Revised: February 4th. 2002

Fujipoly New Product Technical Information

NEW PRODUCTS : SARCON® XR-e & XR-j

High Thermally Conductive and Flammability Silicone Gel Sheets

1. Features:

Sarcon® XR-e & XR-j are highly conformable/thermally conductive gel materials, **11watt/m-K** & **14watt/m-K** (No electricity conductive) in a versatile sheet form that easily fit and adhere to most all shapes and sizes of components, and make reliable and complete physical contact.

The supple consistency of the pads is excellent for filling air gaps and uneven surfaces.

1) Realized low thermal resistance due to the best thermal conductivity
2) Meets the requirement UL94 V-0 class.
3) Content of Low Molecular Siloxane is small

2. Variety of Sarcon® XR-e products:

Series	Construction	Application Guidelines
Sarcon® ## X-e **Sarcon® ## X-j**	Silicone compound	Between chassis wall and other surface. Between CPU and heat sink. Between semiconductor and heat sink.
Sarcon® ## X-He **Sarcon® ## X-Hj**	Silicone compound with hardened top surface	Same as above, except hardened top surface facilitates handling and installation during complex assemblies.

* Thickness availability : more than 1.0mm for (X-e/X-j), more than 0.3mm for (X-He/X-Hj).
* Can be designed for custom applications. (Cutting. Punching)
* ## refers to a thickness of sheet.

3. Typical Product Properties:

3-1. Thermal properties and Flame retardancy: (Typical Value)

Item	Sarcon® XR-e		Sarcon® XR-j		Test Method
Thermal Conductivity (Watt/m-K)	11		14		ASTM D 5470
Thermal Resistance (°C-inch²/Watt)	30X-He	0.11	30X-Hi	0.09	ASTM D 5470
	50X-He	0.16	50X-Hj	0.14	
	100X-e/X-He	0.20/0.23	100X-j/X-Hj	0.17/0.20	
	150X-e/X-He	0.24/0.27	150X-j/X-Hj	0.21/0.25	
	200X-e/X-He	0.32/0.35	200X-j/X-Hj	0.29/0.34	
Flame Retardancy	V-O		V-O		UL94 standard

3-2. Extractable Volatile (Low Molecular Siloxane Content): (Typical Value)

Dn	Sarcon® XR-e	Sarcon® XR-j	Test Method
Total less D_{20}	0.0014 wt%	0.0020 wt%	Gas Chromatographic Analysis by Abstracting Acetone

3-3. Compression VS Compression Load: (Typical Value)

Compression Rate		30X-He	50X-He	100X-e/X-He	150X-e/X-He	200X-e/X-He
Load ($kgf/inch^2$)	10%	2.4	5.9	8.6/10.2	10.0/10.1	9.5/11.5
	20%	9.1	22.3	21.6/23.4	20.2/25.4	22.3/23.8
	30%	23.2	50.3	48.2/52.1	50.2/55.9	50.1/59.4
	40%	39.1	85.2	82.3/88.4	78.2/89.4	79.6/86.2
	50%	59.6	131.2	126.1/129.6	123.4/126.2	121.4/125.5
	Sustain 50%	52.5	88.3	81.5/86.4	79.3/84.3	78.7/80.3

Compression Rate		30X-Hj	50X-Hj	100X-j/X-Hj	150X-j/X-Hj	200X-j/X-Hj
Load ($kgf/inch^2$)	10%	4.6	12.6	10.5/10.5	12.5/12.6	13.5/13.2
	20%	19.5	25.8	22.5/25.4	24.5/27.6	25.4/25.4
	30%	28.1	54.9	50.1/55.4	50.4/57.1	51.0/60.1
	40%	49.6	85.4	80.4/83.7	79.5/94.2	80.5/84.5
	50%	64.4	130.4	123.4/130.5	125.7/131.5	121.8/128.5
	Sustain 50%	60.3	89.4	79.4/82.1	78.3/79.2	72.8/75.6

Remark/ Test method: Fujipoly Test Method:
Compression Velocity: 5.0mm/minute with 200kgf load Cell Compression Area: 6.25cm^2 (25mm x 25mm)
Sustain 50% at 1 minute after

4. Typical Material Properties:

Item	Unit	XR-e	XR-j	Test Method	Specimen
Color	—	Gray	Gray	Visual	—
Specific Gravity		3.3	3.2	JIS K 6220/ASTM D 792	A
Hardness	ASKER C (Shore 00)	50 (64)	50 (64)	SRIS 0101 (ASTM D 2240)	B (–)
Tensile Strength	MPa	0.2	0.2	JIS K 6251(#2 Die)/ASTM D412	A
Elongation	%	40	40	JIS K 6251(#2 Die)/ASTM D412	A
Tear Resistance	KN/m	1.0	1.0	JIS K 6252(Angle)/ASTM D 624	A
Volume Resistivity	Mohms-m	$7.0x10^3$	$7.4x10^3$	JIS K 6249/ASTM D 257	C
Breakdown Voltage	KV/mm	18	18	JIS K 6249/ASTM D 149	C
Withstand Voltage	KV/mm	11	11	JIS K 6249/ASTM D 149	C

Remark / Specimen A : 2.0mm Thickness. (200X-He/200X-j)
Specimen B : 60mm Width x 120mm Length x 20mm Thickness. (XR-e/XR-j)
Specimen C : 120mm Width x 120mm Length x 1.0mm Thickness. (100X-He/100X-Hj)