

Fujipoly Data Sheet

SARCON® GR-ae series

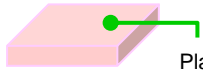
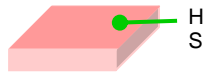
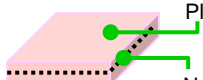
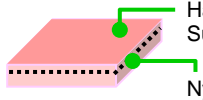
Gap Filler Type

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 (0.92)	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 D 792	A	
	Hardness Highest Value	Shore OO (ASKER C)	15 (5) (reference)	ASTM D2240 (ISO 7619)	B	
	Tensile Strength	MPa (psi)	0.1 (14.5)	ASTM D 412	A	
	Elongation	%	300	ASTM D 412	A	
	Tear Strength	N/mm (ppi)	0.7 (4.0)	ASTM D 624	A	
Electrical Properties	Volume Resistivity	Ohm-m	1.0×10^{12}	ASTM D 257	C	
	Breakdown Voltage	kV/mm (volts/mil)	17 (432)	ASTM D 149	C	
	Dielectric Strength	kV/mm (volts/mil)	11 (279)	ASTM D 149	C	
	Dielectric Constant	-	50Hz	4.91	ASTM D 150	A
			1kHz	4.65		
			1MHz	4.50		
	Dissipation Factor	-	50Hz	0.0513	ASTM D 150	A
1kHz			0.0202			
1MHz			0.0035			
Thermal Properties	Thermal Conductivity	W/m-K	1.5 by Hot Wire	ASTM D 2326	-	
			1.3 by Hot Disk	ISO/CD 22007-2		
	Useful Temperature	°C (°F)	-40 to +150 (-40 to +302)		-	-
	Low molecular Siloxane	wt%	D ₄ to D ₂₀ Total	less than 0.0010	Gas Chromatography	-
Flame Retardant	UL94	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 (59.6)	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 (31.27)	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	
	500G-ae	5.0mm ± 0.50mm	
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	
	500G-Hae	5.0mm ± 0.50mm	
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	
SARCON® GR-Tae	30G-Tae	0.3mm ± 0.06mm	50mm x 50mm

30G-Tae: Exchanging from Nyron Mesh to PET Mesh of GR-HF2ae

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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