



Waters

Lab Highlights

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A NEW POLYMER-BASED COLUMN FOR SUGAR ANALYSIS

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Cation exchange resin columns loaded with calcium ions have been used for some time for the HPLC analysis of simple sugars and related compounds. In many instances these columns have shown poor mechanical stability, resulting in degradation of the chromatography, short column lifetime, and general user dissatisfaction.

This paper will describe a new column prepared from a robust base resin. This column, packed in 7.8mm X 30cm hardware, offers the following advantages over other columns:

Low backpressure at all temperatures, permitting operation at relatively high flow rates and/or at room temperature.

Greater tolerance for water-miscible organic solvents, such as methanol and acetonitrile, allowing any adsorbed organic material to be easily washed off the column.

Ready regeneration to the calcium ionic form as needed.

A significantly longer column lifetime resulting from the high mechanical stability.

Several general operational characteristics of the column will be illustrated, including pressure vs flow rate effects and van Deemter plots at both ambient and elevated temperatures. In addition, illustrations of the mechanical stability of the column will be given.

A number of typical sugar analysis applications using the new column and a normal high performance liquid chromatography system will be presented. These will include analysis of mixtures of sugars, polynydroxyl compounds, and aliphatic alcohols; analysis of cane sugar for the presence of invert sugars; and analysis of fermentable sugars in corn syrups.

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