

MOSO® Bamboo X-treme®



test results

The excellent performance of MOSO® Bamboo X-treme® has been extensively tested by acknowledged research institutes. Find a summary of the most important test results below. Full reports are available upon request. **Only MOSO® can ensure you have the original, unique Bamboo X-treme® product.** Other products that copy the original do not offer the same hardness and level of durability, dimensional stability and ecology. With a look-alike product, there is a large risk of claims after installation. Always ask for the original, certified MOSO® Bamboo X-treme® products!



Durability of MOSO Bamboo X-treme, *Heat Treated Strand Woven Bamboo*: resistance against soft-rotting micro fungi according to CEN/TS 15083-2

Report code: 17.0083-C

Date: 29 March 2017

Page: 8/14

According to EN 350, the durability class is determined based on the x-value. To calculate the x-value, the median mass loss of the test species is compared to the median mass loss of the Beech or Pine references. Hardwoods are compared to Beech, Softwoods are compared to Pine. As Bamboo is neither softwood nor hardwood a comparison is made with both reference wood species Pine sapwood and Beech.

Based on the mass loss found and the comparison to Beech and Pine, the tested MOSO Bamboo X-treme, *Heat Treated Strand Woven Bamboo*, can be classified in durability class 1 when using the method described in EN 350.

MOSO Bamboo X-treme, *Heat Treated Strand Woven Bamboo*, performs comparable to Azobé and Merbau. Little variance is found between the different boards.

durability

CEN/TS 15083-2
(ENV 807) /
EN 350

class 1



Durability of heat treated strand woven bamboo: resistance against degradation by Basidiomycetes according to EN 350 and CEN/TS 15083-1

Report code: 17.0083-B

Date: 29 March 2017

Page: 8/14

According to EN 350, the durability class is calculated based on the mass loss obtained with the fungus resulting in the highest median mass loss. For all fungi the mass loss is less than 5%. This implies that, when using the EN 350 to determine the durability, MOSO Bamboo X-treme, *Heat Treated Strand Woven Bamboo* can be classified in durability class 1.

durability

CEN/TS 15083-1
(EN 113) /
EN 350

class 1



Resistance of Heat Treated Strand Woven Bamboo against blue staining fungi

Report code: 9.061-E

8 September, 2009

Page: 10/10

4 Conclusion

On behalf of Moso International BV an EN 152 blue stain test was performed on Heat Treated Strand Woven bamboo. UV- weathering was used as preconditioning of part of the samples. The combination of UV light and water spray resulted in strong discoloration of the surfaces of both the bamboo samples and the Pine sapwood reference samples.

Neither on the weathered nor on the original Bamboo samples discoloration of the blue stain fungi or the hyphae of the blue stain fungi could be observed. As a result it can be concluded that the susceptibility of this Heat Treated Strand Woven Bamboo towards blue stain is very low.

resistance against blue staining fungi

EN 152

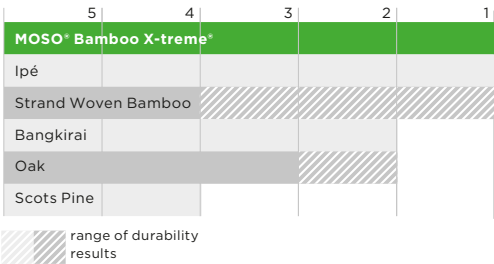
class 0

harder and more durable than almost any other hardwood

durability class

class 1

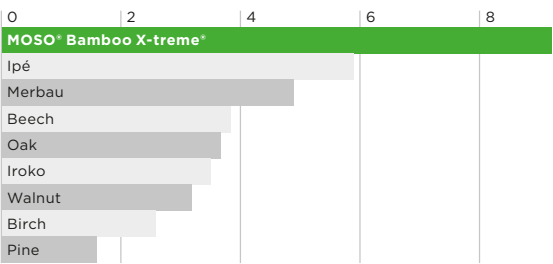
(EN 350 (CEN/TS 15083-2 / CEN/TS 15083-1)



average brinell hardness

± 9.5 kg/mm²

(EN 1534)



Classification Durability Class					
Use Class	1. very durable	2. durable	3. moderately durable	4. slightly durable	5. not durable
1 interior	○	○	○	○	○
2 moist interior	○	○	○	(○)	(○)
3 exterior, above ground	○	○	(○)	(○)-(x)	(○)-(x)
4 ground contact / fresh water	○	(○)	(x)	x	x
5 salt water	★	(x)	(x)	x	x

- Natural durability sufficient.
- (○) Natural durability normally sufficient, but for certain end uses treatment may be advisable.
- (○)-(x) Natural durability may be sufficient, but depending on end use, preservative treatment may be necessary.
- (x) Preservative treatment is normally advisable.
- x Preservative treatment necessary.
- ★ Natural durability of Bamboo X-treme® not tested in salt water.

4. Classification and field of application	Efectis	CLASSIFICATION
4.1 Reference of classification	Elertis Nederland BV 2013-Enetics-86221(Riv.2) February 2020 MOSO International BV	
4.2 Classification		
The product, BAMBOO X-TREME™ DECKING , in relation to its reaction to fire behaviour is classified:		
B_s		
The additional classification in relation to smoke production is:		
s1		
Reaction to fire classification: B_s - s1		
	4.2 CLASSIFICATION	
	The product, MOSO® Bamboo X-treme , in relation to its reaction to fire behaviour is classified:	
	B	
	The additional classification in relation to smoke production is:	
	s1	
	The additional classification in relation to flaming droplets / particles is:	
	d0	
	Reaction to fire classification: B - s1, d0	

Classification ASTM E84		
Classification	Flame Spread Index	Smoke Developed Index
A	0 - 25	0 - 450
B	26 - 75	0 - 450
C	76 - 200	0 - 450

Carbon footprint (kg CO ₂ eqv.) per m ² during product lifespan				Carbon footprint (kg CO ₂ eqv.) per m ² after incineration		
CSC*	PRODUCTION**	TRANSPORT	TOTAL	CSC RELEASED	END OF LIFE***	TOTAL
-31,84	24,457	5,198	-2,185	31,84	-6,003	23,65
<p>* Construction Stored Carbon</p> <p>** Production includes all elements of making 1 m² of product, such as the raw materials, transportation to factory, production processes, waste.</p> <p>*** End of Life takes all elements of the end of life into consideration, such as the credit received for energy recovery as well as the negative impact of incineration.</p> <p>In line with circular economy principles, MOSO® always recommends trying to upcycle or repurpose your bamboo products at the end of their life and looks at incineration as a worst case scenario. In 2021 MOSO® fully investigated bamboo incineration for green energy production together with Renewi (Dutch waste company) and confirmed that MOSO® Bamboo Products are classified as B grade wood (in the Netherlands) and can be safely burnt in an incineration plant for energy recovery.</p> <p>The life cycle and the carbon footprint of MOSO® Products are evaluated according to ISO 14040/44.</p> <p>For more information: www.moso-bamboo.com/lca</p> <p>The full report is available on request.</p> <p>Confidential - This information is the property of Moso International BV, Zwaag, the Netherlands. Any use or reproduction without permission will be prosecuted.</p> <p>experts in sustainability nibe</p> <p>Author: NIBE experts in sustainability Dr. ir. Pablo van der Lugt, Sustainability Manager Moso International B.V. N. Nicholson, Sustainability Specialist Moso International B.V.</p>						

durability

EN 350 (CEN/TS 15083-2 / CEN/TS 15083-1)

class 1

use/risk class

EN 335

class 4

fire resistance

EN 13501-1

decking

class Bfl-s1

cladding, fencing, beams

class B-s1-d0

reaction to fire

(FSI 25 / SDI 45)

ASTM E84

class A

WUI approved

CAN/ULC-S102

carbon footprint

ISO 14040/44

CO₂ neutral

the sustainability of Bamboo X-treme®

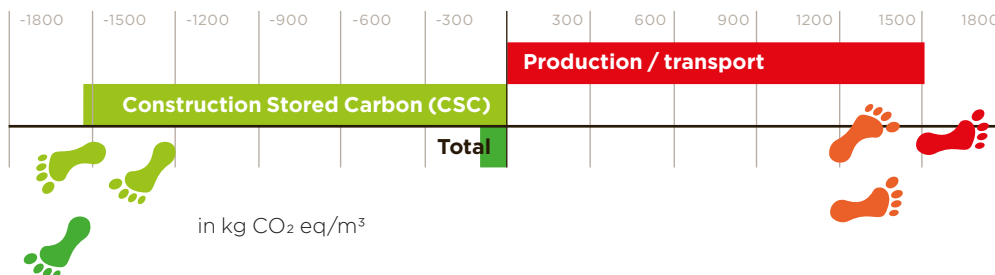
MOSO® Bamboo X-treme® offers clear sustainable advantages and is even proven to be CO₂ neutral during the product lifespan! The inclusion of Bamboo X-treme® contributes to a higher LEED, BREEAM, Green Star, HQE and DGNB certification score for green building projects. That's one of the reasons why you can find MOSO® Bamboo X-treme® and other MOSO® Bamboo Products in many sustainable reference projects all over the world.

carbon footprint

MOSO® Bamboo X-treme®: CO₂ neutral during the product lifespan*

MOSO® has conducted several LCA studies, including carbon footprint studies, together with Delft University of Technology (TU Delft) and NIBE (LCA experts). The 2015 LCA report, available at www.moso-bamboo.com/lca, was the first of its kind and resulted in many new findings about the carbon footprint of bamboo products. The environmental impact of MOSO® Bamboo Products, excluding the carbon sequestration effect, has also been published in 2016 and updated in 2022 in an official Environmental Product Declaration (EPD) following EN 15804 (www.moso-bamboo.com/epd).

*) This includes the CO₂ (biogenic carbon - EN 16449) stored in the product.



Venco Campus BREEAM

Eersel, the Netherlands



unsurpassed growing speed

bamboo: the fastest growing plant in the world

Because of the fast growth, Moso bamboo is managed as an agricultural crop: the annual harvest of the 4 to 5-year-old stems – compared to 60-80 years for tropical hardwood! – provides a steady annual income to farmers and stimulates the bamboo plant to reproduce even faster. Therefore, by default, no deforestation occurs with production of MOSO® Bamboo X-treme®, while large amounts of CO₂ are captured in the bamboo forests and products (www.inbar.int/understanding-bamboos-climate-change-potential).

