Abstract:In this paper, a new method for expanding stretched cellular isotactic polypropylene (i-PP) is presented. Firstly, the cellular i-PP films with small cavities were saturated with dichlormethane (DCM) and then, the DCM was abruptly evaporated at elevated temperature to create large-cavity cellular films. Finally, the expanded film samples were quenched in liquid nitrogen to fix the cell structure. After corona charging, the piezoelectric d_{33}-coefficients of such expanded films were measured by quasistatic and interferometric methods. The results show that the highest values of the quasistatic piezoelectric d_{33}-coefficient of up to 2500 pC/N at low frequencies were observed on samples twice expanded with DCM. A high thermal stability of the piezoelectric activity was also observed. The high d_{33}-values are due to the air escape sideways out of the large voids of the cellular films.