

# Silicone Rubber Injection Molding

Silicone Rubber

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## Technical Data: Silicone Rubber

### Product Description

#### Define and Grades

Injection-molded silicone rubber is a flexible, heat-resistant elastomer material created through a molding process. It offers excellent temperature resistance, durability, and biocompatibility, making it ideal for a wide range of applications, including automotive, medical, and consumer products.

Common grades of injection-molded silicone rubber used for injection molding parts include:

- High-Temperature Silicone Rubber
- Medical-Grade Silicone Rubber
- Food-Grade Silicone Rubber
- Conductive Silicone Rubber
- Flame-Retardant Silicone Rubber



### Features and Applications

Grade	Features	Applications
High-Temperature Silicone	Excellent heat resistance (up to 300°C)	Automotive gaskets, oven seals, aerospace
Medical-Grade Silicone	- Biocompatibility	Medical devices, implants, healthcare
Food-Grade Silicone	- Food-safe certification (FDA, LFGB)	Baking molds, kitchen utensils, food seals
Conductive Silicone	- Electrical conductivity	Electronics, EMI shielding, connectors
Flame-Retardant Silicone	- Flame resistance	Fire safety equipment, electrical enclosures

### Physical and Mechanical

Property	Density	Tensile Strength	Tensile Elongation	Flexural Modulus	Flexural Strength	Izod Impact Strength	Heat Deflection Temp.	Shrinkage	Hardness
Units	(g/cm <sup>3</sup> )	(Mpa)	(%)	(MPa)	(MPa)	(J/m)	(°C)	(%)	(HRB)
High-Temperature	1.2	8	300	500	9	30	250	2.5	50
Medical-Grade	1.1	7	400	300	8	40	200	2	45
Food-Grade Silicone	1.1	6	350	250	7	35	180	1.8	40
Conductive Silicone	1.3	9	320	600	10	50	280	2.8	55
Flame-Retardant	1.2	8	280	450	9	25	240	2.3	48

### Note

The above data are reference material science data. This data reference is not binding and is not considered as authoritative test data. If your material requirements are extremely precise, please contact our material engineers. Tel | +86 18926788217 | Web | [www.newayprecision.com](http://www.newayprecision.com) | Contact Neway



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### Benefits of Material Grades

#### High-Temperature Silicone Rubber

Applications: High-temperature silicone Rubber is chosen for applications requiring exceptional heat resistance, such as automotive gaskets, oven seals, and aerospace components. It thrives in environments with temperatures up to 300°C.

Reasons for Popularity: Its popularity arises from its ability to maintain its properties at high temperatures, making it a reliable choice for applications subjected to extreme heat, where other materials might degrade.



#### Medical-Grade Silicone Rubber



Applications: Medical-grade silicone Rubber is crucial in the healthcare industry due to its biocompatibility. It is used in medical devices, implants, and various healthcare applications.

Reasons for Popularity: Its popularity is attributed to its biocompatibility, ensuring it meets stringent medical standards. It's safe for use in contact with the human body, making it ideal for medical and healthcare applications.

#### Food-Grade Silicone Rubber

Applications: Food-Grade Silicone Rubber is essential for culinary applications where safety and non-toxicity are paramount. It is used in baking molds, kitchen utensils, and food seals.

Reasons for Popularity: Its popularity is rooted in its food-safe certifications, such as FDA and LFGB, ensuring it won't contaminate food. It offers a reliable and safe choice for kitchen and food-related products.



#### Conductive Silicone Rubber



Applications: Conductive Silicone Rubber is chosen for applications demanding electrical conductivity, such as in electronics and EMI shielding. It's used in connectors, electrical components, and as an EMI gasket.

Reasons for Popularity: Its popularity arises from its ability to conduct electricity while maintaining silicone's other beneficial properties. It's crucial for ensuring electrical connectivity and electromagnetic interference protection.

#### Flame-Retardant Silicone Rubber

Applications: Flame-retardant silicone Rubber is vital for applications where fire safety is a concern, such as fire safety equipment and electrical enclosures.

Reasons for Popularity: Its popularity is driven by its flame resistance, low smoke emissions, and electrical insulating properties. Flame-retardant silicone Rubber ensures safety in environments where fire risks exist.



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