**General Purpose Silicone compounds**

General purpose silicone rubber compounds are tweaked as per the customer’s specifications and process conditions. These compounds have good physical and mechanical properties, high and low temperature resistance, aging resistance and prolonged use at temperatures from –600C to 2000C.

Typically, these materials can be used for compression moulded and extruded products. A post cure is recommended to enhance physical properties.

* Durometer Hardness (Shore A) 20 – 80
* Specific Gravity (g/cm3) 1.06 – 1.26
* Tensile Strength (Mpa) 5 – 9
* Elongation (%) 200 – 600
* Tear Strength (N/mm) 8 - 18
* Compression Set % (22h @ 175°C) 25 – 45
* Colours available: All

**Platinum Cured Silicone compounds**

The fast curing mechanism of the platinum catalyst means that thicker section parts can be cured in a faster time at the same moulding temperatures as the usual peroxide system. For thicker section parts these can be cured at lower temperatures.

The platinum cure systems also produce no peroxide residues, which enables the components to be used in food and medical applications. This cure system results in a material with good hot tear strength, which is useful for de-moulding parts with complex geometries and undercuts. Platinum cured materials are more sensitive to catalyst poisons than peroxides. We provide the 3 component system and formulation guide to increase the shelf life of mixed compound.

* Durometer Hardness (Shore A) 30 – 70
* Specific Gravity (g/cm3) 1.07 – 1.2
* Tensile Strength (Mpa) 3 – 9
* Elongation (%) 300 – 750
* Tear Strength (N/mm) 10 - 40
* Catalyst type Platinum
* Compression Set % (22h @ 175°C) 10 – 30
* Approvals FDA
* Colours available: All

**High Strength Silicone compounds**

These compounds exhibits significantly higher elongation and tear strength than general purpose silicone.

These can be used for moulding, extrusion and calendaring and the final products are generally more resistant to abrasion and fatigue than general purpose silicones. High strength silicones are also widely used for applications where the molded components are with intrinsic shapes or the applications where more endurance properties are required.

* Durometer Hardness (Shore A) 30 – 70
* Specific Gravity (g/cm3) 1.12 – 1.22
* Tensile Strength (Mpa) 8 – 11
* Elongation (%) 300 – 900
* Tear Strength (N/mm) 25 – 40
* Compression Set % (22h @ 175°C) 20 – 45
* Colours available: All

## Conductive Silicone

Even though silicones have good electrical insulation properties, CSE has developed various grades having excellent electrical conductivity..

Electrically conductive compounds can be moulded, extruded, or calendared. They are frequently used in electromagnetic shielding and for the prevention of build up of static charge.

* Durometer Hardness (Shore A) 40 – 80
* Specific Gravity (g/cm3) 1.2 – 3.5
* Tensile Strength (Mpa) 1.5 – 5.5
* Elongation (%) 150 – 400
* Volume Resistivity (ohms cm -1 ) 0.003 – 1
* Colours available : Black or grey

### [Carbon](https://www.primasil.com/media/1255/primasil-carbon-conductive-silicone-compound.pdf) filled

This grade is the least conductive grade (although, with values for tailored grades that can be as low as 1 Ohm/cm). It is typically used for low-end shielding or ESD protection. Good physical properties available.

### [Silver coated Aluminium filled](https://www.primasil.com/media/1256/primasil-silver-coated-aluminium-conductive-silicone-compound.pdf)

This grade is the military gasket of choice. Lightweight, good temperature range, good EMP resistance.

### [Silver filled](https://www.primasil.com/media/1260/primasil-silver-filled-conductive-silicone-compound.pdf)

This grade, typically used in military applications has the highest shielding and through conductivity, together with improved physical properties and processing.

### [Silver coated Copper filled](https://www.primasil.com/media/1261/primasil-silver-coated-copper-conductive-silicone-compound.pdf)

This grade is the material of choice for high-end commercial applications but is used in military applications also. It has a high level of EMP induced current. Excellent performance in non-corrosive environments.

**High Temperature Silicone**

General purpose silicone compounds have temperature resistance up to 2000C. But high temperature silicone rubber materials can withstand temperatures of up to 300°C.

Temperature peaks above 300°C can be tolerated for very short periods of time but they are not recommended for continuous operation at these temperatures. The effect of high temperatures tends to lead to a hardening and increasing brittleness of the silicone so it loses its elastomeric properties.

**High Temperature Capability**

* Durometer Hardness (Shore A) 40 – 70
* Specific Gravity (g/cm3) 1.1 – 1.2
* Tensile Strength (Mpa) 6.6 – 8
* Elongation (%) 200 – 450
* Tear Strength (N/mm) 12 – 20
* Max Temperature 300C
* Catalyst type M / E
* Compression Set % (22h @ 175°C) 20 – 40
* Colours available: All

**Fluorosilicone Rubber**

Fluorosilicone rubber is a material that has significantly greater chemical resistance than silicone.

It is resistant to hydrocarbon fluids (petrol / diesel) and solvents, and is typically used in applications where the temperature range of –60 to +225°C is required but where silicone is not resistant to the chemicals that the part will be exposed to.

* Durometer Hardness (Shore A) 40 – 80
* Specific Gravity (g/cm3) 1.38 – 1.65
* Tensile Strength (Mpa) 6 – 9
* Elongation (%) 150 – 500
* Tear Strength (N/mm) 15 – 35
* Compression Set % (22h @ 175°C) 10 – 40
* Colours available: All

**Non-Post Cure Silicone**

Non-post cure silicones are intended to minimise the cost involved in the processing of silicone products.

Silicones are normally post cured in order to enhance the finished properties and to reduce the amount of blooming of the peroxide volatiles formed during the curing process. The high crosslink density of these products means they have outstanding resistance to compression set, which makes them particularly suitable for use in sealing applications.

* Durometer Hardness (Shore A) 40 – 80
* Specific Gravity (g/cm3) 1.1 – 1.4
* Tensile Strength (Mpa) 6 – 8
* Elongation (%) 150 – 450
* Tear Strength (N/mm) 8 – 15
* Compression Set % (22h @ 175°C) 12 – 25
* Colours available: All

**Wire & Cable Silicone**

This range encompasses those grades that are suitable for applications requiring enhanced electrical performance.

With outstanding physical and mechanical properties, the wire and cable range also displays exceptional resistance to ageing factors such as oxygen, ozone, humidity and moulds.

They can be supplied with a high ash cohesion level if required and low burning toxicity.

* **Wire & Cable Silicone Rubber**
* Durometer Hardness (Shore A) 50 – 70
* Specific Gravity (g/cm3) 1.14 – 1.32
* Tensile Strength (Mpa) 8 – 11
* Elongation % 200 – 500
* Tear Strength (N/mm) 15 – 25
* Catalyst type M / E
* Colours Available Yes
* Dialectic strength (kV/mm) (2mm thick) 20
* Volume Resistivity 10 15
* Dielectric constant at 1MHz 2.8 - 4
* Oxygen Index (%) 22 - 32
* Colours available: All

**Insulating Silicone**

This range encompasses those grades that are suitable for applications requiring electrical insulation.

The insulating materials resist combustion arc tracking and environmental degradation. As such, they are ideally suited for use with high voltage and power transmission equipment such as insulators, surge arresters, and casing pipe.

**Electrically Insulating Silicone Rubber**

* Durometer Hardness (Shore A) 70 – 80
* Specific Gravity (g/cm3) 1.5 – 1.6
* Tensile Strength (Mpa) 4 – 6
* Elongation (%) 150 – 250
* Tear Strength (N/mm) 9 – 14
* Dielectric strength (kV/mm) (2mm thick) 20

**Automotive Rubber Solution**

Silicone rubber delivers the strength, temperature resistance, and durability needed under the bonnet and helps provide cushioning, load bearing and protective shock absorption qualities to automotive interiors.

**The properties required include:**

* High resistance to ozone, water, sunlight and U.V.
* Good tensile strength
* Flexibility and extended life at low and high temperatures
* Excellent resistance to compression set
* High electrical insulation qualities

**Applications include:**

* Electronics
* Exhaust hangers
* Exterior trim
* Gaskets
* Headlamp seals
* Hoses
* Ignition cables
* Interior trim
* Membranes
* Radiator seals
* Shock absorbers
* Sparkplug boots

**Mold release agent:-**

Due to poor hot tear property of silicone rubber, the components having complicated or intrinsic shapes tends to have tearing of breaking of components during compression molding or injection molding.

CSE has developed the internal mold release agent which has to be added in to the formulations during compounding. These agents enhances the release property and the components can be demolded easily from mold.

Anti-blooming agent:-

Generally the extruded parts like profiles, gaskets, hoses, tubes, etc tends to have blooming on the surface which is not accepted by the consumer industry. To avoid the blooming, the component needs to be post cured which is a difficult task due to high volumes and price constrain.

CSE has developed the additive which has to be added during compounding. This will avoid the blooming and the extra operation of post curing can be avoided. This additive is not recommended for food and medical applications.