Abstract: In this paper, the piezoelectric properties of laminated films mad of polytetrafluoroethylene (PTFE) and tetrafluoroethylene-hexafluoropropylene (FEP) copolymer by an improved process and charged by a corona method are investigated by measurements of the pressure dependence of the piezoelectric d_{33} coefficents, the isothermal decay of d_{33} at various temperatures, and thermally stimulated discharge current spectra. The results show that the structure of the laminated films is mechanically stable. The quasistatic piezoelectric d_{33} coefficents can reach 400 pC/N and they are relatively independent of the static pressure in the range up to16 kPa. The decay of the d_{33} coefficients is primarily due to charge detrapping. Compared to polypropylene ferroelectrets, the thermal stability of the piezoelectric activity in such laminated films at 90℃ is improved by a factor of 2 with respect to the percentage of the d_{33} values remaining. The dominant drift path of the detrapped charges at temperatures of about 130℃ is most likely along the surface of the PTFE fibers, while charge drift through the solid layer of FEP is possibly prevailing at temperatures of around 210℃.