

**Gelest® ExSil® 100** is a two-component ultra high elongation silicone elastomer with tear resistant properties.

### Typical Properties

Note: The values below are typical and are not intended for use in preparing specifications. Please contact a Gelest representative when writing specifications.

Cured Properties	Units	Value
Elongation	%	5000
<b>Tensile Strength</b>	<b>MPa</b>	<b>6-7</b>
<b>Tear Strength</b>	<b>kN/m</b>	<b>42</b>
Elongation @ Tear Failure	%	2000
Durometer	Shore A	15
Specific Gravity (Part A)	g/mL	1.12
Refractive Index ( $n_D^{25}$ )		1.41
Volatiles (4 hours/150°C)	wt%	≤ 0.1
Critical Surface Tension	mN/m	23 - 24
Contact Angle, Water	°	105 - 100
Volume Resistivity	ohm*cm	2.90E+14

### Features & Benefits

- Self-sealing
- High elongation
- High recovery
- Low extractables
- High tear strength
- Flowable and moldable
- High oxygen permeability
- Long-term thermal stability

### Applications

- Diaphragms
- Microfluidics
- Vibration damping
- High performance seals
- Septa with easy penetration and good resealability
- Optical and electrical interconnects

ExSil® 100 Part	Viscosity (cSt)	Silicone Elastomer	Extractables (wt%)
Base (Part A)	12,000 - 14,000	Resin Reinforced Silicone	4.2
Activator (Part B)	800 - 1,000	Silicone - 100°C Strip	3.1
Activated Mix	12,000 - 14,000	Gelest® ExSil® 100	0.2

Figure 1. Stress Strain Curves of ExSil® 100 (blue) compared to resin reinforced silicone (black)

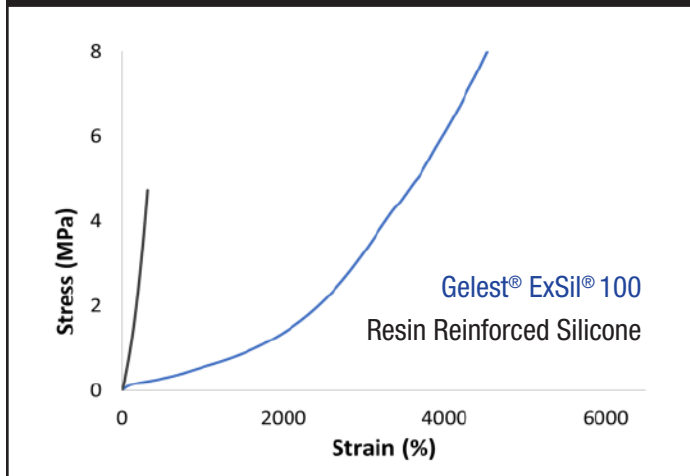


Figure 2. TGA thermograms of ExSil® 100 (blue) compared to resin reinforced silicone (black)

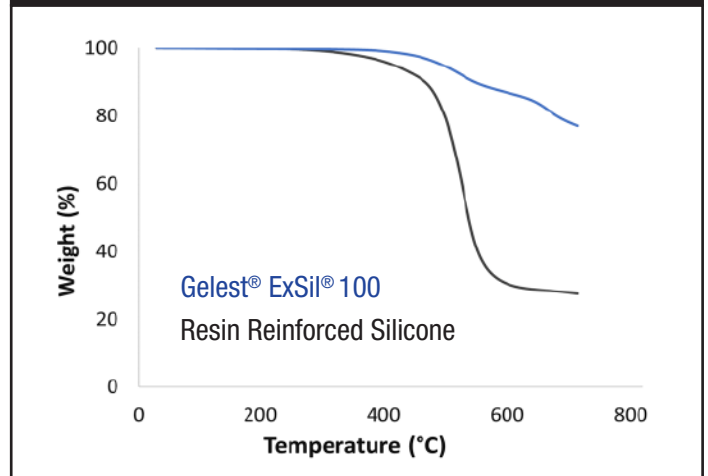
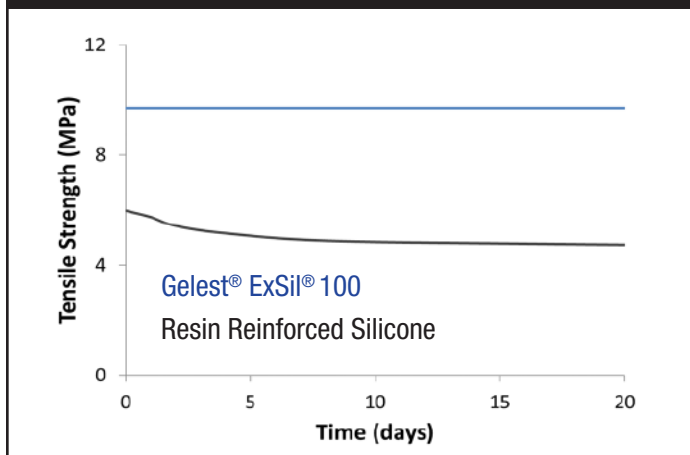
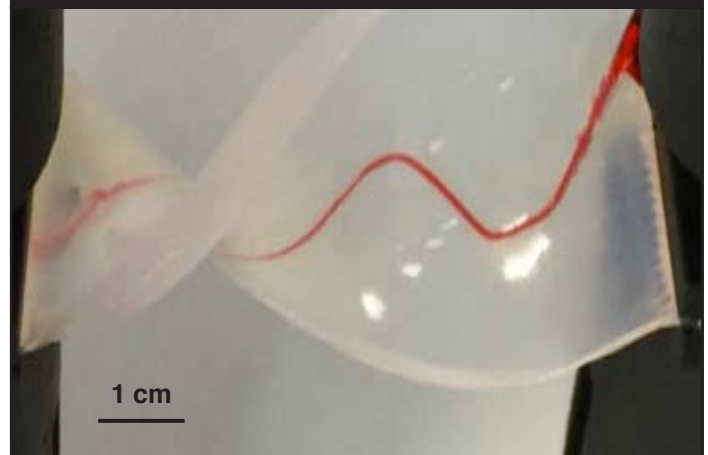


Figure 3. Heat Aging ExSil® 100 (blue) vs. conventional resin reinforced silicone (black)

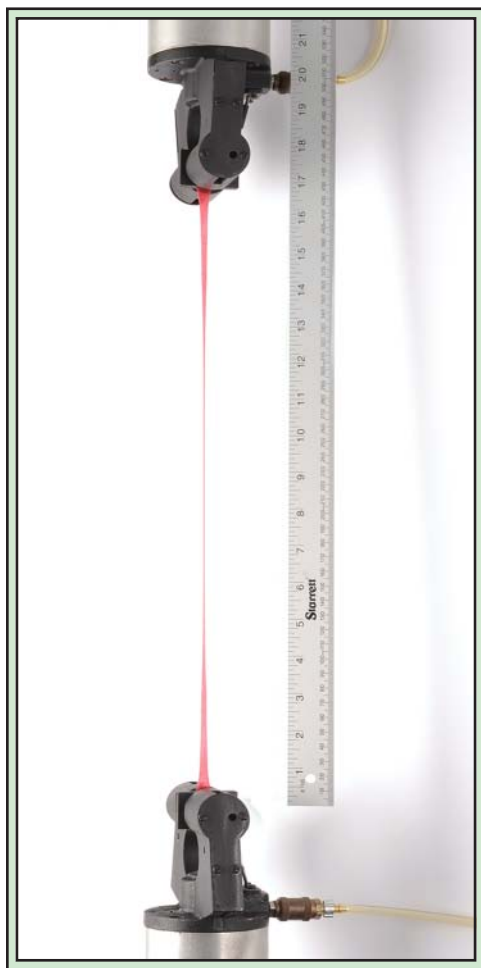


ExSil® 100 microfluidic device with filled channels showed no device failure during tortuous extension



## Processing & Fabrication:

Thoroughly mix Part A and Part B in a 100:1 ratio. Avoid introducing bubbles. For critical applications, de-air mix under vacuum. The pot-life is **24 hours at 25°C**. Avoid entrapping air during transfer and casting. Cure at **100°C for 8 hours** or **at room temperature for 72 hours**. ExSil® 100 can be self-bonded by exposure to oxygen plasma and pressing surfaces together in a dry atmosphere.



**Gelest® ExSil® 50** is a two-component high elongation silicone elastomer developed for medical applications.

### Typical Properties

Note: The values below are typical and are not intended for use in preparing specifications. Please contact a Gelest representative when writing specifications.

Cured Properties	Units	Value
Elongation	%	6000
<b>Tensile Strength</b>	<b>MPa</b>	<b>3</b>
<b>Tear Strength</b>	<b>kN/m</b>	<b>5-7</b>
Elongation @ Tear Failure	%	1000 - 1500
Durometer	Shore A	5
Specific Gravity (Part A)	g/mL	1.06
Refractive Index ( $n_D^{25}$ )		1.41
Volatiles (4 hours/150°C)	wt%	≤ 0.1
Critical Surface Tension	mN/m	23 - 24
Contact Angle, Water	°	105 - 100
Volume Resistivity	ohm*cm	2.90E+14

### Features & Benefits

- Self-sealing
- High elongation
- High recovery
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- Long-term thermal stability

### Applications

- Diaphragms
- Microfluidics
- Vibration damping
- High performance seals
- Septa with easy penetration and good resealability
- Optical and electrical interconnects

ExSil® 50 Part	Viscosity (cSt)	Silicone Elastomer	Extractables (wt%)
Base (Part A)	500 - 700	Resin Reinforced Silicone	4.2
Activator (Part B)	800 - 1,000	Silicone - 100°C Strip	3.1
Activated Mix	500 - 700	Gelest® ExSil® 50	0.5

Figure 1. Stress Strain Curves of ExSil® 50 (green) compared to resin reinforced silicone (black)

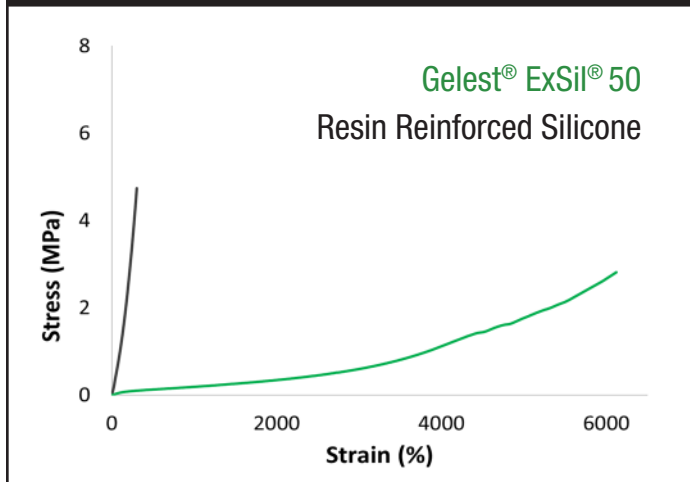
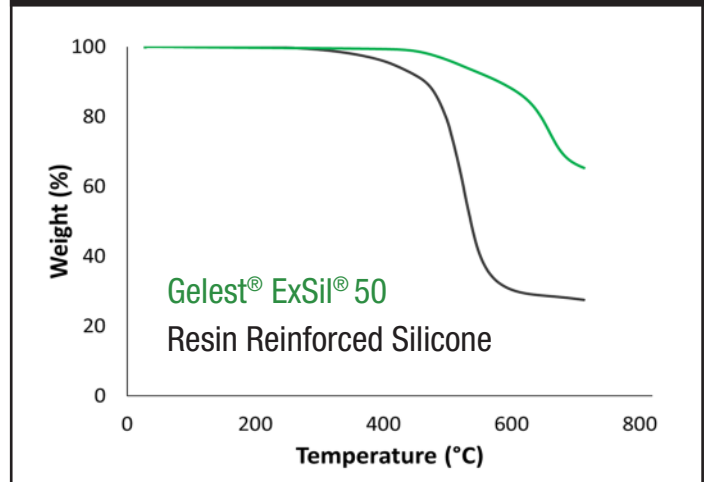
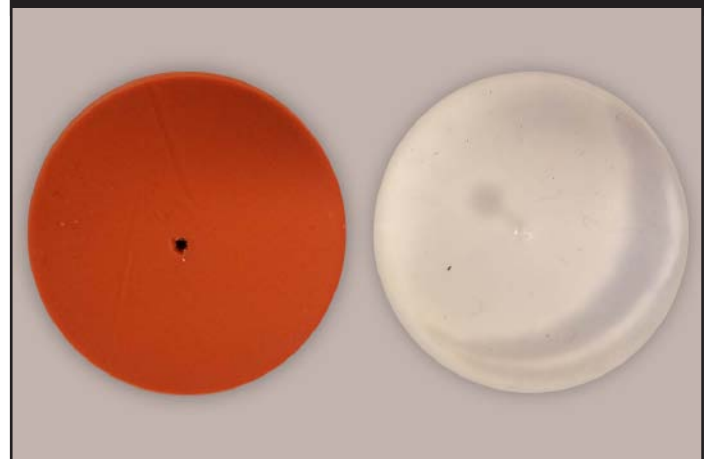


Figure 2. TGA thermograms of ExSil® 50 (green) compared to resin reinforced silicone (black)



Silicone rubber septum w/ 1mm core (left)  
ExSil® 50 septum w/ self-healing 1mm core (right)



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