


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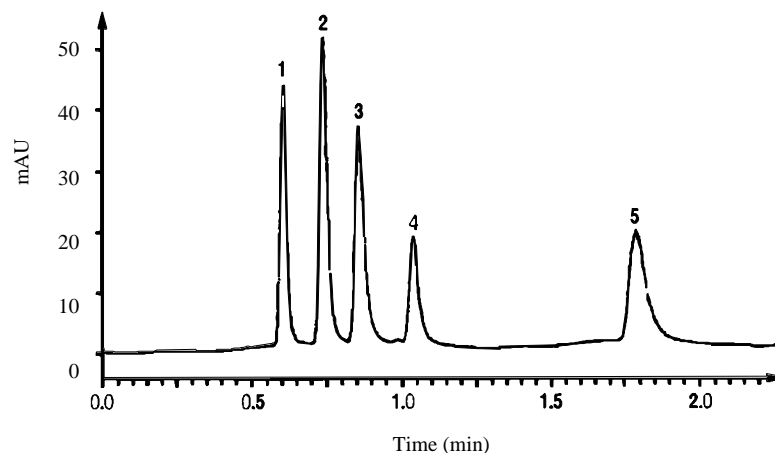


FIGURE 1: Separation of chlorophenols at 200 °C using a ZirChrom-PBD column. Column: 150 mm x 4.6 mm ZirChrom-PBD; mobile phase: 100% water; flow rate: 1.0 mL/min; detection: UV absorbance at 280 nm. Peaks: 1 = phenol, 2 = 4-chlorophenol, 3 = 4-chloro-3-methyl phenol, 4 = 2,4,6-trimethylphenol, 5 = 2,4,6-trichlorophenol. (Courtesy of ZirChrom Separations, Inc., Anoka, Minnesota.)

clude integral depth filters, glass bodies, and layered phases. Companies also will show restricted-access media and specialty phases for drugs of abuse and environmental sample analysis.

Accessories: New HPLC accessories that should make life easier for chromatographers include guard columns and in-line filters, solvent monitors, diverter and column-switching valves, and low-cost ovens. New GC accessories include digital flowmeters and inlet liners; see next month's column for details.

HPLC COLUMNS AND PACKINGS SERIES

Each year manufacturers introduce entire families of new HPLC columns at Pittcon. For the sake of brevity, I have elected to cover those series here instead of listing each column for the various modes in the series separately under individual headings in the modes tables. Table I lists the new series of HPLC columns to be displayed at Pittcon '98. In some cases, the series are major extensions of other products in the companies' offerings into groups of modes or phases; in other cases, the series are entirely new. This year companies will debut polymer-, zirconia-, and silica-based column series. The polymeric and zirconia packings tend to have wider pH ranges than silica-based products, and they are particularly useful on the basic side at pH 10 or higher where silica gel starts to dissolve.

Many of the column series will provide a wide range of dimensions and packing sizes - ranging from packed capillaries to preparative-scale columns. Micro LC columns have been popular in recent years, and several of these columns will be exhibited at this year's Pittcon. These small columns save solvent, can be interfaced more easily with certain HPLC-MS systems, and provide increased sensitivity for limited-sample-mass situations.

The two **most novel column series** are the Convective Interaction media from BIA, d.o.o., and the **ZirChrom materials from ZirChrom Separations**. The Convective Interaction chromatographic and bioconversion supports are based on a highly cross-linked, porous, monolithic methacrylate polymer, and they are available in disk (1) and tubular formats (2). The monolithic polymers, first developed by Svec and co-workers (3), are synthesized by the radical copolymerization of glycidyl methacrylate and ethylene dimethacrylate in the presence of pore-producing solvents. The media have properties resembling those of perfusion supports - fast diffusion and low-pressure resistance - and they can be used for rapid separations, purifications, and in-process analysis. The surfaces can be modified chemically to perform biochromatography separations by various modes.

The ZirChrom materials were developed from work done by Carr and co-workers at the University of Minnesota (4). Zirconia is a metal oxide that is more chemically and thermally stable than silica. For example, it can operate successfully at temperatures as high as 200 °C and is unaffected by changes in the organic content or ionic strength of the mobile phase. The reversed-phase packings have excellent stability and efficiency because of surface modification from polymer or carbon coatings. Other chemical modifications produce ion-exchange and normal-phase materials. Figure 1 shows an impressive separation of chlorophenols in pure water at 200 °C in less than 2 min using the ZirChrom-PBD reversed-phase column.

REVERSED-PHASE CHROMATOGRAPHY COLUMNS

As Table II shows, many new reversed-phase columns are scheduled for introduction at Pittcon'98. In fact, the 32 products will set a new record, which indicates the continuing