Self-Bonding
Liquid Silicone Elastomers
Silicone elastomers and thermoplastics are widely used for soft-hard design via 2K molding or insert molding processes in applications ranging from consumer electronics and health care to packaging, automotive and industrial use. In these applications, unique performance characteristics such as waterproofing, durability and enhanced protection all require good adhesion performance.

Despite advances in adhesion technology, many available substrates still have adhesion challenges. A primer or pre-treatment on the surface of the substrate currently is required to achieve the desired adhesion performance between silicone elastomers and selective thermoplastics. With some plastics, such as polycarbonate (PC), the adhesion requirement is difficult to meet even when primer is applied.

Momentive offers a solution to this ongoing design challenge. Momentive’s Silopren® LSR 27x9 liquid silicone rubber series is a strong self-bonding product portfolio serving the market needs on a wide range of thermoplastics e.g. polycarbonate (PC), polybutyleneterephthalate (PBT) and copolyesters. The new Silopren LSR27x9 series for PC, PBT and copolyesters enlarges Momentive’s Self-Bonding LSR portfolio and enables soft-hard design freedom for its customers.

Key Features and Typical Benefits

- Primerless adhesion to various substrates
- Self-bonding properties to thermoplastics including PC, PBT and copolyesters
- Typically no primer needed
- Typically no special treatment on substrates’ surface needed
- Typically no adhesion to the mold
- Excellent aging stability and weathering resistance
- Good physical properties
- Low temperature cure possible
- Fast cure for high productivity processes
- Improved productivity in integrated multi-component molding process by eliminating the need for assembling
- In compliance with FDA

Potential Applications:

Silopren LSR 27x9 liquid silicone rubber can be considered for manufacturing articles where plastics and elastomers need to be combined in an overmolding or insert-molding process. Parts made by Silopren LSR 27x9 liquid silicone rubber are excellent candidates for use in various applications without post-curing. Examples include

- Sealing elements
- Gasket
- Membranes
- Vibration damper
- Spatula
- Handle
- Respiratory devices
- Other soft-hard combinations

*Silopren is a trademark of Momentive Performance Materials Inc.*
Test of Adhesion Strength

1. Test specimen by insert molding

Evaluation of Adhesion Strength

Peeling Force N/mm

Adhesion Performance:

Test of Silopren® LSR 27x9 Liquid Silicone Rubber and Selective Substrates

Peeling Force Avg. (N/mm)
24 h at RT (Room Temperature)

Ultradur® B4520 polybutylene terephthalate
Ecozen® T120 copolyester
Tritan® MX731 copolyester
Tritan® MX711 copolyester
Panlite® L-225Y polycarbonate
Makrolon® 2458 polycarbonate
Makrolon® 2858 polycarbonate
Makrolon® 2407 polycarbonate
Lexan® 121 polycarbonate
Lexan® HFD 1810 polycarbonate
Apec® 1745 polycarbonate
Lexan® HP4 polycarbonate

0 1 2 3 4 5 6 7 8 9

Note: Test data. Actual results may vary.
Test specimen molded with injection molding and subjected to an additional storage for 24 h at RT.
Molding conditions: 100 sec at 130 °C.
† In accordance to DIN 53268.

*Trademarks of their respective owners.
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Adhesion Performance:
Test of Silopren® LSR 27x9 Liquid Silicone Rubber and Selective Substrates

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<td>Lexan® HFD 1810 polycarbonate</td>
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