

# The Guide to High Performance Silicone Upholstery



**sio™**

**THE MEDICAL PERFORMANCE GRADE SILICONE™**

Flame Resistant, Anti-Microbial/Bacterial Without Added Chemicals

Inherently Ink & Stain Resistant

Suitable for Marine/Outdoor

**MAYER**FABRICS





## ABOUT SILICONE

We encounter silicones in our every day lives, though we hardly ever notice them. They are used in a variety of products to perform a multitude of functions: in appliances silicone protects the electronics from moisture and dirt; in the kitchen they offer resistance to heat and ease of cleaning; in medical applications silicone offers high performance and hypoallergenic properties.

Silicone can be considered the jack of all trades. It's versatile, robust, benign to health and environment, and is capable of meeting the toughest of requirements.

## WHERE IS SILICONE FROM?

**From Sand to Silicone** - The process begins with a form of sand called Quartzite which is a specific type of sand (crystalline silica). It is an abundantly available resource that is found in almost every type of rock on earth.

Quartzite is the basic raw material for creating the silicon compound that can be turned into a silicone coated fabric.



**Quartzite**

+



**Carbon**

+



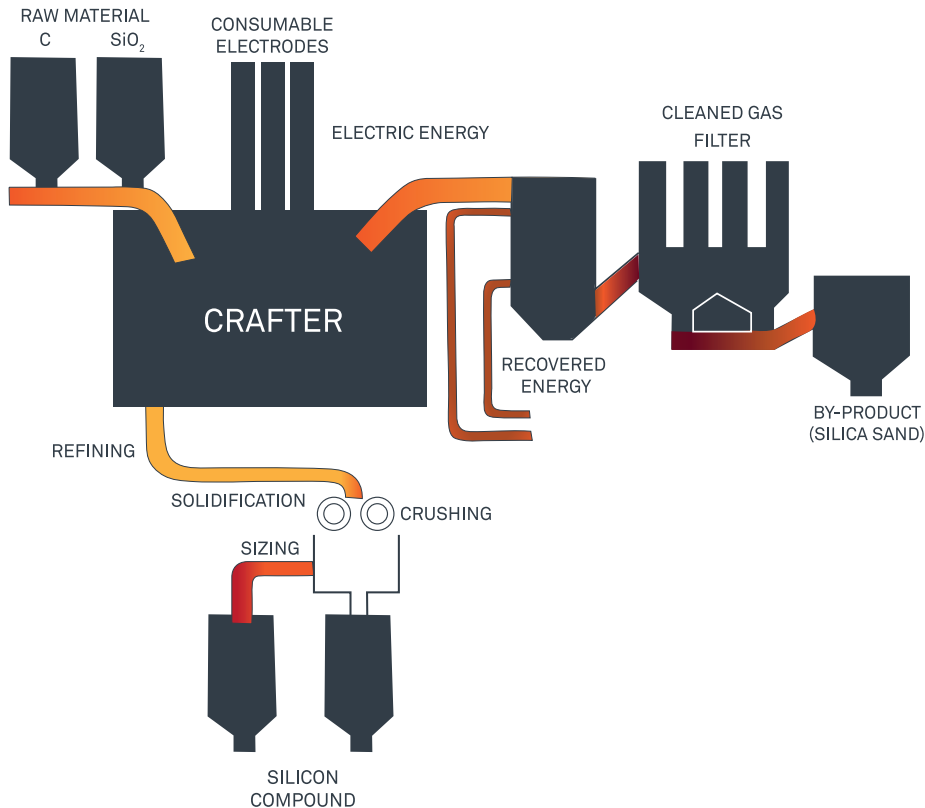
**Power**

**= Silicon Compound**



## HOW IS SILICONE MADE?

Silicone is made in a fairly simple, but capital intensive process. It requires a high arc furnace and a reactor to transform the quartzite granules into a liquid emulsion which allows for the extraction of silicon in its purest form. It is then refined back into a solid silicon compound which is the base element for all silicon products.



## WHY SILICONE UPHOLSTERY?

Silicone offers inherent physical performance specifications, without the addition of flame retardants, antibacterial, or antimicrobial chemicals or any topcoats or surface finishes.

When produced for commercial upholstery silicone offers a high level of performance combined with softness and suppleness, typically associated with luxury upholstery materials.

## IS ALL SILICONE CREATED EQUAL?

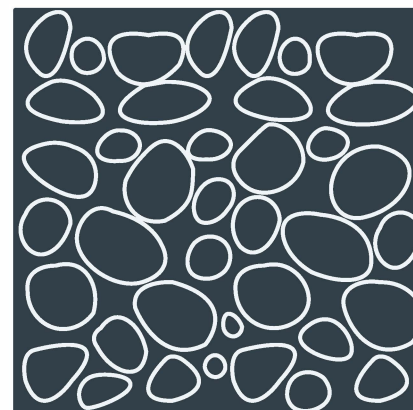
Like with all coated fabrics, the quality of the resin is critical to performance. In the production of polyurethanes, for example, it is important to use polycarbonate resin for best performance in commercial environments. In the manufacturing of silicone coated fabrics, the resins are made with varying levels of purity, each level offering different performance attributes. The performance attributes of silicone relate directly to the level of purity of the resin and the silicone formulation.

By using the proper purity level and formulation of silicone resin a silicone coated fabric can be engineered to far exceed all of the current Association for Contract Textiles (ACT) performance specifications for coated fabrics. This can be achieved without any chemical additives.

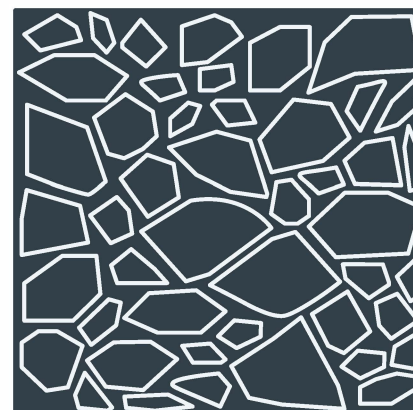
## WHAT IS SiO™ MEDICAL PERFORMANCE GRADE SILICONE?

SiO™ is a proprietary silicone resin system that is engineered for use in performance coated fabrics.

Angular Resin Technology – Most silicone resins are formed in round pebble like shapes. SiO™ resins are formed into angular shapes which allows for stronger surface integrity enhancing its resistance to scuffing, scratching, and abrasive cleaners.



**Conventional Silicone Resin**



**SiO™ Angular Resin**



## WHY SiO™?

SiO™ is a very pure form of silicone resin that, with its angular structure, offers greater durability, better scuffing and scratch resistance, better resistance to bleach and cleaners, and a better surface touch.

### Purity

With the exception of the polyester backing SiO™ is 100% silicone

- No adhesive. No solvents.
- No top coat. No chemical additives.

### Performance

Using SiO™ silicone allows for key performance attributes to be inherent in the material make-up exceeding ACT coated fabrics performance standards.

- Inherent flame retardant properties.
- Inherent resistance to microbes or bacterial growth.
- Inherent stain and ink resistance.
- Inherent resistance to denim dye transfer.
- Exceptional lightfastness.
- Excellent stretch & recovery.
- Heat dissipating properties.
- Resistant to diluted bleach, alcohol, and most common cleaners.
- Resistance to mildew.
- Resistance to moisture.
- Hypo-allergenic properties.
- Resistance to chemicals and oils.

### Compliance Standards

- CA Proposition 65
- LBC Red List
- Healthier Hospital Initiative
- Health Product Declaration
- RoHS
- REACH
- CAL 1350 – VOC Emissions

### Comfort

SiO™ silicone products offer a very soft and dry surface touch. Lower grade resin systems can feel rubbery and almost sticky proving difficult when in use in practical applications. The difference is a more luxurious look and feel, and better seating comfort.

### Human Friendly. Earth Friendly.

SiO™ performance silicone is produced in a state of the art facility that is certified to a number of international environmental safety and quality standards.

- The low energy consumption production process is completely solvent free and uses no water.
- Free of added chemicals including flame retardants, BPA, TRIS, PFC's or PFOA's.
- Free of PVC, phthalates, formaldehyde, lead or heavy metals.
- Non-toxic.
- Hypo Allergenic.





## 4 QUESTIONS TO ASK WHEN SELECTING A PERFORMANCE SILICONE UPHOLSTERY MATERIAL

### **Why does some Silicone feel sticky or tacky to the touch?**

Some lower resin grade silicone products often have a tackiness or stickiness to the touch. This can negatively affect seating comfort and also severely limit the “scoot-ability” over longer bench/booth seating. SiO™ silicones offer a natural surface touch for maximum seating comfort.

### **Are all Silicones created equal?**

No. There are different purity levels and formations of resins that can be used in the production of silicone. Angular formed resin allows for a stronger surface structure, offering the best resistance to scuffing, scratching and cleaners.

### **Does the backing construction make a difference to the performance?**

Absolutely! The backing fabric (also referred to as substrate) gives the material strength, controls the amount of stretch and recovery, and contributes to the tailor-ability of the material. Silicone is inherently elastic, so it is recommended to use an engineered knit backing that has a recovery rate of a minimum of 90%, in order to minimize puddling issues.

### **Does Hydrolysis affect Silicone?**

Hydrolysis is the term for the effect that heat and humidity have on the degradation of a material. Silicone is resistant to both heat and humidity and will not break down because of these. If a hydrolysis resistance is listed in the specifications for a silicone material, it is likely not pure silicone, but blended with polyurethane (which is negatively affected by hydrolysis).





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