

Columns for Ion Exclusion Chromatography

Features

- SH1011, 1821**
- 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

 No.3  No.25, 40, 43

- 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

 No.3  No.6

 p.80

● 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 ₂ O
F6378101	SUGAR SH1821	≥ 17,000	Sulfo	10,000	6	8.0 × 300	H ₂ O
F6700080	SUGAR SH-G	(guard column)	Sulfo	–	10	6.0 × 50	H ₂ O

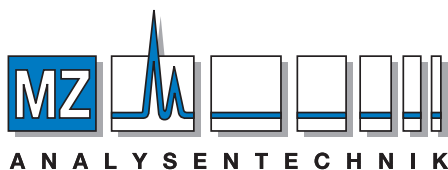
Base Material : Styrene divinylbenzene copolymer

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 × 300	H ₂ O
F6378033	RSpak KC-811 6E	≥ 13,000	Sulfo	6	6.0 × 250	H ₂ O
F6700030	RSpak KC-G	(guard column)	Sulfo	10	6.0 × 50	H ₂ O
F6700010	RSpak KC-LG	(guard column)	Sulfo	13	8.0 × 50	H ₂ O

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

Base Material : Styrene divinylbenzene copolymer



AUTHORIZED DISTRIBUTOR

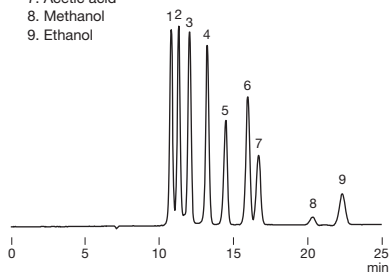
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Maltooligosaccharides, organic acids and ethanolSample : 0.05% each, 20 μ L

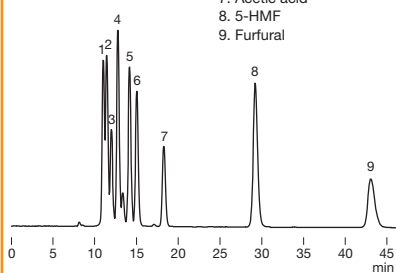
1. Maltotetraose
2. Maltotriose
3. Maltose
4. Glucose
5. Lactic acid
6. Glycerol
7. Acetic acid
8. Methanol
9. Ethanol



Column : Shodex SUGAR SH1821
Eluent : 0.5mM H₂SO₄ aq.
Flow rate : 0.6mL/min
Detector : RI
Column temp. : 75°C

Cello-oligosaccharides and furfuralsSample : 0.1% each, 10 μ L

1. Cellopentaose
2. Cellotetraose
3. Cellotriose
4. Cellobiose
5. Glucose
6. Glyceric acid
7. Acetic acid
8. 5-HMF
9. Furfural

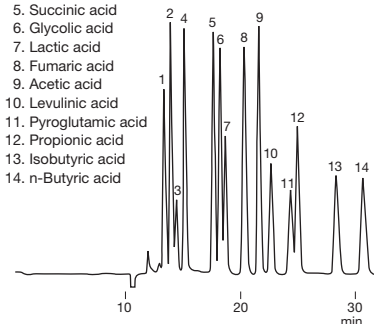


Column : Shodex SUGAR SH1821
Eluent : 2mM H₂SO₄ aq.
Flow rate : 0.6mL/min
Detector : RI
Column temp. : 60°C

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

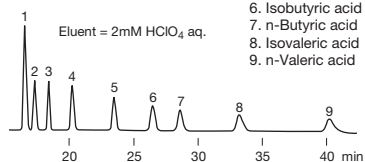


Column : Shodex RSPak KC-811 x 2
Eluent : 6mM HClO₄ aq.
Flow rate : 1.0mL/min
Detector : VIS(430nm)
 post column method
Column temp. : 50°C

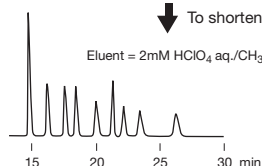
Hydrophobic organic acids

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



↓ To shorten analysis time

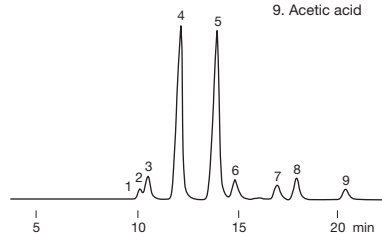
Eluent = 2mM HClO₄ aq./CH₃CN=90/10

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

Organic acids and vitamin C in fruit juice

Sample :

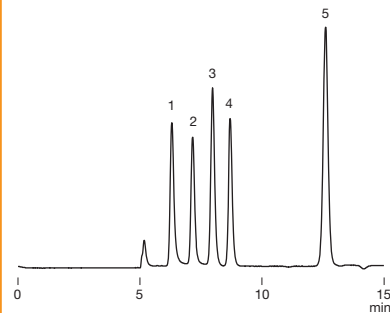
1. Cl⁻, etc.
2. Oxalic acid
3. Maleic acid
4. Citric acid
5. Malic acid
6. Vitamin C
7. Succinic acid
8. Formic acid
9. Acetic acid



Column : Shodex RSPak KC-LG + KC-811 x 2
Eluent : 1mM HClO₄ aq.
Flow rate : 1.0mL/min
Detector : VIS(430nm)
 post column method
Column temp. : 40°C

Glucuronolactone and organic acidsSample : 20 μ L

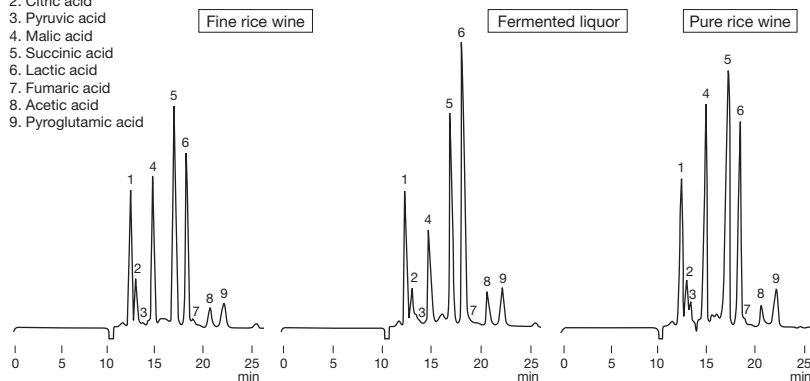
- | | |
|---------------------|-------|
| 1. Citric acid | 0.01% |
| 2. Malic acid | 0.01% |
| 3. Glucuronolactone | 0.01% |
| 4. Glycerin | 0.01% |
| 5. Ethanol | 0.05% |



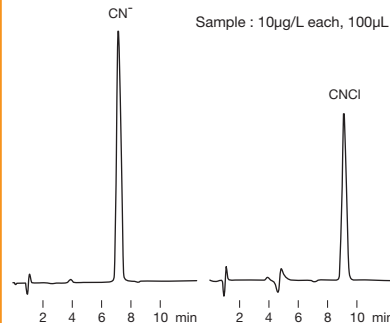
Column : Shodex RSPak KC-811
Eluent : 3mM HClO₄ aq.
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 40°C

Organic acids in sakeSample : 100 μ L

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 HClO₄ aq.
Flow rate : 1.0mL/min
Detector : VIS(430nm)
 post column method
Column temp. : 63°C

Cyanide ion and cyanogen chloride with post column methodSample : 10 μ g/L each, 100 μ L

Column : Shodex RSPak KC-811 6E
Eluent : 1.0mM H₂SO₄ 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