MATERIAL SAMPLER BOOK

SAS INDUSTRIES

History

SAS Industries, Inc. (SAS) has been producing gasketing products since 1973. We bring to you decades of experience and centuries combined in the gasketing field to help you with all of your sealing needs.

At SAS our core goal is and always will be to satisfy the customer at all levels; delivery, quality, and price. We pride ourselves on being your single source for not just your all of your gasketing needs.

Thanks to our customers we have been able to move from a small 1 man operation in 1973 hand cutting gaskets out of the back of a retail store in Wantagh, NY to a thriving global business with the latest state of the art equipment available.

As we look to the future we do so with optimism and intrigue. We look forward to discovering and creating solutions for applications that we can not yet imagine.

Discovering new techniques and developing new methods is what drives us and nothing gives us more satisfaction then collaborating with you to solve a sealing problem.

State Of The Art Manufacturing Methods

At SAS we pride ourselves on our people and our machinery. Our facilities include state of the art inspection machinery such as:

- Amada by Virtek Laser Inspection System (48" x 48")
- Instron 3345 Material Tester (56" Travel)
- Flow Integrated Flying Bridge Water Jet (6'x12')
- Boy 55E Liquid Injection/Injection Molding Press w/ Fluid Automation Delivery System
- Haas VF3YT Vertical Milling Center
- Various Freeman Schwabe Die Cutting Presses
- Various Compression Molding Presses
- Various Transfer Molding Presses
- Vacuum Molding Presses
- Various Extruders
- Automated Compounding Machines
- Slitters
- Autobag AB180 Bagger w/ PI-412C Thermal Transfer Printer
- Climate Controlled Material Storage

Along with our machinery we also have state of the art custom logistics systems that we tailor to your requirements. All products that ship from SAS are fully Code 39 bar coded and have full lot, cure date, and shelf life traceability.

Our Commitment

At SAS one of our main goals is, has always been, and will always be delivering your product on time. We pride ourselves on both industry leading quote and delivery times. We accomplish this by maintaining complete control of all manufacturing processes. This enables us to give you the best quality product at the lowest price with no unforeseen delays. It also enables us to quote your product without waiting for pricing from a subcontractor.

All The Benefits Of A Large Business From A Small Family Owned Business

Thanks to our many loyal customers throughout the years we have been able to keep up and exceed the R&D expenditures of many of the large companies in our field. We have done this by maintaining our innovative spirit and through the knowledge and expertise of our invaluable staff, all while maintaining the personal attention you expect from a small family owned business.

ITAR Registered

AS9100 Rev C Registered
10013129 ASH09-1

ISO 9001:2008 Registered
10013129 QM08

FSCM 4L975

Material Sampler Book

Synthetic Rubber

Synthetic Rubber is perhaps the staple of what we do. We can take any Synthetic Rubber, even one's not listed here (i.e. Butyl, SBR, etc.) and fabricate it into anything you can imagine. Whether it is a flat cut product, a 3 dimensional molded product, or an extruded product. We employ all the capabilities in house to get the final product you desire. Synthetic Rubbers are the staple of gasketing materials and fulfill a broad range of needs. Synthetic Rubber is available in virtually all colors and formats.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ⊗ Compression Molding
- ⊗ Transfer Molding
- ⊗ Injection Molding
- ○ Liquid Injection Molding
- ⊗ Extruding
- ○ CNC Milling

Neoprene (Chloroprene) Rubber

Advantages: Very high resistance to O-Zone, Oil, and many common chemicals.

Disadvantages: Susceptible to esters, oxidizing acids, ketones, chlorinated, aromatic and nitro hydrocarbons.

Nitrile (Buna-N) Rubber

Advantages: Good resilience, tensile, and compression set. Very resistant to both mineral and vegetable oils.

Disadvantages: Susceptible to ozone, ketones, esters, aldehydes, chlorinated and nitro hydrocarbons.

EPDM (Ethylene Propylene Diene Monomer) Rubber

Advantages: Great for outdoor environments. Offers excellent resistance to both ozone, oxidants, and severe weather conditions.

Disadvantages: Bad electrical insulator, very low tensile strength and resilience. Susceptible to mineral oils, solvents, and aromatic hydrocarbons.

Viton™ (Fluorocarbon) Rubber

Advantages: Sustained Performance in Aggressive Chemical Environements.

Disadvantages: High Relative Cost to base rubbers such as Neoprene/EPDM/Nitrile.

Viton™ is a trademark of DuPont™ Performance Elastomers LLC

Solid Silicone Rubber

Solid Silicone is the easiest of rubber polymers to manufacture from and boasts the best operating temperatures among rubbers. Solid Silicone also has the inherent advantage, in high volume molded applications, of being able to be automated through the use of a Liquid Injection Molding processes. Silicone is at the forefront of what we do here at SAS. Perhaps the only drawback is it does not have the robust Chemical Resistance of some other rubbers and it's dielectric properties. Silicone Rubber is available in virtually all colors and formats.

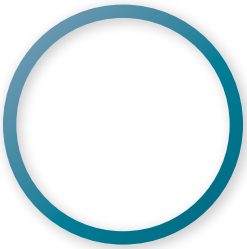
Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ⊗ Compression Molding
- ⊗ Transfer Molding
- ⊗ Injection Molding
- ⊗ Liquid Injection Molding
- ⊗ Extruding
- ○ CNC Milling

Solid Silicone (Rust)

Solid Silicone (Gray)

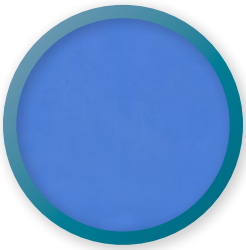
Solid Silicone (Black)



Solid Silicone (Transparent)

Advantages: Excellent Thermal Stability (consistent performance over -100 to +250 °C), Repels Water to form a Water Tight Seal, Excellent Resistance to Oxygen, Ozone, and Sunlight, Good Electrical Insulation, Low Chemical Reactivity, Low Toxicity, High Gas Permeability.

Disadvantages: Dielectric and not as Chemically Resistant as Other Rubbers.



Fluorosilicone

Advantages: All The Advantages of Silicone, Added Resistance to Certain Jet Fuels And Other Chemicals.

Disadvantages: Higher Relative Cost Than Silicone.

Closed Cell Silicone Sponge

Silicone Sponge is a great gasketing material for applications requiring robust temperature ranges and a soft, compressible material. It has all the great advantages of Solid Silicone and is much more compressible. It's major draw back, comparatively, would be its limited manufacturing methods. Silicone Sponge is available in many colors and formats.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ⊗ Extruding[1]
- ○ CNC Milling

1 Only Commercial Grade Silicone Sponge

Commercial Grade Silicone Sponge[1]

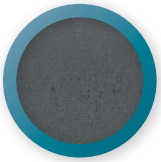
Characteristics: Various Densities, Commercial Grade Silicone Sponge.

Saint Gobain™ R10470M

Characteristics: Medium Density, General Purpose Silicone Sponge.

Saint Gobain™ R10470F

Characteristics: Firm Density General Purpose Silicone Sponge.



Saint Gobain™ R10450

Characteristics: Fiberglass Reinforced Silicone Sponge. Has the compressibility of sponge and dimensional stability in the X-Y direction.

Saint Gobain™ R10460

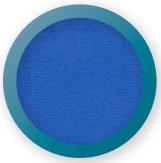
Characteristics: Flame Retardant when held in a vertical position and exposed to a 2,000 F flame for 12 seconds, there is no residential flame and less than a 10 second afterglow. Extremely low compression Set.

Saint Gobain™ R10480S

Characteristics: Soft Density, Extremely Low Compression Set.

Saint Gobain™ R10480M

Characteristics: Medium Density, Extremely Low Compression Set.



Saint Gobain™ R10490

Characteristics: Fluorosilicone Sponge Rubber.

Assorted Sponge Rubbers

Sponge Rubbers are great gasketing materials for applications requiring soft, compressible material. Bisco™ offers various Silicone options such as the one's listed below. Not a Silicone, Bisco™'s Poron™ is our go to choice when compression set is a concern, available in various densities. Finally when Open and Closed Cell solutions are needed and Silicone is not an option there is also a wide range of choice in the Neoprene, Nitrile, and various other families maintained under the MIL-R-6130 specification. These materials are available in various colors and can be cut to any design.

Methods Of Manufacture:

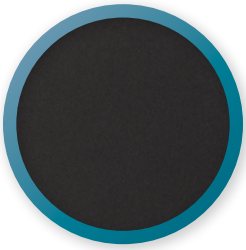
- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ○ Extruding
- ○ CNC Milling

Bisco™ HT-800

Characteristics: versatile, medium firmess silicone that offers the lightness of a foam, with the enhanced sealing capabilities of a traditional sponge rubber.

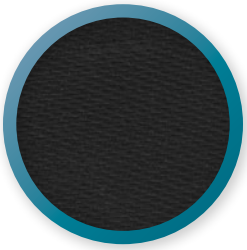
Bisco™ HT-820

Characteristics: firm grade silicone foam that offers the enchanced sealing capabilities of a sponge rubber.



Poron™ 4701

Advantages: Excellent Compression Set Offering Long Term Performance, Low Outgassing and Non-Fogging, Non-Corrosive to Metal, Excellent Perfomance from -40 to +90 °C, Good Chemical Resistance.
Disadvantages: Poor Fuel Resistance.



MIL-R-6130 Type 1 Open Cell Sponge

Advantages: Excellent Compression Set Characteristics.

Disadvantages: Poor Water Resistance.

MIL-R-6130 Type 2 Grades A & B Closed Cell Sponge

Advantages: Good Compression Set Characteristics.

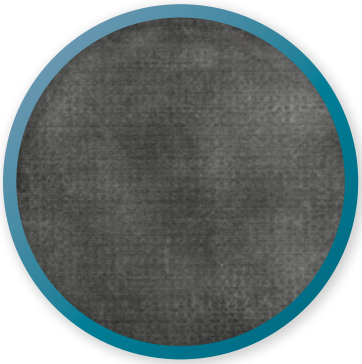
Disadvantages: All The Disadvantages Of Its Base Solid Rubber Counterparts.

Coated Fabrics

Rubber Coated Fabrics offer many of the advantages of there rubber counterparts with added strength and rigidity thanks to the Fabrics within them. These gaskets are great for applications where high strength is required such as valve gaskets and other high pressure applications. These gaskets can be custom cut to any design.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ◯ Compression Molding
- ◯ Transfer Molding
- ◯ Injection Molding
- ◯ Liquid Injection Molding
- ◯ Extruding
- ◯ CNC Milling



Neoprene & Nylon

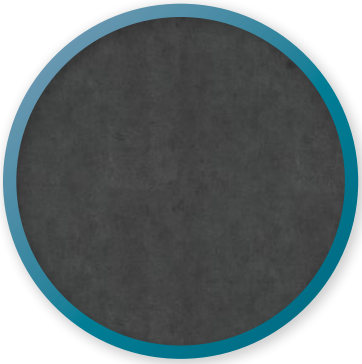
Advantages: Heavy Duty Gasket and Diaphragm Material. Very high resistance to O-Zone, Oil, and many common chemicals.

Disadvantages: Susceptible to esters, oxidizing acids, ketones, chlorinated, aromatic and nitro hydrocarbons.

Viton™ & Nomex

Advantages: Heavy Duty Gasket and Diaphragm Material. Sustained Performance in Aggressive Chemical Environments.

Disadvantages: High Relative Cost to base rubbers such as Neoprene/EPDM/Nitrile.



EPDM & Nylon

Advantages: Heavy Duty Gasket and Diaphragm Material. Great for outdoor environments. Offers excellent resistance to both ozone, oxidants, and severe weather conditions.

Disadvantages: Bad electrical insulator, very low tensile strength and resilience. Susceptible to mineral oils, solvents, and aromatic hydrocarbons.

Buna-N & Nylon

Advantages: Heavy Duty Gasket and Diaphragm Material. Good resilience, tensile, and compression set. Very resistant to both mineral and vegetable oils.

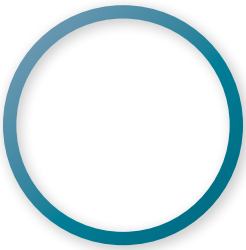
Disadvantages: Susceptible to ozone, ketones, esters, aldehydes, chlorinated and nitro hydrocarbons.

Thermally Conductive Materials

SAS has access to many Thermally Conductive Materials from leading manufacturers such as 3M™, Bergquist™, Chomerics™, Laird™ Thermagon, Saint Gobain™, and other leading Thermally Conductive material manufacturers. For application assistance please contact one of our Sales Representatives.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ○ Extruding
- ○ CNC Milling



3M™ is a trademark of the 3M™ Corporation
Bergquist™ is a trademark of the Bergquist™ Company
Chomerics™ is a trademark of the Parker Hannifin Company
Laird™ is a trademark of Laird™ PLC

There are many different options when Thermally Conductive Materials are required. SAS can cut to your design on various Sil Pad, Gap Pad, Hi-Flow Phase Change, and Thermally Conductive Adhesive Tape materials. There are thousands of different solutions, if you need application assistance simply contact us and we will help you or put you in touch with a Thermally Conductive industry expert that can help you. We convert from all the major names in the field.

Cork and Felt

SAS converts from a wide variety of Cork, Cork and Rubber, and Felt Products. Below is a partial listing of some of the materials that we work with. These can be custom cut to any design.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ○ Extruding
- ○ CNC Milling

Cork

Characteristics: highly compressible in low-pressure applications. It is also flexible, allowing it to conform to curved shapes. Resists alkalies, acids, salts, water, grease, oil, and detergents.

Cork and Rubber (MIL-C-6183)

Characteristics: Cork blended with Neoprene or Buna-N. Compressibility similar to that of natural cork.

F-55 Wool Felt

Characteristics: medium-to-low density felt recommended for uses where high durability is not required, such as anti-squeak strips and sound deadening.

SAE 50 Wool Felt

Characteristics: high-grade, high density felt that is accurate, thin, and smooth.

Saint Gobain™ is a trademark of the Saint-Gobain™ Company

Conductive Particle filled Elastomers

SAS SEALTRON® Particle filled Elastomers are unique blends of highly conductive particles and various different formulations of Silicone, Fluorosilicone and EPDM blended together in order to create a highly conductive matrix within the different rubber polymer and copolymers. These are available in standard and custom colors and can be manufactured using various different methods.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ⊗ Compression Molding
- ⊗ Transfer Molding
- ⊗ Injection Molding
- ○ Liquid Injection Molding
- ⊗ Extruding
- ○ CNC Milling

SAS SEALTRON® 1017 Carbon filled Silicone

Characteristics: Electrically Conductive Grade Silicone. Lowest Conductive Grade, Carbon Filled.

SAS SEALTRON® 1026 Nickel Graphite filled Silicone

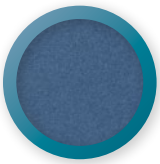
Characteristics: Good Performance in Corrosive Environments, Conductive Silicone.

SAS SEALTRON® 1126 Nickel Graphite filled Fluorosilicone

Characteristics: Good Performance in Corrosive Environments, Conductive Fluorosilicone.

SAS SEALTRON® 1036 Silver Glass filled Silicone

Characteristics: Good Performance in Non Corrosive Environments, Conductive Silicone.



SAS SEALTRON® 1056 Silver Aluminum filled Silicone

Characteristics: Passivated Aluminum, Excellent In Corrosive Environments, Conductive Silicone.

SAS SEALTRON® 1157 Silver Aluminum filled Fluorosilicone

Characteristics: Passivated Aluminum, Excellent In Corrosive Environments, Conductive Fluorosilicone.

SAS SEALTRON® 1066 Silver Copper filled Silicone

Characteristics: High Performance in Non-Corrosive Environments, Conductive Silicone.

SAS SEALTRON® 1167 Silver Copper filled Fluorosilicone

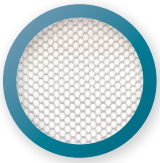
Characteristics: High Performance in Non-Corrosive Environments, Conductive Fluorosilicone.

Expanded Metal/Woven Screen Cloth in Elastomers

SAS SEALTRON® Expanded Metal/Woven Screen Cloth in Elastomers are perfect for use in applications where there are space concerns and/or where joint uneveness does not exceed .004 inches. These blended products maintain many of the advantages of each of there respective metal and elastomer combinations. They can be custom cut to any design.

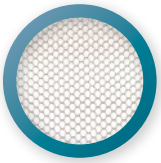
Methods Of Manufacture:

- ⊗ Die Cutting
- ◯ Water Jet Cutting
- ◯ Compression Molding
- ◯ Transfer Molding
- ◯ Injection Molding
- ◯ Liquid Injection Molding
- ◯ Extruding
- ◯ CNC Milling



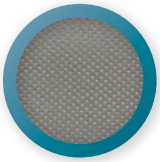
SAS SEALTRON® 3020 Expanded Aluminum

Characteristics: Shielding Characteristics Of Expanded Aluminum, No Pressure Sealing.



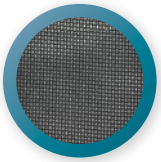
SAS SEALTRON® 3010 Expanded Monel

Characteristics: Shielding Characteristics Of Expanded Monel, No Pressure Sealing.



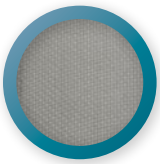
SAS SEALTRON® 3120 Expanded Aluminum in Silicone

Characteristics: Shielding Characteristics of Expanded Aluminum, Pressure Sealing Of Silicone.



SAS SEALTRON® 3220 Expanded Aluminum in Neoprene

Characteristics: Shielding Characteristics of Expanded Aluminum, Pressure Sealing Of Neoprene.

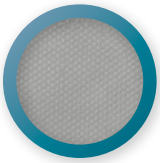


SAS SEALTRON® 3140 Woven Aluminum in Silicone

Characteristics: Shielding Characteristics of Woven Aluminum Screen Cloth, Pressure Sealing Of Silicone.

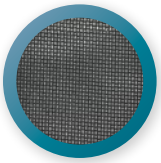
SAS SEALTRON® 3240 Woven Aluminum in Neoprene

Characteristics: Shielding Characteristics of Woven Aluminum Screen Cloth, Pressure Sealing Of Neoprene.



SAS SEALTRON® 3110 Expanded Monel in Silicone

Characteristics: Shielding Characteristics of Expanded Monel, Pressure Sealing Of Silicone.



SAS SEALTRON® 3210 Expanded Monel in Neoprene

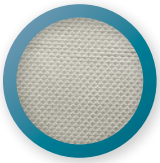
Characteristics: Shielding Characteristics of Expanded Monel, Pressure Sealing Of Neoprene.

Conductive Tapes and Oriented Wires in Elastomers

The following is a partial listing of Conductive Tapes and Oriented Wires in Elastomers. These products all have excellent electrical conductivity. The Oriented Wire in Elastomers are suggested for use in gasket applications requiring high levels of attenuation along with a moisture seal. They are also great for commercial shielding due to there low relative cost to particle filled elastomers. These can be custom cut to any design.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ○ Extruding
- ○ CNC Milling

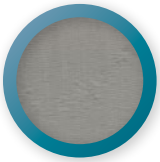


3M™ 1345

Characteristics: excellent electrical conductivity from the application substrate through the adhesive to the foil backing.

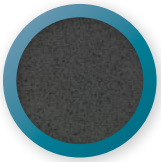
Copper Foil

Characteristics: Good Electrical and Heat Conductivity.



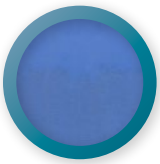
SAS SEALTRON® 2114 Oriented Monel in Silicone

Characteristics: Shielding Characteristics of Monel, Gasketing Characteristics of Silicone.



SAS SEALTRON® 2210 Oriented Monel in Silicone Sponge

Characteristics: Shielding Characteristics of Monel, Gasketing Characteristics of Silicone Sponge.

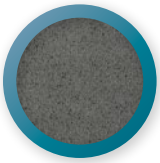


SAS SEALTRON® 2314 Oriented Monel in Fluorosilicone

Characteristics: Shielding Characteristics of Monel, Gasketing Characteristics of Fluorosilicone.

SAS SEALTRON® 2124 Oriented Aluminum in Silicone

Characteristics: Shielding Characteristics of Aluminum, Gasketing Characteristics of Silicone.



SAS SEALTRON® 2220 Oriented Aluminum in Silicone Sponge

Characteristics: Shielding Characteristics of Aluminum, Gasketing Characteristics of Silicone Sponge.

Paper or Plastic

SAS also converts from a variety of Papers and Plastics. Below is a partial listing. Through the use of Die Cutting, Water Jet Cutting, and CNC Milling we have the capabilities to make a vast array of both Paper and Plastic parts. The possibilities are limitless.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ○ Extruding
- ⊗ CNC Milling

Kapton

Characteristics: excellent electrical insulator and meets UL 94V0 for flame retardance.

Mylar

Characteristics: good complementary combination of physical, thermal and optical properties.

Nomex

Characteristics: high-density offering high inherent dielectric strength, mechanical toughness, flexibility and resilience.

Teflon

Characteristics: excellent chemical performance in extreme temperatures.

Melinex

Characteristics: well balanced properties for use in a wide range of applications.

G10/FR4 Glass Epoxy

Characteristics: excellent strength, low water absorption, and good electrical insulating qualities in dry and humid conditions. Also flame retardant.

Fishpaper

Characteristics: good electrical-insulation properties and flexibility.

Pressure Sensitive Adhesives

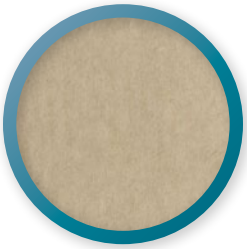
SAS has the capability to laminate any PSA to any rubber, paper, or plastic product. Below is a list of the most commonly used PSA's that we keep in stock. These are available on any product we sell. For Particle Filled Elastomers we recommend using 1 of the 2 Conductive PSA's (9712 or 9719).

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ○ Extruding
- ○ CNC Milling

3M™ 9817 (Value Grade Acrylic Transfer Tape)

Characteristics: Excellent quick stick and adhesion to high and low energy surfaces.



3M™ 9485 (High Performance Acrylic Transfer Tape)

Characteristics: modified acrylic adhesive ideal for very high-bond strength to many surfaces. They have excellent chemical resistance and bold strength even at elevated temperatures.

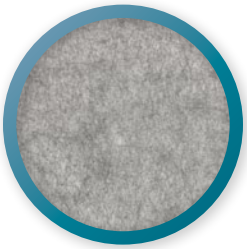
3M™ 467MP (High Performance Acrylic Transfer Tape)

3M™ 468MP (High Performance Acrylic Transfer Tape)

Characteristics: Clarity (virtually free of vapor inclusions that are commonly found in adhesives produced by the traditional solvent coating technique). Excellent high temperature performance as well as excellent shear strength (that minimizes edge lifting and slippage of parts). Excellent resistance to harsh environments; this adhesive can withstand splashes of organic solvents, weak acids and bases and salt water, cleaning solutions, germicidals, disinfectants, oils, etc. In addition, it performs well after exposure to humidity and hot/cold cycles.

3M™ 9712 (Acrylic Electrically Conductive Transfer Tape)

Characteristics: Electrically Conductive Acrylic PSA through all 3 axis (X, Y, and Z).



3M™ 9719 (Silicone Electrically Conductive Transfer Tape)

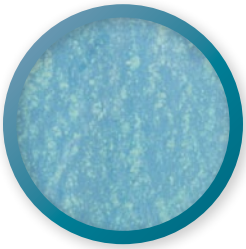
Characteristics: Electrically Conductive Silicone PSA through all 3 axis (X, Y, and Z).

Fiber and Asbestos Alternate Materials

SAS also converts from many Fiber and Asbestos Alternate materials. Below is a partial listing of what we can custom cut to virtually any design you can imagine.

Methods Of Manufacture:

- ⊗ Die Cutting
- ⊗ Water Jet Cutting
- ○ Compression Molding
- ○ Transfer Molding
- ○ Injection Molding
- ○ Liquid Injection Molding
- ○ Extruding
- ○ CNC Milling



Garlock Blue-Gard® 3000

Characteristics: Unique blend of aramid fibers, fillers, and a NBR rubber binder provides improved torque retention and drastically lowered emissions levels.

Branded Vellumoid

Characteristics: Treated cellulose fiber material impregnated with a protein glue and glycerin binder.

Interface Solutions CN705

Characteristics: Nitrile butadiene rubber binder for fluid resistance Generally suitable for oil, gasoline and water services.

Interface Solutions TS9003

Characteristics: Controlled-Swell alternative to high-swell compressed asbestos materials. Latent cure styrene binder on heat-resisting thermally stable fibers offers good sealing characteristics at low flange pressures.

Interface Solutions TN9000

Characteristics: Fully Cured binder, highly compressed material with good tensile strength, low creep relaxation, excellent fuel and oil resistance.

Interface Solutions CS-301

Characteristics: Dependable seal in water and high aniline point oil and in other service not involving aromatic fuels and certain solvents.

BLUE-GARD® is a trademark of the Garlock Company

MATERIAL SAMPLER BOOK

Postal Address:
SAS Industries Inc.
PO Box 245
Manorville, NY 11949

Physical Address:
SAS Industries Inc.
939 Wading River Manor Rd.
Manorville, NY 11949

Telephone: 631.727.1441
Fax: 631.727.1387
E-mail: info@sasindustries.com

www.sasindustries.com