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SOLID DIELECTRIC CELL

OPERATING NOTES AND HINTS.

DESCIPTION.

The solid dielectric cell is a test fixture designed for testing dry insulating materials in sheet form. The cell is of the "three terminal" design, having a HV, LV and a guard electrode. The cell meets the requirements of relevant ANSI and IEC specifications for measuring the dielectric constant and loss (tan Delta) of insulating materials.

The cell is of parallel plate design with the active electrode at 100 mm, and the guard electrode at 120 mm. The maximum test voltage for the cell depends on the insulation being measured, but typically should not exceed 2.5 kV. The cell is designed to be used at ambient temperature only

With the above mentioned dimensions, the cell has a capacitance of approximately 70 pF at a spacing of 1 mm .

APPLICATION.

The cell is designed primarily for testing sheet materials of 0.5 . . . 2 mm thickness, which provides optimum capacitance readings on typical instruments.

The cell is not recommended for use on materials that are thicker than about 5mm, as the capacitance becomes very low and the measurements unreliable.

TEST SAMPLES.

The preferred test samples should have a thickness in the range of $0.2 \dots 2$ mm and 150 mm in diameter (approximately $0.01 \dots 0.1$ inches thick and 6 inches in diameter). The samples should be smooth so as to make as good a contact with the cell surfaces as possible. The samples may be as small as 120 mm in diameter, which is the outer diameter of the guard electrode.

Under no circumstances should the size of the sample be smaller than 120 mm. Samples smaller than 120 mm in diameter will provide meaningless test results in dielectric constant as well as tan Delta. There is also the danger of the cell arcing across with a sample of small dimensions.

