



Est. 1857

# J.B. TREASURE & Co. Ltd.

36 Vauxhall Road, Liverpool, L3 6DN, England

Tel. 0151-236-8314 Fax. 0151-236-2804

Email [Treasurejb@aol.com](mailto:Treasurejb@aol.com)

## MICA

Mica is a generic term applied to a group of complex aluminosite minerals having a sheet or plate like structure with different composition and physical properties. All mica form flat six-sided monoclinical crystals with a remarkable cleavage in the direction of large surfaces which permits them to easily split into optically flat films. When split into thin films, they remain tough and elastic even at high temperatures. Mica possesses a good combination of chemical, physical, electrical, thermal and mechanical properties.

Mica is transparent, optically flat, and is easily split into thin films along its cleavage, colourless in thin sheets, and incompressible.

It is a complex hydrous silicate of aluminium, containing potassium, magnesium, iron sodium fluorine, lithium and traces of several other elements. Mica is stable and completely inert to the action of water, most acids (only hydrofluoric and concentrated sulphuric affect it), alkalis, conventional solvents and oil.

Electrically Mica has high dielectric strength, uniform dielectric constant, low power loss (high Q factor), and a high electrical resistivity. Mica is also resistant to arc and corona discharge.

Mica is fire proof, infusible, incombustible and non-flammable and is resistant to temperatures of up to 900 Deg C dependent on the type of mica. It has a low heat conductivity and low thermal coefficient of expansion.

Mica is a relatively soft substance can be hand cut, machined or die punched. It has a high tensile strength.



BS EN ISO 9002:1994

Certificate No. 0073

## PROPERTIES OF PURE MICA

Density	2.6 – 3.2 gm/cm <sup>3</sup> 0.095 – 0.116 lb/in <sup>3</sup>
Specific Heat	0.21
Coefficient of expansion Perpendicular to cleavage plane	9 x 10 <sup>-6</sup> – 36 x 10 <sup>-6</sup> per ° C
Calcining Temperature	700 – 800 C 1290 – 1470 F
Max Operating Temp	500 – 600 C 930 – 1110 F
Hardness	2.8 – 3.2 Moh Scale 80 – 105 Shore Test
Optic Axial Angle	55 – 75
Tensile Strength	~ 1750 Kgf/cm <sup>2</sup> ~ 25000 lb/in <sup>2</sup>
Shear Strength	2200 – 2700 Kgf/cm <sup>2</sup> 31000 – 38000 lb/in <sup>2</sup>
Compression Strength	1900 – 2850 Kgf/cm <sup>2</sup> 27000 – 32000 lb/in <sup>2</sup>
Modulus of Elasticity	1400 – 2100 Kgf/cm <sup>2</sup> x 10 <sup>-6</sup> 20 – 30 lb/in <sup>2</sup> x 10 <sup>-6</sup>
Colour	Ruby / Green
Thermal Conductivity Perpendicular to cleavage plane	~ 0.0013 Gm.cal/sec/cm <sup>2</sup> /C/cm ~ 0.31 BTU/hr/ft <sup>2</sup> /of/ft
% Water of constitution	4.5
Moisture Absorption	Very Low
Permittivity @ 15 C (60 F)	6 – 7
Power Factor (loss tangent)	0.0001 – 0.0004 @ 15° C
Acid Resistance	Reacts with Hydrofluoric Acid