

## Mica Products, Samivolt

Under the name of MICAS there is a group of aluminum and alkali metal silicates usually associated with magnesium and iron. They are monoclinic or pseudohexagonal, with perfect basal cleavage and flexible and elastic cleavage sheets.

According to their composition, micas are divided into those which are alkaline and those which are ferromagnetic, but even in these there is always an alkali metal. The most common varieties are muscovite (alkaline mica), phlogopite (magnesium mica) and biotite (ferric mica).

Its anisotropic condition (less resistance in one direction than in the other) allows it to be separated into sheets known as Splitting

Even though mica could be considered to be distributed in all earth's layers, suitable dimension plates are located only in some places, India being the biggest world producer (muscovite mica), followed by the United States (muscovite mica) and Canada (muscovite and phlogopite micas). Muscovite and phlogopite are widespread in our country.

Mica is considered one of the electric insulators with the most number of desired characteristics, due to the fact that besides its dielectric qualities, its chemical inertia, anhygroscopicity and thermal resistance must be added.

All the above makes mica, in its different ways of application, the most widely used insulating material for manufacturing electric machines, particularly rotating ones.

It is not typically used for transformers, as oil penetration among the sheets tends to reduce bonding between them and, therefore, to alter and disintegrate the material. Thus, in the case of commutators it is preferable to avoid contact with oil. Furthermore, care must be taken in assembly. Parts must be well fixed and compact. Usage of mica insulating products is not limited to splittings or blocks (which accounts for half the usage). The rest is used in the manufacture of by-products known as MICANITE (IRAM 2132), which in turn can be divided in two main types, according to the criteria set out by the International Electrotechnic Commission:

A) **NON-SUPPORTED MICANITE**: made up of mica splittings bonded together by an adequate bonding agent.

B) **SUPPORTED MICANITE**: made up of mica splittings bonded together with an appropriate bonding agent, placing them on a support material, or in a sandwich structure between two layers.

The various micanites in each of the above-mentioned groups stand out due to their binding and support qualities, heat-resistance, flexibility, etc.

Mica powder is used for manufacturing mica paper, as filler in electric device capping, Micalex production, etc.

### **Non-supported Micanites**

This is the material produced by mica splittings, placed one atop another, bound together.

The following are produced:

- Flexible micanite
- Epoxy-bonded micanite
- Micanite for heaters Samivolt

## Flexible micanite

This material is suitable for shaping, although it can also be used in plates. It has various applications, but it is used more in electric insulation of traction engines and generators.

<b>Thickness</b>	<i>0.20 up to 1.00mm</i>
<b>Binder</b>	<i>It can be organic or inorganic, according to use. Content: up to 18%</i>
<b>Thickness margin</b>	<i>Up to 0,50:           +- 0.08mm from 0.51 - 1.00:   +- 0.13mm</i>
<b>Dielectric Strength</b>	<i>up to 0.50mm:       18000 V/mm more than 0.51mm: 13200 V/mm</i>
<b>Units</b>	<i>700 x 575mm plates Special sizes: please consult</i>

## Epoxy-bonded micanite

This is a more suitable material for current systems. It is usually used in manufacturing coil cores, washers, ratchets, pillows, U sections, separators, etc.

<b>Thickness</b>	<i>0.30 up to 1.60mm</i>
<b>Binder</b>	<i>Epoxy System Content: 14 to 18%</i>
<b>Thickness margin</b>	<i>Up to 0.50:           +-0.08mm From 0.51 to 0.80:   +-0.13mm From 0.81 to 1.60:   +-0.18mm</i>
<b>Dielectric strength</b>	<i>up to 0.50mm:       16000 V/mm more than 0.51:     12000 V/mm</i>
<b>Units</b>	<i>700 x 575mm plates Special sizes: please consult.</i>

## Micanite for heaters

It is used as base for the application of several types of resistances, in industrial-application machines, in all kinds of electrotechnical devices, etc.

<b>Thickness</b>	<i>0.20 up to 5mm</i>
<b>Binder</b>	<i>Organic material Content: 4% maximum</i>
<b>Thickness margin</b>	<i>Hasta 0.50:           +- 0.08mm From 0.51 - 0.80:   +- 0.13mm</i>

**ALTA AISLACION ELECTRICA – LAS HERAS 3890 – VILLA MARTELLI (B1603AXH)**

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	<i>From 0.81 - 2.00:    +- 0.18mm</i> <i>From 2.01 - 5.00:    +- 0.30mm</i>
<b>Dielectric strength</b>	<i>Up to 0.50mm:        16000 V/mm</i> <i>More than 0.51:      12000 V/mm</i>
<b>Units</b>	<i>700 x 575mm plates</i> <i>Special sizes: please consult</i>

## Nonflammable Samivolt

It is a plate formed by burnt muscovite mica, which generates a putty mixed with silicone resin which under pressure and at high temperature, forms a laminate with varying thickness according to the number of layers placed.



## Application

It is used as resistance support for electrical toasters and hairdryers and also in devices which require thermal insulation, the manufacture of heating appliances and several other applications such as an electrical and thermal insulator in industrial devices.

<b>Density (g/cm<sup>3</sup>)</b>	<i>2.0 - 2.2</i>
<b>Water absorption (%)</b>	<i>0.20 - 0.30</i>
<b>Mica content (%)</b>	<i>92 - 93</i>
<b>Dielectric strength (Kv/mm)</b>	<i>18 minimum</i>
<b>Max Work's Temperature</b>	<i>600°C</i>

## Measurements

600 x 1020mm (+/- 10.0mm) plates, 0.5 mm to 15 mm thick

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