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# Silicone Fabrics Market Research Report—Global Forecast till 2028

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## Description:

## Silicone Fabrics Market Overview

According to MRFR analysis, the global silicone fabrics market is projected to register a CAGR of over 6.5% to reach around USD 6 billion by the end of 2028.

Silicone fabrics are fiberglass cloths that have been coated or impregnated with silicone. The silicone rubber compound adds extended life, abrasion, puncture, tear resistance, and UV, oil, and water resistance to the fabrics. Silicone fabrics provide excellent heat resistance allowing the fabrics to remain flexible and durable during prolonged use at high temperatures. Silicone fabrics are widely used for heat-resistant clothing, fire blankets, welding splatter protection, weather-proof jacketing, conveyor belts for food production, baking trays, bellows, and expansion joints. Silicone coating on fiberglass can be done in two ways, i.e., knife coating and calendaring. Silicones can offer durable water-repellency properties, and so it is used to treat fabrics to protect them from water. Fabrics soaked in silicone have added strength and durability and allows items to better resist mechanical forces.

The primary driver is the use of silicone fabrics in protective clothing, which are specifically designed, treated, or fabricated to protect personnel from hazards caused by extreme environmental conditions or dangerous work environments. Some protective clothing is also designed to protect the workers from the working environment due to infection or pollution. Some of the key end use industries requiring protective clothing include military, sports, mining, oil & gas, chemical processing, among many others. Examples of body/skin protection include laboratory coats, coveralls, vests, jackets, aprons, safety goggles, hearing protection like earplugs, protective footwear, surgical gowns, and full bodysuits.

Another key driver of the global silicone fabrics market is the use of silicone textiles in the fashion industry and in industrial fabrics. Silicone-based textiles have many advantages, such as reduced shrinkage, scratch-free, and wrinkle-free textiles. Silicone coating on fabrics maintains the suppleness of the fabrics and does not become hard in cold or decay when exposed to high temperatures. Industrial fabrics are used in an extensive range of automotive, printing, belting, filtering, and processing applications.

It can also be used to improve the feel of artificial leather made from polyurethane. Specialty artificial leathers can also be made of silicone rubbers to create a much warmer feel, keeping the textile very flexible, possibly stretchable, which is less likely to degrade over time. The use of artificial silicone leather to manufacture dashboard or door panels and seats is increasing as it offers a durable look and are resistant to aging, temperature variations, and UV exposure. Silicone-coated fabrics have been used as protective robot covers in extreme environments, airbags for spacecraft, intumescent cargo covers on aircraft, and flexible closure assemblies for aircraft loading walkways.

However, the non-biodegradability and low recycling rate of silicone is a key challenge faced by the players in the global market.

## Regulatory Framework

ASTM's textile standards provide the specifications and test methods for the physical, mechanical, and chemical properties of textiles, fabrics, and cloths, as well as the natural and artificial fibers that constitute them. The textiles covered by these standards are commonly formed by weaving, knitting, or spinning together fibers such as glass fiber strands, wool, and other animal fibers, cotton and other plant-derived fibers, yarn, sewing threads, and mohair name a few.

These ASTM standards include regulations and tests for apparel, bast fibers and plants, conditioning, chemical and thermal properties, fabrics test methods, glass fiber and its products, and home furnishing products.

Some of the other standards pertaining to silicone performance specifications include ISO, ACT, and CFFA.

## Impact of Coronavirus Outbreak

The global economy is set to expand 5.6% in 2021, according to World Bank. However, this recovery is uneven and largely reflects sharp rebounds in some major economies. In many emerging markets and developing economies (EMDEs), obstacles to vaccination continue to weigh on activity. However, the global outlook remains subject to significant downside risks such as the possibility of upcoming COVID-19 waves and financial stress amid high EMDE debt levels. After a 3.5% contraction was caused by the COVID-19 pandemic in 2020, global economic activity has gained significant momentum. The recovery is envisioned to continue into 2022, with global growth moderating to 4.3%. However, yet the global GDP is expected to remain 1.8% below pre-pandemic projections.

The pandemic has resulted in disruptions in the operations and global supply chain across end-use industries. The

disruptions have resulted in slowing or shutting down of the markets. However, factors such as uneven vaccine rollouts and the withdrawal of macroeconomic support measures might result in uncertainties. The growth of the region will be impacted if the pandemic takes longer than expected to abate, external financing conditions tighten, or geopolitical tensions rise further.

## Supply Chain Analysis

The supply chain analysis evaluates every stage and step taken by stakeholders involved throughout the production and distribution of silicone fabrics. The supply chain includes raw materials and suppliers, silicone fabric producers, distribution channels, and end-use industries. The distribution channel in this market comprises distributors, wholesalers, and e-commerce merchants.

### Market USP

Extensive use in airbag manufacturing coupled with the mandating of airbags across automotive and aerospace industries

### Market Drivers

- Increasing demand in the production of protective clothing
- High demand for industrial fabrics

### Market Restraints

- Availability of low-cost substitutes such as PTFE, TPO, TPU, and rubber-coated fabrics

## Segmentation

### By Base Fabrics

- **Fiberglass:** Fiberglass is a common type of fiber-reinforced plastic using glass fiber. The fibers may be randomly arranged, flattened into a sheet, or woven into glass cloth. Silicone-coated fiberglass fabrics can be used for a variety of applications due to the special material properties of silicone coupled with the strength and thickness of fiberglass. It can be used for welding blankets, gaskets, expansion joints, insulation, heat shields, fire blankets, and containment.
- **Polyester:** The polyester yarn is lightweight and flexible and is resistant to UV radiation. It keeps a good shape memory and can therefore be used in coated fabrics composition. Furthermore, a suitable weaving also allows good heat dissipation. These are widely used for straps, tarps, ropes, clothing, and profiles for extreme temperatures, among others.
- **Polyamide:** The polyamide yarn can have the strength of steel and fine wire of the spider. Depending on the weaving, the fabrics may exhibit a very close silk appearance. \ Extensively used for airbags, the polyamide segment is likely to witness fast-paced growth during the upcoming years in line with government norms for the necessity of airbags worldwide.
- **Others:** The others segment includes cotton, aramid, etc.

### By Application

- **Protective Clothing:** Stringent regulations pertaining to the safety of personnel across the globe is expected to drive the demand for protective clothing. Many government regulations and standards such as International Labor Standards and OSHA result in the end-use industries providing protective clothing to the workers working under hazardous conditions. The increasing demand for protective materials drives the market for advanced protective clothing.
- **Industrial Fabrics:** These fabrics offer high strength, durability, inexpensive production, good elasticity, low maintenance, and weather resistance. Industrial fabrics are especially useful in the manufacturing of tents, awnings, graphic banners, and roofing. Key applications of industrial fabrics include automotive carpets, conveyor belts, transmission belts, filter media, and others.
- **Clothing Fabrics:** Increasing demand for apparel from the fashion industry coupled with the growth of e-commerce platforms is expected to drive the market over the forecast period. There has

been an increasing trend of smart textiles in the market that use optical fibers, metals, and various conductive polymers to interact with the environment. These help detect and react to various physical stimuli such as mechanical, thermal, or chemical and electric sources. Silicone fabrics can be used to make power-generating fabrics, clothing, tents, backpacks, etc.

- Others: The other application segment includes shrink tunnels, electrical insulation tapes, conveyor belts, safety curtains, release and separator sheets, gaskets, etc.

## By End Use

- Industrial: It is used across several industrial applications such as conveyor belts, insulation, gaskets, hoses, and heat shield, among other. With the growth of the manufacturing industry across the globe, the demand for silicone fabrics is increasing steadily.
- Consumer Goods: The use of silicone-coated fabrics in fashion, sporting goods, and other wearables is a key driver of the product in the consumer goods market. Specially engineered emulsions and formulations for textile coating make it possible to manufacture lighter and highly flexible textiles that provide waterproofing and the capacity to withstand harsh weather conditions.
- Automotive: Automotive textiles treated with silicone offer beneficial properties such as water-repellency and fabric softening. These textiles can be used in the interior upholstery of cars, such as on-seat and door fabrics. Silicone can be sprayed or coated on dry fabrics or soaked into fabrics.
- Others: The others segment include furniture and architectural textiles.

## By Region

- North America: The North American market for silicone fabrics is driven by the expanding industrial sector in the region. The key industrial sectors in the US include construction, technology, and manufacturing which drive the demand for silicone fabrics. Moreover, the regulations in the region mandate the use of durable and high-performance clothing that can protect the wearer from various threats. The rising awareness among medical professionals regarding healthy medical practices increases the demand for protective clothing in the healthcare/medical industry.
- Europe: The market in Europe is projected to witness high demand for silicone fabrics due to the growth of the automotive, aerospace, and energy industries in the region. Major contributors to the market growth include Germany, the UK, France, and Russia.
- Asia-Pacific: Asia-Pacific is the fastest-growing regional market on account of the rapid industrialization in the region. The growth potential is in emerging economies such as India, South Korea, Thailand, and Malaysia. Asia-Pacific silicone fabrics market has been witnessing consistent growth due to the increasing automotive coupled with the airbag production in the region.

## Key Players

- Elkem ASA
- 3M
- Auburn Manufacturing, Inc.
- Nott Company
- Mid-Mountain Materials, Inc
- Newtex Industries, Inc
- Precision Coating & Coated Fabrics
- Trelleborg Group
- Saint-Gobain Performance Plastics
- Serge Ferrari Group
- Madhu Glasstex Private Limited
- Om Industrial Fabrics

- Shree Firepack Safety Pvt. Ltd.
- Chemprene Inc.
- Wallean

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