SMARTSIL 1000/5000
Purified Silicone Oil for Vitreoretinal Surgery

- Maximum interfacial tension and minimum interactions between tissues, cells, and endo-tamponades media
- Optimal combination of specific gravity, refractive index and surface tension
- The choice of viscosity for a balance between easy injection and a stable temporary tamponade

<table>
<thead>
<tr>
<th>Physico-chemical properties</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Interfacial tension</td>
<td>$\geq 40$ mN/m at 37°C</td>
</tr>
<tr>
<td>Density</td>
<td>0.97</td>
</tr>
<tr>
<td>Viscosity</td>
<td>1000/5000 cSt</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.40</td>
</tr>
<tr>
<td>Volatility</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Polymodispersity</td>
<td>&lt; 2.8</td>
</tr>
<tr>
<td>Volume of oil</td>
<td>10 ml</td>
</tr>
<tr>
<td>Syringe</td>
<td>20 ml</td>
</tr>
</tbody>
</table>

Formula: Polydimethylsiloxane

$$\begin{align*}
\text{H}_3\text{C} & \quad \text{Si} \quad \text{O} \\
\text{CH}_3 & \quad \text{Si} \quad \text{O} \\
\text{CH}_3 & \quad \text{Si} \quad \text{H}_3\text{C} \\
\end{align*}$$
**Purification**

- Vacuum molecular distillation solvent free purification
- Potentially toxic low molecular weight oligomers (D₄ to D₂₂) extraction
- Residual volatile components extraction (water, ethanol, etc.)

**Post-purification controls**

- Gel permeation chromatography (GPC)
- Gaseous chromatography (GC)

**Sterilization**

- Silicone oils are dry heat sterilized
- Syringes are steam sterilized

**Packaging**

Syringes are supplied sterile under double pouch

**Indication**

SmartSil 1000/5000 is used for prolonged tamponade after surgical treatment for severe retinal detachment (RD), especially:

- RD with proliferative vitreal retinopathy
- RD with diabetic retinopathy complications
- RD with giant tears
- Traumatic RD
- Secondary RD with viral retinitis