Silicone elastomers inherently have a high degree of surface tack and a tendency for blocking (sticking to themselves by virtue of chemical affinity). These inherent features may be problematic for applications requiring a molded or extruded silicone part to move or slide with minimal friction. This can be especially problematic in cases where the silicone is likely to fold and unfold or spool together during storage.

To overcome this issue, NuSil has developed two coatings designed to reduce the coefficient of friction (CoF) on the surface of silicone parts. While both of these coatings reduce the CoF of silicone, they differ in how they are designed to cure. By offering a heat cure version, the R-2182, and a room temperature vulcanizing version, the R-1182, a multitude of applications can be accommodated. The R-2182 is a two-part, addition cure silicone coating dispersed in xylene and the R-1182 is a one part, condensation cure system dispersed in Tert Butyl Acetate.

Once cured, these coatings chemically bond to the silicone elastomer substrate and mimic the mechanical properties thereof, resisting abrasion and eliminating the concern of migration commonly associated with lubricants such as fluids and greases. The result is a durable yet flexible coating that resists abrasion from moving, sliding and rubbing parts. It achieves this with a smooth finish that also results in at least a 50% decrease in the coefficient of friction when coated silicone samples vs. non-coated silicone samples are compared side-by-side.

### R-2182
Substrate: 70 Durometer Liquid Silicone Rubber

- **74% Reduction**
- **54% Reduction**

### R-1182
Substrate: 70 Durometer Liquid Silicone Rubber

- **88% Reduction**
- **88% Reduction**

For more information please visit: [www.nusil.com](http://www.nusil.com)
Low Coefficient of Friction Silicone Coatings

Approximately the consistency of water, both coatings can be applied by dipping, but spraying is recommended. The substrate being coated should be free of contamination, not inhibit the cure, and be able to withstand the cure cycle. If utilizing a spraying technique, it is recommended to spray 2-4 inches from the target surface, with the coated substrate evenly wetted but not soaking. Ideal coating thickness for optimal reduction can be achieved with a single spray coat.

<table>
<thead>
<tr>
<th>Properties</th>
<th>R-2182</th>
<th>R-1182</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Uncured:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance, Part A*</td>
<td>Translucent</td>
<td>Translucent</td>
</tr>
<tr>
<td>Appearance, Part B*</td>
<td>Opaque</td>
<td>-</td>
</tr>
<tr>
<td>Zahn Cup Viscosity, Cup #2*</td>
<td>16 seconds</td>
<td>20 seconds</td>
</tr>
<tr>
<td>Percent Solids, Mixed*</td>
<td>24%</td>
<td>7%</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.96</td>
<td>.93</td>
</tr>
<tr>
<td>Work Time</td>
<td>&gt;24 hours</td>
<td>-</td>
</tr>
<tr>
<td>Refractive Index</td>
<td>1.41</td>
<td>1.41</td>
</tr>
<tr>
<td><strong>Cured:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Angle</td>
<td>123°</td>
<td>106°</td>
</tr>
<tr>
<td>Surface Energy</td>
<td>10.21 mJ/m²</td>
<td>20.35 mJ/m²</td>
</tr>
</tbody>
</table>

*Properties tested on a lot-to-lot basis. Do not use the properties shown in this technical profile as a basis for preparing specifications. Please contact NuSil Technology for assistance and recommendations in establishing particular specifications.

See Product Profiles for more detailed information regarding test methods

Potential uses for Low Coefficient of Friction Silicone Coatings:
- Tubing (ID/OD)
- Valves
- Stoppers
- Cables
- Control the flow of hydrophilic fluids
- O-Rings / gaskets
- Precision molded parts
- Anywhere that you have moving or sliding parts

Adheres to:
- Aluminum
- Titanium
- Stainless steel
- Graphite

For additional information on cure inhibition, please reference NuSil Technology’s Avoiding Inhibition When Working with Platinum Catalyzed Silicones.

It is the sole responsibility of each purchaser to ensure that any use of these materials is safe and complies with all applicable laws and regulations. It is the user’s responsibility to adequately test and determine the safety and suitability for their applications and NuSil Technology makes no warranty concerning fitness for any use or purpose.

For more information please visit: www.nusil.com