

Material Data Sheet

Item: Silicone Bonded Mica Paper Plate, Grade 505.3 M/P

Description: Mica is an alumino-silicate with exceptional physical, electrical, mechanical and thermal characteristics with primary applications being in the area of high voltage and high temperature electrical insulation. It has found extremely successful application as a replacement for asbestos based sheets in the construction and maintenance of electrical induction and arc furnaces, as well as many other high temperature applications.

The rigid mica plates consist of either Muscovite or Phlogopite mica paper and are impregnated with a heat resistant binder. Layers of impregnated mica paper are pressed under heat and pressure to form rigid plates. The binder is completely cured during this process. These laminates exhibit high flexural strength and edge cut-through resistance.

Availability: **Laminate Sheets:** Thickness: .040" to 3" (1mm to 75mm)
Sheet Sizes: 40" x 48" (1,016mm x 1,220mm)
Untrimmed
39.27" x 47.24" (1,000mm x
1,200mm) Trimmed

Convolute Tubing: Available in an infinity of inner diameter / outer diameter combinations per customer requirements.
Maximum Standard Wall Thickness: .500"

Fabricated Parts: The Gund Company custom fabricates insulation materials to the exact specifications and drawings of our customers.

Weights Per Sheet:	<u>mm</u>	<u>(mils)</u>	<u>kg</u>	<u>lbs</u>
	2	80	5.2	11.5
	5	200	13.3	29.3
	10	400	26.5	58.4
	25	1000	69	152
	75	3000	213	470

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MECHANICAL PROPERTIES

Resistance to pressure (ISO 604)

	<u>Muscovite</u>	<u>Phlogopite</u>
- at 68 deg F:	58,000 PSI	47,850 PSI
- hot, at 392 deg F:	36,250 PSI	34,800 PSI
- at 68 deg F after one hour at 752 deg F:	54,375 PSI	47,850 PSI
- at 68 deg F after one hour at 1,112 deg F:	54,375 PSI	47,850 PSI

Modulus of elasticity in compression (ISO 604)

	<u>Muscovite</u>	<u>Phlogopite</u>
- at 68 deg F:	1,160,000 PSI	826,500 PSI
- hot, at 392 deg F:	841,000 PSI	623,500 PSI
- at 68 deg F after one hour at 752 deg F:	1,210,750 PSI	826,500 PSI
- at 68 deg F after one hour at 1,112 deg F:	1,497,000 PSI	826,500 PSI

Tensile strength (ISO 527)

17,400 PSI

Modulus in tension (ISO 527)

26,100,000 PSI

Resistance to bending (ISO 178)

29,000 PSI

Modulus in flexure (ISO 178)

10,150,000 PSI

THERMAL PROPERTIES

Resistance to temperature

	<u>Muscovite</u>	<u>Phlogopite</u>
- continuous:	932 deg F	1,292 deg F
- peak:	1,292 deg F	1,832 deg F

Resistance to thermal shocks

	<u>Muscovite</u>	<u>Phlogopite</u>
- up to .250" thick:	932 deg F	752 deg F
- over .250" thick:	752 deg F	392 deg F

Weight loss at maximum continuous temperature:

at 932 deg F < 1% at 1,292 deg F < 2%

Thermal conductivity

- perp. to the plane of the plate:	173 BTU / h.ft. deg F
- along the plane of the plate:	1,733 BTU / h.ft. deg F

Specific heat

.207 BTU/lb. deg F

ELECTRICAL PROPERTIES

Dielectric strength (IEC 243)

	<u>Muscovite</u>	<u>Phlogopite</u>
- at 68 deg F:	625 V/mil	
- at 68 deg F after one hour at 752 deg F:	325 V/mil	
- at 68 deg F after one hour at 1,112 deg F:	250 V/mil	

Dielectric losses at 320 deg F (CEI 250):

<1%