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RAPID AND COMPLETE SEPARATION OF INORGANIC POLYPHOSPHATES FROM MONOMER TO 35-MER BY HPLC

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The on-line coupling system of high-performance liquid chromatography (HPLC) and flow injection analysis (FIA) was developed for the rapid separation and sensitive detection of inorganic polyphosphates. Effects of gradient elution conditions on the chromatographic behavior were studied. The column temperature as well as a chloride concentration gradient were found to be very effective for the improvement of resolution(1). To minimize analysis time and to maximize resolution, the gradient elution conditions were optimized by use of a computer-assisted retention prediction system(2). More than 35 kinds of inorganic polyphosphates could be separated completely within 200 min under the optimum conditions as shown in Fig. 1.

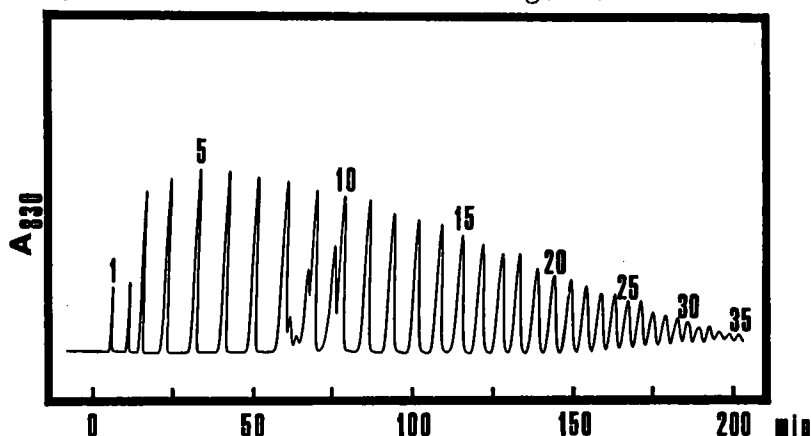


Fig. 1 HPLC profile of polyphosphates from monomer to 35-mer. Column temperature; 80°C, column; TSKgel SAX (250x4mm id), convex gradient; 0.2-0.6M KCl(240min).

(1)Y. Baba et al., *J. Chromatogr.*, **348**, 27; **350**, 119(1985).

(2)Y. Baba et al., *J. Chromatogr.*, **350**, 461(1985); in press.