

„...SUGAR baby love...“



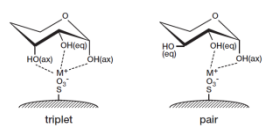
Tips and tricks in sugar analysis



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How to choose the right ligand exchange column?

HPLC columns for **ligand exchange chromatography (LEX)** consist of a **sulfonated polymeric stationary phase**. Various **counter ions** in the columns are capable of **forming complexes with the sugars**.

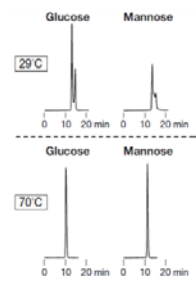


Shodex™

SUGAR SC1011:	Ca²⁺	(LEX + Size Exclusion)
SUGAR SP0810:	Pb²⁺	(LEX + Size Exclusion)
SUGAR KS-801:	Na⁺	(LEX + Size Exclusion)
RSpak DC-613:	Na⁺	(LEX + HILIC)
SUGAR SZ5532:	Zn²⁺	(LEX + HILIC)
SUGAR SC1211:	Ca²⁺	(LEX + HILIC)

What are the best parameters for the separation?

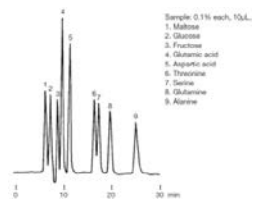
- **Pure water** as eluent (for HILIC also acetonitrile)
- **Elevated temperature** (60-80° C) to suppress anomeric separation
- Detection with **RI**
- **Regeneration** with nitrate salt solution (Ca(NO₃)₂, NaNO₃, ...)



Column: Shodex SUGAR SC1011 (Ca²⁺) (8.0 x 300 mm)
 Eluent: H₂O
 Flow rate: 0.7 mL/min
 Detection: RI
 Temperature: 29° C, 70° C
 Sample: glucose, mannose

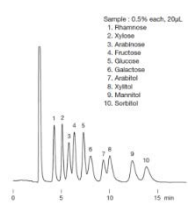
What samples are possible?

- Beverages
- Food
- Hydrolyzed starch
- Dietary fibers
- Moisturizers
- **Monosaccharides**
- **Disaccharides**
- **Oligosaccharides**
- **Sugar alcohols**
- **Sweeteners**
- **Amino acids**



Sample: 0.1% each, 10µL
 1. Maltose
 2. Glucose
 3. Fructose
 4. Glucuronic acid
 5. Aspartic acid
 6. Threonine
 7. Serine
 8. Glutamine
 9. Alanine
 10. Asparagine

Column: Shodex SUGAR SC1011 (Ca²⁺) (8.0 x 300 mm)
 Eluent: 10 mM CaSO₄ (pH 6.0)
 Flow rate: 1.0 mL/min
 Detection: RI
 Temperature: 80° C



Sample: 0.5% each, 20µL
 1. Ribonitrose
 2. Xylose
 3. Arabinose
 4. Fructose
 5. Glucose
 6. Galactose
 7. Arabinol
 8. Xylitol
 9. Mannitol
 10. Sorbitol

Column: Shodex SUGAR SZ5532 (Zn²⁺) (6.0 x 150 mm)
 Eluent: H₂O/ACN = 20/80
 Flow rate: 1.0 mL/min
 Detection: RI
 Temperature: 65° C

Why Shodex?

Because

1. **We produce superior SUGAR columns**
 - Own production of gels
 - Own packing
 - Entire in-house production of column
 - 50 years of experience
2. **Resulting in**
 - Superior 😊 quality
 - Longer lifetime
 - Higher resolution
3. **More than 6000 applications online**
4. **Get a free DEMO column**
5. **Elution order of saccharides**

<http://www.shodex.de/en/search/appssearch/elution%20volume%20of%20saccharides/app/elution-volume-of-saccharides/>