



COHRLastic® Silicone Rubber Products

Cushioning

Gasketing

Insulation

Sealing

Vibration Damping

Silicone Rubber Products – Introduction

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COHRLastic® is the trade name for Saint-Gobain Performance Plastics' CHR® family of high-performance silicone rubber products. Flexible, resilient silicone rubber has a unique chemical structure that gives it high-temperature stability and general inertness unavailable in any other elastomer. As a result, COHRLastic® silicone rubber works in applications where no other material can be used.

Thermal stability

Silicone's physical properties are not adversely affected by prolonged exposure to temperatures from -100°F to +500°F. In addition, it can withstand intermittent exposure to even higher temperatures (*Time/Temperature Resistance*). Silicone far outdistances other elastomers in resistance to thermal degradation and outperforms other elastomers in general service life, compression set resistance, electrical strength and nonstick properties. Silicone also has good chemical and fluid resistance. Although it may swell in contact with some solvents, the rubber will return to its original dimensions, usually without permanent deterioration, after the solvent has evaporated. At elevated temperatures, CHR® silicone will outgas far less than other silicone elastomers. And if it should burn, it produces a nonconductive white ash and odorless, nontoxic smoke.

Inertness

COHRLastic® silicone rubber is odorless, tasteless and nontoxic. It contains no acid-producing chemicals and therefore is noncorrosive and nonstaining. Silicone rubber has excellent weatherability because it is unaffected by sunlight, ozone and/or extremely moist or dry conditions. It will not support the growth of fungus. The service life of COHRLastic® silicone rubber in room temperature applications is virtually unlimited.

Silicone variations for specific applications

General purpose silicone rubber itself is versatile material. Beyond that, there are different types available for specific applications.

Applications involving high heat and pressure call for a general purpose silicone rather than a high-strength variety. Reversion can result from high temperature and pressure, and the general purpose compounds have better resistance to this phenomenon.

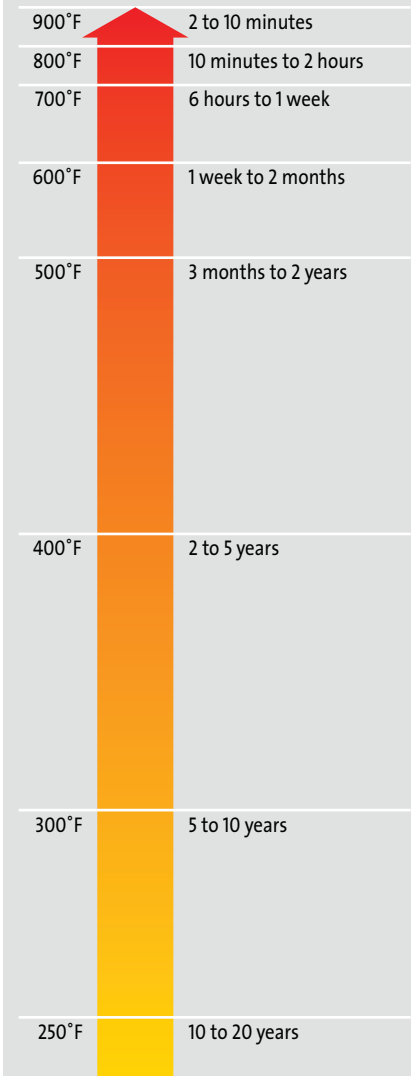
When fuel and solvents are present, a fluorinated silicone rubber is the best choice. This polymer affords maximum resistance to swelling and degradation associated with those fluids.

CHR® offers fluorosilicone sponge as a standard product. Solid sheet is available on special order.

High-strength silicones – those with a tensile strength of 1000 psi and higher – are the best choice for applications involving high elongation, flexing or tear resistance.

Time/Temperature Resistance

Based on temperature for 8 hours daily until rubber can no longer be elongated 50%





Unique Silicone Properties

- ▶ Long service life
- ▶ Excellent thermal properties
- ▶ Superior ablative properties
- ▶ Compression set resistance
- ▶ Consistent electrical properties
- ▶ Low outgassing
- ▶ Chemically inert
- ▶ Release ability
- ▶ Flame retardance

Self-adhering silicone sheet

Saint-Gobain Performance Plastics can apply pressure-sensitive silicone or acrylic adhesive to standard sheets (36" x 36") of COHRLastic® R10400, R10404, R10450, R10460, R10470, R10480 and R10490; COHRLastic® 300 through 700; and COHRLastic® 3320. Sheet thickness should be 1/16" or more for silicone adhesive and 1/32" for acrylic adhesive. CHR® F-12 silicone foam is available with a film-supported acrylic pressure-sensitive adhesive (PSA) in thicknesses of 1/16" to 1".

The self-adhering sheets permit substantial savings because they are easy to apply, simplify production and eliminate the high cost of bonding. The

silicone adhesive withstands the same temperature extremes, -100°F to +500°F, as the silicone rubber sheet.

Acrylic adhesive has a temperature range of -20°F to +300°F and offers the advantage of twice the adhesion to steel and a longer shelf life than silicone adhesive.

The self-adhering sheets are protected with an easily removed release liner. Apply to a clean, dry, degreased surface. Contact Saint-Gobain Performance Plastics for specialty materials.

Compression modulus

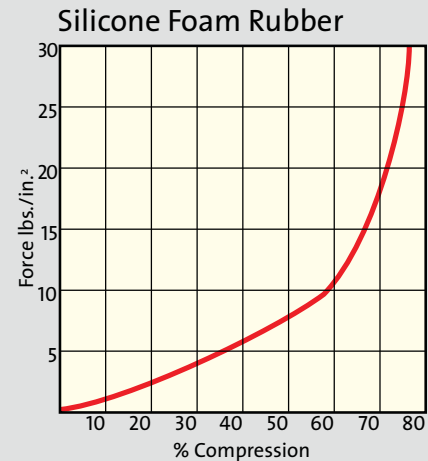
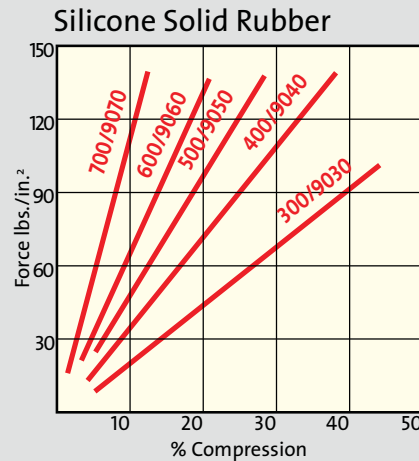
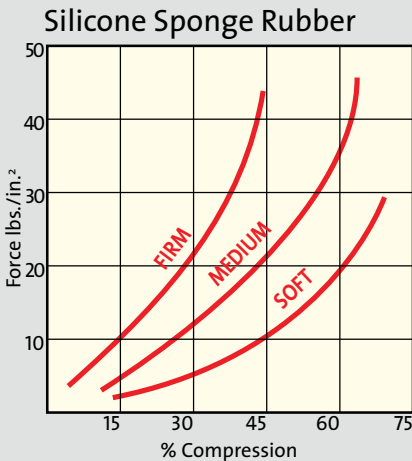
Compression modulus refers to the amount of pressure required to compress a piece of rubber to a certain

percentage of original thickness. *Compression Modulus* shows the values for silicone sponge, solid and foam. Testing was performed on 1/2" thick cylindrical specimens.

Problem solver

Our reputation for solving tough design problems is based on over 50 years of silicone rubber experience. And we are committed to developing and supplying the highest quality products and technical assistance that meet your exact needs. So Saint-Gobain Performance Plastics CHR® is the place to start whatever your silicone rubber requirements.

Compression Modulus (at room temperature)



Silicone Solid Rubber

COHRLastic® solid silicone rubber in square sheet and continuous length form has a smooth, blemish-free surface. It is available in degrees of hardness from relatively soft 30 durometer to the relatively hard 70 durometer on the Shore A scale. It is manufactured in different formulations to provide a choice of physical properties and cost considerations.

Series 300 – 700 COHRLastic® general-purpose sheet is available in thicknesses up to 1/2" and withstands temperatures from -100°F to +500°F.

Series 9030 – 9070 COHRLastic® is also general purpose, but is produced in

36" wide continuous lengths for the most efficient utilization of material, minimizing waste. Standard thicknesses are 1/32", 1/16" and 1/8". Withstands temperatures from -100°F to +500°F. Contact Customer Service for availability of additional thicknesses and colors.

Series 9200 high-performance COHRLastic® provides excellent tensile strength and superior tear resistance. It is tougher and more resilient than general-purpose silicone. Standard thicknesses are 1/32", 1/16" and 1/8", and it withstands temperatures ranging from -100°F to +400°F. A minimum thickness of .015" is available on a minimum quantity basis.



Red color is standard for general-purpose goods. Black or gray can be provided on a minimum quantity basis. The 9200 series is standard in gray, but clear or red can be supplied on a minimum quantity basis. Contact Customer Service for minimums.

COMMON PROPERTIES								
Dielectric Strength	500 volts/mil (approx.)							
Thermal Conductivity (average)	0.19 W/mK							
Specific Heat	0.3 BTU/lb./°F							
Linear Thermal Expansion (room temp. to +350°F)	1.5 x 10 ⁻⁴ in./in./°F							
SPECIFIC PROPERTIES	GENERAL PURPOSE					HIGH-PERFORMANCE		
	300/9030 [†]	400/9040 [†]	500/9050 [†]	600/9060 [†]	700/9070 [†]	9235	9255	9275
Color	red	red	red	red	red	gray	gray	gray
Thickness/Tolerance (inches)								
1/32	±.010	±.005	±.005	±.005	±.005	±.005	±.005	±.005
1/16	±.010	±.005	±.005	±.005	±.005	±.005	±.005	±.005
3/32 ^{†††}	±.010	±.010	±.010	±.010	±.010	±.010	±.010	±.010
1/8	±.010	±.010	±.010	±.010	±.010	±.010	±.010	±.010
3/16*	±.016	±.016	±.016	±.016	±.016	—	—	—
1/4*	±.031	±.031	±.031	±.031	±.031	—	—	—
5/16 ^{†††}	—	±.031	±.031	±.031	±.031	—	—	—
3/8*	—	±.031	±.031	±.031	±.031	—	—	—
1/2*	±.031	±.031	±.031	±.031	±.031	—	—	—
ZZ-R-765, A-A-59588 (Class 2a & 2b) (grade)	—	■	■	■	■	—	—	—
ZZ-R-765, A-A-59588 (Class 3b) (grade)	—	—	—	—	—	■	■	■
FDA Extractables, 21 CFR177.2600 (e) (f)	—	—	■	—	—	—	—	—
AMS	—	3301	3302	3303	3304	3348	3347	3349
Durometer (Shore A ±5) ^{††}	30	40	50	60	70	30	50	70
Tensile Strength (psi) ^{††}	850	900	900	700	750	1150	1200	1200
Elongation (%) ^{††}	500	500	400	200	160	800	600	350
Tear Strength (ppi) ^{††}	40	80	75	50	65	150	160	150
Compression Set (%) (after 70 hrs. at 320°F) ^{††}	15	15	15	20	20	30	30	30
After Dry Heat Aging for 70 hrs. at 437°F								
Durometer Change (points, Shore A)	+5	+5	+5	+5	+5	+10	+10	+10
Tensile Strength Change (%)	-10	-10	-10	-10	-10	-15	-20	-25
Elongation Change (%)	-20	-20	-30	-30	-30	-30	-30	-35
After Immersion in ASTM Oil #1 (high aniline point) for 70 Hrs. at 302°F								
Durometer Change (points, Shore A)	-5	-10	-10	-10	-10	-5	-5	-5
Tensile Strength Change (%)	-10	-10	-10	-10	-10	+5	0	0
Elongation Change (%)	-10	-5	-5	-5	-5	-5	-5	-5
Volume Change (%)	+10	+5	+5	+5	+5	+5	+5	+5

* Provided in 36" x 36" sheets only. No yard goods available for these thicknesses.

† COHRLastic® 300 – 700 provided in 36" x 36" sheets. COHRLastic® 9030 – 9070 provided as 36" wide yard goods.

†† ASTM Test Method used: Durometer (D2240), Tensile Strength and Elongation (D412), Tear Strength (D624), Compression Set (D395). Die B Method B, ASTM D2000 + Fed. Spec. ZZ-R-765.

††† Special order. Minimum quantities apply.

Reinforced Solid Rubber

CHR® silicone solid rubber reinforced with fiberglass is a dimensionally stable, durable material for press pads, belting and gasketing. It is available in six constructions.

CHR3320, available in three thicknesses, was developed to meet AMS 3320. Consequently, 3320 has lubricating oil resistance and excellent compression set resistance.

CHR4032 and **CHR4050** are thin, flexible and abrasion-resistant for general-purpose use.

CHR4420 is specially formulated for thermal stability and long life under extreme heat and pressure for extended dwell times. It resists reversion (i.e.,

softening and outgassing) longer than general-purpose silicone. Throughout its useful life, 4420 has thermal stability for consistent thermal conductivity.

CHR4444 has a specially formulated rubber compound to give better reversion resistance. The reinforcement is a special crush-resistant fiberglass, making the product excellent for press pads in high-temperature and pressure lamination applications.

CHR4480 utilizes our most reversion-resistant silicone rubber compound. The product is designed for use in applications involving the tough combination of prolonged high-pressure confinement at temperatures up to 600°F.



COMMON PROPERTIES												
Dielectric Strength	500 volts/mil (approx.)											
Thermal Conductivity (avg. from +75 to +350°F)	0.27 W/mK											
Elongation at Break	Less than 10%											
Linear Thermal Expansion	4.7 x 10 ⁻⁶ in./in./°F (fiberglass) 1.5 x 10 ⁻⁴ in./in./°F (silicone rubber)											
CONTINUOUS LENGTH												
Width	36" wide				40" wide		38" wide		40" wide			
SPECIFIC PROPERTIES												
	4032	4050	3320			4420		4444		4480		
Color	gray	gray	red			brown		red		dark gray		
Thickness (inches)*	1/32	.050	1/16	3/32	1/8	.045	1/16	1/16	3/32	1/8	1/16	1/8
Tolerance (inches)*	±.005	±.005	±.005	±.010	±.010	±.005	±.005	±.005	±.010	±.010	±.005	±.010
Fiberglass Thickness (inches)	.014	.014	.014	.014	.014	.007	.014	.135	.135	.135	.014	.014
Weight (ounces per square yard)*	35	57	65	94	124	48	65	72	104	144	65	150
Fiberglass (% of weight)	37	23	20	14	10	13	20	20	14	10	20	10
Weight Loss (4 hrs. at 400°F) (%)*	1.0	1.5	1.5	1.5	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Break Strength (warp) (PPI)*	300	300	300	300	300	225	300	400	400	400	300	300
Durometer (Shore A ±5)**	81	75	74	66	65	78	74	79	72	67	81	75

* ASTM Test Method used: Thickness/Tolerance, Weight, Weight Loss, Break Strength and Diaphragm Burst Strength (D751), Durometer (D2240).

**Actual rubber durometer is 50 for 4032; 60 for 3320, 4420, 4444; 70 for 4480.



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Silicone Sponge Rubber



Flexible, compressible COHRLastic® silicone closed-cell sponge is designed for high-performance gasketing, thermal shielding, vibration mounts and press pads. It is available in six constructions.

R10470, a general-purpose silicone sponge, can be used in most applications.

R10480 has extremely low compression set and maintains its resiliency even under extended compression.

R10460 is flame retardant. When held in a vertical position and exposed to a 2,000°F flame for 12 seconds, there is no residual flame and less than a 10-second afterglow. Like R10480, it is especially resistant to compression set.

R10450 silicone sponge with fiberglass reinforcement is a unique construction. It has the compressibility of sponge, plus dimensional stability in the X-Y direction. The absence of stretch contributes to the consistent size and shape of die-cut parts and eliminates outward extrusion under pressure.

R10490 fluorosilicone sponge rubber can be used as a gasket where it is necessary to contain fluids that would degrade normal silicone sponge and solid materials (special order basis).

R10404 closed-cell conformable silicone rubber sponge is designed for use where both conformability and heat transfer are necessary, such as between printed circuit boards and heat sinks, decal transfer or applying heat-activated adhesives.

R10400 offers the best flame-retardant properties in our closed-cell silicone products. Thicknesses down to and including 1/16" pass UL 94 with a V-0 rating. R10400 also offers excellent solvent resistance and is compatible with 21 CFR177.2600 FDA extractables for food contact. Meets specifications for UL 94 V-0, ASTM E162, ASTM E662, FAR 25.853 (A-1) and 25.856 (A-1 & B).



Silicone Sponge (continued)



SPECIFICATIONS	R10470M	R10470F	R10480S	R10480M	R10460	R10400	R10490
AMS 3195	■	—	—	■	■	■	—
AMS 3196	—	■	—	—	—	—	—
AMS 3323	—	—	—	—	—	—	■*
MIL-R-46089 & ASTM D1056 Type 2, Class A,B,C,D	■	■	—	■	■	—	—
Boeing BMS 1-23	■	—	—	■	■	—	—
Boeing BMS 1-60 Type I, Grade B	—	—	—	—	■	—	—
Douglas DMS 1980, Grade 2	—	—	—	—	■	—	—
MIL-R-6130 Type II, Grade A	—	—	—	—	■	—	■*
ASTM D6576 Type 2, Grade A, B, C	—	—	—	—	■	■	■*
ASTM D6576 Type 2, Grade B, C	■	■	■	■	—	—	—
ASTM D6576 Type 2, Grade A	—	—	—	—	—	■	—

*Does not comply with Flame Retardant requirements of specification.

This is a basic listing. Please consult Customer Support for possible approvals not listed above, and possible specific exceptions that might be taken.

COMMON PROPERTIES											
Water Absorption (ASTM D1056)	Less than 5%										
Dielectric Strength	145 volts/mil (approx.)										
Thermal Conductivity (average)	0.11 W/mK*										
Specific Heat	0.3 BTU/lb./°F										
Linear Thermal Expansion (room temp. to +350°F)	1.8 x 10 ⁻⁴ in./in./°F										
Outgassing (NASA testing)	Less than 1% weight loss (after 24 hrs. at 257°F in vacuum)										
CONSTRUCTION	GENERAL PURPOSE			LOW COMPRESSION SET		FLAME RETARDANT		REINFORCED	FLUORO-SILICONE	THERMALLY CONDUCT.	
Width/Sheet Size	36" wide 	36"x36" 		36"x36" 		36"x36" 	36" wide 	36"x36" 	36" wide 	36"x36" 	36"x36"
SPECIFIC PROPERTIES	R10470			R10480		R10460†	R10400		R10450	R10490	R10404
	medium	medium [†]	firm	soft	medium	medium	medium	medium	medium	medium	firm ^{††}
Color	orange-tan / black ^{†††} / gray ^{†††}			red	brown	dk blue	gray	gray	blue-gray	blue	lt green
Thickness/Tolerance (inches)											
1/32 /±.010	■	■	***	—	—	—	—	—	—	■	■
1/16 /±1/64	■	■	■	—	■	■	■	■	■	■	■
3/32 /±1/64	***	***	***	—	***	***	■	■	***	■	***
1/8 /±1/32	■	■	■	■	■	■	■	■	■	■	■
3/16 /±1/32	■	■	■	■	■	■	■	■	■	—	***
1/4 /+3/64 to -1/32	—	■	■	■	■	■	—	■	—	—	■
3/8 /±3/64	—	■	■	■	■	■	—	■	—	—	—
1/2 /±3/64	—	■	—	■	■	■	—	■	—	—	—
Compression Deflection (psi)** (compressed 25% at room temperature)	10	10	16	5	10	10	10	10	15	15	20
Tensile Strength (psi)**	90	90	130	50	75	75	100	100	125	180	120
Elongation at Break (%)**	150	150	200	75	125	125	250	250	<10	125	150
Compression Set (%)** (compressed 50% for 22 hrs. at 212°F)	15	15	15	5	5	5	10	10	25	25	15
Density (lb./ft. ³)**	29	29	43	21	29	29	35	35	35	35	69

† R10460 meets UL 94 Flammability Classification 94HBF. R10470 Medium and R10460 meet UL 157 Gasketing File No. MH12835.

†† Extra-firm grade available as a special request item.

††† R10470 Medium available in black and gray on a minimum quantity basis. R10470 Firm available in black on a minimum quantity basis. R10470 Firm not available in gray.

* R10404 thermal conductivity equals 0.45 W/mK when compressed at 25%.

** ASTM Test Method used: Compression Deflection and Compression Set (D1056), Tensile Strength and Elongation (D412), Density (D3574).

*** Special order. Minimum quantities apply.

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Silicone Foam



Low-density, flame-retardant COHRLastic® silicone foam yard goods provide outstanding performance for industries ranging from aviation and mass transit to automotive, electronics, construction and furniture.

In addition to a UL 94 V-0 listing in thicknesses down to 1/8", it withstands a 2100°F flame for more than 10 minutes without burning through in thicknesses down to 3/8".

The material, which has a nominal density of 12 pounds per cubic foot, generates very little white smoke.

Noncorrosive for use with metals and in hostile environments, it has low compression set. Among its applications are fireblocks, thermal barriers, noise and vibration dampeners, insulation and high-performance gaskets or seals.

For the aviation, automotive and mass transit industries, it offers a high degree of design flexibility. Lightweight and easy to process, it can be laminated to seat cover fabrics and carpeting as a backing for added flame resistance in passenger compartment furnishings.

The material has similar uses in institutional and residential furnishings, and in marine and lighting applications. It offers properties valuable in flame-retardant backings for floor, wall and

furniture coverings; fire wall and thermal barriers or insulation, padding and gasketing for commercial and private marine vehicles; or gasketing and sealing in high-intensity light fixtures and electronic components in medical, computer and business equipment.

Colored gray, it is supplied in 18" and 36" wide roll stock. Thicknesses are shown in the table below. It is available plain or, on special order, laminated to any of a wide range of substrates.

Because of the unique nature of COHRLastic® foam, Saint-Gobain Performance Plastics has undertaken a rigorous testing program performed at outside independent laboratories.

The tests document the flame resistant properties and low levels of toxicity and smoke generation as well as mechanical and electrical properties. Details are on file at Saint-Gobain Performance Plastics.

Performance Tests	Units / Values
Flame Spread Index, Radiant Panel, ASTM D3675	(Is) / 12.1
Limiting Oxygen Index, ASTM 2863	(%) / 34.0
Dielectric Constant, ASTM D150	at 100 Hz / 1.31 at 1 KHz / 1.30 at 1 MHz / 1.32
Arc Resistance, ASTM D495	(sec.) / 123
Insulation Resistance, ASTM D257	(10 ¹⁴ ohms) / 2.3
FDA Extractables, 21 CFR177.2600 (E) (F)	Pass
Noise Reduction Coefficient, ASTM C423-07, 84a paragraph 13.2	NRC / 0.5
Products Combustion, ASTM E662, Hydrogen Cyanide	Pass
Boston Fire Dept. Chair Test, January 1986	In compliance
FAR 25.853 (A-1)	Pass
UL 94 V-0 ≥1/8"	Pass
Smoke Density, ASTM E662, 4 min., smoldering mode	35.0
4 min., flaming mode	23.0
FAR 25.856 (A-1 & B)	Pass
Flame Spread Index, ASTM E162	11.5
Bombardier SMP 800C	Pass

PROPERTIES*	36" wide							18" wide	
	gray**								
Width	36" wide							18" wide	
Color	gray**								
Thickness/Tolerance (inches)	1/16	1/8	3/16	1/4	3/8	1/2	3/4	1	
Tolerance (inches)	±1/64	±1/32	±1/32	+3/64 to -1/32	±3/64	±3/64	±0.075	±0.1	
Surface Description†	Textured on one side								
Tensile Strength (psi)†	25								
Elongation at Break (%)†	60								
Density (lb./ft. ³)†	12								
Temperature Range (°F)	-60 to +400								
Vertical Burn (seconds)†	<3								
Compression Set (%) (compressed 50% for 22 hrs. at 212°F)†	10								
Thermal Insulation / R-Value	2.35 (ft. ² • h • °F/BTU • in.)								
Compression Deflection (psi)†	3.0								

* Stated properties are based on a 1/4" slab of material. Values are typical.

**Standard color. Other colors available on a minimum order basis.

† Test Method used: Surface Description (visual), Tensile Strength and Elongation Break (ASTM D412), Density (ASTM D3574), Vertical Burn (UL 94 V-0 and FAR 25.853 [A-1]), Compression Set and Compression Deflection (ASTM D1056), Thermal Conductivity (ASTM C177).

Tests, claims, representations and descriptions regarding flammability are based on standard laboratory tests and, as such, may not be reliable for determining, evaluating, predicting or describing the flammability or burning characteristics under actual fire conditions, whether used alone or in combination with other products. Accordingly, each potential user should make an individual determination whether the flammability or burning characteristics of the product are suitable for the purpose intended by the user.

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Strip-N-Stick® Silicone Tape



Strip-N-Stick® tape provides all the benefits of silicone rubber in an easy-to-apply, pressure-sensitive adhesive tape form. Compressible and flexible, it can conform to irregular surfaces, wrap over cylinders or be formed to produce right angles. Applications include gasketing, vibration damping and thermal insulation. The tape reduces the need for expensive die-cut-parts – you don't pay for the center. It also

eliminates the high cost of bonding and will be slit to order from 1/2" and up.

100S is a silicone sponge with high-temperature silicone adhesive.

200A is a silicone sponge with aggressive acrylic adhesive.

300AR is reinforced silicone sponge with aggressive acrylic adhesive. Its unique construction provides compressibility of sponge and dimensional stability of fiberglass reinforcement.

Stretch is eliminated, which contributes to the consistent size and shape of cut parts and inhibits outward extrusion under high pressure. It further permits close tolerance slitting.

440S is a 1/32" thick Shore A 30 durometer silicone solid with high-temperature silicone adhesive.

440A combines 30 durometer solid rubber with a high-adhesion acrylic adhesive for an excellent 1/32" thick



gasket material. It provides high elongation and good conformability.

512AF uses Saint-Gobain Performance Plastics' F-12 silicone foam along with film-supported acrylic pressure-sensitive adhesive. SNS 512AF passes the requirements of ASTM E162 and ASTM E662. SNS 100S is recognized under UL Gasket JMST2, KH12835.

Adhesive temperature range for silicone PSA is -100°F to +500°F and for acrylic PSA is -20°F to +300°F.

PROPERTIES							
	100S*	200A	300AR	440S	440A	512AF†	
Color	orange-tan	orange-tan	blue-gray	light gray	light gray	gray	
Base Material	R10470M	R10470M	R10450	—	—	F-12	
Silicone Rubber Material Type	sponge	sponge	fiberglass reinforced sponge	solid	solid	foam	
Adhesive Type (all with release liner)	silicone	acrylic	acrylic	silicone	acrylic	acrylic	
Density of Backing (lb./in. ³)*	.019	.019	.020	.040	.040	.007	
Adhesion to Steel (oz./in.)**	15	30	30	15	30	30	
Compression Deflection (psi) (compressed to 75% of orig. thickness)*	10	10	15	45	45	3	
Tensile Strength (psi)*	90	65	100 fabric break (ppi)	700	700	20 film break (ppi)	
Elongation (%)*	150	150	<10	650	650	75	
Compression Set (%) (compressed 50% for 22 hrs. at 212°F)*	25	25	25	30*	30*	5	
Thickness/Tolerance (inches)***							roll length (yards)
1/32 / ±.010	—	—	—	■	■	—	20
1/16 / ±1/64	■	■	■	—	—	■	10
3/32 / ±1/64	■	■	****	—	—	****	10
1/8 / ±1/32	■	■	■	—	—	■	10
3/16 / ±1/32	■	■	■	—	—	■	5
1/4 / ±3/64 to -1/32	■	■	—	—	—	■	5
3/8 / ±3/64	—	—	—	—	—	■	5
1/2 / ±3/64	—	—	—	—	—	■	5
Width (inches)	1/2 to 35	1/2 to 36	1/4 to 35	1/2 to 18	1/2 to 18	1/2 to 36	

† Meets UL 157.

* ASTM Test Method used: Density of Backing (D3574), Adhesion to Steel (D1000), Compression Deflection and Compression Set (D1056), Tensile Strength and Elongation (D412).

** Adhesive shelf-life when stored at 70° to 90°F at less than 50% humidity: silicone adhesive on sponge – 6 months, silicone adhesive on solid – 6 months, acrylic adhesive on sponge – 2 years. To maximize shelf-life, store at 40° to 50°F.

*** Thickness tolerances for backing material only.

**** Special order. Minimum quantities apply.

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Thermally and Electrically Conductive Products



Conductive silicones many performance advantages to the electronic assembly market. By the use of special fillers, silicone can be made thermally or electrically conductive.

TF1818 is a smooth, calender-coated product offering greater conformability, cut-through resistance and dielectric strength while maintaining a low level of thermal resistance.

TF1867, 1869, 1877, 1879 and the **Furo 400 Series** are thermally conductive coated fabrics providing thin, cost-effective heat transfer capability. All are obtainable plain or with thermally conductive pressure-sensitive adhesive on one side. The line is available in die-cut configurations. Consult your nearest CHR® distributor for pricing.

TC100, an unsupported, thermally conductive solid silicone available

in several thicknesses, provides thermal and mechanical protection to electronic devices.

TC100U, in the uncured state, is an effective system for bonding printed circuit boards, heat sinks and electronic components to a variety of substrates. Refrigerated storage is required.

EC102 electrically conductive silicone performs three distinct functions: carbon filler allows it to act as a low amperage conductor; it shields RF and EM interference; and it protects against electrostatic discharge.

See page 6 for **R10404** thermally conductive sponge.

PROPERTIES	SILICONE-COATED FABRICS							THERMALLY CONDUCTIVE SOLID SILICONE		ELECTRICALLY CONDUCTIVE SILICONE
	18" wide	36" wide						18" wide		36" wide
Width/Sheet Size	1818	1867*	1869	1877*	1879	407*	409*	TC100	TC100U	EC102
Color	gray	gray	gray	lt green	lt green	gray	gray	lt blue	white	black
Thickness (inches)	.018	.0075	.0095	.0070	.009	.007	.009	.025 1/32 1/16	.015 1/32 1/16	.020 1/32 1/16 1/8
Tolerance (inches)	±.003	±.001	±.001	±.001	±.001	±.001	±.001	—	—	—
Break Strength (ppi)	60	100	100	100	100	100	100	250	200	700
Specific Gravity	—	—	—	—	—	—	—	—	—	60†
Durometer (Shore A)	—	—	—	—	—	—	—	—	—	60†
Elongation (%)	<5	<5	<5	<5	<5	<5	<5	200	350	200
Tear Strength (ppi)	—	—	—	—	—	—	—	—	—	60†
Hardness (Shore A)	84	85	85	85	85	85	85	65	65	—
Dielectric (volts total)	9000	2500	3000	3000	3500	3500	4000	250 (VPM)	250 (VPM)	—
Volume Resistivity (ohm-cm)	1 x 10 ¹⁴	1 x 10 ¹⁴	1 x 10 ¹⁴	1 x 10 ¹⁴	1 x 10 ¹⁴	1 x 10 ¹⁴	1 x 10 ¹⁴	5 x 10 ¹⁴	1 x 10 ¹⁴	5†
Thermal Conductivity (W/m-K)	1.0	0.8	0.8	1.2	1.2	0.9	0.9	1.3	1.3	—
Thermal Impedance (°C in. ² /W) (ASTM E1530)††	0.71	0.37	0.44	0.23	0.29	0.31	0.39	1.25	1.25	—
UL 94 Rating (File: E57750)	VO	VTM-O	VTM-1	VO	VO	VO	VO	HB	—	—
Compression Set (%) (22 hrs. at 212°F)	—	—	—	—	—	—	—	—	—	20†
Temperature Range (°F)	80 to +400									—

* Thermally conductive acrylic PSA is available for 1867, 1877 and Furo 407 and 409. Thermally conductive silicone PSA is available for 1877 and 1879. PSA adds approx. .06°C/W to the thermal resistance of each product.

** Provided on a minimum order basis.

*** Sheets may be split to other thicknesses. Consult factory.

† ASTM Test Method used: Tensile Strength and Elongation (D412), Durometer (D2240), Tear Strength (D624, Die B), Compression Set (D395), Volume Resistivity (D991).

†† Thermal Impedance was conducted on 1/16" TC 100 and TC 100U.

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Thermally-Conductive Gap Fillers



Saint-Gobain offers highly compliant gap fillers that provide heat transfer across a range of air gaps. These products are designed to accommodate today's shrinking board sizes, which require materials that efficiently expand to fill uneven spaces between multiple components and heat sinks with minimal compression force.

Our gap filler product line provides world-class performance with low compression force while ensuring excellent thermal conductivity and providing a superior, cost-efficient gap filler solution. All products listed are UL 94 V-0 rated, and RoHS compliant.

TC2006 is a soft, economical (cost-efficient), highly compliant gap filler used for many applications. Excellent balance between thermal conductivity and compression force. Product is intrinsically tacky for instant grab, reducing the need for an adhesive.

TC3006 offers outstanding compression performance, allowing 45-50% compression without exceeding



10 psi on components. Best-in-class blend of thermal conductivity and compression pressure.

TC3008 features high-performance gap fillers with 3 W/mK conductivity and excellent compliance. Offering excellent thermal conductivity, TC3008 still remains soft and compliant for gap filling applications requiring low pressures to fill various gap thicknesses.



PHYSICAL PROPERTY	TEST METHOD	TC2006	TC3006	TC3008
Color	—	light purple	light green	light blue
Thickness, Nominal (mils)	ASTM D374	20-250	20-250	20-250
Thermal Conductivity (W/mK)	ASTM D5470	1.6	1.1	3.0
Thermal Impedance (°C in. ² /W)	ASTM D5470	see data at right	see data at right	see data at right
Hardness (Shore 00)	ASTM D2240	35	<35	50
Dielectric Strength (Volts per mil)	ASTM D149	250	250	250
Operating Temperature (°C)	—	-54 to 200	-54 to 200	-54 to 200
Flame Rating	UL 94	V-0	V-0	V-0

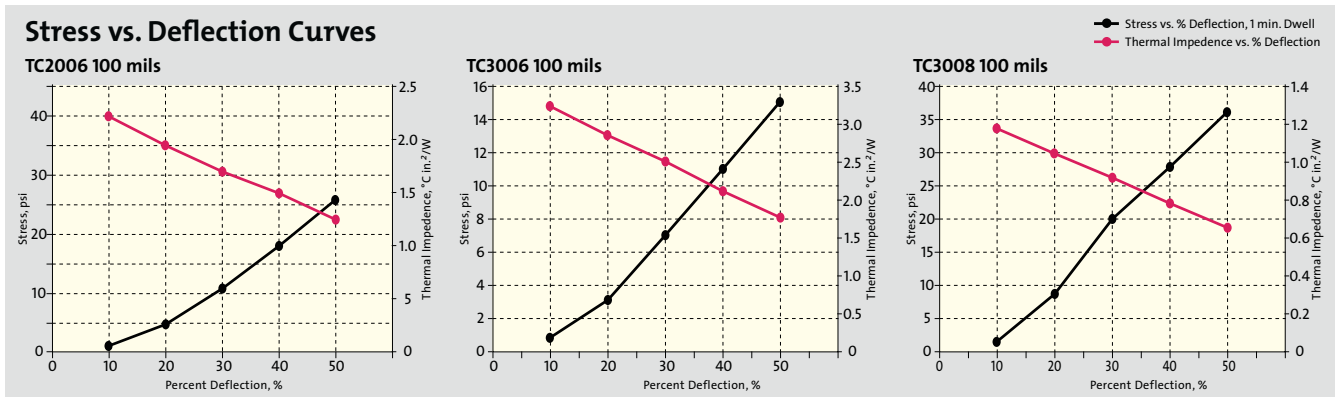
COMPRESSION DEFLECTION			
PRODUCT	PERCENT	DEFLECTION FORCE (PSI)	THERMAL IMPEDANCE (°C IN ² /W)
TC2006 (100 mils thick)	10	1	2.21
	30	11	1.72
	50	26	1.23
TC3006	10	1	3.22
	30	7	2.51
	50	15	1.79
TC3008	10	2	1.18
	30	20	1.05
	50	35	.92

Compression force is recorded after one-minute dwell time at the compression setting.

Standard sheet size is 24" x 24".

Available with fabric or film reinforcements as custom items.

Tacky surfaces are available on one or both sides.



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Performance Taking Shape

Every day, Saint-Gobain products provide customers with the highest levels of performance – performance which is the result of creative ideas and innovative technologies.

A recognized leader in advanced polymer technology, Saint-Gobain Performance Plastics is part of an international family of companies comprising Compagnie de Saint-Gobain, a global force in engineered materials. With a worldwide network of manufacturing and sales facilities, Saint-Gobain Performance Plastics brings years of experience to developing innovative polymer solutions for its customers.



Saint-Gobain Performance Plastics is a world leader in the development and manufacturing of specialty foams. In addition to COHRLastic® silicone rubber, Saint-Gobain offers NORSEAL®, NOREX®, and KOREL® products for less severe sealing and gasketing needs.



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Cell Size: COHRLastic® silicone sponge products may show variations in cell size. This is not a cause for rejection if CHR® finished product standards are met.

Strip-N-Stick® Dimensions: Upon removal of the liner, the potential exists for dimensional changes as the sponge relaxes. Specifications subject to change without notice.