Abstract: Charge spreading in three different types of Teflon electrets was studied by means of piezoelectrically generated pressure steps, FEP and PFA samples corona-charged at room temperature usually exhibited only a surface charge layer. Uniform charge spreading throughout the bulk was found in FEP charged at or heated to high temperatures. Charge spreading was much less prominent in PFA because of a smaller retrapping efficiency. In PTFE (polytetrafluorethylene), charges from the surface and the rear electrode were injected into the bulk during charging at any temperature. Electron-beam-deposited charge layers broadened significantly upon heating.