The Shin-Etsu Integrated System® is a solvent free, multicomponent system

**System features**

- By combining these distinctive base polymers and crosslinkers in different combinations, the user can achieve a variety of release properties can be achieved.
- KNS-341/342/346 were designed to be diluted with a solvent. Compared to other products designed for high concentration coating and regular solvent-based types, these products offer various advantages, such as decreasing of solvent.

**Product type**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Viscosity 25°C mm²/s</th>
<th>Features</th>
<th>Release force</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNS-330</td>
<td>400</td>
<td>General purpose</td>
<td>Easy release</td>
<td>18 kg (can), 180 kg (drum), 900 kg (container)</td>
</tr>
<tr>
<td>KNS-340</td>
<td>180</td>
<td>High vinyl</td>
<td>Tight release</td>
<td>18 kg (can), 180 kg (drum), 900 kg (container)</td>
</tr>
<tr>
<td>KNS-350</td>
<td>250</td>
<td>Fast cure</td>
<td>Easy release</td>
<td>18 kg (can), 180 kg (drum), 900 kg (container)</td>
</tr>
<tr>
<td>KNS-341</td>
<td>30,000</td>
<td>Low vinyl</td>
<td>Easy release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
<tr>
<td>KNS-342</td>
<td>30,000</td>
<td>High vinyl</td>
<td>Tight release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
</tbody>
</table>

**Crosslinker**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Viscosity 25°C mm²/s</th>
<th>Features</th>
<th>Release force</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNS-336</td>
<td>160</td>
<td>General purpose</td>
<td>Easy release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
<tr>
<td>KNS-338</td>
<td>130</td>
<td>Fast cure</td>
<td>Easy release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
<tr>
<td>KNS-339</td>
<td>160</td>
<td>Contains additive which promotes ultra-easy release</td>
<td>Ultra-easy release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
<tr>
<td>KNS-361</td>
<td>130</td>
<td>Fast cure with very low Pt-catalyst</td>
<td>Easy release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
<tr>
<td>KNS-347</td>
<td>30</td>
<td>For KNS-340</td>
<td>Tight release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
<tr>
<td>KNS-346</td>
<td>210</td>
<td>General purpose</td>
<td>Easy release</td>
<td>18 kg (can), 180 kg (drum)</td>
</tr>
</tbody>
</table>

**Catalyst**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Viscosity 25°C mm²/s</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT-CN</td>
<td>250</td>
<td>1 kg (bottle), 18 kg (mini drum)</td>
</tr>
</tbody>
</table>

**Release force and subsequent adhesion as function of blend ratio**

<table>
<thead>
<tr>
<th>Base polymer (blend ratio, %)</th>
<th>Crosslinker (blend ratio, %)</th>
<th>Solvent (blend ratio, %)</th>
<th>Catalyst (blend ratio, %)</th>
<th>Release force N/25mm</th>
<th>Subsequent adhesion %</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNS-330 (100)</td>
<td>KNS-336 (10)</td>
<td>Isoparaffin solvent, other (1.166)</td>
<td>CAT-CN (2)</td>
<td>0.1-0.2</td>
<td>≥ 90</td>
</tr>
<tr>
<td>KNS-336 (10)</td>
<td>KNS-338 (10)</td>
<td>Isoparaffin solvent, other (1.166)</td>
<td>CAT-CN (2)</td>
<td>0.1-0.2</td>
<td>≥ 90</td>
</tr>
<tr>
<td>KNS-339 (10)</td>
<td>KNS-341 (10)</td>
<td>Isoparaffin solvent, other (1.166)</td>
<td>CAT-CN (2)</td>
<td>0.1-0.2</td>
<td>≥ 90</td>
</tr>
<tr>
<td>KNS-340 (100)</td>
<td>KNS-341 (10)</td>
<td>Isoparaffin solvent, other (1.166)</td>
<td>CAT-CN (2)</td>
<td>0.1-0.2</td>
<td>≥ 90</td>
</tr>
<tr>
<td>KNS-346 (100)</td>
<td>KNS-342 (10)</td>
<td>Isoparaffin solvent, other (1.166)</td>
<td>CAT-CN (2.2)</td>
<td>0.3-0.5</td>
<td>≥ 90</td>
</tr>
</tbody>
</table>

Substrate: polyethylene-coated kraft paper (PEK), Curing conditions: 120 °C×30 sec., Coating weight: 1.1 g/m², Release force test tape: Tesa® 7475
By using different combinations of base polymers, a wide variation of release properties can be achieved from easy to tight release. The figures below show the change in release force as tested using a combination of two base polymers.

Blend examples

Adjusting release properties by varying blend ratio of KNS-330 and KNS-340

A low viscosity base polymer can be mixed with a high viscosity base polymer. The release force will remain almost unchanged, so users can adjust the viscosity for application as desired.

### Blend examples

Adjusting viscosity properties by varying blend ratio of KNS-330 and KNS-341

<table>
<thead>
<tr>
<th>KNS-330/KNS-341 blend ratio</th>
<th>Release force (N/25 mm)</th>
<th>Viscosity (mPa·s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/0</td>
<td>0.8</td>
<td>30000</td>
</tr>
<tr>
<td>80/20</td>
<td>0.6</td>
<td>25000</td>
</tr>
<tr>
<td>60/40</td>
<td>0.4</td>
<td>20000</td>
</tr>
<tr>
<td>40/60</td>
<td>0.2</td>
<td>15000</td>
</tr>
<tr>
<td>20/80</td>
<td>0.1</td>
<td>10000</td>
</tr>
<tr>
<td>0/100</td>
<td>0</td>
<td>5000</td>
</tr>
</tbody>
</table>

Blend ratio: KNS-330+KNS-341/KNS-346/CAT-CN/Isoparaffin solvent = 100/4.5–13.0/2.2/1166

Substrate: polyethylene-coated kraft paper (PEK)

### Instructions for Use

Shin-Etsu Integrated System®

The standard blend ratio for base polymer/crosslinker/catalyst = 100/10/2.

First, combine the base polymer and catalyst, then mix to a uniform consistency. Next, add the crosslinker and again mix until uniform. Once all liquids are evenly mixed, the compound can be used immediately. If diluting with a solvent, put the solvent into the mixing vessel first, and make a treatment bath by following the steps below.

- **Solvent (as needed)**
- **Base polymer**
- **Catalyst**
- **Crosslinker**

**Precautions**

Never mix crosslinker together only with catalyst. This will cause a reaction which releases hydrogen gas and generates heat.
Precautions

Handling precautions
- The products contained in this catalog are for industrial use. Before using them in medical applications, food products, personal care products or other applications with special requirements for safety, be sure to determine whether these products meet the applicable standards.

- Never mix crosslinker together only with catalyst. This will cause a reaction which releases hydrogen gas and generates heat.

- Addition-cure products may not cure properly if they become contaminated by “catalyst poisons” such as tin compounds, amine compounds, phosphorus compounds or sulfur compounds, so take care to avoid contamination by these substances.

- Store containers tightly sealed in a cool, dark place with low humidity, and avoid exposure to high temperatures and direct sunlight. After the container has been opened initially, the product should be used up as quickly as possible.

- When diluting emulsion type silicones, contamination by strong acids, strong bases, large amounts of alcohol, salts (inorganic) or other substances may cause the emulsion to become less stable, so take care to avoid contamination by these substances.

- Emulsion type silicones should be agitated thoroughly before use.

- Emulsion type silicones may freeze at low temperatures, so users in colder regions should take special care with regard to storage.

- The Pot life of these products will vary depending on the amount of catalyst used and the usage environment. The user should determine how long this is prior to actual use.

- Platinum catalysts may exhibit precipitation of some ingredients over time depending on the storage conditions, but this does not indicate a problem with product quality. Agitate well before use. Also, the water content of solvents used for dilution may cause the platinum catalyst to turn black. Be sure to use dehydrated solvent.

Safety and hygiene
1. Some of these silicones for release paper and the catalysts used with them contain flammable organic solvents (toluene, xylene, etc.), and so must be kept away from sources of ignition. Also, under the UN classification system, products containing these organic solvents are classified as Flammable Liquids. Be sure to handle these products in accordance with applicable laws governing transport, storage, etc.

2. Inhalation of organic solvents can be toxic, so be sure to handle these products in areas provided with ventilation equipment (localized ventilation, general ventilation). If adequate ventilation cannot be provided, be sure to wear a respirator mask designed to filter organic gases. Also, mist from our solvent-free addition-cure products may irritate the respiratory system, so be sure to handle these products in a ventilated area. If adequate ventilation cannot be provided, be sure to wear a respirator mask designed to filter organic gases.

3. Always wear protective gear (goggles, gloves) when using these products to prevent contact with skin and mucous membranes. In case of contact, wash immediately with soap and water or a neutral detergent, then rinse thoroughly with running water. In case of eye contact, flush immediately with clean water for at least 15 minutes and then seek medical attention.

4. If addition-cure products become contaminated with alcohols, acids, bases, or certain other substances, the resulting reaction may release small amounts of flammable hydrogen gas.

5. Keep out of reach of children.

6. Please read the Safety Data Sheets (SDS) for these products before use. SDS can be obtained from our Sales Department.

UN Hazard Classification

<table>
<thead>
<tr>
<th>UN Classification</th>
<th>UN No.</th>
<th>Product name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 3 (Flammable Liquids)</td>
<td>UN1993</td>
<td>KNS-336, KNS-338, KNS-339, KNS-346, KNS-347</td>
</tr>
</tbody>
</table>
Shin-Etsu produces silicones release coatings which utilize a variety of curing systems. Users can select from a wide array of products to suit their specific applications and usage conditions.

### Catalyst type

<table>
<thead>
<tr>
<th>Catalyst</th>
<th>CAT-PL-50T</th>
<th>CAT-PL-3</th>
<th>CAT-PL-56</th>
<th>CAT-7605E</th>
<th>CAT-PM-10A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For solvent-based addition-cure silicones. Contains toluene. Standard blend ratio of main component to catalyst is 100:1 by weight.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>For KS-774. Contains butanol. Standard blend ratio of main component to catalyst is 200:1 by weight.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>For solvent-free addition cure silicones. Standard blend ratio of main component to catalyst is 100:2 by weight.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>For UV-cure (epoxy-based) silicones. Standard blend ratio of main component to catalyst is 100:2 by weight.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>For emulsion type silicones. Standard blend ratio of main component to catalyst is 100:5 by weight.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*For acrylic-based UV-cure products, the user will need to purchase a photoinitiator (sold separately).* (Not specified values)
Instructions for Use
Put the main component into the mixing vessel, then gradually add the catalyst while stirring until evenly mixed. Once the liquids are evenly mixed, the compound can be used immediately.
When also using a solvent or other diluent, first put the diluent into the mixing vessel and then perform the steps above to prepare the treatment bath.
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Shin-Etsu Chemical Co., Ltd.

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