Silquest* Y-9669

Description
Silquest silane Y-9669 combines phenyl and amino functionality in the same molecule. It is an extremely effective adhesion promoter for many filled and reinforced resin systems.

Silquest silane Y-9669 is a versatile adhesion promoter, particularly for resin systems that will react with a secondary amino group, such as isocyanates, acrylates, epoxies, phenolics and RTV silicones. This silane is especially useful when the resulting material must withstand higher temperatures; e.g., in phenolic resin/fiberglass composites.

Key Features and Benefits
- Secondary phenyl amino group reacts with such resin systems as isocyanates, acrylates, epoxies, phenolics and silicones
- Methoxy silane ester for fast hydrolysis time
- Aromatic amino group for increased stability of resin/silane bond at elevated temperature
- Phenyl group for good resin wet-out

Typical Physical Properties

| Appearance | Clear liquid |

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### Chemical Structure
Silquest silane Y-9669 has the following chemical structure:

\[
\begin{align*}
\text{N-Phenyl-gamma-aminopropyltrimethoxy Silane}
\end{align*}
\]

### Potential Applications
Silquest silane Y-9669 significantly improves adhesion between inorganic surfaces and polymers that react with a secondary amine. Evaluation is recommended for such polymers as urethanes, epoxies, acrylates and phenolics that must adhere to inorganic substrates; e.g., glass, metals, fiberglass and particulate fillers. Applications include adhesives and sealants coatings, glass fiber sizes and finishes, primers and foundry sand binders.

The excellent high-temperature performance of silane Y-9669 is demonstrated by the improvement in durability of a glass fiber reinforced phenolic resin laminate. As shown in Table 1, composites prepared with silane Y-9669 better maintained the superior flexural strength of the laminate, even after prolonged exposure to high temperature
and moisture, as compared to similar composites prepared with Silquest A-1100* silane.

Table 1: Effect of Silanes on High-Temperature Flexural Strength Properties of Phenolic/Fiberglass Composites

<table>
<thead>
<tr>
<th>Silane</th>
<th>Flexural Strength, psi x 10^{-3}</th>
<th>96 hr at 500°F (260°C)</th>
<th>192 hr at 500°F (260°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial Dry/Wet</td>
<td>96 hr at 500°F (260°C)</td>
<td>192 hr at 500°F (260°C)</td>
</tr>
<tr>
<td>Silquest A-1100</td>
<td>64/62</td>
<td>47/41</td>
<td>22/13</td>
</tr>
<tr>
<td>Silquest Y-9669</td>
<td>65/66</td>
<td>58/48</td>
<td>41/34</td>
</tr>
</tbody>
</table>

These data confirm that silane Silquest silane Y-9669 offers superior high-temperature aging characteristics in GFR composites. Consequently, it is a likely candidate for other resin systems and applications that involve high-temperature exposure.

Patent Status
Standard copy to come

Product Safety, Handling and Storage
Standard copy to come

Processing Recommendations
Silquest silane Y-9669 may be added directly to the matrix resin or during formulation, or used independently as a primer. For waterborne applications, the silane can be diluted in acidified water. When properly diluted, these aqueous solutions are stable for up to 72 hours. A typical solution is prepared by adding 1 gram of Silquest silane

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Y-9669 to 99 grams of water acidified to pH 2.9 with glacial acetic acid.

Limitations
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Contact Information
For product prices, availability, or order placement, contact our customer service at Momentive.com/CustomerService/

For literature and technical assistance, visit our website at: www.momentive.com

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