

## 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 <sup>3</sup>	0.98
Shore A hardness	JIS K 6249		5
Tensile strength	JIS K 6249	N/mm <sup>2</sup>	0.3
Elongation at break	JIS K 6249	%	210
Optical			
Transmittance (2mm)	400nm	%	93
	700nm		94
Refractive Index	(n <sub>D</sub> <sup>25</sup> )		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

本書のいかなる内容も、関連特許が存在しないことを暗示したものではありません。またいか

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### Contact Information

Email

[commercial.services@momentive.com](mailto:commercial.services@momentive.com)

### Telephone

<b>Americas</b>	<b>Latin America</b>	<b>EMEAI- Europe, Middle East, Africa &amp; India</b>	<b>ASIA PACIFIC</b>
+1 800 295 2392	<b>Brazil</b>	<b>Europe</b>	<b>China</b>
Toll free*	+55 11 4534 9650	+390510924300	800 820 0202
+704 805 6946	Direct Number	Direct number	Toll free
Direct Number			+86 21 3860 4892
			Direct number
*All American	<b>Mexico</b>	<b>India, Middle East &amp; Africa</b>	<b>Japan</b>

countries	+52 55 2169 7670	+ 91 44 71212207	+81 3 5544 3111
	Direct Number	Direct number*	Direct number
		<b>*All Middle Eastern countries, Africa, India,</b>	<b>Korea</b>
			+82 2 6201 4600

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