Silicone Pressure Sensitive Adhesives
Silicone Pressure Sensitive Adhesives (PSA) have excellent properties in heat and cold resistance, electrical insulating properties and excellent reliability. Tapes using silicone PSA have good removability and have good adhesion to a wide variety of surfaces. So silicone PSA can be applied for various kinds of tapes and protective films.

### Pressure Sensitive Adhesives

<table>
<thead>
<tr>
<th>Application</th>
<th>Cure system</th>
<th>Product name</th>
<th>Viscosity 25°C Pa·s</th>
<th>Solid content %</th>
<th>Solvent</th>
<th>Catalyst</th>
<th>Amt. of catalyst to add</th>
<th>Crosslinker</th>
<th>Amt. of crosslinker to add</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesive tape</td>
<td>Peroxide</td>
<td>KR-100</td>
<td>100</td>
<td>60</td>
<td>Toluene/xylene</td>
<td>BPO*, other</td>
<td>1 to 2</td>
<td>—</td>
<td>—</td>
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<tr>
<td></td>
<td></td>
<td>KR-101-10</td>
<td>100</td>
<td>60</td>
<td>Toluene/xylene</td>
<td>BPO*, other</td>
<td>1 to 2</td>
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<tr>
<td></td>
<td></td>
<td>KR-130</td>
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<td>Toluene</td>
<td>BPO*, other</td>
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<tr>
<td></td>
<td>Addition</td>
<td>KR-3700</td>
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<td>CAT-PL-50T</td>
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<td></td>
<td></td>
<td>KR-3701</td>
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<td>X-92-122C</td>
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<td></td>
<td>X-40-3237</td>
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<td>CAT-PL-50T</td>
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<td>X-92-122C</td>
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<td>Protective film</td>
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<td>CAT-PL-50T</td>
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<td>X-40-3323</td>
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<td>CAT-PL-50T</td>
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<td>X-40-3270-1</td>
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<td>60</td>
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<td>CAT-PL-50T</td>
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<td>X-92-226</td>
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<td>X-40-3306</td>
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<td>30</td>
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<td>CAT-PL-50T</td>
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</table>

*Benzyol peroxide  •Adhesion: Backing: Polyimide film, 25 µm thick / Substrate: stainless steel panel  •Holding power: 25×25 mm, 1 kg, 1 200°C/1 h, 2 250°C/1 h  •Ball tack: Slope: 30°

### Adhesion modifiers

<table>
<thead>
<tr>
<th>Application</th>
<th>Product name</th>
<th>Viscosity 25°C mm²/s</th>
<th>Solid content %</th>
<th>Solvent</th>
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<tbody>
<tr>
<td>Additive</td>
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<tr>
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<td>X-41-3003</td>
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### Primers

<table>
<thead>
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<th>Cure system</th>
<th>Product name</th>
<th>Viscosity 25°C mm²/s</th>
<th>Solid content %</th>
<th>Solvent</th>
<th>Catalyst</th>
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<tr>
<td>Condensation</td>
<td>KR-3006A</td>
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<td>Toluene</td>
<td>CAT-PS-8S</td>
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<tr>
<td>Addition</td>
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<td>30</td>
<td>Petroleum naphtha</td>
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### Release agents

<table>
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<tr>
<th>Cure system</th>
<th>Product name</th>
<th>Viscosity 25°C mm²/s</th>
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<th>Catalyst</th>
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<tbody>
<tr>
<td>Addition</td>
<td>X-70-201S</td>
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<td>15</td>
<td>CAT-PL-50T</td>
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<tr>
<td>—</td>
<td>FS Thinner</td>
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### Adhesive

<table>
<thead>
<tr>
<th>Cure system</th>
<th>Product name</th>
<th>Viscosity 25°C Pa·s</th>
<th>Solid content %</th>
<th>Solvent</th>
<th>Catalyst</th>
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<tbody>
<tr>
<td>Condensation</td>
<td>KR-105</td>
<td>0.8</td>
<td>70</td>
<td>Toluene/xylene</td>
<td>CAT-PS-8S</td>
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</tbody>
</table>
**Special features**

- Outstanding heat & cold resistance
- Good removability and reworkability
- Outstanding water & chemical resistance
- Adherence to silicone rubber & fluoroelastomers
- Excellent wetting with various substrates
- Addition-cure silicone PSA cure at lower temperatures compared to peroxide-cure silicone PSA

**Application examples**

- Heat-resistant adhesive tapes & labels
- Masking tapes (heat resistant, solder, plating, painting)
- Protective films
- Adhesive tapes for silicone, polyolefin & fluoroelastomer substrates
- Adhesive tapes for silicone rubber
- Splicing tapes for silicone release liner
- Electrical insulation tapes
- Tapes for fire-resistant electric wire coatings

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### Application examples

<table>
<thead>
<tr>
<th>Cure system</th>
<th>Product name</th>
<th>Viscosity</th>
<th>Solid content</th>
<th>Solvent</th>
<th>Catalyst</th>
<th>Amount of catalyst to add</th>
<th>Anchorage additive</th>
<th>Amt. to add weight</th>
<th>Features, Applications</th>
<th>Packaging</th>
</tr>
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<tbody>
<tr>
<td>Condensation</td>
<td>KR-3006A</td>
<td>150</td>
<td>10</td>
<td>Toluene</td>
<td>CAT-PS-8S</td>
<td>0.5</td>
<td>KR-3006BT</td>
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<td>For addition-cure PSA, for peroxide-cure PSA</td>
<td>1 kg (can), 15 kg (can)</td>
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<tr>
<td>Addition</td>
<td>X-40-3501</td>
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<td>Petroleum naphtha</td>
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<td>—</td>
<td>—</td>
<td>For addition-cure PSA, specially designed for inline coating</td>
<td>1 kg (can), 12 kg (can)</td>
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<tr>
<td>Condensation</td>
<td>KR-105</td>
<td>0.8</td>
<td>70</td>
<td>Toluene/xylene</td>
<td>CAT-PS-8S</td>
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<td>—</td>
<td>Adhesive for silicone rubber</td>
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### Adhesive tape

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<thead>
<tr>
<th>Features, Applications</th>
<th>Packaging</th>
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<tr>
<td>For improving adhesion</td>
<td>1 kg (can), 16 kg (can)</td>
</tr>
<tr>
<td>For improving adhesion to silicone rubber</td>
<td>1 kg (can), 16 kg (can)</td>
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### Anchorage additive

<table>
<thead>
<tr>
<th>Amt. of catalyst to add weight %</th>
<th>Anchorage additive</th>
<th>Amt. to add weight %</th>
<th>Features, Applications</th>
<th>Packaging</th>
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<tr>
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<td>KR-3006BT</td>
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<td>For addition-cure PSA, for peroxide-cure PSA</td>
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<tr>
<td>0.5</td>
<td>—</td>
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<td>For addition-cure PSA, specially designed for inline coating</td>
<td>1 kg (can), 12 kg (can)</td>
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### Additive

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<th>Features, Applications</th>
<th>Packaging</th>
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<tr>
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<td>Release agent for silicone PSA, easy-release type</td>
<td>1 kg (can), 20 kg (can)</td>
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<td>—</td>
<td>Diluent</td>
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### Protective film

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<th>Packaging</th>
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<td>Adhesive for silicone rubber</td>
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Adhesion and probe tack

<table>
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<th>Blend ratio</th>
<th>Adhesion (N/25 mm)</th>
<th>Ball tack</th>
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<tbody>
<tr>
<td>100/0</td>
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<td>50</td>
</tr>
<tr>
<td>75/25</td>
<td>8</td>
<td>40</td>
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<tr>
<td>50/50</td>
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<td>30</td>
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<td>25/75</td>
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<td>20</td>
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<td>0/100</td>
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<td>10</td>
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Kr-3704/Kr-3700

Probing tack (N/5 mm DIA)

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<tr>
<td>2</td>
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Kr-3700/X-92-128

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<td>95/10</td>
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<td>90/20</td>
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<tr>
<td>85/30</td>
<td>6</td>
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Modifying adhesion & tack by blend ratio

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<th>Blend ratio</th>
<th>Adhesion (N/25 mm)</th>
<th>Ball tack</th>
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</thead>
<tbody>
<tr>
<td>100/0</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>75/25</td>
<td>8</td>
<td>40</td>
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<tr>
<td>50/50</td>
<td>6</td>
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<td>25/75</td>
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<td>20</td>
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<tr>
<td>0/100</td>
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<td>10</td>
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Kr-3704/X-40-3237

<table>
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<th>Blend ratio</th>
<th>Adhesion</th>
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<tbody>
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<td>75/25</td>
<td>8</td>
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<td>50/50</td>
<td>6</td>
</tr>
<tr>
<td>25/75</td>
<td>4</td>
</tr>
<tr>
<td>0/100</td>
<td>2</td>
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</table>

X-40-3237/Kr-3700

Backings: polyimide film, 25 µm thick; PSA thickness: 30 µm, 40 µm (Kr-100, Kr-101-10, Kr-130).
Substrate: stainless steel panel. Probe tack: contact pressure: 20 g/cm², probe speed: 1 cm/sec., contact time: 1 sec.
Measured at room temperature (23–25°C).
Instructions for use

PSA

### Peroxide-cure types (KR-100, KR-101-10, KR-130)
1. Dilute the PSA using toluene or other solvent, add organic peroxide (BPO, other), and mix thoroughly to a uniform consistency. After application to the backing, dry at 70–90°C to remove the solvent, then heat to 160–200°C for 2–5 min. to cure.

1. Dilute the PSA using toluene or other solvent, add platinum catalyst CAT-PL-50T, and mix thoroughly to a uniform consistency. After application to the backing, heat to 100–130°C for 1–3 min. to cure.

### Addition-cure types (X-40-3240, X-40-3291-1, X-40-3237, X-40-3270-1)
1. Dilute the PSA using toluene or other solvent, add crosslinking agent X-92-122C or X-92-226, and mix thoroughly to a uniform consistency. After application to the backing, heat to 100–130°C for 1–3 min. to cure.

### Primers (use to improve anchorage to the backing)

**KR-3006A**
1. Using organic solvent (toluene, heptane, hexane, etc.), dilute to a concentration that allows for easy application.
2. Add 1 part KR-3006BT to 100 parts KR-3006A and mix thoroughly to a uniform consistency.
3. Add catalyst CAT-PL-8S (0.5 parts) and mix thoroughly to a uniform consistency.
4. Apply to the backing such that the amount will be roughly 0.1–1.0 g/m² (when dried), then heat to 80–100°C for 30 sec. to 1 min. to cure.
5. Apply PSA.

**X-40-3501**
1. Dilute X-40-3501 (100 parts) with organic solvent (Recommended: n-hexane/MEK = 5/5), add catalyst CAT-PL-50T (0.5 parts), and mix thoroughly to a uniform consistency.
2. Apply to the backing such that the amount will be roughly 0.3–0.6 g/m² (when dried), then heat to 100–120°C for 30 sec. to 1 min. to cure.
3. After treating the backing with primer, apply PSA as quickly as possible. (If the backing film is simply rolled up, the primer may migrate to the other side. For this reason, inline application of PSA is recommended.)

## Precautions
Never mix X-92-122C or X-92-226 together only with CAT-PL-50T. This will cause a reaction which releases hydrogen gas and generates heat, and there is a danger that the solvent could ignite.

## Release Agents

**X-70-201S**
1. Dilute X-70-201S (100 parts) with a fluorine-containing solvent (Recommended: FS Thinner (produced by Shin-Etsu Chemical)), add platinum catalyst CAT-PL-50T (0.5 parts), and mix thoroughly to a uniform consistency.
2. Apply to the substrate such that the amount will be roughly 0.3–1.0 g/m² (when dried), then heat to 150°C for 1 min. to cure.

### Adhesive for Silicone Rubber

**KR-105**
1. Wipe the intended surface well with acetone, methanol or other solvent to clean it.
2. Add catalyst CAT-PL-8S (3 parts) to KR-105 (100 parts) and mix thoroughly to a uniform consistency. (Generally, after adding the catalyst, the adhesive will be usable up to 5–6 hours (2–3 hours in summer.).
3. Apply a roughly 0.1–0.3 mm layer of adhesive to both surfaces to be adhered, let dry for 20–60 min., then mate the surfaces.
4. After bonding and allowing to stand for 24 hours, a moderate level of adhesive strength is achieved. (Maximum adhesive strength is reached about after 1 week.)

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. Do not mix X-92-122C together only with CAT-PL-50T, as the resulting reaction will generate heat and ignite the solvent.
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>
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<tbody>
<tr>
<td>Class 6 (Toxic Materials and Infectious Substances)</td>
<td>UN1294</td>
<td>CAT-PL-50T</td>
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<td>UN1993</td>
<td>FS Thinner</td>
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<td>UN2788</td>
<td>CAT-PS-8S</td>
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<td>Not covered</td>
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<td>X-70-201S, X-92-122C</td>
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</tbody>
</table>

## Handling precautions
- 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 container tightly closed in a cool dark place, avoiding high temperatures and direct sunlight.

## Safety and hygiene
1. Many of these PSA and the crosslinking agents and catalysts used with them contain flammable organic solvents (toluene, xylene, petro-lum naphtha), 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.
The data and information presented in this catalog may not be relied upon to represent standard values. Shin-Etsu reserves the right to change such data and information, in whole or in part, in this catalog, including product performance standards and specifications without notice.

Users must never use the silicone products described herein for the purpose of implantation into the human body and/or injection into humans.

Users are solely responsible for making preliminary tests to determine the suitability of products for their intended use. Statements concerning possible or suggested uses made herein may not be relied upon, or be construed, as a guaranty of no patent infringement.

For detailed information regarding safety, please refer to the Safety Data Sheet (SDS).

The silicone products described herein have been designed, manufactured and developed solely for general industrial use only; such silicone products are not designed for, intended for use as, or suitable for, medical, surgical or other particular purposes. Users have the sole responsibility and obligation to determine the suitability of the silicone products described herein for any application, to make preliminary tests, and to confirm the safety of such products for their use.