Abstract: The piezoelectrets made of porous polytetrafluoroethylene (PTFE) and nonporous fluoroethylenepropylene (FEP) layers are prepared by using a hot-pressing method. The dependence of the quasi-static piezoelectric d₃₃-coefficients of such films on the grid voltage during the corona charging is investigated. The thermal stability of d₃₃-coefficients for the films is characterized by the isothermal method. The Young's Modulus and dynamic d₃₃-coefficient are obtained by analyzing the dielectric resonance spectra of the films. The results show that the Young's modulus is around 2.4 MPa and the quasi-static piezoelectric d₃₃-coefficient is about 300 pC/N for the laminated PTFE/FEP films. The d₃₃ value retains 40% of the initial value when the sample was annealed at 90°C for 20 h. For the samples pre-aged at the temperature of 120°C for 5 h, the remained d₃₃ value is improved to 75% of the initial value in the same conditions. The d₃₃ value determined by dielectric resonance spectra is smaller than the quasi-static d₃₃ value, which is properly due to the enhanced Young's modulus with the increase of frequency.