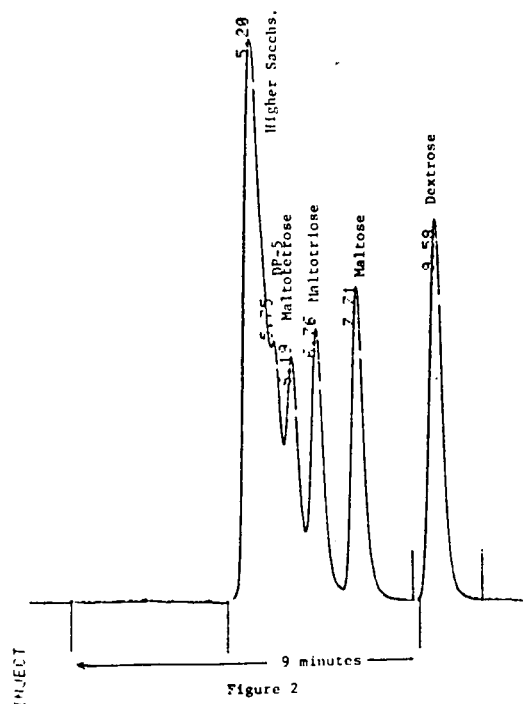
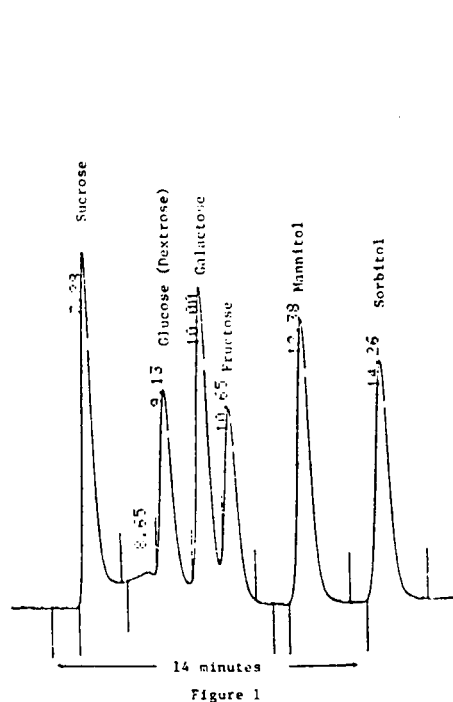


Waters

Lab Highlights

81.600.025.003.001

RAPID SUGAR AND SUGAR ALCOHOL SEPARATIONS USING "SUGAR-PAK I"



Sorbitol, shown in Figure 1, is widely used as a sweetener, e.g. in sugarless chewing gums. Minor amounts of mannitol are always present in commercial sorbitol and while structurally similar do contribute to the desired taste properties. Sugar-Pak I separates these isomers in 14 minutes. Figure 2 shows the 9 minute separation of a commercial "42 Dextrose Equivalent" Corn Syrup, which is produced by such companies as CPC and ADM and used in the brewing and food industries.

These separations of food carbohydrates are important for food processors looking for alternative sweeteners as the demand for sugar outpaces the supply. Moreover, with nutrition labeling and increased consumer interest in nutrition, increased demands are being placed on industry not only to state the source of the sugar used, but also to eventually specify the quantity of individual carbohydrate fractions in fresh and processed foods.

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SUGAR
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In addition to the exclusion separation mode illustrated above there are two other columns from Waters which do sugar separations, the Carbohydrate Analysis Column and Dextropak (RCSS). These three columns offer a wide choice for the analysis of carbohydrates. Sugar Pak I (exclusion mode) is most useful for monitoring enzymatic production of corn, beet and cane sugar. It is also appropriate to monitor the fermentation of sugars since it retains ethanol after the sugars. The Carbohydrate Analysis Column is most useful for the monitoring of simple sugars which are used in food and beverage products. The Dextropak separates oligomers from DP1 to DP10 and is being used by scientists evaluating specific hydrolysis situations.

John Morawski