Ion Exclusion Chromatography Columns

Features

SH1011
SH1821

- Columns for simultaneous analysis of saccharides and organic acids
- Separates neutral sugars in size exclusion mode and organic acids in ion exclusion mode
- Suitable for the analysis of uronic and aldonic acids
- Fulfill USP L17 and L22 requirements

KC-811

- Columns suitable for the analysis of organic acids
- Separates compounds by ion exclusion mode and reversed phase mode
- Highly selective when used with post column method
- KC-811 6E is suitable for the analysis of cyanide ions and cyanogen chloride in accordance with the Japanese Water Supply Act
- Fulfills USP L17 and L22 requirements

●Standard columns

[For simultaneous analysis of saccharides and organic acids]

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Exclusion Limit (Pullulan)	Particle Size (µm)	Column Size (mm) I.D. x Length	Shipping Solvent
F6378100	**SUGAR SH1011**	≥ 17,000	Sulfo	1,000	6	**8.0 x 300**	H_2O
F6378101	**SUGAR SH1821**	≥ 17,000	Sulfo	10,000	6	**8.0 x 300**	H_2O
F6700080	**SUGAR SH-G**	(guard column)	Sulfo	–	10	**6.0 x 50**	H_2O
F6378104	**SUGAR SH1011 8C**	≥ 5,000	Sulfo	1,000	6	**8.0 x 100**	H_2O

Base Material: Styrene divinylbenzene copolymer

[For organic acids, cyanide ions and cyanogen chloride]

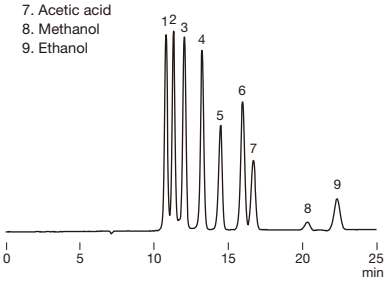
Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (µm)	Column Size (mm) I.D. x Length	Shipping Solvent
F6378030	**RSpak KC-811**	≥ 17,000	Sulfo	6	**8.0 x 300**	0.1 % H_3PO_4 aq.
F6378033	**RSpak KC-811 6E**	≥ 13,000	Sulfo	6	**6.0 x 250**	0.1 % H_3PO_4 aq.
F6700030	**RSpak KC-G 6B**	(guard column)	Sulfo	10	**6.0 x 50**	0.1 % H_3PO_4 aq.
F6700010	**RSpak KC-G 8B**	(guard column)	Sulfo	13	**8.0 x 50**	0.1 % H_3PO_4 aq.

Use KC-G 8B for samples with relatively high impurity and KC-G 6B for samples with relatively low impurity.

Base Material: Styrene divinylbenzene copolymer

Maltooligosaccharides, organic acids and ethanol

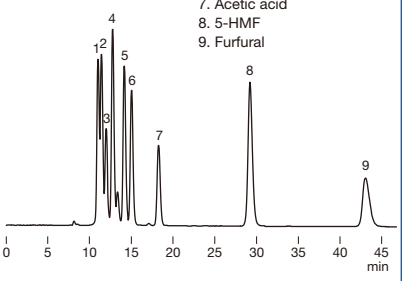
Sample : 0.05 % each, 20 µL
1. Maltotetraose
2. Maltotriose
3. Maltose
4. Glucose
5. Lactic acid
6. Glycerin
7. Acetic acid
8. Methanol
9. Ethanol



Column : Shodex SUGAR SH1821
Eluent : 0.5 mM H_2SO_4 aq.
Flow rate : 0.6 mL/min
Detector : RI
Column temp. : 75 ℃

Cello-oligosaccharides and furfurals

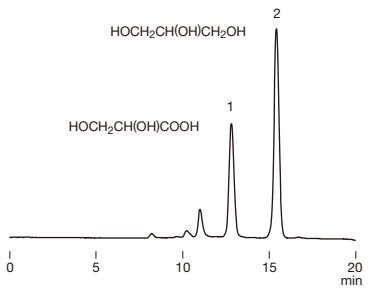
Sample : 0.1 % each, 10 µL
1. Cellopentaose
2. Cellotetraose
3. Cellotriose
4. Cellobiose
5. Glucose
6. Glyceric acid
7. Acetic acid
8. 5-HMF
9. Furfural



Column : Shodex SUGAR SH1821
Eluent : 2 mM H_2SO_4 aq.
Flow rate : 0.6 mL/min
Detector : RI
Column temp. : 60 ℃

Glycerin and glyceric acid

Sample : 0.1 % each, 10 µL
1. Glyceric acid
2. Glycerin

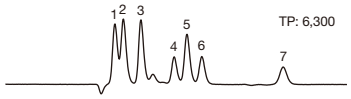


Column : Shodex SUGAR SH1011
Eluent : 2 mM H_2SO_4 aq.
Flow rate : 0.6 mL/min
Detector : RI
Column temp. : 60 ℃

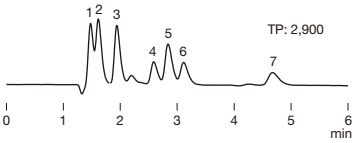
Rapid analysis of maltooligosaccharides, organic acids and ethanol

Sample : 0.1 % each, 5 µL
1. Maltotriose
2. Maltose
3. Glucose
4. Lactic acid
5. Acetic acid
6. Glycerin
7. Ethanol

(1) Shodex SUGAR SH1011 8C (8.0 mm I.D. x 100 mm)



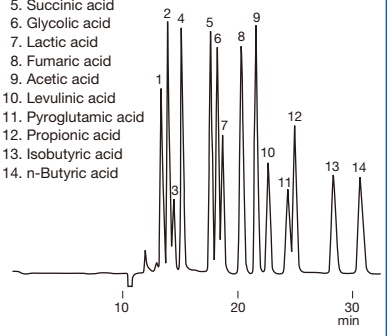
(2) Ion exclusion columm from other manufacture (7.8 mm I.D. x 100 mm)



Column : (1) Shodex SUGAR SH1011 8C
(2) Ion exclusion column from other manufacturer
Eluent : 1 mM H_2SO_4 aq.
Flow rate : (1) 1.0 mL/min
(2) 0.95 mL/min
Detector : RI
Column temp. : 65 ℃

Common organic acids

Sample :
1. Citric acid
2. Tartaric acid
3. Pyruvic acid
4. Malic acid
5. Succinic acid
6. Glycolic acid
7. Lactic acid
8. Fumaric acid
9. Acetic acid
10. Levulinic acid
11. Pyroglutamic acid
12. Propionic acid
13. Isobutyric acid
14. n-Butyric acid

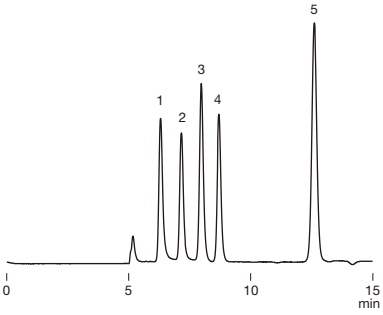


Column : Shodex RSpak KC-811 x 2
Eluent : 6 mM $HClO_4$ aq.
Flow rate : 1.0 mL/min
Detector : VIS (430 nm)
post column method
Column temp. : 50 ℃

Glucronolactone and organic acids

Sample : 20 µL

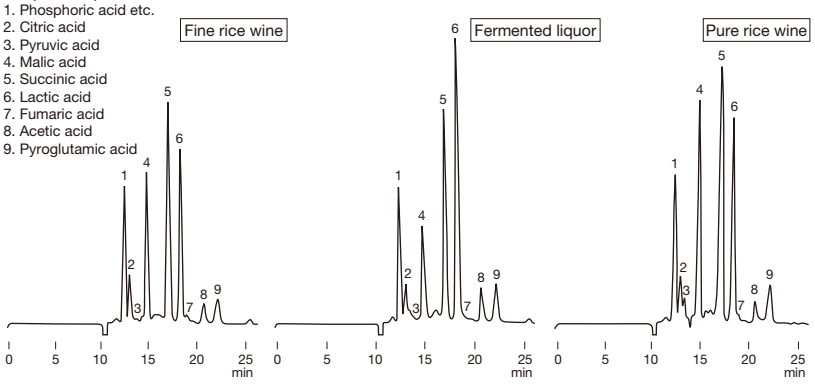
1. Citric acid	0.01 %
2. Malic acid	0.01 %
3. Glucronolactone	0.01 %
4. Glycerin	0.01 %
5. Ethanol	0.05 %



Column : Shodex RSpak KC-811
Eluent : 3 mM $HClO_4$ aq.
Flow rate : 1.0 mL/min
Detector : RI
Column temp. : 40 ℃

Organic acids in sake

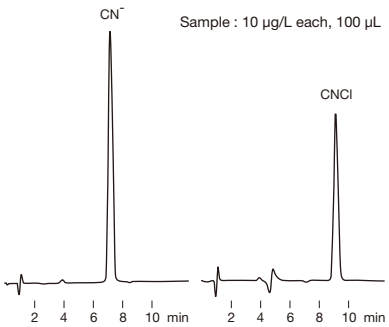
Sample : 100 µL
1. Phosphoric acid etc.
2. Citric acid
3. Pyruvic acid
4. Malic acid
5. Succinic acid
6. Lactic acid
7. Fumaric acid
8. Acetic acid
9. Pyroglutamic acid



Column : Shodex RSpak KC-G 8B + KC-811 x 2
Eluent : 4.8 mM $HClO_4$ aq.
Flow rate : 1.0 mL/min
Detector : VIS (430 nm)
post column method
Column temp. : 63 ℃

Analysis of cyanide ion and cyanogen chloride with post column method

Sample : 10 µg/L each, 100 µL



Column : Shodex RSpak KC-811 6E
Eluent : 1 mM H_2SO_4 aq.
Reagent A : Chloramine T solution
Reagent B : 4-Pyridinecarboxylic acid-Pyrazolone solution
Flow rate : (Eluent) 1.0 mL/min
(Reagent) 0.5 mL/min each
Detector : VIS (638 nm)
Column temp. : 40 ℃
Reaction temp. : (Reagent A) 40 ℃
(Reagent B) 80 ℃