Increasing the mechanical strength of a composite part usually means that compounders have to choose formulations with a higher viscosity that are more difficult to process. With VINNAPAS® LL 8251 there is now a solution that combines the excellent mechanical performance of PVAc with a very good viscosity similar to saturated polyester.

**A New Copolymer Grade**
VINNAPAS® LL 8251 is a copolymer of vinyl acetate and crotonic acid. It can be used for a wide range of composite processes, e.g. sheet molding (SMC), bulk molding (BMC) and pultrusion applications.

**Low Viscosity**
It offers a significantly lower viscosity to the formulator compared to conventional low-profile additives in combination with excellent shrinkage control and high mechanical strength of the final composite part. This allows for easier processing, a reduction of styrene, higher filler loading or easier incorporation of “difficult” fillers and additives.

**For High Solid Formulations**
The lower viscosity in styrene allows high-solid formulations. Conventional PVAc low-profile additives can be handled only up to ~40% solid content. VINNAPAS® LL 8251 can be easily handled up to ~55% solid content.

VINNAPAS® LL 8251 combines the mechanical performance of PVAc with a viscosity similar to saturated polyester.

**VINNAPAS® LL 8251: A NEW LOW-PROFILE ADDITIVE WITH LOW VIScosity**

VINNAPAS® LL 8251: Typical General Characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, 10% in ethyl acetate [mPas]*</td>
<td>2.0 – 2.3</td>
</tr>
<tr>
<td>Acid number [mg KOH/g]</td>
<td>6.0 – 9.0</td>
</tr>
<tr>
<td>Volatiles [wt %]</td>
<td>&lt; 0.5</td>
</tr>
<tr>
<td>Molecular weight SEC [g/mol]</td>
<td>~ 30,000</td>
</tr>
<tr>
<td>K value</td>
<td>~ 25</td>
</tr>
<tr>
<td>Tg (DSC) [°C]</td>
<td>~ 37 °C</td>
</tr>
<tr>
<td>Viscosity, 40% in styrene [mPas]**</td>
<td>300</td>
</tr>
</tbody>
</table>

* ASTM D 445-06 [mPas]
** Brookfield RVT, 23 °C, 20 RPM

**Positioning of VINNAPAS® LL 8251 in Comparison to Standard PVAc and Saturated Polyester**

**Lower Viscosity in Styrene Allows High Solid Formulations with VINNAPAS® LL 8251**

VINNAPAS® is a registered trademark of Wacker Chemie AG.
Efficient Compensation of Shrinkage
VINNAPAS® LL 8251 efficiently compensates shrinkage of unsaturated polyesters, in typical high-temperature molding processes.

Combined with High E-Modulus
Formulations based on saturated polyester show the lowest shrinkage but stiffness (E-modulus) suffers considerably. Formulations based on VINNAPAS® LL 8251 show a good combination of low shrinkage and high E-modulus.

BMC Test Results*

- Formulations with conventional PVAc
- Formulations with VINNAPAS® LL 8251

At a Glance:
Advantages of VINNAPAS® LL 8251
- Undiminished shrinkage compensation
- Mechanical performance like conventional PVAc grades
- Significantly lower formulation viscosities

VINNAPAS® LL 8251 Leads to a Finer Morphology than Conventional PVAc

* 10 wt % glass fibers; length 6 mm

The data presented in this information sheet are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this information sheet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.