KELTRON®
A Government of Kerala Undertaking

BOPP Film Roughness Tester [BFRT]

Our research revealed that all solid two component encapsulation compound (Polyurethane & Epoxy) partially lose their ability to prevent ion migration through the compound under strong electric field mainly due to the fact that these polymeric materials develop micropores due to ageing expansion and seasonal temperature cycling. Once the encapsulation compound loses its high resistance towards ion migration, the film with rough surface easily breath all available ions resulting in the fast deterioration of the capacitor element.

The quality issue due to surface roughness of the film remains passive and hidden inside the capacitor during the initial stages and will appear after 7 months or above making it difficult to ensure the consistency of the product performance. Hence the only solution to produce good quality MPP capacitor is to use MPP film with smooth surface finish.

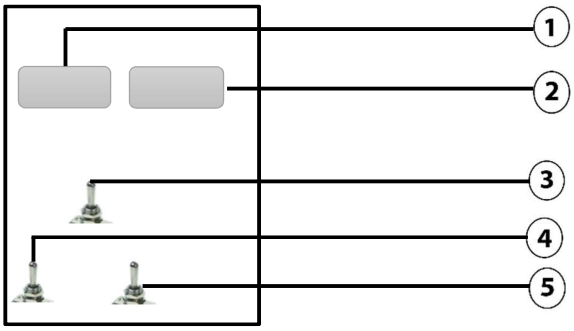
There are a few international sophisticated equipment available in the market to check the surface roughness of thin films. They can measure the shape, depth and distribution of small pits on the film surface and scale the roughness as per the general roughness specification. However, these equipments are designed to scan very small portion of the film surface and costly. Our equipment can check the roughness of a reasonable area of the film (100*60 square millimeter area) and is directly calibrated as per the end use application (MPP capacitors field performance)

This product is basically a refracted light beam's scattering extent measuring device, specially developed for measuring the extent of roughness on the BOPP film's surface and provides detailed information in the electronic display.

KELTRON COMPONENT COMPLEX LTD.
Keltron Nagar, Kalliasseri P.O Kannur, Kerala, India. Pin - 670 562
Phone: 0497- 2780831-4 www.keltroncomp.org
Email: marketing@keltroncomp.org | www.supercapacitors.in

KELTRON®
Keltron Component Complex Ltd.
(A Government of Kerala Undertaking)

Panel Control and Features



1. Roughness Display
2. LDR Display
3. LDR display ON/ OFF Switch
4. Power/system ON/ OFF
5. Roughness Display ON/OFF

System Dimensions: 63cm(L)*29cm(W)*87cm(H)

Operating Instructions

1. Demetallize the film sample by dipping into 2.5% Ammonia solution in deionized water at ambient temperature (25 to 35°C) for 10 minutes, wash the film in deionized water, dry it and then expose to ionized air blow for few seconds to avoid the possibility of dusts adhering on the film's surface from the atmosphere due to static electricity. Then place the film sample on the machine. Nonmetallized film can be directly placed on the machine for measurement after being exposed to ionized air blow for few seconds.
2. Switch on the system with power ON/ OFF switch
3. Put the LDR display toggle switch to ON.
4. Read the value in LDR display.
5. Put the LDR display toggle switch to OFF.
6. Put the roughness display toggle switch to ON.
7. Read the value of surface roughness in the display

Product Features

- With the roughness selector switch, the equipment can be used to scale the films surface roughness in terms of digital display 0 to 10 units.
- Un-acceptable BOPP films with high surface roughness which was proven to have worst shelf-life performance shows 5 to 10 units in the display.
- Good quality BOPP films of smooth surface reads 0.5 to 2.5 units in the display. Capacitors manufactured using such good quality films will have minimum shelf-life issues.
- Very Good quality BOPP films of smooth surface reads 0 to 1.5.
- With the LDR selector switch, the equipment can be used to display the light scattering extent of the film in terms of LDR resistance data, which is a very accurate measure of the surface smoothness. The display classification is as below:
  - Very good film displays a value above 200
  - Acceptable good quality film displays a value above 100
  - Worst class very bad film displays a value less than 45

* Visual Inspection

Inspection window is provided for visual inspection of the film quality and to compare with good reference films. Smooth surface film appears as clear glass finish and an observer can clearly see the bold letter writing 'KELTRON'. High surface roughness films appear as white and an observer can't properly see or read the letter 'KELTRON'