Primers for Silicone Rubber (HCR, LIMS)
The possibility of composite molding expands further by silicone rubber.

When composite product is made by using silicone rubber, choosing the optimal primer is essential for more efficient molding and higher quality products. Shin-Etsu Silicone offers a variety of primers for silicone rubber that meet the needs of all fields. You can choose the most suitable primer depending on the substrate and molding conditions.

What is a primer?

A primer is an undercoat material in order to bond unvulcanized silicone rubber to substrates such as synthetic resins and metals. It serves the following roles by applying to the surface of the substrate.

- Improving adhesion between silicone rubber and substrate
- Stabilization of the substrate surface

Bonding image

The adhesive strength is improved by forming a uniform primer coating.

<table>
<thead>
<tr>
<th>Substrate</th>
<th>Type of silicone rubber</th>
<th>Peroxide curing HCR</th>
<th>Addition curing HCR</th>
<th>Fluorosilicone rubber</th>
<th>LIMS</th>
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</table>
## Product List

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<td>A: Reddish brown</td>
<td>A: Reddish brown</td>
<td>Reddish brown</td>
<td>Milky white translucent</td>
<td>A: Reddish brown</td>
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<td></td>
<td>B: Colorless transparent</td>
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* Temperature: 25°C  Humidity: 45-65%  (Not specified values)

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<th>PRIMER-C-2</th>
<th>PRIMER-Z</th>
<th>X-33-156-20</th>
<th>X-33-173-A/B</th>
<th>PRIMER-NO.36-A/B</th>
<th>X-33-528</th>
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<tr>
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<td>Colorless transparent</td>
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<td>Transparent orange</td>
<td>A: Pale yellow transparent</td>
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</tbody>
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* Temperature: 25°C  Humidity: 45-65%  (Not specified values)
Prepare the primer.

One component

![One component](image)

Two component

![Two component](image)

The mix ratio of A and B is one to one by weight

1. **Primer treatment**
   - Dipping
   - Spraying
   - Brushing
   - Roll coating

2. **Drying**
   - Silane-based primer
     - Drying and film formation
       - Drying in air
       - Room temperature × 10 to 30 min
   - Rubber-based primer
     - Drying and condensation reactions
     - Heat curing of primer
       - Drying in air
       - Room temperature × 10 to 30 min
       - Baking
       - 150°C × 10 to 30 min

3. **Silicone rubber curing (adhesion)**

**Usage example**

**Silane-based primer**

**How to use X-33-173-A/B**
1. Weigh A and B equally and mix thoroughly. As a guideline, use within 8 hours after mixing.
2. Apply to substrate by dipping, spraying, brushing, etc. For spraying, dilute with ethyl acetate, n-heptane.
3. This product must be dried at room temperature for 30 minutes after application. Primers react with moisture in the air and require longer drying times at low humidity (30%RH or less). In some cases, after drying in air, baking at 80 to 120°C improves the adhesive strength.
   - As a general rule, usage time after primer treatment should not exceed 12 hours. Performance may be degraded after 12 hours or more.
   - The appearance of A may change to pale yellow, orange and reddish brown with time even under sealed storage conditions, and white precipitate may be formed in some cases. Quality is not a problem. However, if the application process causes problems in use, it is recommended to use simple filtration with gauze, etc.
   - After use, seal the container and store in a cool, dark place.
   - Since n-heptane is used for both A and B, be careful of the use environment such as ventilation.

**Rubber-based primer**

**How to use PRIMER-NO.32-A/B**
1. Weigh A and B equally and mix thoroughly. Shake A well before mixing. As a guideline, use within 12 hours after mixing.
2. Apply to substrate by dipping, spraying, brushing, etc. For spraying, dilute with ethyl acetate, n-heptane.
3. It’s a baking type, so leave it at room temperature for about 30 minutes after applying, then bake it at 150°C for 20 minutes. Leaving at room temperature is a process of reacting with moisture in the air to form a film and volatilizing the solvent, and therefore, in a dry atmosphere (30%RH or less), the drying time should be extended as appropriate. The baking conditions may also vary depending on the type of silicone rubber, the molding method, and the curing conditions, so please check as necessary.
   - As a general rule, usage time after primer treatment should not exceed 12 hours. Performance may be degraded after 12 hours or more.
   - After use, seal the container and store in a cool, dark place.
   - Since ethyl acetate, n-heptane and toluene are used as solvents for both A and B, be careful of the use environment such as ventilation.
Handling precautions/packaging

**Handling precautions**
1. Allow to dry thoroughly after primer application. It may take some time in low humidity environments such as winter.
2. After use, seal the container and store it in a cool, dark place, avoiding exposure to humidity. Do not store the opened can for a long period, and use it up quickly.
3. Do not apply to the substrate in a high temperature condition. Be careful not to volatilize the active ingredient together with the solvent.
4. After drying the primer, do not leave it for a long time, and work within 24 hours should be used as a guideline.
5. Working in a flexible PVC like greenhouse may cause curing inhibition.
6. These products contain solvents, so be careful when handling it.

**Safety and hygiene**
1. These products cause serious eye irritation and may cause skin irritation. When handling the products, be sure to avoid contact with the skin and mucous membranes by wearing protective glasses and protective gloves. In case of skin contact, immediately wipe off with dry cloth and then flush thoroughly with running water. In case of accidental eye contact, flush immediately with plenty of clean water for at least 15 minutes and then seek medical attention. Contact lens wearers must take special care. If the products get into the eye, the contact lens may become stuck to the eye.
2. In a confined space with poor ventilation, please wear a protective mask. It is recommended to provide local ventilation. If vapors are inhaled and victims feel uncomfortable, move immediately to an area with fresh air.

4. Please read the Safety Data Sheet (SDS) before use. SDS can be obtained from our sales Department.

**Packaging**

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<thead>
<tr>
<th>Product name</th>
<th>Representative packaging</th>
</tr>
</thead>
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