

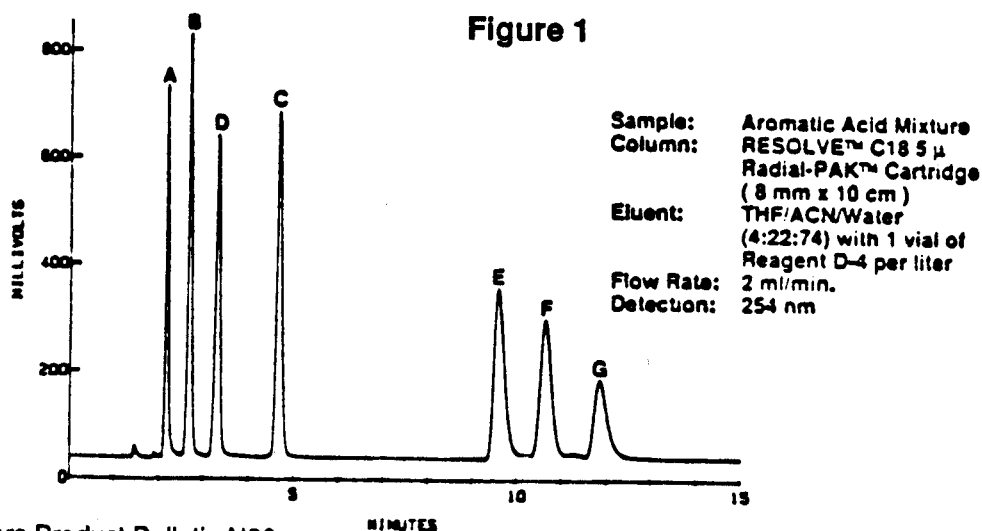
## REAGENT D-4 FOR OPTIMIZED SEPARATION OF AROMATIC ACIDS AND BASES

Reagent D-4 (dibutylamine phosphate) was developed for separations of amines on the Resolve™ family of packings without the troublesome tailing of peaks that is often seen (1). The "competing base phenomenon" is cited as the reason for the improved chromatography (2).

Recently, a customer (who asked that his company and analytes remain unidentified) requested assistance with a separation of seven aromatic carboxylic acids, four of which also possessed an aniline (amine) functionality. Suppressed ion chromatography was not giving satisfactory results.

With the assistance of the mobile phase optimization software currently under development, the separation illustrated in Figure 1 was achieved using a Radial-Pak™ Cartridge with Resolve™ C<sub>18</sub> 5 micron packing and Reagent D-4 as a mobile phase modifier. Reagent D-4 is ideal in this case not only because the competing base effect eliminates any problems with peak symmetry for the amino acids but because the pH of the mobile phase (3.0) is low enough to suppress the ionization of the carboxylate groups without any further adjustment of the mobile phase.

The customer was delighted with the results. The separation is considerably better than that involving ion suppression alone, and permits greater precision in specifying the purity of the customer's product. This improved separation results in a savings of \$100,000 to \$200,000 per year in formulation costs for the customer!



1. Waters Product Bulletin N80.
2. B. A. Bidlingmeyer, *J. Chromatogr. Sci.*, 18, 525 (1980).