



# Uma Rubber and Plastic Product

“Silicone Stellar”



## ABOUT US

- **UMA RUBBER AND PLASTIC PRODUCT** came in operation in year 1991 with the aim of manufacturing superior quality of industrial rubber products.
- Today, with the decades of experience **UMA RUBBER AND PLASTIC PRODUCT** is one of the leading supplier manufacturer and exporter of rubber products.
- Having full facilitate in house plant to manufacture adequate rubber products, **UMA RUBBER AND PLASTIC PRODUCT** have 20+ employees which includes rubber technician to skilled operators.
- **UMA RUBBER AND PLASTIC PRODUCT** have developed over 5000+ customized products and have 500+ satisfied customer globally.

## POLYMER RANGE

### GENERAL PURPOSE SILICONE RUBBER

Temperature Range (°C )	-50 to 180
Tensile Strength Range (MPa)	3.5 to 7.5
Elongation ( Max %)	700 to 80
Hardness Range ( Shore A )	25 to 85
Appearance	Milk-white, subtranslucent or As Required
Tear Strength ( Kn/m)	10 to 18
Compression Set (180 °C * 22h)	30 to 50
Solvent Resistance	Fair
Oil Resistance	Fair
Resilience ( % )	40- 60

### MEDICAL GRADE SILICONE RUBBER

Temperature Range (°C )	-50 to 180
Tensile Strength Range (MPa)	8.5 to 10
Elongation ( Max %)	300 to 700
Hardness Range ( Shore A )	30 to 80
Appearance	Transparent, no extraneous matter
Tear Strength ( Kn/m)	13 to 20
Compression Set (180 °C * 22h)	35 to 40
Solvent Resistance	Fair
Oil Resistance	Fair
Resilience ( % )	46 to 50

## HIGH TEAR GRADE SILICONE RUBBER

Temperature Range (°C)	-50 to 180
Tensile Strength Range (MPa)	8 to 8.5
Elongation (Max %)	300 to 600
Hardness Range (Shore A)	30 to 70
Appearance	Transparent, no extraneous matter
Tear Strength (Kn/m)	18 to 35
Compression Set (180 °C * 22h)	45 to 55
Solvent Resistance	Fair
Oil Resistance	Fair
Resilience (%)	40 to 50

## HIGH TEMPERATURE RESISTANT SILICONE RUBBER

Temperature Range (°C)	-50 to 260
Tensile Strength Range (MPa)	5 to 8
Elongation (Max %)	180 to 650
Hardness Range (Shore A)	20 to 80
Appearance	As Required
Tear Strength (Kn/m)	10 to 20
Compression Set (180 °C * 22h)	25 to 45
Solvent Resistance	Fair
Oil Resistance	Fair
Resilience (%)	30 - 50

## OIL AND SOLVENT RESISTANT SILICONE RUBBER

Temperature Range (°C)	-50 to 180
Tensile Strength Range (MPa)	8.5 to 10
Elongation (Max %)	300 to 700
Hardness Range (Shore A)	30 to 80
Appearance	As Required
Tear Strength (Kn/m)	13 to 20
Compression Set (180 °C * 22h)	35 to 40
Solvent Resistance	Good
Oil Resistance	Good
Resilience (%)	46 to 50

## FLAME RETARDANT SILICONE RUBBER

Temperature Range (°C)	-50 to 225
Tensile Strength Range (MPa)	3.5 to 6
Elongation (Max %)	170 to 400
Hardness Range (Shore A)	30 to 80
Appearance	White
Tear Strength (Kn/m)	12 to 15
Solvent Resistance	Fair
Oil Resistance	Fair
Resilience (%)	46 to 50
Flame Retardancy, 3mm	FV-0

## ELECTRIC INSULATOR GRADE SILICONE RUBBER

Temperature Range (°C)	-50 to 180
Tensile Strength Range (MPa)	3 to 5.6
Elongation (Max %)	150 % to 250 %
Hardness Range (Shore A)	60 - 70
Appearance	As Required
Tear Strength (Kn/m)	10 to 17
Compression Set (180 °C * 22h)	35 to 40
Solvent Resistance	Fair
Oil Resistance	Fair
Dielectric Strength (kV/mm)	20 – 26.5

## VIBRATION DAMPING GRADE SILICONE RUBBER

Temperature Range (°C)	-50 to 180
Tensile Strength Range (MPa)	8.5 to 10
Elongation (Max %)	300 to 700
Hardness Range (Shore A)	30 to 80
Appearance	Transparent, no extraneous matter
Tear Strength (Kn/m)	13 to 20
Compression Set (180 °C * 22h)	35 to 40
Solvent Resistance	Fair
Oil Resistance	Fair
Resilience (%)	46 to 50

## SILICONE TUBINGS

Silicone tubing is a flexible, synthetic tubing made from silicone elastomers composed of silicone, carbon, hydrogen, and oxygen. It is used in a variety of applications, including medical devices, food and beverage processing, pharmaceuticals, and biotechnology. Silicone tubing is known for its excellent thermal stability, chemical resistance, and biocompatibility.

## PLATINUM CURED SILICONE RUBBER TUBINGS

Platinum-cured silicone tubing is made by using a platinum-based catalyst to crosslink the silicone polymer chain. This process produces no byproduct, so the resulting silicone material is purer and has a clearer appearance. Platinum-cured silicone tubing typically has higher tear and tensile strength.



### **CHARACTERISTICS :**

- **Transparency:** Silicone tubing is highly transparent, allowing for easy visual inspection of fluid flow.
- **Biocompatibility:** Silicone tubing is biologically inert and does not react with living tissue, making it ideal for medical applications.
- **Chemical resistance:** Silicone tubing is highly resistant to many chemicals, including acids, alkalis, and organic compounds.
- **Temperature resistance:** Silicone tubing can withstand a wide range of temperatures, from -45 °C to 200°C, without degrading.
- **Compliance with FDA21 CFR177.2600**

Silicone tubing is available in a wide range of sizes and configurations to meet specific application requirements. It can also be customized with various colors and markings for easy identification.

## PEROXIDE CURED SILICONE RUBBER TUBINGS

Peroxide-cured silicone tubing is made by using a peroxide-based curing agent to crosslink the silicone polymer chains.



### **CHARACTERISTICS :**

- Flexibility: Silicone tubing is highly flexible and can be easily bent or shaped to fit various applications.
- Temperature resistance: Silicone tubing can withstand a wide range of temperatures, from -60 °C to 260°C, without degrading.
- Chemical resistance: Silicone tubing is highly resistant to many chemicals, including acids, alkalis, and organic compounds.
- Available in transparent to translucent variants.
- Compliance with FDA21 CFR177.2600

It is important to choose the right size and thickness to suit the specific application. Factors to consider include the flow rate, temperature and pressure requirement of the application, the chemical compatibility of the tubing with the substance it will come into contact with, and any regulatory requirements or industry standards that may apply.

The flow rate of tubing depends on several factors, including the inner diameter (ID) and length of the tubing, the viscosity of the fluid being pumped through the tubing and the applied pressure.

The flow rate can be calculated using the Hagen- Poiseuille equation, which relates the flow rate to the pressure, viscosity, tube diameter and tube length. The equation is as follows;

$$Q = (\pi * \Delta P * r^4) / (8 * \mu * L)$$

where :

Q = flow rate (  $m^3/s$  )

$\Delta P$  = pressure difference (Pa)

r = radius of the tubing (m)

$\mu$  = viscosity of the fluid (Pa.s)

L = length of the tubing (m)

Note that the radius of the tubing is half the inner diameter (ID), so  $r = ID/2$ .

Factors such as fluid temperature, tubing material and tubing wall thickness can also affect the flow rate.

It is important to ensure that the flow rate is within the desired range for the specific application to ensure optimal performance and avoid any potential issues such as clogging or fluid backflow. The flow rate can be adjusted by changing the pressure or tubing diameter or by different tubing material with a different viscosity or inner diameter.

Uma Rubber and Plastic Product is specialist in **silicone extrusions manufacturing**, fabrication, and producing complex shape profiles frequently used by highly technical Industries. We have many custom formulated material that meets UL 94, ZZ-R-765 overtaken by A-A-59588 Silicone Spec, Food Grade-FDA regulation 21 CFR 177.2600, USDA, 3A Sanitary, NSF Standard-51, USP CL-VI, Military and Industrial /Commercial requirements compliant silicone rubber.



### Applications:

#### Typical Applications of Extruded Silicone Profiles

- Automotive – Seals & Gaskets
- Aerospace and military Seals & Gaskets
- Lighting Industries-
- Construction -(door seals, window seals, protective seals between glass & steels)
- Dairy Fluid Handling Tubing and Dairy Seals
- Electronics washers, spacers and seals
- Door Seals & Gaskets
- Oven and manway seals
- High temperature sealing
- HVAC Equipment – wire seals, sealing chambers conditioning
- Rail and Mass Transit Seals
- Oil & Gas resistant seals
- Marine and Defence – Hatch Seal,
- Inflatable Seals

## SPONGE SILICONE PROFILES

Uma Rubber and Plastic Product is into manufacturing of cellular and micro-cellular sponge profiles made up of silicone elastomer, commonly used as sealing, gasketing, padding like applications in industrial and commercial.

Silicone Sponge Profiles have a unique structure that makes them highly resistant to temperature extremes, chemicals and UV radiations. They are also highly flexible and can be compressed or stretched to fit irregular surfaces.



## SILICONE MOULDED PARTS

Uma Rubber and Plastic Product is a leading manufacturer of silicone molded products. We produce molded silicone parts through in-house injection molding, IR curing system, compression molding, and transfer molding.



Silicone molded products can be used for numerous purposes in commercial, military, and industrial applications.

Automotive industry uses silicone rubber o rings, glass and window gaskets, exhaust hose, windshield water subsystem, radiator subsystems.

Medical applications of silicone molded parts include airways, balloon catheters, tubing for feeding, using with peristaltic pumps, compression bars, electrosurgical hand pieces, infusion sleeves and test chambers, introducer tips and flexible sheaths, wire/fluid path coextrusions, ear plugs and hearing aids, shunts and septums, and a variety of seals, stoppers, valves, and clips.

Food and Dairy industry uses molded silicone components for sealing, baking trays, fluid transfer, utensil parts to just name a few.

Construction industry uses for door and windows gaskets, garage door seals, electrical housing seals.



## Uma Rubber and Plastic Product

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