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[\[PDF \(954K\)\]](#) [\[References\]](#)**Multifunctional Separation Mechanism on Poly(oxyethylene) Stationary Phases in Capillary Liquid Chromatography**[Toyohide TAKEUCHI^{1\)}](#) and [Lee Wah LIM^{1\)}](#)*1) Department of Chemistry, Faculty of Engineering, Gifu University***(Received May 10, 2010)****(Accepted July 8, 2010)**

The retention behavior on poly(oxyethylene) (POE) chemically-bonded stationary phases was investigated in ion-exchange, reversed-phase (RP) and hydrophilic interaction (HILIC) modes in capillary liquid chromatography. The eluent cations fixed on the oxygen atoms of the POE chains by ion-dipole interaction worked as the anion-exchange sites for the separation of inorganic anions. Nonpolar analytes were retained on the POE stationary phases in the RP mode, while polar organic analytes were retained in the HILIC mode. Sodium alkyl sulfate dynamically modified on the stationary phase enhanced the hydrophobic property of the stationary phase. The effect of the oxyethylene unit number on the retention behavior was examined, and it was expected that the eluent cation is trapped among multiple POE chains by ion-dipole interaction.

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