

Fujipoly Data Sheet

SARCON® GR14B series

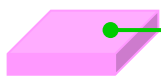
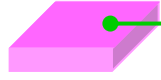
Gap Filler Type

FEATURES

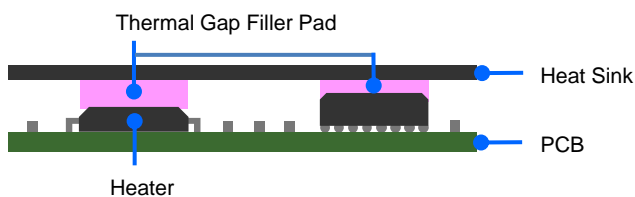
Highly Conformable, Non-Flammable, Isolation and High Heat Conducting Gel materials.

- 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.
- This product has a lower specific gravity and less oil bleeding than our conventional products.

CONSTRUCTIONS

| Series | Characteristics | Constructions |
|------------------|--|--|
| SARCON® GR14B-00 | Silicone compound with double sticky surfaces and Thermal Conductivity of GR14A material is 1.4W/m-K by using Hot Disk. |  Plain Type |
| SARCON® GR14B-0H | Silicone compound as above GR14B-00 plus additional hardening of the top surface to facilitate handling and installation during complex assemblies |  Hardened Surface |

RECOMMENDED APPLICATION



In areas where space between surface is uneven or varies and where surface textures are a concern regarding efficient thermal transfer, the supply consistency of Gap Filler Pad is excellent for filling air gaps and uneven surfaces.

THERMAL RESISTANCE

GR14B-00

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 | 3.9 (0.60) | 5.8 (0.90) | 7.3 (1.13) | 10.0 (1.55) | 11.9 (1.84) | 12.4 (1.92) | 17.1 (2.65) | 18.1 (2.81) |
| 300kPa /43.5psi | 3.2 (0.50) | 4.8 (0.74) | 6.1 (0.95) | 7.8 (1.21) | 9.2 (1.43) | 10.1 (1.57) | 12.3 (1.91) | 13.6 (2.11) |
| 500kPa /72.5psi | 2.8 (0.43) | 4.2 (0.65) | 5.3 (0.82) | 6.7 (1.04) | 7.8 (1.21) | 8.4 (1.30) | 10.3 (1.60) | 11.5 (1.78) |

GR14B-0H

| Compression Force | 0.5mmT | 1.0mmT | 1.5mmT | 2.0mmT | 2.5mmT | 3.0mmT | 4.0mmT | 5.0mmT |
|-------------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| 100kPa /14.5psi | 4.1 (0.64) | 6.4 (0.99) | 8.7 (1.35) | 10.9 (1.69) | 13.1 (2.03) | 13.5 (2.09) | 17.7 (2.74) | 21.3 (3.30) |
| 300kPa /43.5psi | 4.0 (0.62) | 5.7 (0.88) | 7.1 (1.10) | 8.7 (1.35) | 10.1 (1.57) | 10.8 (1.67) | 13.7 (2.12) | 15.7 (2.43) |
| 500kPa /72.5psi | 3.6 (0.56) | 5.0 (0.78) | 6.2 (1.96) | 7.4 (1.15) | 8.6 (1.33) | 9.0 (1.40) | 11.2 (1.74) | 12.9 (2.00) |

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 | GR14B-00 | Test method | Specimen | | |
|-----------------------|---------------------------|-----------------------|--|-------------------------|--------------------|---|
| Physical Properties | Color | - | Pink | Visual | - | |
| | Specific Gravity | - | 1.8 | ASTM D792 | A | |
| | Hardness Highest Value | Shore OO (ASKER-C) | 30 (10) | ASTM D2240 JIS K7312 | B | |
| Electrical Properties | Volume Resistivity | Ohm-m | 2.4x10 ¹¹ | ASTM D257 | C | |
| | Breakdown Voltage | kV/mm (volts/mil) | 17 (432) | ASTM D149 | C | |
| | Dielectric Strength | kV/mm (volts/mil) | 10 (254) | ASTM D149 | C | |
| | Dielectric Constant | - | 50Hz | 5.0 | ASTM D150 | A |
| | | | 1kHz | 4.4 | | |
| | | | 1MHz | 4.2 | | |
| | Dissipation Factor | - | 50Hz | 0.095 | ASTM D150 | A |
| 1kHz | | | 0.042 | | | |
| 1MHz | | | 0.004 | | | |
| Thermal Properties | Thermal Conductivity | W/m-K | 1.4 by Hot Disk | ISO 22007-2 | D | |
| | Useful Temperature | °C (°F) | -40 to +150 (-40 to +302) | - | - | |
| | Low molecular Siloxane | wt% | D ₃ to D ₁₀ Total | 0.0034 | Gas Chromatography | - |
| | | | D ₁₁ to D ₂₀ Total | 0.0757 | | |
| Flame Retardant | - | V-0 | UL 94 | - | | |

- Specimen A: 2mmT • Specimen B: 100mmW x 50mmL x 12mmT (3mmT x 4pcs) • Specimen C: 120mmW x 120mmL x 1mmT
- Specimen D: 50mmW x 50mmL x 9mmT (3mmT x 3pcs)

COMPRESSION FORCE**GR14B-00**Unit : N/6.4cm² (psi)

| Compression Ratio | 0.5mmT | 1.0mmT | 1.5mmT | 2.0mmT | 2.5mmT | 3.0mmT | 4.0mmT | 5.0mmT |
|-------------------|-------------|-------------|-------------|-------------|------------|------------|------------|------------|
| 10% | 109 (24.7) | 130 (29.5) | 116 (26.3) | 79 (17.9) | 57 (12.9) | 43 (9.7) | 32 (7.3) | 24 (5.4) |
| 20% | 284 (64.3) | 277 (62.8) | 192 (43.5) | 117 (26.5) | 83 (18.8) | 70 (15.9) | 54 (12.2) | 42 (9.5) |
| 30% | 392 (88.8) | 351 (79.5) | 240 (54.4) | 180 (40.8) | 128 (29.0) | 109 (24.7) | 87 (19.7) | 71 (16.1) |
| 40% | 634 (143.6) | 509 (115.3) | 355 (80.4) | 281 (63.7) | 201 (45.5) | 179 (40.6) | 142 (32.2) | 117 (26.5) |
| 50% | 752 (170.4) | 660 (149.5) | 523 (118.5) | 442 (100.1) | 317 (71.8) | 297 (67.3) | 216 (48.9) | 182 (41.2) |
| Sustain 50% | 335 (75.9) | 317 (71.8) | 232 (52.6) | 202 (45.8) | 135 (30.6) | 126 (28.5) | 91 (20.6) | 81 (18.4) |

GR14B-0H

| Compression Rate | 0.5mmT | 1.0mmT | 1.5mmT | 2.0mmT | 2.5mmT | 3.0mmT | 4.0mmT | 5.0mmT |
|------------------|-------------|-------------|-------------|-------------|------------|------------|------------|------------|
| 10% | 106 (24.0) | 145 (32.9) | 114 (25.8) | 98 (22.2) | 67 (15.2) | 51 (11.6) | 38 (8.6) | 25 (5.7) |
| 20% | 285 (64.6) | 320 (72.5) | 176 (39.9) | 145 (32.9) | 103 (23.3) | 85 (19.3) | 64 (14.5) | 47 (10.6) |
| 30% | 524 (118.7) | 428 (97.0) | 258 (58.5) | 222 (50.3) | 165 (37.4) | 135 (30.6) | 105 (23.8) | 80 (18.1) |
| 40% | 711 (161.1) | 587 (133.0) | 389 (88.1) | 347 (78.6) | 261 (59.1) | 219 (49.6) | 167 (37.8) | 133 (30.1) |
| 50% | 867 (196.4) | 805 (182.4) | 580 (131.4) | 526 (119.2) | 406 (92.0) | 341 (77.3) | 260 (58.9) | 209 (47.4) |
| Sustain 50% | 458 (103.8) | 461 (104.4) | 283 (64.1) | 268 (60.7) | 193 (43.7) | 161 (36.5) | 125 (28.3) | 99 (22.4) |

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

| Test Property | Unit | 70°C | | 150°C | |
|----------------------|----------|---------|----------------|---------|----------------|
| | | Initial | After 1,000hrs | Initial | After 1,000hrs |
| Specific Gravity | - | 1.8 | 1.8 | 1.8 | 1.8 |
| Hardness | Shore OO | 32 | 31 | 32 | 33 |
| Breakdown Voltage | kV/mm | 16 | 16 | 16 | 15 |
| Thermal Conductivity | W/m-K | 1.5 | 1.5 | 1.5 | 1.5 |

| Test Property | Unit | 60°C/95%RH | | -40°C | |
|----------------------|----------|------------|----------------|---------|----------------|
| | | Initial | After 1,000hrs | Initial | After 1,000hrs |
| Specific Gravity | - | 1.8 | 1.8 | 1.8 | 1.8 |
| Hardness | Shore OO | 32 | 34 | 32 | 30 |
| Breakdown Voltage | kV/mm | 16 | 19 | 16 | 18 |
| Thermal Conductivity | W/m-K | 1.5 | 1.5 | 1.5 | 1.5 |

| Test Property | Unit | -40°C(30min)↔+125°C(30min) | |
|----------------------|----------|----------------------------|----------------|
| | | Initial | After 1,000hrs |
| Specific Gravity | - | 1.8 | 1.8 |
| Hardness | Shore OO | 32 | 32 |
| Breakdown Voltage | kV/mm | 16 | 17 |
| Thermal Conductivity | W/m-K | 1.5 | 1.5 |

•Specimen : GR14A-00 • 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® GR14B-00 | GR14B-00-50PK | 0.5mm ± 0.05mm | 300mm x 200mm (Recommended Usable Size: 290mmx190mm) |
| | GR14B-00-100PK | 1.0mm ± 0.10mm | |
| | GR14B-00-150PK | 1.5mm ± 0.15mm | |
| | GR14B-00-200PK | 2.0mm ± 0.20mm | |
| | GR14B-00-250PK | 2.5mm ± 0.25mm | |
| | GR14B-00-300PK | 3.0mm ± 0.30mm | |
| | GR14B-00-350PK | 3.5mm ± 0.35mm | |
| | GR14B-00-400PK | 4.0mm ± 0.40mm | |
| | GR14B-00-450PK | 4.5mm ± 0.45mm | |
| | GR14B-00-500PK | 5.0mm ± 0.50mm | |
| SARCON® GR14B-0H | GR14B-0H-50PK | 0.5mm ± 0.05mm | 300mm x 200mm (Recommended Usable Size: 290mmx190mm) |
| | GR14B-0H-100PK | 1.0mm ± 0.10mm | |
| | GR14B-0H-150PK | 1.5mm ± 0.15mm | |
| | GR14B-0H-200PK | 2.0mm ± 0.20mm | |
| | GR14B-0H-250PK | 2.5mm ± 0.25mm | |
| | GR14B-0H-300PK | 3.0mm ± 0.30mm | |
| | GR14B-0H-350PK | 3.5mm ± 0.35mm | |
| | GR14B-0H-400PK | 4.0mm ± 0.40mm | |
| | GR14B-0H-450PK | 4.5mm ± 0.45mm | |
| | GR14B-0H-500PK | 5.0mm ± 0.50mm | |

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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