The SAERfoam core material is a result of this innovation process. It combines through-thickness glass fibre reinforcements with an ultralight foam to create a core material optimized for infusion, RTM and compression processes. Over the years, it has become a well-established solution in marine and transportation industries. But now, with a few new variations and the DNV-GL certification, this core material has become an interesting alternative for balsa wood in the wind industry as well.

In field and lab tests, the company identified several benefits of this innovative core material in comparison to balsa.

Five of the most interesting results are described below.

- **At least 25% in weight savings**

  Impregnated SAERfoam has a much better weight-to-stiffness ratio than balsa wood has always been a good choice when it comes to applications that require a high stiffness-to-weight ratio in applications like rotor blades for the wind industry (figure 1). But while balsa has extremely good stiffness properties, the rising trend of building longer rotor blades, combined with the need to reduce weight and to have a reliable supply chain, shows the limitations of this material. As a primary supplier of non-crimp fabrics for applications in the wind industry, Saertex has always driven innovation in materials with the idea of further improving composite solutions for its customers. This includes not only the performance of fibre reinforcements, but also processes and the interaction of fabrics, core materials and matrices.

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SAERfoam was field-tested with the resins of the leading matrix producers. A reliably engineered industrial product

SAERfoam is a DNV-GL and BV-certified product engineered with reproducible characteristics. This allows for homogenous quality in comparison to the structure inside balsa wood. The 3D reinforcements can also be adjusted depending on the directions and amount of glass connections an application requires. As an industrial product, there is no limitation in production capacities. This provides flexibility in production worldwide.

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Easy and inexpensive to cut, groove and chamfer

Due to its PU material base, SAERfoam is easy to cut in any direction, even with curved shapes. It is also possible to supply a grid scored version for easier draping (figures 3 & 4).

Fig. 2: Sand-blasted laminate showing 3D glass bridges structures

Tab. 1: Average weight values (dry core + resin volume)

<table>
<thead>
<tr>
<th>Material</th>
<th>Average weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAERfoam 25mm 0 grade</td>
<td>200 kg/m³</td>
</tr>
<tr>
<td>Balsa 25mm plain</td>
<td>300 kg/m³</td>
</tr>
</tbody>
</table>

SAERfoam helps prevent:

- Buckling
- Wrinkling
- Shear crimping

Less trouble with moisture

One of the main challenges related to the use of balsa wood is its high absorption of moisture. This means that additional work is required if used in air-conditioned storage facilities to avoid/control moisture. In contrast, this core material absorbs less moisture and needs no special storage conditions. As there is no risk of dimensional changes due to moisture uptake, additional working steps are saved in the preparation of infusion processes. Furthermore, this is an important advantage when it comes to reliable epoxy curing and the use of new matrix materials such as PU resins.

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More information:

www.saertex.com/saerfoam