

Fig. 3.5.6 Typical measurement result of the simultaneous measurements of the time dependences of the external current and the space charge distribution in LDPE.

Reference: A. I. Mohamed, M. Morimoto, T. Akagi, K. Kadowaki, and I. Kitani, "Simultaneous Measurements of Space Charge and External Current for LDPE Films with Various Densities", IEEJ Trans. FM, Vol. 131, No. 12, pp. 1031-1036 (2011)



Fig. 3.5.13. Typical simultaneous measurement results of time dependent (a) external current density J(t), (b) space charge distribution $\rho(x,t)$ and (c) calculated conduction current density $J_c(x,t)$ in (A) LDPE and (B) acetophenone soaked LDPE under dc stress of 150 kV/mm.

Reference: T. Mori, H. Miyake, Y. Tanaka, and T. Takada, "Simultaneous Measurements of Space Charge Distribution and External Current", Proc. 2011 ISEIM, MVP2-11, pp. 370-373 (2011)



Fig. 4.2.4 Space charge profiles of PI under the different field application at different temperature.

Reference: Y. Kishi, T. Hashimoto, H. Miyake, Y. Tanaka, and T. Takada, "Breakdown and Space Charge Formation in Polyimide Film under DC High Stress at Various Temperatures", Journal of Physics Conference Series Vol. 183, 012005 (2009)



Fig. 5.3.6. Space charge accumulation behaviors in LDPE by applying a constant voltage corresponding to 150 kV/mm.

Reference: K. Ogura, H. Miyake, and Y. Tanaka, "Space Charge Behavior in LDPE under Elevating Stepwise DC Voltage Simulated DC Ramp Voltage", The Papers of Technical Meeting on "Dielectrics and Electrical Insulation", IEE Japan, DEI-18-100, pp. 57-61 (2018) (in Japanese)



Fig. 6.1.1 Pulse voltage application to a very short cable specimen and its equivalent circuit.

Reference: N. Hozumi and S. Morita, "Space Charge Measurement for Power Cables", The 2019 Annual Meeting Record I.E.E. Japan, S5 (17)-S5 (20) (2019) (in Japanese)



Fig. 7.6.1 Space charge behaviors in (1) a non-treated and (2) a humidified sample under DC stress of (a) 60, (b) 100 and (c) 120 kV/mm at 80 $^\circ C.$

Reference: T. Ishii, T. Takiwaki, H. Miyake, T. Tanaka, T. Takada and T. Tanaka, "Space Charge Formation in Polyimide Film under High DC Voltage at High Temperatures", IEEJ Trans. FM, Vol. 133, No. 3, pp. 91-97 (2013)



(a) Electrode system and CIM circuit



(b) Photograph of 60-ch 2D-CIM

Fig.8.4.1 Current integration meter for current distribution in the polymer film cross section (60-ch 2D-CIM).

Reference: M. Fukuma and Y. Sekiguchi, "Current Distribution Measurement under uniform Electric Field by Current Integration Meter", Proc. of 2017 ISEIM, pp. 787-790 (2017)







Fig. 8.4.3 Current distribution I(x, y) in the epoxy resin sample with needle- plate (1 mm Gap) under dc voltage.

Reference: M. Fukuma and Y. Sekiguchi, "Current Distribution Measurement under uniform Electric Field by Current Integration Meter", Proc. of 2017 ISEIM, pp. 787-790 (2017)

Standardization of Calibration and Advanced Measurements of Space Charge Distribution at High Temperature Using the Pulsed Electro-acoustic Method

Edited by Investigating R&D Committee for Standardization of Calibration and Advanced Measurements of Space Charge Distribution at High Temperature Using the Pulsed Electro-acoustic Method

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