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MOBILITY-SCALE DATA TRANSFORMATION IN CAPILLARY ZONE ELECTROPHORESIS (CZE) FOR A PRECISE QUALITATIVE AND QUANTITATIVE ANALYSIS AND FOR THE DESCRIPTION OF THE MOBILITIES IN CHARGED POLYELECTROLYTES MIXTURES.

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The transformation of the raw electrophoretic time data in effective electrophoretic mobilities (*μ-scale*) taking account of the endoosmotic flow (EOF) was proposed. With this new μ-scaling, the obtained electropherograms are more representative of the velocity based separation phenomena than with the migration time and a very reproducible direct comparison of electropherograms is possible. This is very important when analyzing molecules in real complex samples where alteration in EOF stability can occur or when comparing electrophoretic runs from different experimental setups (column length, voltage). Besides possible qualitative peak tracking, a quantitative improvements can be achieved with the peak integration in the μ-scale leading to significant better peak area reproducibility and more precise quantitative analysis than with the primary time-scale integration.
Parameters were also proposed to describe the distribution of the effective electrophoretic mobilities of various anionic polyelectrolytes like poly(styrene-4-sulfonates) and humic substances of different origins analyzed with capillary zone electrophoresis. The polydispersity in mobility of the mixtures were described with the μ_w/μ_n, μ_z/μ_w and the μ_p/μ_w ratios. These parameters were used to describe the electrophoretic mobility distributions of different restricted molecular size fractions obtained by ultrafiltration from a soil humic acid neutral pH and of the International Humic Substances Society (IHSS) reference humic substances at different pH and ionic strength. The data clearly show the influence of both distributions in molecular sizes and charges of the analyzed mixtures on the obtained mobility distributions.