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Triboelectric, Corona, and Induction Charging of Insulators as a Function of Pressure

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Abstract: Theoretical and experimental research has been performed that shows that the surface charge on an insulator after triboelectric charging with another insulator is rapidly dissipated with lowered atmospheric pressure. This pressure discharge is consistent with surface ions being evaporated off the surface once their vapor pressure is attained. In this paper we will report on the results of three different charging techniques (triboelectric, corona, and induction) performed on selected polymers with varying atmospheric pressure. This data will show that ion exchange between the polymer samples is the mechanism responsible for most of the surface charge on the polymer surfaces.