BALTEK® SealX
Closing the gap on foam core material

www.3ACcorematerials.com
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BALTEK® SealX is an innovative balsa coating that reduces the resin-uptake and generates the lowest total cost of ownership and highest performance.

Balsa is the best universal core material in terms of its mechanical properties, weight, and cost. However, its naturally high resin-uptake is a weakness for manufacturing. SealX reduces the balsa total cost of ownership (TCO) by a significant decrease in the resin uptake, resulting from a newly developed DNV-GL approved balsa coating. The coating closes the gap on the commonly used foam core materials. With the drastic reduction in the resin-uptake, the specific balsa performance is elevated to a new level.

Externally verified weight reduction

BALTEK® SealX lowers the resin uptake by more than 80% for rigid panels and 50% for flexible panels.

For a flexible panel with 25 mm thickness, the resin uptake is reduced from 3.5 kg/m² to 1.8 kg/m². The resin savings of 1.7 kg/m² close the gap between the market foam core and balsa core material, setting a new benchmark for balsa coatings available on the market.

The natural resin uptake of uncoated balsa is highly dependent on thickness, but SealX eliminates the thickness dependency.

Resin uptake comparison of PVC, PET and BALTEK® SealX based on 25 mm rigid panels.

Photographic documentation of BALTEK® SealX

Visualization of resin uptake in cross section of infused balsa wood.
Left: resin filled vessels in standard balsa. Right: BALTEK® SealX

Resin intake 

BALTEK® Balsa core
— Truly sustainable core material

The importance of sustainability has increased continuously. 3A Composites Core Materials balsa plantations are FSC®-certified, and sustainable as confirmed by external audits.

Global availability and sustainability

3A Composites Core Materials has a global sourcing base and manufacturing set-up. Over 13.000 ha of FSC®-certified plantations in two independent regions ensure global supply for industrial customers.

At a glance:

/ Resin uptake reduction of 80% for rigid balsa panels and 50% for flexible balsa panels
/ Significant reduction in weight and cost
/ Externally tested and verified properties by DNV-GL

Wind turbine blade example

<table>
<thead>
<tr>
<th>Infused balsa area</th>
<th>200 m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average balsa thickness</td>
<td>30 mm</td>
</tr>
<tr>
<td>Finishing option</td>
<td>ContourKore 2&quot; x 1&quot;</td>
</tr>
<tr>
<td>Resin uptake BALTEK SBC.100 LP</td>
<td>800 kg</td>
</tr>
<tr>
<td>Resin uptake BALTEK SBC.100 SX</td>
<td>400 kg</td>
</tr>
<tr>
<td>Net resin economy in weight (+ cost)</td>
<td>400 kg</td>
</tr>
</tbody>
</table>

3A Composites Core Materials solutions engineering teams support industrial customers during material qualification and homologation.

The coating has the following positive side effects:

/ Reduced moisture uptake, therefore less dimensional variation
/ Less dimensional variation improves the kit nesting making the core lay-up more efficient
/ Reduced risk of exothermic reactions

SealX preserves the naturally high fatigue properties of BALTEK®.

The impact of weight reduction is illustrated by the use of a state-of-the-art 70 m hybrid core rotor blade.

Externally tested and verified properties by DNV-GL

The process maintains excellent mechanical properties of the balsa core itself. Numerous tests run by the 3A Composites Core Materials R&D team as well as by leading OEMs have confirmed its high adhesion properties for both drum peel and flatwise tensile strength well above the polymer foam cores.

The finishing has been externally tested and approved by DNV-GL confirming the resin savings of 1.9 kg/m² for 25.4 mm rigid panels and the material properties for shear and compression strength.

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