

## Fujipoly Data Sheet

# SARCON® GR-Pm series

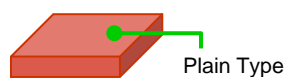
## Extremely Compressible Gap Filler Type

### FEATURES

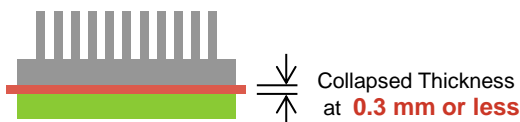
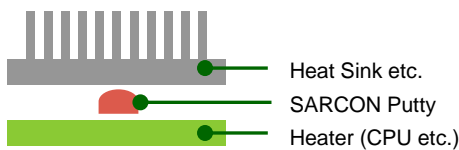
#### Highly Thermally Conductive and Non-Flammable interface materials.

SARCON® Extremely Compressible Gap Filler Type (Putty Type) is a highly conformable, thermally conductive, non-flammable interface materials. The surface consistency is excellent for filling small air gaps and uneven mating surface, making reliable contact with various shapes and sizes of components.

### CONSTRUCTION

Series	Characteristics	Constructions
<b>SARCON® GR-Pm</b>	Silicone compound with double sticky surfaces and Thermal Conductivity of GR-Pm material is 6.0W/m-K by using Hot Wire (4.5W/m-K by using Hot Disk)	 Plain Type

### RECOMMENDED APPLICATION



To determine the size and volume of SARCON Putty Type to be used, follow this helpful example:



EX.  
Original Gap :  $V=67.5\text{mm}^3$   
(0.3mm H x 15mm W x 15mm L)

Decide Thickness of SARCON depend on the compression force  
e.g. Decided Thickness = 1.0mm

$$\sqrt{67.5(V) \times 1(T)} = 8.21 \text{ mm}$$

⇒ use ; **8.5 mm x 8.5 mm x 1.0 mm**

### THERMAL RESISTANCE

Unit : K-cm<sup>2</sup>/W (K-in<sup>2</sup>/W)

Compression Force	1.5mmT	2.0mmT	2.5mmT
100kPa /14.5psi	2.9 (0.45)	3.3 (0.52)	4.3 (0.67)
300kPa /43.5psi	1.2 (0.19)	1.7 (0.26)	2.0 (0.31)
500kPa /72.5psi	0.8 (0.12)	1.0 (0.16)	1.4 (0.22)

Test method: Fujipoly Test method, FTM-P3050 by TIM Tester 1300 which is ASTM D5470 equivalent  
• Specimen Area; DIA.33.0mm (1.30in)

**TYPICAL PROPERTIES**

Properties		unit	GR-Pm		Test method	Specimen	
Physical Properties	Color	-	Dark Radish Gray		Visual	-	
	Specific Gravity	-	3.2		ASTM D792	A	
Electrical Properties	Volume Resistivity	Ohm-m	1.0x10 <sup>12</sup>		ASTM D257	B	
	Breakdown Voltage	kV/mm (volts/mil)	18 (457)		ASTM D149	B	
	Dielectric Strength	kV/mm (volts/mil)	13 (330)		ASTM D149	B	
	Dielectric Constant	-	50Hz	7.37		ASTM D150	A
			1kHz	7.31			
			1MHz	7.34			
Dissipation Factor	-	50Hz	0.0101		ASTM D150	A	
		1kHz	0.0022				
		1MHz	0.0007				
Thermal Properties	Thermal Conductivity	W/m-K	6.0 by Hot Wire		ASTM D2326	-	
			4.5 by Hot Disk		ISO/CD 22007-2		
	Useful Temperature	°C (°F)	-40 to +150 (-40 to +302)		-	-	
	Low molecular Siloxane	wt%	D <sub>4</sub> to D <sub>20</sub> Total	0.0031 or less		Gas Chromatography	-
Flame Retardant	-	V-0		UL 94	-		

• Each Specimens are cured for measurement. • Specimen A: 2mmT • Specimen B: 120mmW × 120mmL × 1mmT

**COMPRESSION FORCE**Unit : N/6.4cm<sup>2</sup> (psi)

Compression Ratio	1.5mmT	2.0mmT	2.5mmT
10%	53 (12.0)	52 (11.8)	50 (11.3)
20%	153 (34.7)	144 (32.6)	123 (27.9)
30%	265 (60.0)	231 (52.3)	207 (46.9)
40%	375 (85.0)	314 (71.1)	289 (65.5)
50%	492 (111.5)	408 (92.4)	371 (84.1)
Sustain 50%	144 (32.6)	118 (26.7)	76 (17.2)

Test method: Measured by ASTM D575-91 for reference

- Specimen Area; DIA.28.6mm (1.13in)
- Platen Area; DIA. 28.6mm (1.13in)
- Sustain 50%: Sustain 50% at 1 minute later
- Compression Velocity; 5.0mm/minute

**DURABILITY**Unit : K-cm<sup>2</sup>/W

Test Property	Compression Ratio	70°C					150°C				
		Initial	100hrs	250hrs	500hrs	1,000hrs	Initial	100hrs	250hrs	500hrs	1,000hrs
Thermal Resistance	30%	1.7	1.8	1.8	1.8	1.8	1.7	1.9	2.0	2.3	2.3
	70%	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.3	1.3
	90%	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4

Test Property	Compression Ratio	60°C/90%RH					-40°C(30min)↔+125°C(30min)				
		Initial	100hrs	250hrs	500hrs	1,000hrs	Initial	100hrs	250hrs	500hrs	1,000hrs
Thermal Resistance	30%	1.68	1.68	1.68	1.68	1.65	1.68	1.78	1.78	1.80	1.83
	70%	0.90	0.90	0.90	0.90	0.91	0.90	0.98	1.07	1.07	1.07
	90%	0.52	0.53	0.59	0.60	0.60	0.52	0.44	0.44	0.42	0.42

- Thermal Resistance ; Measured by using ASTM D5470 modified, refer to Fujipoly Test method FTM P-3030.
- Specimen Area; 30% and 70% compression ratio = 10mm square , initial thickness = 1.5mm
- Specimen Area; 90% compression ratio = 5mm square , initial thickness = 1.5mm  
(Specimen is sandwiched between aluminum blocks.)

reduced temperature

-40°C = -40°F

60°C = 140°F

70°C = 158°F

125°C = 257°F

150°C = 302°F

**TYPES AND CONFIGURATION**

Series	Product Name	Thickness	Sheet Size
SARCON® GR-Pm	150G-Pm	1.5mm +0.5/-0mm	300mm x 200mm (Recommended Usable Size:290mmx190mm)
	200G-Pm	2.0mm +0.7/-0mm	
	250G-Pm	2.5mm +0.7/-0mm	

**HANDLING NOTES**

- It is recommended to compress the material with the equal ratio on the whole surface. Partial excessive stress may also result in excessive silicone oil exudation.

**WARRANTY STATEMENT**

- Fujipoly has been utilizing Hot Disk method and TIM Tester method since Fujipoly defined them as Fujipoly standard.
- Properties of the products may be revised due to some changes for improving performance.
- Fujipoly Test method FTM-P3030 based on ASTM D5470 and ASTM C177 (GHP) method.
- Properties values in this document are not specification or guaranteed.
- This product is made of silicone, and silicone oil may exude from the product.
- This product is made of silicone, and low molecular siloxane may vaporize depending on operating conditions.
- The product is designed, developed, and manufactured for general industrial use only. Never use for medical, surgical, and/or relating purposes. Never use for the purpose of implantation and/or other purposes by which a part of or whole product remains in human body.
- Before using, a safety must be evaluated and verified by the purchaser.
- Contents described in the document do not guarantee the performances and qualities required for the purchaser's specific purposes. The purchaser is responsible for pre-testing the product under the purchaser's specific conditions and for verifying the expected performances.
- Statements concerning possible or suggested uses made herein may not be relied upon, or be constructed, as a guaranty of no patent infringement.
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