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1 Introduction

1.1 Assignment Production control boiling test WPC materials – several types of WPC boards and poles, according DIN-EN 1087-1. Comparing 10 types of WPC material.

1.2 Date assignment 22 August 2012

2 Material en methods

2.1 Tested product 10 types of WPC material products were delivered under code by Fiberplast B.V. The corresponding codes of Fiberplast are listed in the table below:

Boiling test Sample descriptions	
code	Fiberplast description (all Environdeck serie...)
1	Marine Antracietgrijs 150 x 25 x 1270 mm Ref. 20125000
2	Classic Koffiebruin 150 x 25 x 550 mm Ref. 20125128
3	Classic Koffiebruin 150 x 25 x 550 mm Ref. 20125150
4	Classic Naturelbruin 150 x 25 x 2200 mm
5	Classic Naturelbruin 150 x 25 x 2200 mm
6	Marine Cedarbruin 150 x 25 x 2200 mm
7	Marine Antracietgrijs 150 x 25 x 2200 mm
8	Solid Cedarbruin 140 x 19 x 2200 mm
9	Solid Antracietgrijs 140 x 19 x 2200 mm
10	Fundatieprofiel Zwart 60 x 40 x 2200 mm

2.2 Performed test

A. Boiling water test according to EN 1087-1.

The boiling test is performed on three independent samples of each WPC material. The samples are boiled in water during 5 hours. After boiling, before measuring the samples are cooled by soaking in cold water for 15 minutes. The water absorption (water uptake) is calculated on the conditioned weight before and after the boiling test. Also the dimensions (length, width and thickness) are determined before and after the boiling test on the conditioned samples. The ratio of swelling [%] is calculated of all three dimensions.

3 Summarized results of the boiling tests performed at SHR

The summary of the mean values (n=3) is shown in the table below. All the individual values are listed in the tables on the next pages.

Boiling test Summary		dimensional change			water
		swelling			
		length	width	thickness	uptake
		[%]	[%]	[%]	[%]
code	Fiberplast description (all Environdeck serie...)				
1	Marine Antracietgrijs 150 x 25 x 1270 mm Ref. 20125000	0,06	0,24	0,71	3,0
2	Classic Koffiebruin 150 x 25 x 550 mm Ref. 20125128	-0,13	0,28	1,01	2,7
3	Classic Koffiebruin 150 x 25 x 550 mm Ref. 20125150	-0,14	0,25	1,09	2,7
4	Classic Naturelbruin 150 x 25 x 2200 mm	-0,07	0,21	1,12	2,5
5	Classic Naturelbruin 150 x 25 x 2200 mm	0,02	0,16	1,16	3,4
6	Marine Cedarbruin 150 x 25 x 2200 mm	0,09	0,20	1,46	4,3
7	Marine Antracietgrijs 150 x 25 x 2200 mm	-0,03	0,15	1,06	2,8
8	Solid Cedarbruin 140 x 19 x 2200 mm	-0,06	0,01	1,63	1,5
9	Solid Antracietgrijs 140 x 19 x 2200 mm	-0,04	0,03	1,59	1,3
10	Fundatieprofiel Zwart 60 x 40 x 2200 mm	0,09	0,20	1,46	2,3

4 Detailed results of the boiling tests performed at SHR

no.	water uptake			dimensions						dimensional change			
	before	after		before			after			swelling			
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness	
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 1													
1	258,14	266,02	3,05	99,79	149,84	24,63	99,86	150,28	24,85	0,07	0,29	0,86	
2	257,58	265,39	3,03	99,68	150,00	24,52	99,71	150,32	24,67	0,03	0,21	0,62	
3	259,05	266,47	2,86	100,06	150,03	24,57	100,14	150,34	24,73	0,08	0,21	0,64	
gem.	258	266	3,0		150,0	24,6	99,9	150,3	24,7	0,06	0,24	0,71	

no.	water uptake			dimensions						dimensional change			
	before	after		before			after			swelling			
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness	
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 2													
1	261,76	268,72	2,66	100,37	148,56	24,31	100,24	148,97	24,55	-0,13	0,28	0,97	
2	261,87	268,98	2,72	100,03	148,56	24,27	99,93	148,97	24,52	-0,10	0,28	1,03	
3	260,92	268,12	2,76	99,89	148,53	24,28	99,72	148,98	24,53	-0,17	0,30	1,04	
gem.	262	269	2,7	100,1	148,6	24,3	100,0	149,0	24,5	-0,13	0,28	1,01	

no.	water uptake			dimensions						dimensional change			
	before	after		before			after			swelling			
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness	
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 3													
1	261,21	268,08	2,63	99,51	148,56	24,85	99,38	148,99	25,13	-0,13	0,29	1,15	
2	262,16	269,17	2,67	99,85	148,59	24,92	99,72	148,97	25,19	-0,13	0,26	1,06	
3	262,21	269,78	2,89	99,55	148,70	24,34	99,39	149,02	24,60	-0,16	0,22	1,06	
gem.	262	269	2,7	99,6	148,6	24,7	99,5	149,0	25,0	-0,14	0,25	1,09	

no.	water uptake			dimensions						dimensional change			
	before	after		before			after			swelling			
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness	
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 4													
1	260,22	266,87	2,56	99,78	148,16	24,47	99,66	148,43	24,74	-0,12	0,18	1,09	
2	261,38	268,11	2,57	99,94	148,08	24,39	99,92	148,36	24,67	-0,02	0,19	1,14	
3	262,49	269,08	2,51	100,13	148,00	24,66	100,05	148,38	24,94	-0,08	0,26	1,12	
gem.	261	268	2,5	100,0	148,1	24,5	99,9	148,4	24,8	-0,07	0,21	1,12	

no.	water uptake			dimensions						dimensional change		
	before	after		before			after			swelling		
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 5												
1	266,28	275,35	3,41	99,75	149,22	24,84	99,74	149,54	25,15	-0,01	0,21	1,25
2	267	276,3	3,48	99,90	149,46	24,69	99,92	149,68	25,00	0,02	0,15	1,24
3	267,02	275,89	3,32	100,08	149,28	24,62	100,12	149,47	24,86	0,04	0,13	0,98
gem.	267	276	3,4	99,9	149,3	24,7	99,9	149,6	25,0	0,02	0,16	1,16

no.	water uptake			dimensions						dimensional change		
	before	after		before			after			swelling		
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 6												
1	279,52	291,67	4,35	99,82	149,89	24,40	99,91	150,22	24,73	0,09	0,22	1,34
2	277,08	288,99	4,30	99,91	149,82	24,42	100,05	150,08	24,80	0,14	0,17	1,54
3	277,43	289,11	4,21	100,04	149,78	24,39	100,07	150,09	24,75	0,03	0,21	1,49
gem.	278	290	4,3	99,9	149,8	24,4	100,0	150,1	24,8	0,09	0,20	1,46

no.	water uptake			dimensions						dimensional change		
	before	after		before			after			swelling		
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 7												
1	254,75	262,2	2,92	99,91	150,53	24,17	99,88	150,81	24,43	-0,03	0,19	1,08
2	253,43	260,63	2,84	99,86	150,43	24,31	99,81	150,58	24,57	-0,05	0,10	1,08
3	255,45	262,34	2,70	100,14	150,40	24,28	100,13	150,65	24,53	-0,01	0,17	1,03
gem.	255	262	2,8	100,0	150,5	24,3	99,9	150,7	24,5	-0,03	0,15	1,06

no.	water uptake			dimensions						dimensional change		
	before	after		before			after			swelling		
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 8												
1	307,42	311,84	1,44	99,58	138,59	17,18	99,49	138,59	17,47	-0,09	0,00	1,68
2	308,11	312,69	1,49	99,80	138,50	17,19	99,74	138,52	17,46	-0,06	0,01	1,56
3	309,26	314,06	1,55	99,88	138,53	17,38	99,85	138,55	17,67	-0,03	0,01	1,65
gem.	308	313	1,5	99,8	138,5	17,2	99,7	138,6	17,5	-0,06	0,01	1,63

no.	water uptake			dimensions						dimensional change		
	before	after		before			after			swelling		
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 9												
1	335,1	339,33	1,26	100,01	139,61	18,38	99,94	139,62	18,66	-0,07	0,01	1,51
2	326,01	330,13	1,26	99,61	139,45	17,83	99,53	139,49	18,14	-0,08	0,03	1,72
3	327,17	331,31	1,27	99,73	139,46	17,97	99,76	139,53	18,25	0,03	0,05	1,54
gem.	329	334	1,3	99,8	139,5	18,1	99,7	139,5	18,3	-0,04	0,03	1,59

no.	water uptake			dimensions						dimensional change		
	before	after		before			after			swelling		
	mass	mass	uptake	length	width	thickness	length	width	thickness	length	width	thickness
	[g]	[g]	[%]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[%]	[%]
code type 10												
1	162,71	166,63	2,41	99,69	60,20	40,35	99,57	60,64	40,49	-0,12	0,73	0,33
2	161,9	165,46	2,20	99,91	60,06	40,27	99,88	60,22	40,42	-0,03	0,27	0,35
3	162,37	165,98	2,22	99,30	60,23	40,37	99,43	60,47	40,57	0,13	0,40	0,50
gem.	162	166	2,3	99,6	60,2	40,3	99,6	60,4	40,5	-0,01	0,47	0,40



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