Stockwell Elastomerics, Inc.

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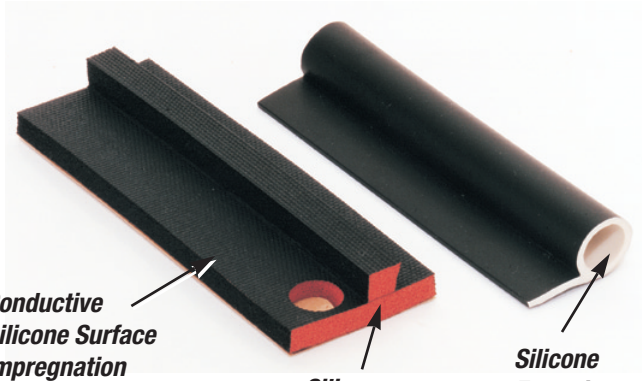
High Performance Elastomeric Components and Materials

NQA NATIONAL QUALITY ASSURANCE, USA 9001:2000 REGISTERED COMPANY

SEI40 Rev. 8/2006

Silicone Sponge Rubber Gaskets and Seals with Conductive Coating, for ESD Protection



ESD Protection is a critical concern in IC Handling Equipment, Environmental Test Chambers, and Burn-In Ovens. ***Silicone Rubber Gaskets with Conductive Surfaces used to seal door closures and other areas can greatly reduce static build up by providing a convenient ground.*** *Also, many testing procedures for Mil Spec and Automotive Qualified Integrated Circuits (IC's) require exposures from -70°F to 300°F, where silicone rubber performs very well.*

Silicone sponge rubber, normally a high dielectric material, has the inherent properties of compression set resistance and resiliency over a broad temperature range.

Stockwell Elastomerics utilized advanced polymer technology to develop the process of impregnating silicone sponge with carbon filled conductive silicone rubber. Gaskets and cushioning pads are fabricated to virtually any configuration or size, then impregnated with conductive silicone rubber. The conductive silicone is then heat cured, and ***becomes an integral part of the silicone sponge gasket,*** *without affecting its compressibility or resiliency.*

To further complement our ESD Conductive Gasketing Products for the IC Industry, we recently developed a new ESD Conductive 65 Durometer Solid Silicone Compound with high tear strength properties. The ***SE67-CON*** *compound is available in custom molded shrouds and other components used for air handling.*

Conductive Silicone Rubber products can be provided with an acrylic pressure sensitive adhesive, or silicone polymer pressure sensitive adhesive backing. Gaskets and pads can also be cold bonded with RTV60-CON conductive silicone rubber adhesive, for a conductive bond to metal housings or tooling fixtures. See Page 2 for more details on RTV60-CON.

Conductive Silicone Sponge is available in three different forms:

1. ***Conductive Coated Sheets,*** *from 12" x 36" to 36" x 36". This allows you to cut your own configurations, and maintain an inventory of material. However, cutting into a coated sheet will isolate the top and bottom conductive surfaces, so a dab of conductive caulk, such as Stockwell's RTV60-CON, can provide a grounding path across the exposed silicone sponge edge.*
2. ***Die Cut or Custom Fabricated Gaskets, Pads, and Custom Components*** *coated on all surfaces.*
3. ***Extruded Silicone Sponge Profiles*** *including hollow D shapes, P shapes, and others. Call us for full information on possible extrusion designs.*

Call Today for Samples!

Silicone Sponges with Conductive Coatings

Stockwell Product Code	Grade	Force [1] Deflection	Compression Set, % Max [2]	Surface Resistivity [3]	Available Thickness
S480-62-CON	Soft	2-5	5	20,000	.093" to 1.0"
S470-62-CON	Medium	6-14	25	20,000	.032" to 1.0"
S418-62-CON	Firm	16-20	15	20,000	.062" to 1.0"

[1] ***Force/Deflection,*** *PSI (Compressed 25% at 73°F) per ASTM D1056.*

[2] ***Compression Set,*** *%, (Compressed 50% for 22 Hours at 212°F) per ASTM D1056*

[3] ***Surface Resistivity*** *is Ohms per Square Inch, determined by ASTM D257*

ESD Protection

*Conductive Silicone Sponge typically provides ESD Protection with cushioning and gasketing in **IC Handling Equipment, Environmental Test Chambers, Burn-In Ovens, and Tool Fixtures** used in static sensitive electronic assembly processes.*

*Leaders in IC production processes are increasing their use of conductive silicone sponge gaskets. Previously, standard (high dielectric) silicone sponge was used for gasketing test chambers during the alternating high and low temperature conditions. **The incidence of IC loss due to ESD is decreasing with the use of conductive silicone sponge,** eliminating another variable in electronic production processes.*

RTV 60-CON Adhesive Sealant

Available in 10.3 Ounce Cartridges.

***RTV 60-CON** Adhesive/Sealant is a one part electrically conductive silicone rubber elastomer adhesive for bonding electrically conductive rubber to metal assemblies, typically used to promote ESD protection. It has an estimated shelf life of six months, when refrigerated at under approximately 50°F. (10°C)*

It cures rapidly at room temperature when exposed to atmospheric moisture.

*The by-products of curing are **amines, not acetic acid.** MSDS is available.*

Typical Performance Characteristics

Application Properties

Color	**Black**
Solids Content, %	**75**
Skin Over Time, Minutes	**7**
Tack Free Time, Minutes	**45**
Extrusion Rate, Grams/Minute 1/8" Nozzle @ 90 psi	**>600**
Specific Gravity @ 25°C	**0.93**

Cured Properties*

Durometer, Shore A	**35**
Tensile Strength, Pounds/Square Inch	**400**
Elongation, %	**300**
Tear, Pound/Inch	**40**
Volume Resistivity, Ohm-cm	**5.0**
Specific Gravity @ 25°C	**1.04**

**** 7 Days at 25% Relative Humidity and 70°F***

Why Use Silicone Rubber?

*Silicone rubber has the combined properties of resilience, high temperature stability, and general inertness, unavailable in any other elastomer. Silicones are generally unaffected by extended exposure to temperatures from **-100° to 500° F,** and are also unaffected by aging and degradation from sunlight and ozone.*

We Can Help You!

*By **quickly and expertly producing the silicone rubber components for your existing product designs,** and also by helping you **develop the best component design for new applications.***

Our In-House Silicone Manufacturing Capabilities Include:

- ***Custom Rubber Molding** of Silicone and Other Specialty Elastomers.*
- ***Die Cutting of Gaskets,** Cushioning Pads, and Insulators*
- ***Application** of a Broad Selection of **Pressure Sensitive Adhesives***
- ***Custom Laminations** of Films and Solid Silicone onto Sponge.*
- ***Slitting to Width** of Roll Materials into Tape and Strip Gasketing.*

New Product Design/Prototype Development Guide

We custom manufacture gaskets, cushioning pads, and insulators from a wide variety of silicone rubber materials, each with varying performance characteristics. Using the points shown below, you can begin to define your new product's expectations. And, you'll help us to determine the best materials and manufacturing processes to meet those expectations.

Typical Component Functions

- *Environmental Gasketing*
- *Heat Sealing/Non-Stick Surface*
- *Cushioning*
- *Electro-Static Discharge*
- *Vibration Damping*
- *Fire and Smoke Blocking*

These points are the most common functional and performance considerations of silicone rubber, and are offered as guidelines only. If your new product calls for other performance factors not shown here, just tell us about your concerns, and let us know how your component will be used. Together, we will determine the best suited materials, and manufacturing processes to provide cost effective components for your product design.

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