

Silopren* LSR 7180

Liquid Silicone Rubber

Description

Silopren LSR 7180 is a two component liquid silicone rubber that can provide good flame resistance and optical clarity. The Silopren LSR 7180 liquid silicone rubber enables luminaries to be equipped with high flame resistance above UL 94 flame class rating of V-1(1) required for LED lighting applications. By providing improved flame resistance while maintaining good optical clarity and long-term color stability in harsh conditions, this grade is an excellent material to consider for flame-resistance applications in outdoor and specialty lightings that require clarity and long-term color stability to heat and UV radiation. In addition, its excellent processability can help to enable the manufacturing of complex and micro-structure optical parts.

Silopren LSR 7180 liquid silicone rubber is f1 rated for outdoor use in accordance with UL 746C. This additional feature can offer significant performance enhancement for SSL design in LED lighting and optical applications.

Key Features and Typical Benefits

- High clarity 94% transmission
- <1% haze
- Abbe number of approximately 50
- Strong color stability
- High durability high temperature resistance even above 150°C
- UV light resistance
- Micro-crack resistance
- Certified as UL 94 V-1 and 5VA at 6 mm (1)
- High flowability enable complex and micro-structure design
- Colorable
- Good processability for injection molding

Potential Applications

Because of its outstanding properties, Silopren LSR 7180 liquid silicone rubber is an excellent candidate to consider for following articles especially in LED lighting and Optical management:

- Primary and secondary lenses
- Light guides
- Optical sheets and films
- Other illumination optics

Typical Physical Properties

Typical properties of the uncured rubber: The pot-life of the mixture of the two components (closed vessel) at 20°C is usually two days. Increased temperatures reduce the pot-life.			A-part	B-part
Appearance			Optical Clarity	Optical Clarity
Viscosity in Pa·s, $\dot{\gamma}$ = 10 s ⁻¹ at 23°C			60	30
Mix Ratio by Weight			1:1	
Mixed Viscosity in Pa·s, $\dot{\gamma}$ = 10 s ⁻¹ at 23°C			43	

Silopren* LSR 7180

<u>Typical properties of the vulcanized rubber:</u>			
Test results on moulded slabs, (mix ratio A:B = 1:1)			
Vulcanization conditions: 10 min. 130 °C			
Density	JIS K 6249	g/cm ³	1.06
Shore A hardness	JIS K 6249		76
Tensile strength	JIS K 6249	MPa	10.5
Elongation at break	JIS K 6249	%	80
Tear strength	JIS K 6249	N/mm	8
Transmittance (2 mm)	400nm	%	93
Transmittance (2 mm)	700nm	%	94
Refractive Index	n _D ²⁵		1.41
Haze	D 1003		< 1
CTE linear (40-90 °C)		ppm/°C	270
Linear Shrinkage		%	2.5
Water Absorption	D 570	%	< 0.1
Curing Data	10min at 110 °C	T60 [min]	1.8

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

(1) The result is based on UL Yellow Card

Test Performance Data

Flame Resistance Performance – UL

A specialty polymer technology enables Silopren LSR 7180 liquid silicone rubber to be equipped with high flame resistance above UL 94 flame class rating of V-1 and 5VA (1). Silopren LSR 7180 also carries the f1 designation for outdoor use with respect to ultraviolet light, water exposure and immersion in accordance with UL 746C.

Flammability UL 94	1mm	Class, UL 94	HB
Flammability UL 94 V	6mm, 8mm	Class, UL 94	V-1
Flammability UL 94 5V	6mm, 8mm	Class, UL 94	5VA

(1) The result is based on UL Yellow Card

General Considerations for Use

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. At mold temperatures of 110 - 200°C, the addition-crosslinking silicone rubber typically vulcanizes without any dissociation products within a few seconds. High curing speed and easy demolding can help enable the fully automated production of a large number of articles in short cycle times.

Packaging

Silopren LSR 7180 liquid silicone rubber is currently available in 2 x 18 kg pail-kits and 2 x 180 kg drum-kits.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

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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

Silopren* LSR 7180

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