Abstract:The piezoelectric activity of charged cellular polypropylene films of originally 40 and 50 μ m thickness can be significantly increased by thickness expansion due to an exposure to high pressure for time periods of the order of hours. After such a treatment, the d_{33} coefficient, measured by quasistatic and interferometric methods, is found to be as high as 1200 pC/N at 0.001 Hz, decreasing to 350 pC/N just below resonance. At the resonance, which is located in the range of 150-400 kHz for differently treated samples, d_{33} coefficients up to 1400 pC/N are found. The high d_{33} coefficients result from a decrease of Young's modulus Y and an increase of the chargeability of the material due to the expansion, while the decrease of d_{33} with frequency up to resonance is related to a corresponding increase of Y. Static pressures up to 10 kPa have little influence on d_{33}, but higher pressures result in a reversible decrease.