

Fujipoly Data Sheet

SARCON GR-ae series

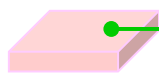
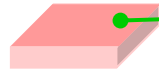
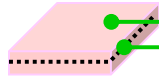
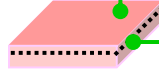
Gap Filler Type

FEATURES

Highly Conformable, Non-Flammable, Isolation and High Heat Conducting Gel materials.

- Gap filler materials are supplied in a fully cured state and remain pliable, easy conforming to minute surface irregularities.
- The basic Gap Filler Pad series can be further enhanced for special handling and die-cutting requirements.

CONSTRUCTIONS

Series	Characteristics	Constructions
SARCON GR-ae	Silicone compound with double sticky surfaces and Thermal Conductivity of GR-ae material is 1.5W/m-K by using Hot Wire (1.3W/m-K by using Hot Disk)	 Plain Type
SARCON GR-Hae	Silicone compound as above GR-ae plus additional hardening of the top surface to facilitate handling and installation during complex assemblies	 Hardened Surface
SARCON GR-F2ae	Silicone compound with Nylon mesh reinforcement stiffener to prevent stretching	 Plain Type Nylon Mesh
SARCON GR-HF2ae	Silicone compound as above GR-F2ae plus additional hardening of the top surface to facilitate handling and installation during complex assemblies	 Hardened Surface Nylon Mesh

THERMAL RESISTANCE

GR-ae

Unit : K-cm²/W (K-in²/W)

Compression Force	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
100kPa /14.5psi	4.1 (0.63)	6.1 (0.94)	7.7 (1.19)	9.7 (1.51)	12.4 (1.92)	12.5 (1.93)	13.9 (2.16)	17.8 (2.76)
300kPa /43.5psi	3.2 (0.50)	4.4 (0.69)	5.9 (0.92)	6.9 (1.07)	8.2 (1.27)	8.9 (1.37)	9.9 (1.53)	12.5 (1.94)
500kPa /72.5psi	2.8 (0.43)	3.8 (0.58)	4.9 (0.76)	5.5 (0.86)	6.7 (1.03)	7.0 (1.09)	8.1 (1.25)	10.3 (1.60)

GR-Hae

Compression Force	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
100kPa /14.5psi	4.3 (0.67)	6.6 (1.02)	8.7 (1.35)	11.7 (1.81)	12.4 (1.92)	14.3 (2.21)	17.1 (2.65)	20.3 (3.14)
300kPa /43.5psi	3.5 (0.54)	5.4 (0.84)	7.0 (1.09)	9.1 (1.42)	9.1 (1.41)	10.3 (1.60)	12.3 (1.91)	14.2 (2.20)
500kPa /72.5psi	3.0 (0.46)	4.7 (0.72)	5.9 (0.92)	7.2 (1.12)	7.2 (1.12)	8.1 (1.26)	9.9 (1.54)	11.4 (1.76)

GR-F2ae

Compression Force	0.5mmT	1.0mmT	2.0mmT
100kPa /14.5psi	4.3 (0.66)	7.7 (1.19)	12.9 (2.00)
300kPa /43.5psi	4.1 (0.64)	6.8 (1.06)	10.6 (1.64)
500kPa /72.5psi	3.9 (0.60)	6.2 (0.96)	9.1 (1.41)

GR-HF2ae

Compression Force	0.5mmT	1.0mmT	2.0mmT
100kPa /14.5psi	4.5 (0.69)	8.0 (1.24)	13.1 (2.03)
300kPa /43.5psi	4.4 (0.67)	7.1 (1.10)	11.1 (1.72)
500kPa /72.5psi	4.1 (0.64)	6.4 (0.99)	9.7 (1.50)

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-ae	Test method	Specimen	
Physical Properties	Color	-	Apricot	Visual	-	
	Specific Gravity	-	2.0	ASTM D792	A	
	Hardness Highest Value	Shore OO (ASKER-C)	15 (5) (reference)	ASTM D2240 JIS K7312	B	
	Tensile Strength	MPa (psi)	0.1 (14.5)	ASTM D412	A	
	Elongation	%	300	ASTM D412	A	
	Tear Strength	N/mm (ppi)	0.7 (4.0)	ASTM D624	A	
Electrical Properties	Volume Resistivity	Ohm-m	1.0×10^{12}	ASTM D257	C	
	Breakdown Voltage	kV/mm (volts/mil)	17 (432)	ASTM D149	C	
	Dielectric Strength	kV/mm (volts/mil)	11 (279)	ASTM D149	C	
	Dielectric Constant	-	50Hz	4.91	ASTM D150	A
			1kHz	4.65		
			1MHz	4.50		
	Dissipation Factor	-	50Hz	0.0513	ASTM D150	A
1kHz			0.0202			
1MHz			0.0035			
Thermal Properties	Thermal Conductivity	W/m-K	1.5 by Hot Wire	ASTM D2326	-	
			1.3 by Hot Disk	ISO 22007-2		
	Useful Temperature	°C (°F)	-40 to +150 (-40 to +302)		-	-
	Low molecular Siloxane	wt%	D ₃ ~ D ₁₀ 0.0014 D ₁₁ ~ D ₂₀ 0.0010	Gas Chromatography	-	-
	Flame Retardant	-	V-0	UL 94	-	-

- Specimen A : 2mmT • Specimen B : 30mmW x 50mmL x 12mmT (3mmT x 4pcs) • Specimen C : 120mmW x 120mmL x 1mmT
- Test methods of Thermal Conductivity are based on Fujipoly Test Method, FTM P-1612 by Hot Disk and FTM P-1620 by Hot Wire.

COMPRESSION FORCE**GR-ae**Unit : N/6.4cm² (psi)

Compression Ratio	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
10%	47 (10.7)	41 (9.3)	35 (7.9)	31 (7.0)	28 (6.3)	27 (6.1)	17 (3.9)	12 (2.7)
20%	205 (46.5)	148 (33.5)	113 (25.6)	84 (19.0)	71 (16.1)	57 (12.9)	33 (7.5)	28 (6.3)
30%	363 (82.2)	263 (59.6)	203 (46.0)	158 (35.8)	125 (28.3)	94 (21.3)	53 (12.0)	47 (10.7)
40%	516 (116.9)	386 (87.5)	305 (69.1)	243 (55.1)	194 (44.0)	158 (35.8)	85 (19.3)	78 (17.7)
50%	656 (148.6)	513 (116.2)	425 (96.3)	353 (80.0)	287 (65.0)	231 (52.3)	138 (31.3)	120 (27.2)
Sustain 50%	306 (69.3)	249 (56.4)	210 (47.6)	185 (41.9)	163 (36.9)	124 (28.1)	60 (13.6)	53 (12.0)

GR-Hae

Compression Ratio	0.5mmT	1.0mmT	1.5mmT	2.0mmT	2.5mmT	3.0mmT	4.0mmT	5.0mmT
10%	159 (36.0)	139 (31.5)	115 (26.1)	81 (18.4)	63 (14.3)	40 (9.1)	24 (5.4)	21 (4.8)
20%	305 (69.1)	246 (55.7)	203 (46.0)	137 (31.0)	112 (25.4)	75 (17.0)	51 (11.6)	41 (9.3)
30%	452 (102.4)	355 (80.4)	293 (66.4)	217 (49.2)	165 (37.4)	123 (27.9)	88 (19.9)	72 (16.3)
40%	609 (138.0)	493 (111.7)	405 (91.8)	331 (75.0)	264 (59.8)	202 (45.8)	151 (34.2)	123 (27.9)
50%	794 (179.9)	672 (152.3)	575 (130.3)	494 (111.9)	387 (87.7)	295 (66.8)	243 (55.1)	200 (45.3)
Sustain 50%	459 (104.0)	355 (80.4)	310 (70.2)	286 (64.8)	203 (46.0)	154 (34.9)	130 (29.5)	106 (24.0)

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

GR-F2aeUnit : N/6.4cm² (psi)

Compression Ratio	0.5mmT	1.0mmT	2.0mmT
10%	125 (28.3)	103 (23.3)	75 (17.0)
20%	355 (80.4)	282 (63.9)	178 (40.3)
30%	606 (137.3)	501 (113.5)	287 (65.0)
40%	888 (201.2)	723 (163.8)	422 (95.6)
50%	1172 (265.5)	969 (219.5)	571 (129.4)
Sustain 50%	949 (215.0)	601 (136.2)	250 (56.6)

GR-HF2ae

Compression Ratio	0.5mmT	1.0mmT	2.0mmT
10%	166 (37.6)	136 (30.8)	83 (18.8)
20%	377 (85.4)	302 (68.4)	193 (43.7)
30%	620 (140.5)	524 (118.7)	328 (74.3)
40%	894 (202.5)	753 (170.6)	494 (111.9)
50%	1172 (265.5)	1029 (233.1)	664 (150.4)
Sustain 50%	959 (217.3)	648 (146.8)	314 (71.1)

Test method : Measured by ASTM D575-91 for reference

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

DURABILITY

Test Property	Unit	70°C		150°C	
		Initial	After 2,000hrs	Initial	After 2,000hrs
Specific Gravity	-	2.0	2.0	2.0	2.0
Hardness	(ASKER C)	5	5	5	6
Breakdown Voltage	kV/mm	17	20	17	24
Thermal Conductivity	W/m-K	1.3	1.3	1.3	1.3

Test Property	Unit	60°C/95%RH		-40°C(30min)⇔+125°C(30min)	
		Initial	After 2,000hrs	Initial	After 2,000hrs
Specific Gravity	-	2.0	2.0	2.0	2.0
Hardness	(ASKER C)	5	5	5	24
Breakdown Voltage	kV/mm	17	20	17	24
Thermal Conductivity	W/m-K	1.3	1.3	1.3	1.3

- Specimen : GR-ae • Test methods of Thermal Conductivity base on Fujipoly Test Method, FTM P-1612 by Hot Disk.

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-ae	50G-ae	0.5mm ± 0.05mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	100G-ae	1.0mm ± 0.10mm	
	150G-ae	1.5mm ± 0.15mm	
	200G-ae	2.0mm ± 0.20mm	
	250G-ae	2.5mm ± 0.25mm	
	300G-ae	3.0mm ± 0.30mm	
	350G-ae	3.5mm ± 0.35mm	
	400G-ae	4.0mm ± 0.40mm	
	450G-ae	4.5mm ± 0.45mm	
SARCON GR-Hae	50G-Hae	0.5mm ± 0.05mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	100G-Hae	1.0mm ± 0.10mm	
	150G-Hae	1.5mm ± 0.15mm	
	200G-Hae	2.0mm ± 0.20mm	
	250G-Hae	2.5mm ± 0.25mm	
	300G-Hae	3.0mm ± 0.30mm	
	350G-Hae	3.5mm ± 0.35mm	
	400G-Hae	4.0mm ± 0.40mm	
	450G-Hae	4.5mm ± 0.45mm	
SARCON GR-F2ae	50G-F2ae	0.5mm ± 0.15mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	100G-F2ae	1.0mm ± 0.20mm	
	150G-F2ae	1.5mm ± 0.20mm	
	200G-F2ae	2.0mm ± 0.30mm	
SARCON GR-HF2ae	50G-HF2ae	0.5mm ± 0.15mm	300mm × 200mm (Recommended Usable Size: 290mm×190mm)
	100G-HF2ae	1.0mm ± 0.20mm	
	150G-HF2ae	1.5mm ± 0.20mm	
	200G-HF2ae	2.0mm ± 0.30mm	

HANDLING NOTES

- It is recommended to use the material in up to 30% of compression ratio. Using the material beyond the recommended compression rate may result in excessive silicone oil exudation.
- 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.
- 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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