Contact person RISE
Mats Westin
RISE Bioeconomy
+46 10 516 51 40
mats.westin@ri.se

Conclusions and classifications of tests of REBO Bamboo Medium Carbonized

Conclusions from testing according to ENV 12038

The test material, REBO Bamboo Medium Carbonized, was delivered from Fujian Golden Bamboo Industry Co. Ltd. Testing was performed according to standard ENV 12038:2002 (Durability of wood and wood-based products – Wood-based panels –Method for determining the resistance of against wood-destroying basidiomycetes) with five test fungi – three brown rot fungi (*Coniophora puteana, Gloeophyllum* trabeum and *Poria placenta*) and two white rot fungi (*Trametes versicolor* and *Ostreatus pleurotus*).

1. The mass loss values for the size-control and virulence controls varied between 22% and 56% depending on test fungi and control wood specie which makes the test valid for all test fungi included.
2. The median corrected mass loss values for REBO Bamboo Medium carbonized varied between 3.3% and 5.0% depending on test fungi.
3. Since the highest median mass loss was 5.0% the criteria for wood based panels for Durability Class 1 according to EN 350 is met. => **Durability Class 1 (very durable) for REBO Bamboo Medium Carbonized**.

Conclusions from testing according to ENV 807

The test material, REBO Bamboo Medium Carbonized, was delivered from Fujian Golden Bamboo Industry Co. Ltd. Testing was performed according to standard ENV 807:2009 (Wood preservatives – Determination of the effectiveness against soft rotting micro-fungi and other soil inhabiting micro-organisms) with three different test soils – one standard soft rot soil, one forest soil with dominating white rot activity and the third soil with dominating brown rot activity.

1. The corrected mass loss values for the pine and beech wood controls and virulence controls varied between 27% and 63% depending on test soil and control wood specie which makes the test valid for all test soils included.
2. The corrected mass loss values for REBO Bamboo Medium carbonized varied between 1.4% and 2.6% depending on test fungi. These mass loss values were lower than or the same as the mass loss values for reference wood specimens that were preservative treated to retention levels for use class 4.
3. Since the x-value was far below the maximum allowed for Durability Class 1 according to EN 350 (x=0.02-0.03 when requirement is $x \leq 0.10$)
   => **Durability Class 1 (very durable) for REBO Bamboo Medium carbonized**.

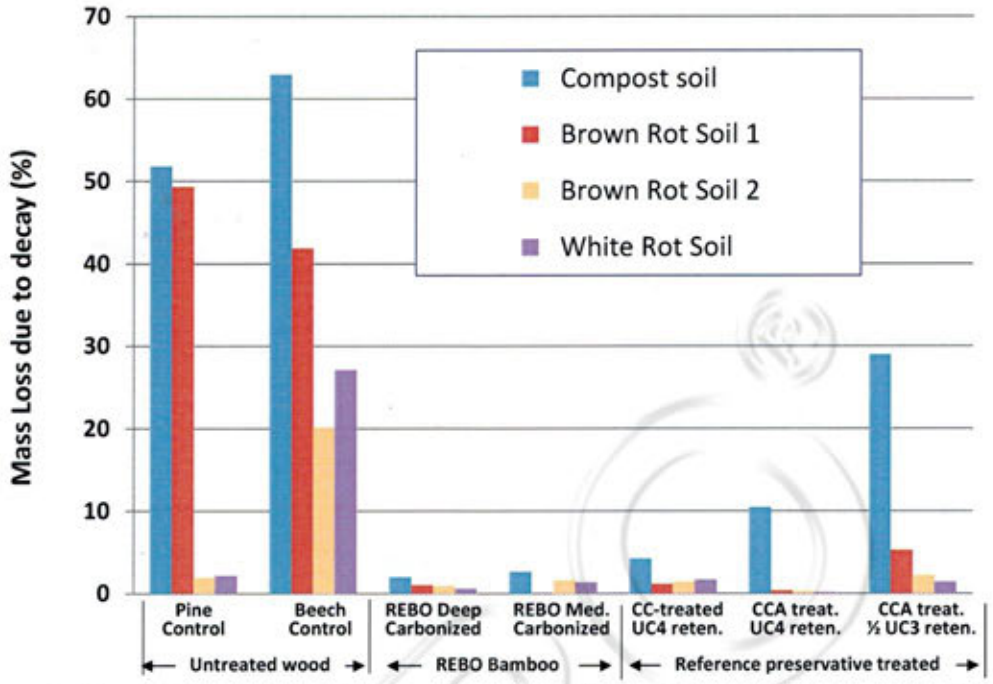

Figure 1. *Durability of REBO Bamboo in comparison with untreated wood and preservative treated wood based on results from ENV 807*

Conclusion on suitable Use Class according to EN 335

Use Class (UC)	Service situation	Decaying organisms	Test standard	Test result (Durability Class)
UC 3	Exterior, above ground	Basidiomycetes fungi (Brown rot and white rot)	ENV 12038 / EN350	Durability Class 1
UC 4	Exterior, in contact with ground and/or fresh water	Basidiomycetes fungi, soft rot fungi and other soil-inhabiting wood degrading microorganisms	ENV 807 / EN 350	Durability Class 1

⇨ **REBO Bamboo Medium Carbonized is suitable for Use Class 4.**

RISE Research Institutes of Sweden AB
BioEconomy - Biobased Materials

Mats Westin

Contact person RISE
Mats Westin
RISE Bioeconomy
+46 10 516 51 40
mats.westin@ri.se

Conclusions and classifications of tests of REBO Bamboo Deep Carbonized

Conclusions from testing according to ENV 12038

The test material, REBO Bamboo Deep Carbonized, was delivered from Fujian Golden Bamboo Industry Co. Ltd. Testing was performed according to standard ENV 12038:2002 (Durability of wood and wood-based products – Wood-based panels –Method for determining the resistance of against wood-destroying basidiomycetes) with five test fungi – three brown rot fungi (*Coniophora puteana, Gloeophyllum* trabeum and *Poria placenta*) and two white rot fungi (*Trametes versicolor* and *Ostreatus pleurotus*).

1. The mass loss values for the size-control and virulence controls varied between 22% and 56% depending on test fungi and control wood specie which makes the test valid for all test fungi included.
2. The median corrected mass loss values for REBO Bamboo Deep carbonized varied between 2.5% and 4.3% depending on test fungi.
3. Since the highest median mass loss was 4.3% the criteria for wood based panels for Durability Class 1 according to EN 350 is met. => **Durability Class 1 (very durable) for REBO Bamboo Deep Carbonized**.

Conclusions from testing according to ENV 807

The test material, REBO Bamboo Deep Carbonized, was delivered from Fujian Golden Bamboo Industry Co. Ltd. Testing was performed according to standard ENV 807:2009 (Wood preservatives – Determination of the effectiveness against soft rotting micro-fungi and other soil inhabiting micro-organisms) with three different test soils – one standard soft rot soil, one forest soil with dominating white rot activity and the third soil with dominating brown rot activity.

1. The corrected mass loss values for the pine and beech wood controls and virulence controls varied between 27% and 63% depending on test soil and control wood specie which makes the test valid for all test soils included.
2. The corrected mass loss values for REBO Bamboo Deep carbonized varied between 0.6% and 2.0% depending on test fungi. These mass loss values were lower (better) than the mass loss values for reference wood specimens that were preservative treated to retention levels for use class 4.
3. Since the x-value was far below the maximum allowed for Durability Class 1 according to EN 350 (x=0.02-0.03 when requirement is $x \leq 0.10$)
   => Durability Class 1 (very durable) for REBO Bamboo Deep carbonized.

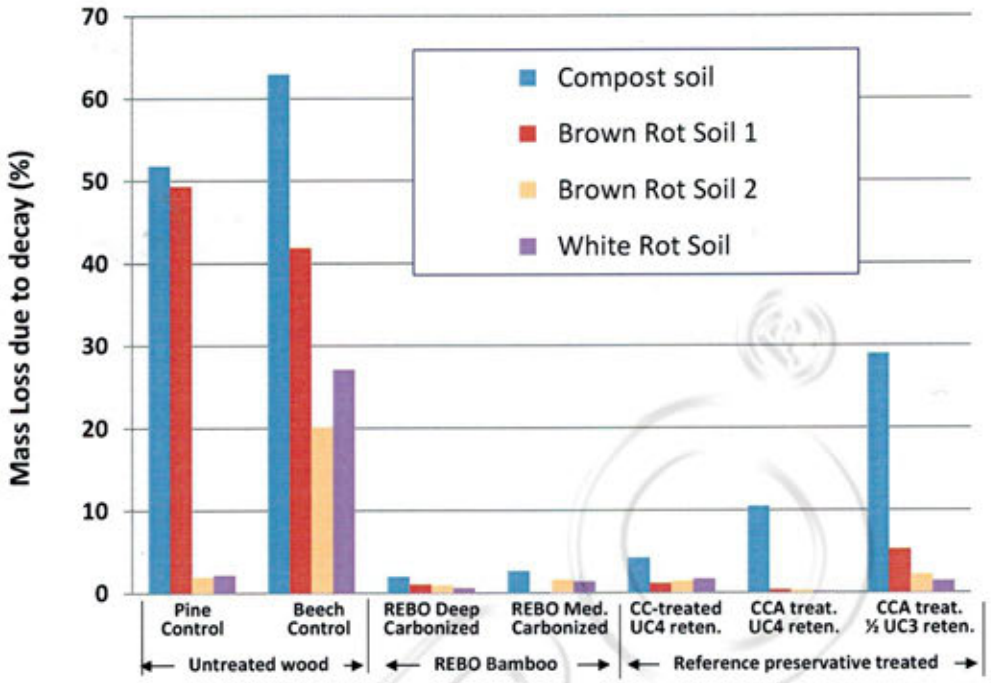

Figure 1. *Durability of REBO Bamboo in comparison with untreated wood and preservative treated wood based on results from ENV 807*

Conclusion on suitable Use Class according to EN 335

Use Class (UC)	Service situation	Decaying organisms	Test standard	Test result (Durability Class)
UC 3	Exterior, above ground	Basidiomycetes fungi (Brown rot and white rot)	ENV 12038 / EN350	Durability Class 1
UC 4	Exterior, in contact with ground and/or fresh water	Basidiomycetes fungi, soft rot fungi and other soil-inhabiting wood degrading microorganisms	ENV 807 / EN 350	Durability Class 1

⇨ **REBO Bamboo Deep Carbonized is suitable for Use Class 4.**

RISE Research Institutes of Sweden AB
BioEconomy - Biobased Materials

Mats Westin

RISE Research Institutes of Sweden AB