

## Silicone Rubber Sheet 2

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### 3. The major items of [silicone rubber](#)

#### 1. High temperature vulcanization silicone rubber

High temperature vulcanization silicone rubber is the earliest application silicon rubber, using organic peroxide cross-linking sulfurization, there are many varieties. Depending on the chemical composition it can be divided into the following kinds.

(1) Dimethyl silicone rubber, the basic characteristic of the dimethyl silicone rubber is: excellent heat resistance and cold resistance, can be used for a long time and keep the rubber elasticity in  $-50 \sim 250$  °C temperature range; Ozone resistance, electrical insulation is good; Mechanics performance of rubber is poor; Thick products vulcanization is difficult, when sulfide blister easily, wet and heat resistance is poor, and compression deformation is big. The rubber raw materials of this rubber are by addition polymerization.

Because dimethyl silicone rubber has low vulcanization, process performance is poor, prone to bubbles in secondary sulfide thick products and high temperature compression deformation is big, etc shortcomings and so on, at present, except for a small amount for the fabric coating thereof has almost replaced by methyl vinyl silicone rubber.

(2) Methyl vinyl silicone rubber. Methyl vinyl silicone rubber is also called vinyl methyl silicone rubber, its full name is poly (methyl vinyl siloxane rubber, code-named MVQ, in the side chain of dimethyl silicone rubber introduces a small amount of vinyl. The introduction of vinyl dimethyl silicone rubber modified the faults, improve the vulcanization activity of the silicone rubber, can crosslink by use of less active organic peroxide vulcanization crosslinking, and can reduce the dosage, make the analysis of the performance improved at the same time, such as to improve products hardness, to reduce the compressive deformation and rigidity, the sulfide thick products are more uniform, and reducing the occurrence of the bubble. Generally we think that the content of vinyl in 0.07% ~ 0.07% silicone rubber has good comprehensive performance. Although increased the content of vinyl can improve the curing rate, and sulfur vulcanization accelerator available, but the thermal stability of rubber material drops, the physical properties of vulcanized rubber also reduced.

Basic properties of methyl vinyl [silicone rubber sheet](#) are as follows: excellent heat resistance, cold resistance, in  $-60 \sim 250$  °C very wide temperature range its physical properties change little; Good ozone resistance, climate resistance; Over a very wide temperature range its frequency range changes little; Mechanical properties, resistance to high temperature compression deformation has improvement than dimethyl silicone rubber.

Because of the increase in vulcanization activity of methyl vinyl silicone rubber, its heat resistance and high temperature resistance to compression deformation has a great improvement. It is the largest output and the most widely used type of silicone rubber, varieties brand is also the most. In addition to general-purpose rubber, all kinds of specificity and processing

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characteristics [silicon rubber](#), they are also based on its process, such as high strength, low compression deformation, conductivity and afterburning, thermal conductivity of silicone rubber, etc. This kind of silicone rubber is widely used in o-ring, oil seal, all kinds of pipes, such as sealants and adhesives.

(3) Methyl phenyl vinyl silicone rubber. Methyl phenyl vinyl silicone rubber, full name is poly (methyl phenyl vinyl silicone rubber, also known as methyl phenyl vinyl silicone rubber, hereinafter referred to as phenyl silicone rubber, code-named MPVQ. It is introduced diphenyl siloxane chain link (or methyl phenyl siloxane chain section) in the molecular chain of methyl vinyl silicone rubber and then is made. Its purpose is through the introduction of large volume goes to destroy the regularity of the polysiloxane in the molecular structure, to reduce the degree of crystallinity of polymers and the glass transition temperature, so as to improve the cold resistant performance of silicone rubber. Phenyl silicone rubber in the phenyl link may be a phenyl structure of silica, can also be a diphenyl silica structure. When phenyl is about 6% of the silicon atoms (mole fraction), namely the phenyl/silicon is about 6%, called low phenyl silicone rubber, it has the best performance of resistance to low temperature, at 100 °C can remain soft bend ability. When phenyl/silicon is 15%~20%, called the phenyl silicone rubber, has flame resistance. When the phenyl/silicon at more than 35%, says high phenyl silicone rubber, has good radiation resistance. Middle and high phenyl [silicone rubber sheets](#), due to processing difficulties, poor mechanical properties, so its production and application by certain restrictions.