Silopren LSR 7180 is a two component liquid silicone rubber that can provide good flame resistance and optical clarity. Silopren LSR 7180 liquid silicone rubber enables luminaries to be equipped with high flame resistance above the UL 94 flame class rating of V-1, which is required for LED lighting applications.

By providing improved flame resistance while maintaining optical clarity and long-term color stability in harsh conditions, this grade is an excellent material to consider for flame-resistance applications in outdoor applications in addition to specialty lighting applications that require clarity and long-term color stability in regards to heat and UV radiation.

In addition, its excellent processability can enable the manufacturing of complex and micro-structure optical parts. Silopren LSR 7180 liquid silicone rubber is f1 rated for outdoor use in accordance with UL 746C. This additional feature can offer significant performance enhancement for SSL design in LED lighting and optical applications.

**Key Features and Typical Benefits**

**Optical Clarity**
- 94% transmission
- <1% haze
- Abbe number of approximately 50
- Strong color stability
- High temperature resistance even above 150 °C
- UV light resistance
- Micro-crack resistance
- Equivalent to UL 94 V-1 and 5VA at 6 mm (1)

**Design Freedom**
- High flowability helps to enable complex and micro-structure design
- Enhanced options for part integration
- Reduced weight in design
- Colorability due to optical clarity

**Productivity**
- Excellent processability for injection molding
- Reduced waste in the coldrunner-based LSR injection process

**Potential Applications**

Silopren LSR 7180 liquid silicone rubber is an excellent candidate to consider for the following articles, and particularly those in LED light and optic management:
- Primary and secondary lenses
- Light guides
- Sheets and films
- Other illumination optic

**Typical Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>A Component</th>
<th>B Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Optical Clarity</td>
<td>Optical Clarity</td>
</tr>
<tr>
<td>Viscosity in Pa·s, $\gamma = 10$ s$^{-1}$ at 23 °C</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>Mix Ratio by Weight</td>
<td>1:1</td>
<td></td>
</tr>
<tr>
<td>Mixed Viscosity in Pa·s, $\gamma = 10$ s$^{-1}$ at 23 °C</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>The pot-life of the mixture of the two components (closed vessel) at 20 °C is usually two days. Increased temperatures reduce the pot-life.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Typical properties are average data and are not to be used as or to develop specifications. (1) The results are based on UL Yellow Card, V-1 and SVA at 6.0 and 8.0 mm.

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**Test Performance Data**

**Flame Resistance Performance - UL**
Silopren LSR 7180 liquid silicone rubber carries a high UL 94 flame resistance rating of V-1 and 5VA. Silopren LSR 7180 also carries the f1 designation for outdoor use with respect to ultraviolet light, water exposure and immersion in accordance with UL 746C.

<table>
<thead>
<tr>
<th>Test Data</th>
<th>1mm</th>
<th>6mm</th>
<th>6mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability UL 94</td>
<td>Class, UL 94</td>
<td>HB</td>
<td></td>
</tr>
<tr>
<td>Flammability UL 94 V</td>
<td>Class, UL 94</td>
<td>V-1</td>
<td></td>
</tr>
<tr>
<td>Flammability UL 94 5V</td>
<td>Class, UL 94</td>
<td>5VA</td>
<td></td>
</tr>
</tbody>
</table>

(1) The results are based on the official UL Yellow Card E56745.

**Light Transmission**
Silopren LSR 7180 liquid silicone rubber features a consistent transmission level of approximately 94% at 2 mm over a wide range of wavelengths in both visible and non-visible light.

![Figure 1: Light Transmission at 2 mm thickness](image1.png)

**Durability**
Silopren LSR 7180 liquid silicone rubber typically demonstrates good heat stability, even at higher temperatures, showing long-term color stability with consistent transmission retention and a low yellowness index under thermal and thermal/humid aging test conditions both.

![Figure 2-1: Light Transmission: Thermal Aging over 3,000 h at 150 °C at 2 mm thickness](image2.png)

Note: Test data. Actual results may vary.
Ready-to-use mixtures (of the components A and B) are fed directly to the injection-molding machine from the original containers by means of a metering and mixing unit. The mixture, consisting of the two components in the ratio 1:1, is injected into the heated mold. Because of the low viscosity, the injection speed and injection pressure need to be carefully adjusted so that the injection time can be decreased. At mold temperatures of 110 - 200 °C, the addition-crosslinking silicone rubber generally cures free of dissociation products within a few seconds. Excellent flowability and easy de-molding can enable fully automated production of large numbers of articles in shorter total cycle times.

Packaging

Silopren LSR 7180 liquid silicone rubber is currently available in a pail kit (18 kg of A and B part - each) and drum kits (180 kg of A and B part - each).
Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Limitations

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative.

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