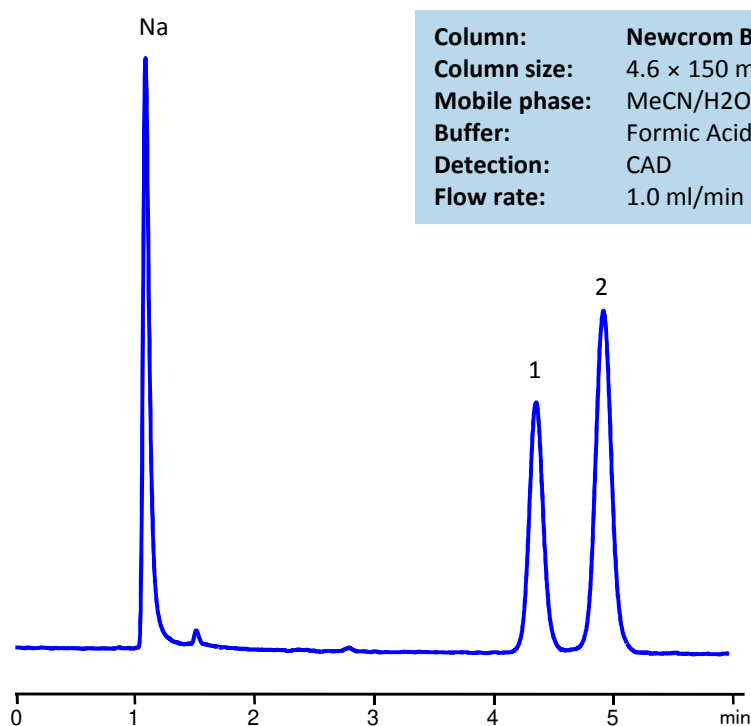


# Cool Applications

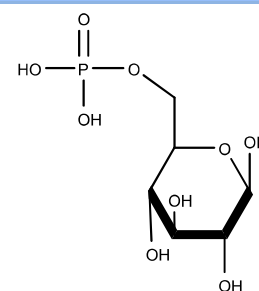
"Making Tough LC Applications Look Cool"

## HPLC SEPARATION OF GLUCOSE-6-PHOSPHATE AND GLUCOSE-1-PHOSPHATE

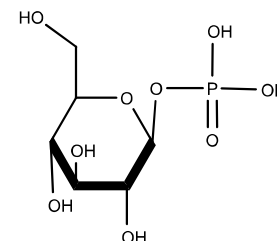


**Column:** Newcrom B  
**Column size:** 4.6 × 150 mm, 5 μm  
**Mobile phase:** MeCN/H<sub>2</sub>O – 20/80%  
**Buffer:** Formic Acid - 3%  
**Detection:** CAD  
**Flow rate:** 1.0 ml/min

### 1. Glucose-6-Phosphate



### 2. Glucose-1-Phosphate



### Application Comments

Structural isomer separation poses a challenging task when using reverse-phase chromatography. However both glucose variants, which only differ to which carbon the phosphate group is attached to, can be separated in HPLC isocratically on a reverse-phase mixed-mode anion-exchange Newcrom B column.

What differentiates, the Newcrom B phase from other silica-based phases is the long alkyl chain, when fully extended is about 100Å long with a terminal positively charged functional group. This has the effect of allowing ions to behave as if they are free in solution while still attached to the surface. The long chain also imparts hydrophobic properties. This results in symmetrical peaks with single and multiple charged analytes and high specificity due to the mixed-mode nature of the phase.

Analysis of glucose phosphate is important because glucose-6-phosphate is the product of the first step in glycolysis metabolic pathway and glucose-1-phosphate is the first step in glycogenolysis. Glucose-6-phosphate is converted to glucose-1-phosphate and vice versa by the phosphoglucomutase enzyme in biological systems.

Visit [www.sielc.com](http://www.sielc.com) to learn more about Newcrom B columns.