Liquid Silicone Rubber

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A Liquid Silicone Rubber material is a two-part platinum-cured elastomer that can be injected into a mold cavity to manufacture a part. LSR is very versatile in the elastomer industry and is seen across a whole spectrum of parts from consumer products to medical devices.
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What is liquid silicone rubber used for?

Liquid silicone rubber is a high purity platinum cured silicone with low compression set, great stability and ability to resist extreme temperatures of heat and cold ideally suitable for production of parts, where high quality is a must.
The variation of properties in silicone is less at high temperatures. Silicone is more durable than other elastomers. From all the rubbers, silicone is much better for thermal insulation due to its heat resistance. Silicone rubber offers special properties, which organic rubbers do not possess.
Silicon is the chemical element Si, while silicone is a synthetic polymer. Although it appears like the words are synonyms and can be used interchangeably, they're not and they designate completely different things.
Siloxanes (silicones) are well tolerated by the human organism, and therefore they are an integral part of innovative methods of treatment, health care and nursing. They are commonly regarded as non-toxic to humans and the environment, or toxic to a very small extend.
Silicone is durable, and more ocean-friendly than plastic. It lasts longer, and stands up better against heat and cold than plastics. It's safer for the family, too, with no estrogen-mimicking toxins like BPA to worry about.
Silicone vs Plastic

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Silicones, also known as polysiloxanes, are polymers that include any synthetic compound made up of repeating units of siloxane, which is a chain of alternating silicon atoms and oxygen atoms, combined with carbon, hydrogen, and sometimes other elements.
Siloxane vs Silicone

Properties of Siloxanes
- Despite the fact that Silicone and Carbon are both Group IV elements that chemically interact differentially,
- They provide superior properties in terms of heat and chemical resistance.

Silicones
- A functional group
- A polymer
- A covalent bond between silane and siloxane components
- Siloxane vs Silane

Polycondensation scheme
- Addition Silicone: Frequently called polyvinyl siloxane or vinyl polysiloxane impression material
- The reaction product is terminated with vinyl groups. It is cross-linked with hybrid groups activated by a platinum catalyst.
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Silicone Liquid

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The preparation of silicones is generally carried out by the hydrolysis of dialkyldichlorosilanes (R2SiCl2) or diaryldichlorosilanes Ar2SiCl2, which are prepared by passing vapors of RCl or ArCl over silicon at 570 K with copper as a catalyst.
Silicone is a synthetic polymer made up of silicon, oxygen and other elements, most typically carbon and hydrogen. Silicone is generally a liquid or a flexible, rubberlike plastic, and has a number of useful properties, such as low toxicity and high heat resistance.
Self-Lubricating, Non-Post-Cure Self-Adhesive, High-Transparency LSR Coatings
Automotive, Medical, Consumer & Baby Care
Electrical & Electronic
Industrial & Other

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Press release from: Market Research Future (MRFR)
US demand for liquid silicone rubber (LSR) is projected to rise 8.3% per year to $685 million in 2023. Growth will be supported by an expanding number of applications for LSR, as well as by an increasing number of processors adopting LSR production capabilities.
Questions?

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