

Abstract : The influence of constant current and constant voltage corona charging technique on the electret state of porous polytetrafluoroethylene(PTFE) film electret has been studied by constant current and constant voltage corona charging at room temperature, isothermal surface potential decay, thermally stimulated discharge(TSD) and SEM(scanning electron microscope), etc. Compared to the constant voltage corona charging, the current through films is constant during constant current charging, therefore, the trapping possibility along the thickness direction of porous structure increases and the charge density goes up, which improves the charge storage ability of the electret. However, the charges trapped in the dielectric surfaces of the interfaces with different depths along the thickness of the sample are externally stimulated during storage or application, their transport paths to the back electrode from the trapping positions are relatively shorter according to the hopping model of the charges, therefore the charge decay is accelerated and the charge stability is decreased.