

Abstract: In this paper, taking commercial Teflon FEP films of Du Pont Co. as an example, the influence of sample thickness on deposited charge density, the internal electrical field of film electrets charged at room and elevated temperatures, and on their bulk conductivity and charge storage stability is discussed by means of heat pulse technique, measurement of isothermal surface potential decay and analysis of open circuit thermally stimulated discharge current spectra. The influence of the thickness on the shift of mean charge depth of the deposited charge layer under different temperature conditions is also investigated by the measurements of heat pulse technique in combination with conductivity glow curve. The results indicate that under the same charging conditions and with the decrease of the sample thickness, charge density increases, but at the same time charge storage stability is decreased gradually. Therefore, the charge storage capability and charge stability can be optimized by reasonably regulating the thickness of the sample.