

**INDUSTRY
SOLUTIONS.**

**Material
Solutions.**

CHT

**SMART CHEMISTRY
WITH CHARACTER.**

LIQUID SILICONE RUBBER (LSR) FOR INJECTION MOULDING PROCESSES

**ALPHA-LSR STANDARD SERIES 30 – 70
SHORE A & SPECIAL DEVELOPMENTS**



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OUR SILICONE EXPERTISE

ALPA-LSR PORTFOLIO

ALPA-LSR for LIM processes (Liquid Injection Moulding) is a standard two component liquid silicone which crosslinks under heat impact at a mixing ratio of 1:1 through polyaddition with a platinum catalyst. Due to its unique processing properties it is suited for a broad application range and various industrial fields. The advantages of ALPA-LSR are the crosslinking without decomposition products, excellent mechanical properties, a low compression set and the possibility to create complex shapes.

LSR DEVELOPMENT & PRODUCTION

The CHT Group owns one of the top modern plants for producing silicone elastomers in all of Europe. All processes such as hydrosilylation, equilibration, production of siloxanes and organomodified siloxanes, compounding, mixing of masterbatches, emulsification/diluting as well as production of solutions are carried out by CHT itself. The centre of competence where innovative ideas are developed and implemented into chemical products, applications and processes is situated at the headquarters in Tübingen. A highly qualified staff and laboratories with top modern technical equipment for development, analytics and application technology form the base for quality and service.

CHEMICAL ANALYTICS

The analysis of raw materials, products, functionalised materials as well as plant water and wastewater is an important part of our daily work. Our efficient analytical laboratories are equipped with top modern analysis methods, among others from the fields of spectroscopy, chromatography, thermal analysis, wet chemistry and biodegradability making thus an important contribution to the product development and support of issues concerning the application technology and damage case analysis. The accreditation according to DIN EN ISO/IEC 17025 confirms the high competence and quality of our analytical laboratories.



WHAT ARE WE DEVELOPING?

In the field of new LSR developments we are currently working on several projects together with customers, research institutes and other partners. We focus on optimising adhesion properties on various substrates, guaranteeing chemical resistances, in particular for the automotive sector, and improving the mechanical properties of the end product. We additionally commit ourselves to tailor-made solutions for our customers in the different application fields.

TEST AND MEASURING VALUES

ALPA-LSR standard	σ-viscosity mPas (10/s) [ISO 53 018]	Density (g/cm³) [ISO 53 479 A]	Hardness (Shore A) [DIN 53 505]	Tensile strength (N/mm²) [DIN 53 504 S 2]	Elongation at break (%) [DIN 53 504 S 2]	Tear propagation resistance (N/mm) [ASTM D 624 Typ B]	Compression set [DIN 53 517]	FDA & BfR certification
130201	400,000	1.1	30	8	800	26	15	x
140201	200,000	1.12	40	9.4	600	27	10	x
150201	300,000	1.12	50	10	500	29	10	x
160201	600,000	1.13	60	10	400	31	25	x
170201	300,000	1.14	70	8.8	300	21	22	x

OUR SERVICE/PRODUCT PROPERTIES

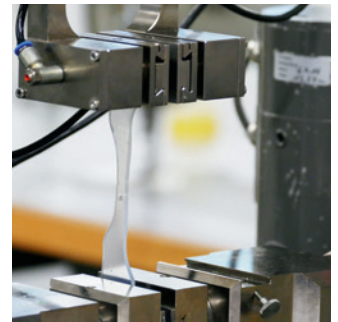
- ▶ We supply you with innovative, customer-oriented product developments
- ▶ We also face complex enquiries for solutions
- ▶ We dedicate time to find a solution together with you
- ▶ Our Technical Service quickly and reliably supports you
- ▶ We offer you laboratory reports in an external technical laboratory
- ▶ Even for smaller sales quantities we work out solutions together with you
- ▶ We sell products of high and persistent quality
- ▶ We offer you to carry out a filling simulation with SIGMASOFT for the first injection moulding trial

Advantages of LSR

- ▶ High dimensional stability
- ▶ High temperature resistance (-50 to +200 °C)
- ▶ High elongation and flexibility even at temperatures far below 0 °C
- ▶ Hydrophobic behaviour
- ▶ High resistance to UV radiation and weathering
- ▶ High ozone resistance
- ▶ Good mechanical and damping properties
- ▶ No outgassing reaction products
- ▶ Mouldings with complex shapes are possible
- ▶ Effective production of high quantities by means of short cycles
- ▶ High transparency
- ▶ Suited for food contact (complies with FDA and BfR)
- ▶ Project-related KTW tests upon demand

Properties of LSR injection moulding compared with thermoplastic injection moulding

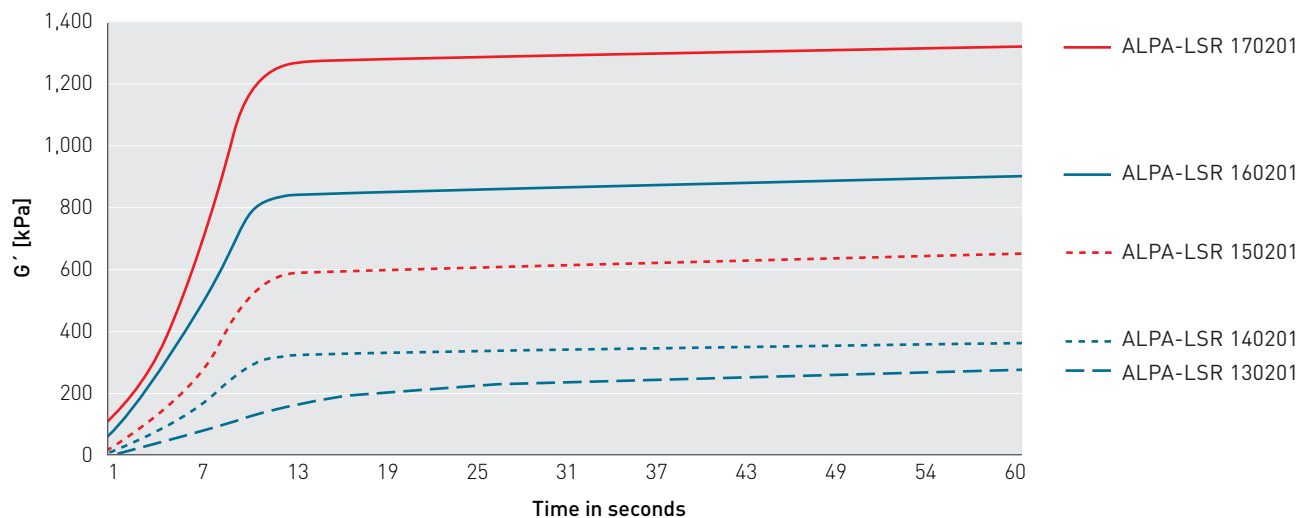
- ▶ Higher heat stability up to 230 °C
- ▶ Low viscosity which facilitates a simple and quicker processing
- ▶ Higher elongation and tensile strength
- ▶ Suited for medical applications and for contact with human tissues
- ▶ More detailed mouldings are possible
- ▶ Production of smallest pieces is possible
- ▶ Quick crosslinking as soon as components A & B have been blended
- ▶ Crosslinked mouldings can only be recycled through chemical processes
- ▶ LSR injection mouldings are more complex and more expensive than thermoplastic injection mouldings



DO YOU HAVE ANY FURTHER QUESTIONS?

Just contact us under material@cht.com

CROSSLINKING BEHAVIOUR



The graph shows the crosslinking behaviour of various Shore A hardnesses at a constant temperature of 170 °C.



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