

FUJIPOLY[®]

SARCON[®] HR/GHR Series.

Sarcon HR : High Heat conductivity Extrusions and Moldings.

Sarcon GHR : High Heat conductivity Glass cloth Reinforcement.

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FUJIPOLY DATA SHEET NUMBER FPDS 96-09 / Version 8

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FUJIPOLY[®] DATA SHEET FPDS 96-08 (Version 8)

1] Product Name :

- 1] -1) Sarcon[®] HR (UL File Number E58126)
- 2) Sarcon[®] GHR (UL File Number E58126)
- 3) Sarcon[®] GHR-AD (Silicone Pressure Sensitive Adhesive option)

2] Features for Sarcon HR / Sarcon GHR / Sarcon GHR-AD

1) High Heat Conductivity.

SARCON[®] HR is Fujipoly's originally developed High Heat Conductive Silicone Rubber. Fine, high heat conductive ceramic particles are mixed with insulative silicone rubber to produce this excellent insulative, high heat conductive silicone material.

SARCON[®] GHR is a composite of Heat Conductive Silicone Rubber and Fiberglass. SARCON[®] GHR has excellent mechanical and physical characteristics.

2) Usable Over a Wide Temperature Range. (−60°C ~ 182°C / −76°F ~ +360°F)

Due to its superior resistance to heat and cold, SARCON[®] is ideal for use across a wide temperature range. Sarcon[®] maintains its outstanding electrical and electrical insulating properties which are characteristic of silicone. There is no significant variation in its physical properties.

SARCON[®] is distinguished by a wide range of other outstanding properties, such as excellent resistance to environmental conditions, arc, corona discharge, ozone and chemicals.

3) Simplified Processing and Reduced Operating Costs.

Unlike mica, SARCON[®] requires no grease. This significantly simplifies operation, and dispenses with the various costs required for applying the grease. Sarcon[®] is not messy, easy to apply and free from the problems of contamination due to grease application.

4) Cushion Effect.

Due to SARCON's elastic properties, it has an excellent cushion effect. Attached to devices like transistors. SARCON[®] provides superb protection against damage due to deformation as well as shock and vibration.

5) Complies with UL Standards. (UL 94. UL 746)

- A. Complies with UL 746 (Electrical Insulant Standard) 150°C
- B. Complies with UL 94 (Flame Retardancy Standard) V-0

6) Adhesive option.

Sarcon[®] GHR is available with a PSA (Pressure Sensitive Adhesive) mounting option. Temperature range performance is −46°C to +150°C. Simply remove the protective liner and press into position to attach.

3] Typical Product Properties of SARCON® HR / SARCON GHR.

3] -1) SARCON® HR®

Table - 1

| Item | Unit | SARCON 30H | SARCON 45H | SARCON 85H |
|-------------------------------|--------------------|--------------------------------------------|---------------------------------|---------------------------------|
| Color | — | Brown | | |
| Thickness | mm | 0.3+0.1/-0 | 0.45 ±0.05 | 0.85 ±0.05 |
| Hardness | ASTM D2240(A) | 85 | | |
| Tensile Strength | KN/m | 1.7 | 2.3 | 4.2 |
| Elongation | % | 60 | | |
| Tear Strength | KN | 0.2B | 0.3B | 0.6B |
| Volume Resistivity | MΩ·m | 1 x 10 ⁷ | 1 x 10 ⁷ | 1 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 9 | 10 | 14 |
| Withstand Voltage | KV/minute | 6 | 7 | 10 |
| Dielectric Constant | 50Hz | 4.9 | 4.6 | 5.4 |
| | 10 ³ Hz | 4.9 | 4.5 | 5.7 |
| | 10 ⁶ Hz | 4.8 | 4.5 | 5.4 |
| Dielectric Dissipation Factor | 50Hz | 0.008 | 0.007 | 0.004 |
| | 10 ³ Hz | 0.004 | 0.004 | 0.002 |
| | 10 ⁶ Hz | 0.003 | 0.003 | 0.002 |
| Thermal Impedance | FTM P-3010 | 0.42 °C·inch ² /watt | 0.52 °C·inch ² /watt | 0.76 °C·inch ² /watt |
| Flame Retardant | UL-94 | V-0 | V-0 | V-0 |
| Extractable Volatiles | Bellcore Test | Passed Bellcore Specification TR-NWT000930 | | |

Note.) 1. Test method is based on JIS K-6301, JIS K-6249.

2. Breakdown Voltage : AC 60Hz

Withstand Voltage : AC 60Hz

3. Thermal Impedance : Fujipoly Test Method FTM P-3010 which gives ASTM D5470 Equivalent value.

4. Flame Retardant : UL-94

3] -2) SARCON® GHR

Table - 2

| Item | Unit | SARCON 15GHR | SARCON 20GHR | SARCON 30GHR |
|-------------------------------|--------------------|---------------------------------|---------------------------------|---------------------------------|
| Color | — | Brown | | |
| Thickness | mm | 0.15+0.02/-0.04 | 0.20+0.02/-0.04 | 0.30+0.10/-0 |
| Hardness | ASTM D2240(A) | 92 | 92 | 95 |
| Tensile Strength | KN/m | 8 | | |
| Elongation | % | 2 or less | | |
| Volume Resistivity | MΩ/m | 1 x 10 ⁷ | 1 x 10 ⁷ | 1 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 3 | 6 | 9 |
| Withstand Voltage | KV/minute | 2 | 4 | 8 |
| Dielectric Constant | 50Hz | 3.0 | 3.3 | 3.9 |
| | 10 ³ Hz | 3.0 | 3.3 | 3.9 |
| | 10 ⁶ Hz | 3.0 | 3.3 | 3.9 |
| Dielectric Dissipation Factor | 50Hz | 0.015 | 0.009 | 0.006 |
| | 10 ³ Hz | 0.005 | 0.003 | 0.003 |
| | 10 ⁶ Hz | 0.003 | 0.004 | 0.004 |
| Thermal Impedance | FTM P-3010 | 0.55 °C·inch ² /watt | 0.57 °C·inch ² /watt | 0.61 °C·inch ² /watt |
| Thermal Impedance AD Type | FTM P-3010 | 0.63 °C·inch ² /watt | 0.66 °C·inch ² /watt | 0.72 °C·inch ² /watt |
| Flame Retardant | UL-94 | V-0 | V-0 | V-0 |

Note.) 1. Test method is based on JIS K-6249.

2. Breakdown Voltage : AC 60Hz

Withstand Voltage : AC 60Hz

3. Thermal Impedance : Fujipoly Test Method FTM P-3010 which gives ASTM D5470 Equivalent value.

4. Flame Retardant : UL-94

5. Tensile Strength / Elongation : Test methods according to ASTM D1458 (JIS C 2367),
double silicone rubber / Glass cloth
test method.

4] Heat Aging Test

4] -1) Test Condition : 150°C (300°F) x 1,000hrs(42days)

SARCON® 30H

Table - 3

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 93 | 91 | 92 | 94 |
| Tensile Strength | KN/m | 2.0 | 1.9 | 1.9 | 1.4 |
| Elongation | % | 60 | 40 | 30 | 25 |
| Volume Resistivity | MΩ/m | 9.0 x 10 ⁷ | 1.3 x 10 ⁷ | 4.6 x 10 ⁷ | 1.0 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 9.0 | 8.0 | 7.8 | 7.0 |
| Dielectric Constant | 50Hz | 4.9 | 4.6 | 4.6 | 4.6 |
| | 10 ³ Hz | 4.9 | 4.6 | 4.6 | 4.5 |
| | 10 ⁶ Hz | 4.8 | 4.6 | 4.6 | 4.6 |
| Dielectric Dissipation Factor | 50Hz | 0.008 | 0.006 | 0.003 | 0.004 |
| | 10 ³ Hz | 0.004 | 0.003 | 0.002 | 0.002 |
| | 10 ⁶ Hz | 0.003 | 0.004 | 0.003 | 0.003 |

SARCON® 45H

Table - 4

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | JIS(A) | 93 | 93 | 95 | 95 |
| Tensile Strength | KN/m | 3.1 | 2.8 | 2.9 | 2.8 |
| Elongation | % | 50 | 40 | 30 | 30 |
| Volume Resistivity | MΩ/m | 9.0 x 10 ⁷ | 4.3 x 10 ⁷ | 6.6 x 10 ⁷ | 4.7 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 10.0 | 8.5 | 8.3 | 8.1 |
| Dielectric Constant | 50Hz | 4.6 | 4.8 | 4.5 | 4.6 |
| | 10 ³ Hz | 4.5 | 4.7 | 4.5 | 4.6 |
| | 10 ⁶ Hz | 4.5 | 4.7 | 4.5 | 4.6 |
| Dielectric Dissipation Factor | 50Hz | 0.007 | 0.005 | 0.004 | 0.004 |
| | 10 ³ Hz | 0.004 | 0.003 | 0.003 | 0.003 |
| | 10 ⁶ Hz | 0.003 | 0.004 | 0.004 | 0.004 |

SARCON® 85H

Table - 5

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | JIS(A) | 93 | 93 | 94 | 94 |
| Tensile Strength | KN/m | 5.4 | 5.1 | 5.0 | 4.8 |
| Elongation | % | 50 | 50 | 30 | 30 |
| Volume Resistivity | MΩ/m | 1.0 x 10 ⁷ | 1.0 x 10 ⁷ | 7.0 x 10 ⁷ | 7.7 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 14.0 | 12.5 | 11.7 | 11.5 |
| Dielectric Constant | 50Hz | 5.4 | 5.4 | 5.5 | 5.5 |
| | 10 ³ Hz | 5.4 | 5.4 | 5.5 | 5.5 |
| | 10 ⁶ Hz | 5.4 | 5.4 | 5.5 | 5.5 |
| Dielectric Dissipation Factor | 50Hz | 0.004 | 0.003 | 0.003 | 0.003 |
| | 10 ³ Hz | 0.002 | 0.002 | 0.002 | 0.002 |
| | 10 ⁶ Hz | 0.002 | 0.003 | 0.003 | 0.003 |

4] -2) Test Condition : 200°C (390°F) x 1,000hrs (42days)

SARCON® 30H

Table - 6

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 93 | 96 | 98 | 98 |
| Tensile Strength | KN/m | 2.0 | 1.8 | 1.9 | 2.0 |
| Elongation | % | 60 | 55 | 40 | 25 |
| Volume Resistivity | MΩ/m | 9.0 x 10 ⁷ | 1.1 x 10 ⁷ | 4.4 x 10 ⁷ | 9.4 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 9.0 | 7.6 | 7.6 | 7.0 |
| Dielectric Constant | 50Hz | 4.9 | 4.8 | 4.7 | 4.6 |
| | 10 ³ Hz | 4.9 | 4.8 | 4.7 | 4.6 |
| | 10 ⁶ Hz | 4.8 | 4.8 | 4.7 | 4.6 |
| Dielectric Dissipation Factor | 50Hz | 0.008 | 0.005 | 0.005 | 0.005 |
| | 10 ³ Hz | 0.004 | 0.003 | 0.003 | 0.003 |
| | 10 ⁶ Hz | 0.003 | 0.003 | 0.003 | 0.003 |

SARCON® 45H

Table - 7

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 93 | 95 | 99 | 99 |
| Tensile Strength | KN/m | 3.1 | 3.0 | 3.0 | 3.1 |
| Elongation | % | 50 | 45 | 35 | 25 |
| Volume Resistivity | MΩ/m | 9.0 x 10 ⁷ | 9.3 x 10 ⁷ | 6.5 x 10 ⁷ | 5.6 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 10.0 | 8.3 | 7.6 | 6.0 |
| Dielectric Constant | 50Hz | 4.6 | 4.6 | 4.4 | 4.3 |
| | 10 ³ Hz | 4.5 | 4.6 | 4.4 | 4.3 |
| | 10 ⁶ Hz | 4.5 | 4.6 | 4.4 | 4.3 |
| Dielectric Dissipation Factor | 50Hz | 0.007 | 0.005 | 0.004 | 0.004 |
| | 10 ³ Hz | 0.004 | 0.003 | 0.003 | 0.003 |
| | 10 ⁶ Hz | 0.003 | 0.003 | 0.003 | 0.003 |

SARCON® 85H

Table - 8

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 93 | 93 | 94 | 95 |
| Tensile Strength | KN/m | 5.0 | 4.6 | 4.0 | 5.0 |
| Elongation | % | 50 | 50 | 25 | 25 |
| Volume Resistivity | MΩ/m | 1.0 x 10 ⁷ | 1.2 x 10 ⁷ | 6.5 x 10 ⁷ | 7.6 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 14.0 | 12.3 | 12.1 | 12.4 |
| Dielectric Constant | 50Hz | 5.4 | 5.4 | 5.5 | 5.5 |
| | 10 ³ Hz | 5.4 | 5.4 | 5.5 | 5.4 |
| | 10 ⁶ Hz | 5.4 | 5.4 | 5.5 | 5.4 |
| Dielectric Dissipation Factor | 50Hz | 0.004 | 0.003 | 0.002 | 0.002 |
| | 10 ³ Hz | 0.002 | 0.002 | 0.002 | 0.002 |
| | 10 ⁶ Hz | 0.002 | 0.002 | 0.003 | 0.002 |

4] -3) Test Condition : 150°C (300°F) x 1,000hrs (42days)

SARCON® 15GHR

Table - 9

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 92 | 92 | 93 | 92 |
| Tensile Strength (ASTM D1458) | KN/m | 8.0 | 8.8 | 9.2 | 7.8 |
| Elongation (ASTM D1458) | % | 2 or less | 2 or less | 2 or less | 2 or less |
| Volume Resistivity | MΩ·m | 1.1 x 10 ⁷ | 7.8 x 10 ⁷ | 6.5 x 10 ⁷ | 1.8 x 10 ⁸ |
| Breakdown Voltage | KV/AC | 3.0 | 3.5 | 3.0 | 3.0 |
| Dielectric Constant | 50Hz | 3.0 | 3.3 | 2.6 | 2.5 |
| | 10 ³ Hz | 3.0 | 3.3 | 2.6 | 2.5 |
| | 10 ⁶ Hz | 3.0 | 3.3 | 2.6 | 2.5 |
| Dielectric Dissipation Factor | 50Hz | 0.015 | 0.004 | 0.005 | 0.004 |
| | 10 ³ Hz | 0.005 | 0.002 | 0.002 | 0.002 |
| | 10 ⁶ Hz | 0.003 | 0.003 | 0.003 | 0.003 |

SARCON® 20GHR

Table - 10

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 92 | 92 | 92 | 93 |
| Tensile Strength (ASTM D1458) | KN/m | 8.5 | 8.5 | 8.8 | 9.6 |
| Elongation (ASTM D1458) | % | 2 or less | 2 or less | 2 or less | 2 or less |
| Volume Resistivity | MΩ·m | 1.3 x 10 ⁷ | 6.8 x 10 ⁷ | 1.3 x 10 ⁸ | 7.3 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 5.5 | 5.4 | 5.3 | 5.0 |
| Dielectric Constant | 50Hz | 3.3 | 3.2 | 2.7 | 2.9 |
| | 10 ³ Hz | 3.3 | 3.2 | 2.6 | 2.9 |
| | 10 ⁶ Hz | 3.3 | 3.2 | 2.6 | 2.9 |
| Dielectric Dissipation Factor | 50Hz | 0.009 | 0.004 | 0.003 | 0.004 |
| | 10 ³ Hz | 0.003 | 0.002 | 0.002 | 0.002 |
| | 10 ⁶ Hz | 0.004 | 0.003 | 0.004 | 0.003 |

SARCON® 30GHR

Table - 11

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 95 | 93 | 94 | 96 |
| Tensile Strength (ASTM D1458) | KN/m | 8.6 | 8.6 | 8.8 | 9.5 |
| Elongation (ASTM D1458) | % | 2 or less | 2 or less | 2 or less | 2 or less |
| Volume Resistivity | MΩ·m | 3.3 x 10 ⁷ | 7.8 x 10 ⁷ | 9.1 x 10 ⁷ | 3.9 x 10 ⁷ |
| Breakdown Voltage | KV/AC | 7.0 | 7.3 | 7.3 | 7.0 |
| Dielectric Constant | 50Hz | 3.9 | 3.8 | 3.4 | 3.1 |
| | 10 ³ Hz | 3.9 | 3.8 | 3.4 | 3.1 |
| | 10 ⁶ Hz | 3.9 | 3.8 | 3.4 | 3.1 |
| Dielectric Dissipation Factor | 50Hz | 0.006 | 0.004 | 0.003 | 0.004 |
| | 10 ³ Hz | 0.003 | 0.002 | 0.002 | 0.002 |
| | 10 ⁶ Hz | 0.004 | 0.003 | 0.004 | 0.004 |

4] -4) Test Condition : 200°C (390°F) x 1,000hrs (42days)

SARCON® 15GHR

Table - 12

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 92 | 93 | 93 | 94 |
| Tensile Strength (ASTM D1458) | KN/m | 8.0 | 6.5 | 7.0 | 5.9 |
| Elongation (ASTM D1458) | % | 2 or less | 2 or less | 2 or less | 2 or less |
| Volume Resistivity | MΩ·m | 1.1 x 10 ⁷ | 2.6 x 10 ⁸ | 1.8 x 10 ⁸ | 1.8 x 10 ⁸ |
| Breakdown Voltage | KV/AC | 3.0 | 3.5 | 3.0 | 2.5 |
| Dielectric Constant | 50Hz | 3.0 | 2.5 | 2.1 | 2.4 |
| | 10 ³ Hz | 3.0 | 2.5 | 2.1 | 2.4 |
| | 10 ⁶ Hz | 3.0 | 2.5 | 2.2 | 2.4 |
| Dielectric Dissipation Factor | 50Hz | 0.015 | 0.001 | 0.001 | 0.002 |
| | 10 ³ Hz | 0.005 | 0.001 | 0.001 | 0.001 |
| | 10 ⁶ Hz | 0.003 | 0.003 | 0.002 | 0.003 |

SARCON® 20GHR

Table - 13

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 92 | 92 | 92 | 92 |
| Tensile Strength (ASTM D1458) | KN/m | 8.5 | 9.3 | 7.9 | 8.5 |
| Elongation (ASTM D1458) | % | 2 or less | 2 or less | 2 or less | 2 or less |
| Volume Resistivity | MΩ·m | 1.3 x 10 ⁷ | 1.2 x 10 ⁸ | 1.1 x 10 ⁸ | 1.8 x 10 ⁸ |
| Breakdown Voltage | KV/AC | 5.5 | 5.0 | 4.7 | 4.0 |
| Dielectric Constant | 50Hz | 3.3 | 3.1 | 2.6 | 2.9 |
| | 10 ³ Hz | 3.3 | 3.1 | 2.7 | 2.9 |
| | 10 ⁶ Hz | 3.3 | 3.1 | 2.6 | 2.9 |
| Dielectric Dissipation Factor | 50Hz | 0.009 | 0.002 | 0.001 | 0.002 |
| | 10 ³ Hz | 0.003 | 0.002 | 0.001 | 0.001 |
| | 10 ⁶ Hz | 0.004 | 0.003 | 0.002 | 0.003 |

SARCON® 30GHR

Table - 14

| Properties | Unit | Before test | After 100hrs | After 500hrs | After 1,000hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 95 | 96 | 95 | 96 |
| Tensile Strength (ASTM D1458) | KN/m | 8.6 | 8.6 | 8.2 | 7.2 |
| Elongation (ASTM D1458) | % | 2 or less | 2 or less | 2 or less | 2 or less |
| Volume Resistivity | MΩ·m | 3.3 x 10 ⁷ | 3.9 x 10 ⁷ | 1.0 x 10 ⁸ | 1.0 x 10 ⁸ |
| Breakdown Voltage | KV/AC | 7.0 | 6.0 | 6.1 | 5.7 |
| Dielectric Constant | 50Hz | 3.9 | 3.8 | 3.2 | 3.5 |
| | 10 ³ Hz | 3.9 | 3.7 | 3.2 | 3.5 |
| | 10 ⁶ Hz | 3.9 | 3.8 | 3.2 | 3.5 |
| Dielectric Dissipation Factor | 50Hz | 0.006 | 0.002 | 0.002 | 0.002 |
| | 10 ³ Hz | 0.003 | 0.001 | 0.001 | 0.001 |
| | 10 ⁶ Hz | 0.004 | 0.003 | 0.003 | 0.003 |

5] Water resistance.

5] -1) Test Condition : 60 (140°F) x 500hrs (21days)

SARCON® 30H

Table - 15

| Properties | Unit | Before test | After 250hrs | After 500hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 90 | 86 | 86 |
| Volume Resistivity | MΩ·m | 2.8 x 10 ⁷ | 3.6 x 10 ⁵ | 2.4 x 10 ⁵ |
| Breakdown Voltage | KV/AC | 9.0 | 3.5 | 4.0 |
| Dielectric Constant | 50Hz | 4.9 | 5.3 | 5.6 |
| | 10 ³ Hz | 4.9 | 5.2 | 5.4 |
| | 10 ⁶ Hz | 4.8 | 5.1 | 5.2 |
| Dielectric Dissipation Factor | 50Hz | 0.008 | 0.021 | 0.029 |
| | 10 ³ Hz | 0.004 | 0.013 | 0.017 |
| | 10 ⁶ Hz | 0.003 | 0.006 | 0.008 |

SARCON® 45H

Table - 16

| Properties | Unit | Before test | After 250hrs | After 500hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 93 | 90 | 89 |
| Volume Resistivity | MΩ·m | 1.8 x 10 ⁷ | 6.6 x 10 ⁵ | 2.4 x 10 ⁵ |
| Breakdown Voltage | KV/AC | 10.5 | 6.0 | 5.0 |
| Dielectric Constant | 50Hz | 4.6 | 5.3 | 5.5 |
| | 10 ³ Hz | 4.5 | 5.1 | 5.3 |
| | 10 ⁶ Hz | 4.5 | 5.1 | 5.1 |
| Dielectric Dissipation Factor | 50Hz | 0.007 | 0.016 | 0.024 |
| | 10 ³ Hz | 0.004 | 0.009 | 0.014 |
| | 10 ⁶ Hz | 0.003 | 0.006 | 0.007 |

SARCON® 85H

Table - 17

| Properties | Unit | Before test | After 250hrs | After 500hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 93 | 86 | 86 |
| Volume Resistivity | MΩ·m | 1.0 x 10 ⁷ | 5.3 x 10 ⁵ | 2.6 x 10 ⁵ |
| Breakdown Voltage | KV/AC | 14.0 | 7.0 | 6.0 |
| Dielectric Constant | 50Hz | 5.4 | 6.1 | 6.4 |
| | 10 ³ Hz | 5.4 | 5.9 | 6.2 |
| | 10 ⁶ Hz | 5.4 | 5.8 | 6.0 |
| Dielectric Dissipation Factor | 50Hz | 0.004 | 0.019 | 0.023 |
| | 10 ³ Hz | 0.002 | 0.010 | 0.013 |
| | 10 ⁶ Hz | 0.002 | 0.006 | 0.007 |

5] -2) Test Condition : 60°C (140°F) x 500hrs (21days)

SARCON® 15GHR

Table - 18

| Properties | Unit | Before test | After 250hrs | After 500hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 92 | 92 | 92 |
| Volume Resistivity | MΩ·m | 1.1 x 10 ⁷ | 7.5 x 10 ⁵ | 3.2 x 10 ⁴ |
| Breakdown Voltage | KV/AC | 3.0 | 2.5 | 2.5 |
| Dielectric Constant | 50Hz | 3.0 | — | 3.5 |
| | 10 ³ Hz | 3.0 | — | 3.3 |
| | 10 ⁶ Hz | 3.0 | — | 3.3 |
| Dielectric Dissipation Factor | 50Hz | 0.015 | — | 0.045 |
| | 10 ³ Hz | 0.005 | — | 0.010 |
| | 10 ⁶ Hz | 0.003 | — | 0.007 |

SARCON® 20GHR

Table - 19

| Properties | Unit | Before test | After 250hrs | After 500hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 92 | 92 | 92 |
| Volume Resistivity | MΩ·m | 1.3 x 10 ⁷ | 3.3 x 10 ³ | 2.0 x 10 ² |
| Breakdown Voltage | KV/AC | 5.5 | 4.0 | 4.0 |
| Dielectric Constant | 50Hz | 3.3 | — | 4.4 |
| | 10 ³ Hz | 3.3 | — | 4.1 |
| | 10 ⁶ Hz | 3.3 | — | 4.0 |
| Dielectric Dissipation Factor | 50Hz | 0.009 | — | 0.061 |
| | 10 ³ Hz | 0.003 | — | 0.026 |
| | 10 ⁶ Hz | 0.004 | — | 0.014 |

SARCON® 30GHR

Table - 20

| Properties | Unit | Before test | After 250hrs | After 500hrs |
|-------------------------------|--------------------|-----------------------|-----------------------|-----------------------|
| Hardness | ASTM D2240(A) | 95 | 95 | 95 |
| Volume Resistivity | MΩ·m | 3.3 x 10 ⁷ | 2.4 x 10 ⁵ | 3.9 x 10 ³ |
| Breakdown Voltage | KV/AC | 7.0 | 7.0 | 7.0 |
| Dielectric Constant | 50Hz | 3.9 | — | 5.0 |
| | 10 ³ Hz | 3.9 | — | 4.7 |
| | 10 ⁶ Hz | 3.9 | — | 4.5 |
| Dielectric Dissipation Factor | 50Hz | 0.006 | — | 0.069 |
| | 10 ³ Hz | 0.003 | — | 0.020 |
| | 10 ⁶ Hz | 0.004 | — | 0.008 |

6] Clamping Torque VS Thermal Impedance (°C/W).**Table - 21**

| Clamping Torque | | 3kg-cm | 5kg-cm | 7kg-cm |
|-----------------|----------------|--------|--------|--------|
| Product Name | Thickness (mm) | | | |
| 30H | 0.34 | 0.44 | 0.42 | 0.39 |
| 45H | 0.46 | 0.54 | 0.52 | 0.51 |
| 85H | 0.85 | 0.73 | 0.76 | 0.74 |
| 15GHR | 0.14 | 0.58 | 0.55 | 0.53 |
| 20GHR | 0.21 | 0.61 | 0.57 | 0.54 |
| 30GHR | 0.33 | 0.67 | 0.61 | 0.59 |
| 15GHR - AD | 0.18 | | 0.63 | |
| 20GHR - AD | 0.24 | | 0.66 | |
| 30GHR - AD | 0.38 | | 0.72 | |

Note.) Test inethod : Fujipoly test method FTM P-3010 (ASTM D5470 Equivalent)

7] Chemical Resistance. (Chemical Name : HCFC AK-225 (Substitutive Freon))**Table - 22**

| Product Name | Insulative Resistivity(MΩ.m) | | Breakdown Voltage (KV) | | Thermal Impedance (°C/W) | |
|--------------|------------------------------|-----------------------|------------------------|-------------|--------------------------|-------------|
| | before soak | after 24hrs | before soak | after 24hrs | before soak | after 24hrs |
| 30H | 2.8 x 10 ⁶ | 3.0 x 10 ⁵ | 9 | 8 | 0.42 | 0.41 |
| 45H | 1.8 x 10 ⁷ | 2.3 x 10 ⁷ | 10 | 10 | 0.52 | 0.53 |
| 85H | 1.0 x 10 ⁷ | 6.0 x 10 ⁷ | 14 | 13 | 0.76 | 0.74 |
| 15GHR | 1.6 x 10 ⁷ | 2.5 x 10 ⁶ | 3 | 2 | 0.55 | 0.56 |
| 20GHR | 3.2 x 10 ⁷ | 1.2 x 10 ⁷ | 6 | 4.5 | 0.57 | 0.61 |
| 30GHR | 2.5 x 10 ⁷ | 1.1 x 10 ⁷ | 9 | 8.3 | 0.61 | 0.62 |

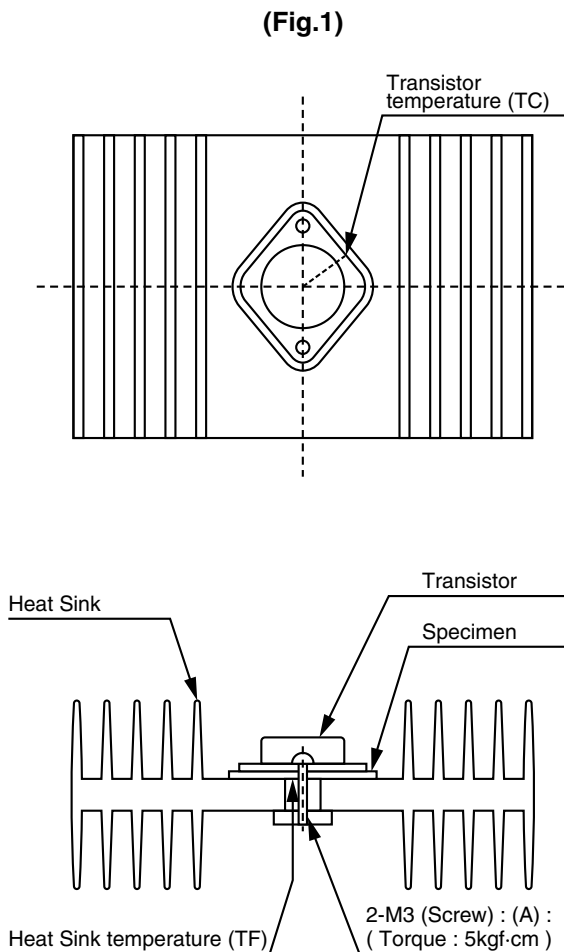
8] Standard Products.

- Sacon® Roll and Sheets.
- Sacon® Die-cut Gaskets.
- Sacon® Sleeves.
- Sacon® Cases.

9] Test Method for Thermal Resistance (Impedance) .

Test method : Fujipoly test method FTM P-3010 which gives ASTM D5470 equivalent value.

- 1) Punched-out specimen in TO-3 package is located between a transistor and heat sink (Fig.1). and secured with screws the position (A), using a screwdriver.
- 2) DC 10V, 2A (20W) current is applied to the transistor.
- 3) After three minutes, the thermal resistance is calculated based on the following formula (B).



Test Apparatus

Transistor : 2SC2245

Heat Sink : 40CH104L-90-K
(manufactured by Ryosan Co., Ltd)

Heat Sensor : 2SC1-OHK300 x 532W x J002Y
(manufactured by Chino Co., Ltd)

Condition : 25°C 60%RH

Formula for Thermal Impedance calculation.

$$(B) : R_t = (T_c - T_f) / P_C$$

R_t : Thermal resistance (°C·inch² / W)

T_c : Transistor temperature °C

T_f : Heat sink temperature °C

P_C : Power applied to transistor

10] Other Technical Information and Design Guide.

Fuji Poly website <http://www.fujipoly.com>

Notes :

- All Fujipoly test data in this document is based on Fujipoly test method and is believe to be accurate and reliable. Nevertheless, any Fujipoly test data shows typical product properties, and does not show the guaranteed product properties.
- Some Silicone oil could exude from the product according to operating conditions.
- Some low molecular Siloxane could vaporize from the product according to operating conditions.
- It is advisable to use the product under recommended operating condition. Some more Silicone oil could exude from the product if it was used over the recommended condition.
- It is advisable to use the product under parallel and even compression. Some more Silicone oil could exude from the product if it was used under excessive or partial stress.
- Products testing by the purchaser is recommended in order to meet expected results such as performance and application.

| | | | | |
|----------|-------------|------|------|-----------|
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| | : January | 16th | 2006 | version 7 |
| | : September | 1st | 2005 | version 6 |
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