

The Invisible Team Player

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During the processing of LSR, AEROSIL® is a key player. A new Technical Information brochure is now available.

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LSR (liquid silicone rubber) products are used in many industries such as automotive, construction, electrical engineering, and, thanks to their easy sterilizability, also in medical technology and the food industry. The products could be tiny, light as a feather at 0.05g or they could weigh up to 80 kilos. Gigantic or minute, they have one thing in common: silica. Synthetic silicas have been known in the silicone industry for many years. Evonik has now produced a twenty page Technical Information brochure for these products describing the specialized role of silicas during production, processing, and application of LSRs.

Which product should be used?

In principle, both fumed and precipitated silicas from the Evonik product range are suitable for the production of LSR products. But the compounds must be carefully chosen according to the properties important for processing in the particular application concerned, for example low rheology, rapid vulcanization, or good storage stability. If high-grade mechanical and optical properties are desired, only fumed silicas, which allow attainment of extraordinarily high transparencies, are used. The fumed silicas' pronounced hydrophobic (water-repellent) properties allow rapid processing and very good dispersibility, so that processing aids are unnecessary. Special hydrophobic silicas developed specifically for liquid silicone rubber applications are distinguished particularly by a very low thickening effect. These products, whose structure has been further modified by an additional processing step, are therefore used mainly in the production of highly free flowing formulations. Other fumed silicas that are used in LSR applications are AEROSIL® 200, AEROSIL® 300, and AEROSIL® 380. These are water wettable or hydrophilic, and are typically used with processing aids such as Evonik silanes marketed under the Dynasytan® brand name. Precipitated silicas like SIPERNAT® 160 are used, for example, in the production of silicone rubber keyboard mats because they have good dynamic properties, notably a low compression set.

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The new Evonik Technical Information describes in detail not only the properties of fumed AEROSIL[®], but also the production of LSR systems and the requirements placed on the silica. A section on experimentation and product recommendations rounds off the brochure.

Source: www.aerosil.com/ServiceCenter/

AEROSIL[®] Literature: Aerosil and Aeroxide for Liquid Silicone Rubber (LSR/LIMS), T11253.

Company information

Evonik Industries is the creative industrial group from Germany which operates in three business areas: Chemicals, Energy and Real Estate. Evonik is a global leader in specialty chemicals, an expert in power generation from hard coal and renewable energies, and one of the largest private residential real estate companies in Germany. Our strengths are creativity, specialization, continuous self-renewal, and reliability. Evonik is active in over 100 countries around the world. In its fiscal year 2007 about 43,000 employees generated sales of about €14.4 billion and an operating profit (EBIT) of more than €1.3 billion (preliminary figures).

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