SILASTIC™ LTC 9400 Series Liquid Silicone Rubber (LSR)

Low-temperature-cure (LTC) LSRs enhance design freedom

Low-temperature curing allows overmolding the LSR elastomers onto low-melting-point plastics or other thermally sensitive components, increasing design freedom. In addition, with faster cure times at standard, elevated temperatures, cycle time savings can be realized for standard, molded components.

Key product characteristics of SILASTIC™ LTC 9400 Series LSRs deliver multiple user benefits, including:

• Fast cure rates at low temperatures across a broad process window
• Fast, deep-section curing at elevated temperatures
• Optimized process cycle times with cure-rate acceleration additive
• Overmolding of low-melting-point plastics and thermally sensitive components
• Self-lubricating, oil-bleeding option for easy component assembly and reliable sealing
• Improved rheology for higher injection speeds at lower pressures
• Pot life up to 72 hours
• Food contact use: Formulated to meet requirements of BfR XV recommendation and FDA 21 CFR 177.2600

SILASTIC™ LTC 9400 Series Liquid Silicone Rubbers (LSRs) are low-temperature-curing elastomers that enable increased design freedom and process efficiency for automotive components and consumer goods. This LSR series currently includes three product choices and a cure acceleration additive. Ongoing product development will provide additional options in hardness and other performance properties.

Especially suitable for high-volume injection molding applications, SILASTIC™ LTC 9400 LSRs provide fast temperature activation across a wide processing-temperature range. These two-part, easy-to-use LSR materials are supplied as Part A and Part B that are mixed in a 1:1 ratio before molding. These innovative products add to the broad portfolio of liquid silicone rubbers offered by Dow Performance Silicones.
Process and application advantages

Process cost savings as well as expanded component design freedom are potential benefits that can be gained with SILASTIC™ LTC 9400 Series LSRs. Important features and advantages include:

- **New product design:** Overmolding of low-melting-point plastics such as polyolefins
- **New applications:** Overmolding of thermally sensitive substrates and components
- **Efficiency:** Reduced heating time to lower temperatures; fast, deep-section cure at high temperatures
- **Robustness:** Reduced sensitivity to temperature gradients
- **Energy savings:** Enables molding at low temperatures
- **Processability:** Improved rheology enables higher injection speeds at lower pressures

Deep-section cure; mold-flow visualization

The technology for SILASTIC™ LTC 9400 Series LSRs ensures deep-section curing at elevated temperatures, enabling fast curing in critical, lower-temperature zones in the molded article. A virtual molding database, available for component design assistance, recognizes that the low thermal conductivity of silicones can lead to large temperature gradients, especially in thick-walled articles. SILASTIC™ LTC 9400 Series LSRs have been designed to offer less sensitivity to temperature variations, resulting in faster demolding and optimum dimensional stability.

Special additive for cure-rate acceleration

SILASTIC™ LTC 9400 Acceleration Additive can be used to increase the elastomer cure rate. Specifically developed for these LSRs, the acceleration additive can be used at loadings up to 3% by weight of the uncured elastomer mixture (Part A and Part B). The cure profile can be adapted to specific reactivity requirements, and process cycle times can be optimized across a broad cure-temperature range.
Self-lubricating (oil-bleeding) option

Formulated to ease component assembly, SILASTIC™ LTC 9402-50 Liquid Silicone Rubber is available as a self-lubricating elastomer for thick-section electrical connectors and seals and gaskets in automotive applications. The LSR contains a silicone oil that exudes slowly after the rubber has cured. Specific features or properties include:

- 2% oil by weight
- Fast deep-section curing
- 50 Shore A hardness
- Low compression set
- No post-cure required

Typical properties

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow representative or sales office before writing specifications on these products.

<table>
<thead>
<tr>
<th>Typical applications</th>
<th>Available products</th>
<th>Key features</th>
<th>Cure</th>
<th>Shore A hardness</th>
<th>Elongation, %</th>
<th>Tensile strength, MPa</th>
<th>Tear strength, kN/m</th>
<th>Specific gravity</th>
<th>Viscosity @ 10s⁻¹, Pa.s</th>
<th>Food contact</th>
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</thead>
<tbody>
<tr>
<td>Co-molding of low-melting-point plastics</td>
<td>SILASTIC™ LTC 9400-40 LSR</td>
<td>Low-temperature curing</td>
<td>(1)</td>
<td>40</td>
<td>510</td>
<td>9.7</td>
<td>30</td>
<td>1.11</td>
<td>180</td>
<td>170</td>
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<tr>
<td>Overmolding of thermally sensitive components</td>
<td>SILASTIC™ LTC 9400-50 LSR</td>
<td>Fast deep-section cure at standard elevated temperatures</td>
<td></td>
<td>50</td>
<td>460</td>
<td>8.9</td>
<td>40</td>
<td>1.11</td>
<td>160</td>
<td>160</td>
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<tr>
<td>Consumer goods</td>
<td>Grommets, gaskets and seals</td>
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<tr>
<td>Thick-walled connectors and seals</td>
<td>SILASTIC™ LTC 9402-50 LSR</td>
<td>Low-temperature curing</td>
<td>(1)</td>
<td>50</td>
<td>450</td>
<td>8.9</td>
<td>40</td>
<td>1.11</td>
<td>200</td>
<td>185</td>
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<tr>
<td>Electrical connector seals and gaskets</td>
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<td>Fast deep-section cure at standard elevated temperatures</td>
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<td>Oil-filled: 2 wt %</td>
<td>Low compression set</td>
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<tr>
<td>Additive to be used with SILASTIC™ LTC 9400 Series LSRs</td>
<td>SILASTIC™ LTC 9400 Acceleration Additive</td>
<td>Typical dosing: 1-3%</td>
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<td>Addition through third-stream color dosing</td>
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<td>Enhanced reactivity over a wide temperature range</td>
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<td>Curing profile can be adapted to specific reactivity requirements</td>
<td>Faster cure in thick-walled articles</td>
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ASTM: American Society for Testing and Materials. Materials were tested according to Dow Corporate Test Methods (CTMs), which in most cases are similar to the ASTM standard(s) listed. Copies of CTMs are available upon request.

Cure conditions denote parameters used to test rubber properties and do not reflect actual cure time in the injection-molding process.

NPC 10 min @ 120°C.

Formulated to meet BfR XV recommendation.

Formulated to meet FDA 21 CFR 177.2600 recommendation.
Learn more

Learn more about SILASTIC™ LTC 9400 Series Liquid Silicone Rubbers and how these LSRs deliver key application and processing benefits. With in-depth rubber-compounding experience and fabrication expertise, Dow can meet your needs for high-performance LSRs. For more information about our LSR materials and capabilities, visit consumer.dow.com/si-rubber.

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