AC Breakdown Characteristics of LDPE in the Presence of Crosslinking By-products.

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LDPE films of 50µm thick were soaked into crosslinking byproducts which are acetophenone, α-methylstyrene and cumyl alcohol. The samples were used to perform the breakdown strength (E_b) of the LDPE with the byproducts chemical reside in the sample. The AC breakdown measurements were conducted at a ramp rate of 50V/s at room temperature. Weibull plot is used to analyse the ac breakdown result.

Comparing the soaked and un-soaked (fresh LDPE) samples, it does show a small reduction of the eta values as the LDPE films were soaked into the sample. It suggests that the breakdown strength is reduced by adding the byproducts in the LDPE film. However, as the range of breakdown strength of all samples are to be compared, these values fall in the same region which indicate no significant difference can be seen in all samples.

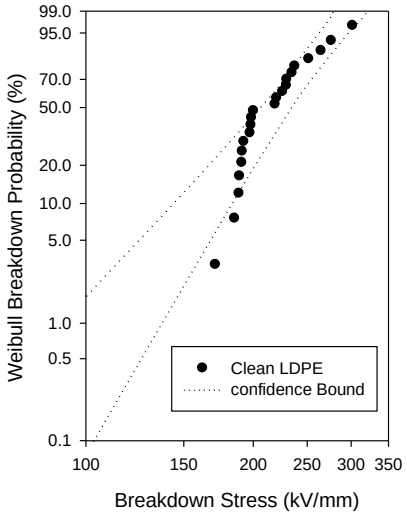

Figure 1: The E_b plot of clean LDPE

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[3] N. Hussin and G. Chen, " Space Charge Accumulation and Conductivity of Crosslinking Byproducts Soaked LDPE". In: *2010 Conference on Electrical Insulation and Dielectric Phenomena*, 17 - 20 October 2010, Purdue University, West Lafayette, Indiana, USA. pp. 125-128