〔J. Chem. Soc., Faraday Trans. 1, **83**, 1579 (1987)〕

Nature of Radical Reactivity of Organic Plasma-exposed Glass Surface Studied by the Electron Spin Resonance Spin-trapping Technique.

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In order to investigate the nature of radical reactivity of a plasma-exposed glass surface, we have carried out a number of reactions for phenyl-N-t-butylnitrone (PBN) spin-adduct formation in various organic plasma-exposed glass ampoules. Spin-adduct formation continued to occur for a long period of time if an appropriate solvent was chosen as an activator, demonstrating that such a glass surface can undergo a constant slow release of radical species.

〔J. Polym. Sci., Polym. Lett. Ed., **25**, 339 (1987)〕

Enhanced Radical Reactivity by Supplying a Physicomechanical Action on Unique Plasma-Polymerized Ultrathin Films.

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The catalytic activity of such a film to initiate the radical chain polymerization of vinyl monomers such as methylmethacrylate (MMA) and acrylic acid (AA) has been further enhanced by supplying some additional physicomechanical actions such as helium plasma exposure and ultrasonic wave irradiation toward the plasma-driven ultrathin film, while the similar treatments toward a thin film of methylmethacrylate polymer (PMMA) prepared from use of conventional radical initiators did not show such an influence on an initiation of the polymerization.

〔Chem. Lett., **1987**, 1083〕

ESR Spin-Trapping Technique for Partial Structural Characterization of the Radicals Leached Out of a Plasma-Driven Ultrathin Film.

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The partial structure of the radicals leached out of a plasma-driven ultrathin film was characterized by the ESR spectral measurements with the aid of computer simulations obtained from the reactions for 2,4,6-tri-t-butylnitrosobenzene (BNB) spin-adduct formation in various organic plasma-exposed glass ampules such as toluene, methylmethacrylate and styrene. These results clearly demonstrated that a variety of radical species were leached out of the ultrathin film, and the structure of the organic vapors for plasmolysis reflected partially on the structure of the ultrathin film.