Columns for Ion Exclusion Chromatography

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
- Corresponds to USP L17 and L22

KC-811

- Columns for the analysis of organic acids
- Ion exclusion mode (+ reversed phase mode)
- Highly selective detection 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
- Corresponds to USP L17 and L22

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 × 300**	H_2O
F6378101	**SUGAR SH1821**	≥ 17,000	Sulfo	10,000	6	**8.0 × 300**	H_2O
F6700080	**SUGAR SH-G**	(guard column)	Sulfo	–	10	**6.0 × 50**	H_2O

Base Material : Styrene divinylbenzene copolyme

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 × 300**	0.1% H_3PO_4 aq.
F6378033	**RSpak KC-811 6E**	≥ 13,000	Sulfo	6	**6.0 × 250**	0.1% H_3PO_4 aq.
F6700030	**RSpak KC-G 6B (RSpak KC-G)**	(guard column)	Sulfo	10	**6.0 × 50**	0.1% H_3PO_4 aq.
F6700010	**RSpak KC-G 8B (RSpak KC-LG)**	(guard column)	Sulfo	13	**8.0 × 50**	0.1% H_3PO_4 aq.

* As a guard column, use KC-G 8B for samples with relatively high impurity and KC-G 6B for samples with relatively low impurity.

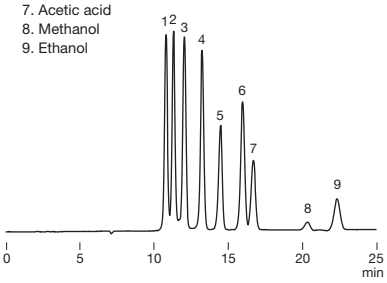
Base Material : Styrene divinylbenzene copolyme

Preparative columns * Preparative columns are made to order.

Product Code	Product Name	Plate Number (TP/column)	Particle Size (µm)	Column Size (mm) I.D. x Length	Standard Column
F6505012	**RSpak KC-2011**	≥ 8,000	13	**20.0 × 300**	KC-811
F6700010	**RSpak KC-G 8B (RSpak KC-LG)**	(guard column)	13	**8.0 × 50**	(guard column)

Maltooligosaccharides, organic acids and ethanol

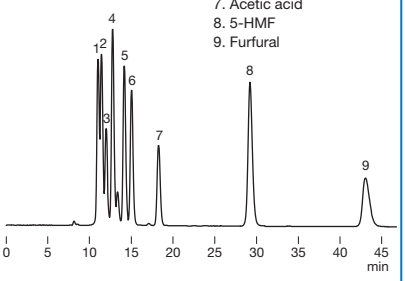
Sample : 0.05% each, 20µL
1. Maltotetraose
2. Maltotriose
3. Maltose
4. Glucose
5. Lactic acid
6. Glycerol
7. Acetic acid
8. Methanol
9. Ethanol



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

Cello-oligosaccharides and furfurals

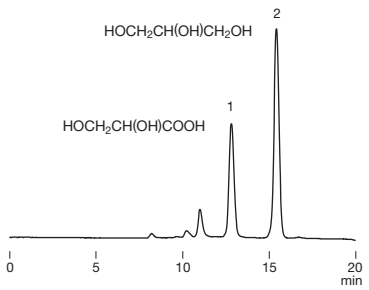
Sample : 0.1% each, 10µL
1. Cellopentaose
2. Cellotetraose
3. Cellotriose
4. Cellobiose
5. Glucose
6. Glyceric acid
7. Acetic acid
8. 5-HMF
9. Furfural



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

Glycerin and glyceric acid

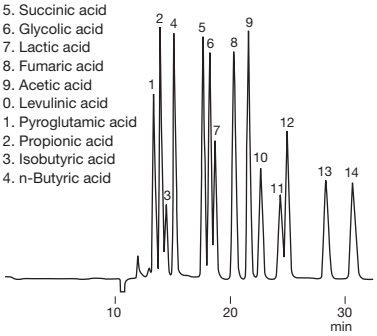
Sample : 0.1% each, 10µL
1. Glyceric acid
2. Glycerin



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

General organic acids

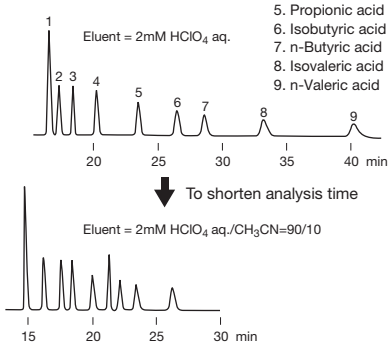
Sample :
1. Citric acid
2. Tartaric acid
3. Pyruvic acid
4. Malic acid
5. Succinic acid
6. Glycolic acid
7. Lactic acid
8. Fumaric acid
9. Acetic acid
10. Levulinic acid
11. Pyroglutamic acid
12. Propionic acid
13. Isobutyric acid
14. n-Butyric acid



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

Hydrophobic organic acids

Sample :
1. Succinic acid
2. Lactic acid
3. Formic acid
4. Acetic acid
5. Propionic acid
6. Isobutyric acid
7. n-Butyric acid
8. Isovaleric acid
9. n-Valeric acid

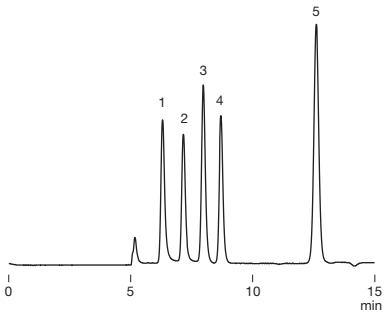


Column : **Shodex RSpak KC-LG + KC-811 x 2**
Flow rate : 1.0mL/min
Detector : VIS (430nm)
post column method
Column temp. : 47°C

Glucronolactone and organic acids

Sample : 20µL

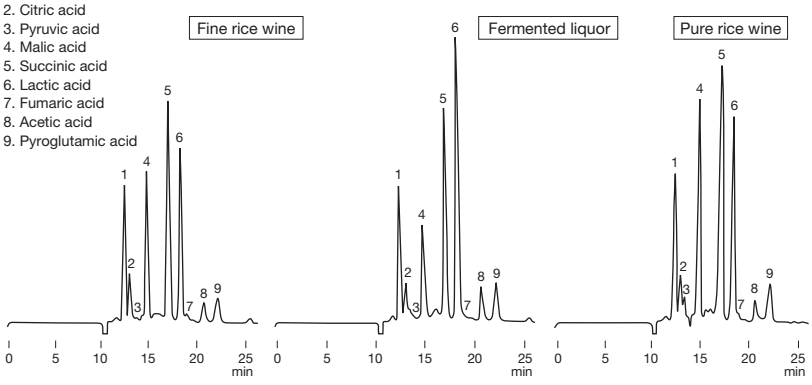
1. Citric acid	0.01%
2. Malic acid	0.01%
3. Glucronolactone	0.01%
4. Glycerin	0.01%
5. Ethanol	0.05%



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

Organic acids in sake

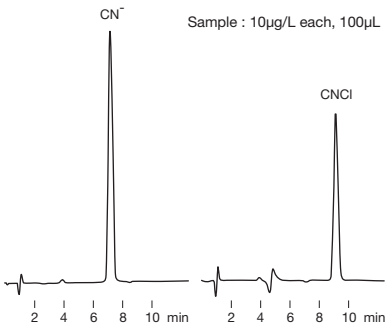
Sample : 100µL
1. Phosphoric acid etc.
2. Citric acid
3. Pyruvic acid
4. Malic acid
5. Succinic acid
6. Lactic acid
7. Fumaric acid
8. Acetic acid
9. Pyroglutamic acid



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

Analysis of Cyanide ion and cyanogen chloride with post column method

Sample : 10µg/L each, 100µL



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