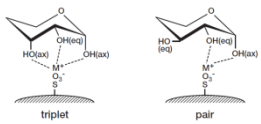
„…SUGAR baby love…“

Tips and tricks in sugar analysis

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**.

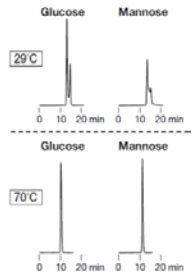


Shodex™

SUGAR SC1011:	Ca^{2+}	(LEX + Size Exclusion)
SUGAR SP0810:	Pb^{2+}	(LEX + Size Exclusion)
SUGAR KS-801:	Na^{+}	(LEX + Size Exclusion)
RSpak DC-613:	Na^{+}	(LEX + HILIC)
SUGAR SZ5532:	Zn^{2+}	(LEX + HILIC)
SUGAR SC1211:	Ca^{2+}	(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 ($Ca(NO_3)_2$, $NaNO_3$, …)

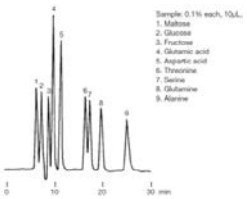


Column:	Shodex SUGAR SC1011 (Ca^{2+}) (8.0 x 300 mm)
Eluent:	H_2O
Flow rate:	0.7 mL/min
Detection:	RI
Temperature:	29° C, 70° C
Sample:	glucose, mannose

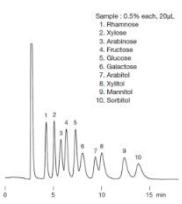
What samples are possible?

- Beverages
- Food
- Hydrolyzed starch
- Dietary fibers
- Moisturizers

- **Monosaccharides**
- **Disaccharides**
- **Oligosaccharides**
- **Sugar alcohols**
- **Sweeteners**
- **Amino acids**



Column:	Shodex SUGAR SC1011 (Ca^{2+}) (8.0 x 300 mm)
Eluent:	10 mM CaSO4 (pH 6.0)
Flow rate:	1.0 mL/min
Detection:	RI
Temperature:	80° C



Column:	Shodex SUGAR SZ5532 (Zn^{2+}) (6.0 x 150 mm)
Eluent:	H_2O/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**
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