

Evaluation of swelling and water absorption of WPC-Decking according to EN 15534-4

Scope

Water absorption causes swelling of WPC. This behaviour is evaluated by measuring weight and dimensions during submersion in water. Swelling and water absorption of decking boards made from WPC is evaluated according EN 15534-4 and EN 15534-1. The standard EN 15534-4 requires a maximum water uptake and swelling during a 28 days submersion.

Client

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Material:

Material is a WPC-decking board in form of a hollow profile. Product name declared from IDECK is "DURO".



Figure 1: Example of WPC decking profile DURO.

Methods:

Test is designed according EN 15534-4 chapter 4.5.5 for decking boards and carried out according EN 15534-1 chapter 8.3.1. General principle is a submersion under water at room temperature. Length of boards is 100 mm. Climate during creep test is room temperature. Duration under water is 672 h (28 days). 10 replicates are used.

Results:

Results are summarised in table 1. All replicates exhibited lower values as required from EN 15534-4. Therefore the material passes the test regarding water uptake and swelling in all directions. Mean values and single value are below the limitations.

Table 1: Results of WPC-deckings after 28 days water submersion test.

	water uptake (28 d)	swelling (28 d)		
		thickness	width	length
mean value	3,3%	0,94%	0,41%	0,26%
maximal single value	3,6 %	1,21%	0,46%	0,37%
maximal allowed mean (single)	$\leq 7\%$ ($\leq 9\%$)	$\leq 4\%$ ($\leq 5\%$)	$\leq 0,8\%$ ($\leq 1,2\%$)	$\leq 0,4\%$ ($\leq 0,6\%$)
evaluation	pass	pass	pass	pass