907
T2		1495.76	0.0170	1.2742
T1	Day 31	1495.72	0.0144	1.0757
T2		1495.58	0.0200	1.4987
T1	Day 33	1496.36	0.0120	0.8970
T2		1495.85	0.0213	1.5954
T1	Day 35	1496.20	0.0123	0.9225
T2		1495.84	0.0204	1.5265
T1	Day 38	1496.18	0.0118	0.8828
T2		1495.79	0.0207	1.5493
T1	Day 40	1496.02	0.0128	0.9561
T2		1495.93	0.0151	1.1267
T1	Day 42	1496.38	0.0101	0.7525
T2		1495.40	0.0124	0.9234
T1	Day 45	1495.52	0.0130	0.9693
T2		1494.81	0.0131	0.9788
T1	Day 47	1494.32	0.0114	0.8508
T2		1494.95	0.0125	0.9354
T1	Day 49	1492.49	0.0105	0.7814
T2		1497.08	0.0119	0.8887
T1	Day 52	1495.43	0.0103	0.7709
T2		1495.54	0.0112	0.8342
T1	Day 54	1495.45	0.0106	0.7893
T2		1496.09	0.0106	0.7905
T1	Day 56	1496.85	0.0097	0.7260
T2		1495.21	0.0115	0.8598
T1	Day 59	1495.66	0.0083	0.6211
T2		1495.06	0.0114	0.8549
T1	Day 61	1496.42	0.0088	0.6603
T2		1495.38	0.0111	0.8292
T1	Day 63	1495.21	0.0106	0.7892
T2		1494.85	0.0115	0.8596
T1	Day 66	1496.62	0.0072	0.5366
T2		1495.60	0.0086	0.6405

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T1	Day 68	1496.36	0.0068	0.5105
T2		1496.03	0.0065	0.4853
T1	Day 70	1496.44	0.0060	0.4463
T2		1496.85	0.0076	0.5721
T1	Day 73	1495.72	0.0063	0.4736
T2		1496.19	0.0087	0.6484
T1	Day 75	1495.52	0.0068	0.5077
T2		1495.47	0.0092	0.6848
T1	Day 77	1495.88	0.0056	0.4194
T2		1495.81	0.0077	0.5777
T1	Day 80	1497.11	0.0058	0.4379
T2		1496.79	0.0071	0.5323
T1	Day 82	1495.94	0.0061	0.4543
T2		1496.30	0.0074	0.5560
T1	Day 84	1497.44	0.0054	0.4032
T2		1496.71	0.0066	0.4919
T1	Day 87	1497.21	0.0054	0.4013
T2		1496.95	0.0062	0.4604
T1	Day 89	1501.21	0.0057	0.4292
T2		1497.58	0.0066	0.4949
T1	Day 91	1497.55	0.0040	0.2968
T2		1497.28	0.0058	0.4357
T1	Day 94	1497.14	0.0041	0.3089
T2		1497.27	0.0058	0.4357
T1	Day 96	1496.77	0.0043	0.3201
T2		1497.53	0.0057	0.4283
T1	Day 98	1497.63	0.0039	0.2908
T2		1497.81	0.0057	0.4283
T1	Day 100	1499.15	0.0046	0.3478
T2		1498.88	0.0064	0.4777
T1	Day 102	1498.42	0.0044	0.3267
T2		1497.25	0.0060	0.4487
T1	Day 105	1497.73	0.0041	0.3046
T2		1497.50	0.0054	0.4042
T1	Day 107	1497.20	0.0038	0.2880
T2		1497.09	0.0050	0.3721
T1	Day 109	1498.82	0.0042	0.3115
T2		1497.15	0.0053	0.4003
T1	Day 111	1498.65	0.0036	0.2696
T2		1497.40	0.0046	0.3425

Total IPBC = IPBC + 1.81 × PBC.

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Product: TEKNOL AQUA 1412-01 without topcoat

Set-up No.:	Period	Total leachate volume per immersion regime	IPBC/PBC	
		[mL]	[mg/L]	[mg/m ²]
T3	Day 1	1495.14	0.5084	38.0037
T4		1493.77	0.4320	32.2627
T3	Day 3	1495.80	0.1660	12.4160
T4		1494.70	0.1577	11.7876
T3	Day 5	1494.71	0.1147	8.5723
T4		1493.37	0.1034	7.7177
T3	Day 8	1494.11	0.0840	6.2749
T4		1493.16	0.0767	5.7229
T3	Day 10	1493.55	0.0628	4.6931
T4		1492.90	0.0576	4.2971
T3	Day 12	1494.85	0.0544	4.0688
T4		1492.44	0.0524	3.9120
T3	Day 15	1493.64	0.0464	3.4633
T4		1492.44	0.0456	3.4059
T3	Day 17	1493.73	0.0427	3.1903
T4		1492.43	0.0396	2.9566
T3	Day 19	1493.36	0.0377	2.8153
T4		1493.08	0.0358	2.6736
T3	Day 21	1494.20	0.0172	1.2871
T4		1491.82	0.0280	2.0900
T3	Day 24	1493.92	0.0168	1.2516
T4		1490.78	0.0318	2.3730
T3	Day 26	1492.63	0.0167	1.2488
T4		1490.35	0.0305	2.2723
T3	Day 28	1492.98	0.0150	1.1174
T4		1492.08	0.0290	2.1641
T3	Day 31	1492.35	0.0175	1.3031
T4		1491.38	0.0310	2.3127
T3	Day 33	1492.73	0.0145	1.0830
T4		1491.76	0.0216	1.6141
T3	Day 35	1492.92	0.0147	1.1006
T4		1491.74	0.0199	1.4873
T3	Day 38	1492.65	0.0139	1.0396
T4		1491.58	0.0201	1.5023
T3	Day 40	1492.67	0.0202	1.5084
T4		1491.73	0.0219	1.6353
T3	Day 42	1492.46	0.0171	1.2762
T4		1491.16	0.0189	1.4107
T3	Day 45	1492.39	0.0168	1.2513
T4		1491.58	0.0186	1.3878
T3	Day 47	1492.77	0.0162	1.2123
T4		1491.63	0.0111	0.8310
T3	Day 49	1493.15	0.0134	1.0008
T4		1491.59	0.0118	0.8830
T3	Day 52	1492.68	0.0121	0.9046
T4		1491.71	0.0137	1.0212
T3	Day 54	1492.19	0.0128	0.9551
T4		1491.45	0.0135	1.0042
T3	Day 56	1493.42	0.0124	0.9288
T4		1491.90	0.0142	1.0580
T3	Day 59	1492.36	0.0130	0.9710
T4		1491.97	0.0151	1.1228
T3	Day 61	1492.79	0.0131	0.9805
T4		1491.82	0.0141	1.0528
T3	Day 63	1493.79	0.0124	0.9290
T4		1491.90	0.0135	1.0045
T3	Day 66	1492.88	0.0178	1.3285
T4		1491.50	0.0173	1.2896
T3	Day 68	1493.10	0.0128	0.9578
T4		1491.79	0.0118	0.8824

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T3	Day 70	1494.47	0.0166	1.2402
T4		1492.47	0.0166	1.2422
T3	Day 73	1493.49	0.0177	1.3204
T4		1492.09	0.0171	1.2741
T3	Day 75	1494.20	0.0193	1.4407
T4		1491.54	0.0094	0.6994
T3	Day 77	1492.92	0.0183	1.3647
T4		1492.79	0.0141	1.0554
T3	Day 80	1493.36	0.0173	1.2928
T4		1491.58	0.0147	1.0971
T3	Day 82	1493.94	0.0172	1.2829
T4		1491.66	0.0158	1.1774
T3	Day 84	1493.97	0.0154	1.1538
T4		1492.21	0.0148	1.1026
T3	Day 87	1494.05	0.0180	1.3417
T4		1491.20	0.0164	1.2259
T3	Day 89	1493.55	0.0084	0.6264
T4		1492.08	0.0074	0.5494
T3	Day 91	1493.95	0.0088	0.6595
T4		1491.28	0.0066	0.4894
T3	Day 94	1494.03	0.0079	0.5893
T4		1491.83	0.0083	0.6228
T3	Day 96	1493.81	0.0073	0.5481
T4		1491.53	0.0057	0.4248
T3	Day 98	1493.19	0.0079	0.5866
T4		1492.17	0.0057	0.4265
T3	Day 100	1498.18	0.0081	0.6054
T4		1496.76	0.0083	0.6248
T3	Day 102	1493.97	0.0068	0.5110
T4		1491.65	0.0057	0.4249
T3	Day 105	1494.10	0.0068	0.5085
T4		1492.09	0.0057	0.4264
T3	Day 107	1493.44	0.0065	0.4879
T4		1491.82	0.0071	0.5269
T3	Day 109	1493.22	0.0068	0.5045
T4		1492.24	0.0057	0.5532
T3	Day 111	1493.80	0.0061	0.4522
T4		1492.01	0.0057	0.4264

Total IPBC = IPBC + 1.81 × PBC.

Reference

Set-up No.:	Period	Total leachate volume per immersion regime	IPBC/PBC	
			[mg/L]	[mg/m ²]
R	Day 1	1489.92	0.0022	0.1639
R	Day 3	1489.72	<LOD	-
R	Day 5	1490.34	<LOD	-

Total IPBC = IPBC + 1.81 × PBC.