

Silopren™ LSR 7005

Description

Silopren LSR 7005 liquid silicone rubber is a two-component, high-transparency, low-hardness, low-viscosity, fast-cure speed and ultra clear liquid silicone rubber (LSR). Providing good optical clarity, Silopren LSR 7005 liquid silicone rubber combines typical LSR properties, such as high temperature stability and flowability, with excellent UV and blue light stability. As a result, optical parts produced using this material can exhibit excellent durability and maintain optical clarity, even if exposed to high temperatures or UV light. The very low hardness and low modulus help enable easy assembling and coupling of molded optical elements. Silopren LSR 7005 liquid silicone rubber is designed to be processed through LSR injection molding technology, which can help to produce high precision optical parts even in large quantities at a high efficiency.

Key Features and Typical Benefits

Optical Clarity

- 94% transmission
- <1% haze
- Abbe number of approximately 50
- Strong color stability

Durability

- High temperature resistance even above 150 °C
- UV light resistance
- Micro-crack resistance

- Equivalent to UL 94 HB

Design Freedom

- High flowability helps enable complex and micro-structure design
- Enhanced options for part integration
- Reduced weight in design
- Colorability due to optical clarity

Typical Physical Properties

		A Component	B Component
Appearance		Optical Clarity	Optical Clarity
Viscosity in Pa·s at 23 °C (D=10/s)		55	50
Mix ratio by weight		1:1	
Viscosity (mixed) at 23 °C Pa·s		53	
Pot Life (23 °C), hr		48	
Tokimeck Type B8U No.7*10rpm*5min.The typical pot-life of the mixture of the two components (closed vessel) at 20 °C is two days. Increased temperatures reduce the pot-life.			
Typical Cured Properties (Press cure 15 min at 130 °C)			
Basic			
Density	JIS K 6249	g/cm ³	0.98
Shore A hardness	JIS K 6249		5
Tensile strength	JIS K 6249	N/mm ²	0.3
Elongation at break	JIS K 6249	%	210
Optical			
Transmittance (2mm)	400nm	%	93
	700nm		94
Refractive Index	(n _D ²⁵)		1.41
Haze	D 1003	%	< 1
Dispersion	Abbe number		50

Thermal			
CTE linear (40-90 °C)	-	ppm/°C	330
Linear Shrinkage	JIS K 6249	%	2.2
Others			
Water Absorption	D 570	%	<0.1
Curing Data	10' at 110 °C	T60 [min]	0.5

Typical properties are average data and are not to be used as or to develop specifications.

Potential Applications

- Optical interfaces
- Rain light sensors
- Camera systems
- Optical sensors
- Other transparent applications

Processing Considerations

Ready-to-use mixtures (of the components A and B) are fed directly to the injection-molding machine from the original containers by means of a metering and mixing unit. The mixture, consisting of the two components in the ratio 1:1, is injected into the heated mold. Because of the low viscosity, the injection speed and injection pressure need to be carefully adjusted so that the injection time can be decreased. At mold temperatures of 110 - 150 °C, the addition-crosslinking silicone rubber cures free of dissociation products within a few seconds. Excellent flowability and easy de-molding can help enable fully automated production of large numbers of articles in shorter total cycle times.

Packaging

Silopren LSR 7005 liquid silicone rubber is available in a pail kit (18kg of A and B part - each).

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant

patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

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