

Abstract : Surface fluorination and oxyfluorination were performed for LLDPE to suppress the charge injection under HVDC. The astonishing suppression effects are obtained especially by the oxyfluorination and also by the industrial fluorination, as observed by the measurements of space charge profile based on the PWP method. However, considerably different cases of space charge profile are seen between the laboratory fluorinations and the industrial fluorination or between the laboratory fluorinations. The effectiveness of chemical modification by the fluorinations or oxyfluorination was inspected by ATR-IR analysis, and mechanisms of the astonishing suppression effects or the significant influences on charge injection are investigated by the measurements of TSD current and surface energy in views of charge traps and permittivity in surface layer, and the diffusion of volatile small molecules in the semicon electrode to LLDPE.