Waters
Lab Highlights
An Internal Communication of Applications and Techniques
LAH 0195 TH 10/84

THE RCM-100® MODULE BELONGS IN EVERY LIFE SCIENTIST'S LAB!

ONE SCIENTIST'S VIEW

In a recent letter Dr. W. S. Hancock wrote of the virtues of radial compression and its role as the life scientist's major chromatographic tool. He stated:

"In our hands the RCSS has proved to be particularly useful for the separation of polypeptide samples, and other authors have found similar advantages for different biological molecules.

"For the separation of a number of polypeptides (synthetic peptides, proteolytic fragments, apolipoproteins) the RCSS gave high efficiency separations which were characterized by excellent selectivities, near quantitative recoveries and high sample capacities (20 to 30 mg). The improved performance of the RCSS was attributed both to radial compression and to the superior nature of the silica used in the manufacture of the reversed phase.

"Another big advantage of the radial compression is that a significant increase in column lifetime was observed, particularly at higher pH values. This added stability allowed the use of 0.1 M ammonium bicarbonate, pH 8.0, as a highly selective and fully volatile mobile phase for preparative polypeptide separations. With the use of a guard column, we have found that an extended lifetime in excess of 6 months can be achieved even at this high pH. This mobile phase is very popular with biochemists and to my knowledge the RCM-100 is the only system that allows its use."

One only has to look at some of Dr. Hancock's recent papers to

Waters
Division of MILLIPORE 34 Maple St. / Milford, MA 01757 / 617-478-2000

Brian Bidlingmeyer

appreciate the value of the RCSS.

"An extraordinary degree of selectivity was obtained in this separation on the RCM-100 with Radial-PAK™ RESOLVE C_{18} with over 200 distinct peptides separated in a single gradient run."...W. S. Hancock and J. T. Sparrow, J. Chromatogr., 206 (1981) 71.

"The use of a volatile mobile phase (containing ammonium bicarbonate)...allows the rapid isolation of the purified peptide by lyophilization."...We and others (M. T. Hearn, B. Grego and C. A. Bishop, J. Liquid Chromatogr., 4 (1981) 1725) have reported the use of ammonium bicarbonate as a suitable mobile phase for the Radial-PAK™ C_{18} flexible-walled columns. The high apparent pH of this mobile phase precludes its use with siliconaceous supports packed in inflexible columns, due to the generation of column voids caused by dissolution of the silica. The radial compression used with the flexible-walled columns circumvents this problem as any voids that may be generated are removed under compression. Provided the column is washed with water and then isopropanol each evening, we have found that an extended lifetime of at least 6 months can be achieved with Radial-PAK™ C_{18} or CN columns and the mobile phases used in this study."...D. R. Knignton, D. R. K. Harding, J. R. Napier, and W. S. Hancock, J. Chromatogr., 249 (1982) 192.