Abstract： Poly(ethylene/tetrafluoroethylene)(ETFE) is a semi-crystalline nonpolar fluorocarbon polymer. Charge stability and its dynamic characteristic for ETFE after constant voltage corona charging at different temperatures were studied by the measurements of isothermal surface potential decay, the analysis of open-circuit Thermally Stimulated Discharge (TSD) current spectra, as well as thermal pulse technique. The comparison of the charge stability of ETFE and that of several important electret materials was investigated. It is found that the charge stability of ETFE electret is very good and the stability of negatively charged ETFE is better than that of positively charged ETFE. Charge storage life-time can be obviously improved after a reasonable heating treatment process. According to initial rise method, the activation energy of positive- and negative-charged ETFE electrets have been estimated. The mean charge depths of positive- and negative-charged ETFE electrets after the corona charging at room temperature are both near the free surface. With the rise of the temperature, the mean charge depths shifts to the bulk from the free surface, and at the same time, the charge density of the sample is reduced. Our study results also point out that the transport of detrapped charges for ETFE electret is controlled by fast retrapping effect