

Polymer-based Reversed Phase Chromatography Columns (ODP2 HP)

Please refer to “Comparison of Shodex Reversed Phase Chromatography (RPC) Column Features” on page 6 and 7 for features.

Standard columns

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7622001	ODP2 HP-4B	≥ 3,500	-	5	40	4.6 x 50	H ₂ O/CH ₃ CN=55/45
F7622002	ODP2 HP-4D	≥ 13,000	-	5	40	4.6 x 150	H ₂ O/CH ₃ CN=55/45
F7622003	ODP2 HP-4E	≥ 17,000	-	5	40	4.6 x 250	H ₂ O/CH ₃ CN=55/45
F6714010	ODP2 HPG-4A	(guard column)	-	5	-	4.6 x 10	H ₂ O/CH ₃ CN=55/45
F7622004	ODP2 HP-2B	≥ 3,000	-	5	40	2.0 x 50	H ₂ O/CH ₃ CN=55/45
F7622005	ODP2 HP-2D	≥ 7,000	-	5	40	2.0 x 150	H ₂ O/CH ₃ CN=55/45
F6714011	ODP2 HPG-2A	(guard column)	-	5	-	2.0 x 10	H ₂ O/CH ₃ CN=55/45

Base Material: Polyhydroxymethacrylate

3mm I.D columns [Customized columns]

Product Code	Product Name	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length
F7622006	ODP2 HP-3B	-	5	40	3.0 x 50
F7622007	ODP2 HP-3D	-	5	40	3.0 x 150
F6714014	ODP2 HPG-3A (guard column)	-	5	-	3.0 x 10

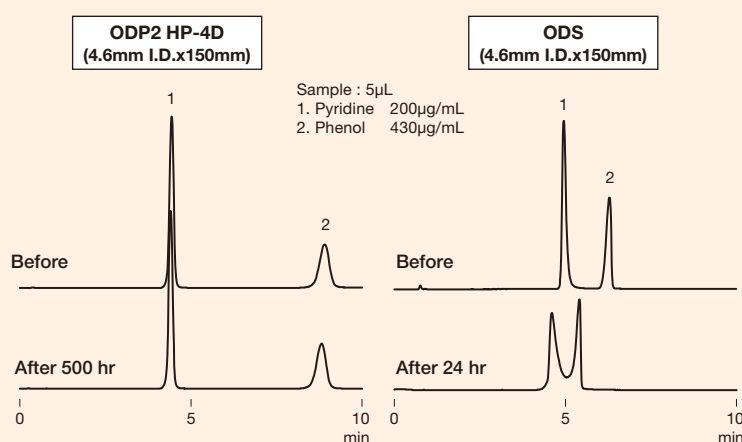
Base Material: Polyhydroxymethacrylate

Preparative columns *Preparative columns are made to order.

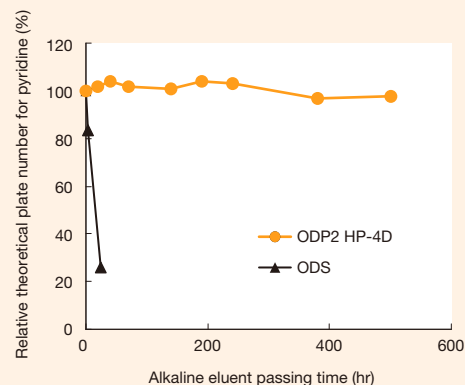
Product Code	Product Name	Plate Number (TP/column)	Particle Size (μm)	Column Size (mm) I.D. x Length	Standard Column
F6822001	ODP2 HP-10E	≥ 9,500	6	10.0 x 250	ODP2 HP
F6714015	ODP2 HPG-7B	(guard column)	6	7.5 x 50	(guard column)

Comparison between ODP2 HP-4D and ODS column for their alkaline tolerances

Chromatograms obtained before and after passing alkaline eluent



Correlation between alkaline eluent passing time and relative theoretical plate number



Analysis condition

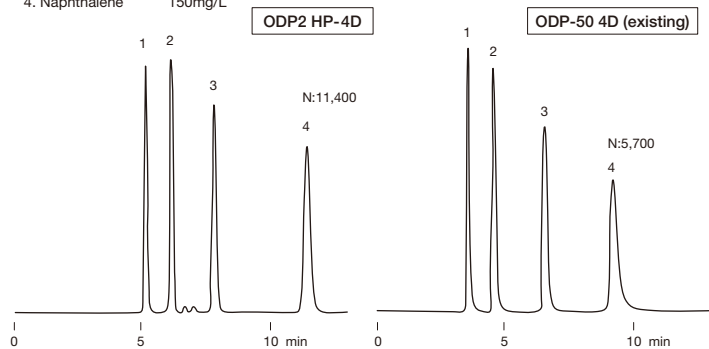
Column : Shodex ODP2 HP-4D
ODS from other manufacturer
Eluent : H₂O/CH₃OH=70/30
Flow rate : 1.0mL/min
Detector : UV (254nm)
Column temp. : 40°C

Eluent passing conditions for alkali tolerance test

Column : Shodex ODP2 HP-4D
ODS from other manufacturer
Eluent : 10mM Sodium phosphate buffer (pH12) /CH₃CN=45/55
Flow rate : 0.6mL/min
Column temp. : 30°C

Comparison between ODP2 HP and ODP-50 (existing)

Sample : 5 μ L
 1. Phenol 300mg/L
 2. Methyl benzoate 350mg/L
 3. Toluene 1000mg/L
 4. Naphthalene 150mg/L

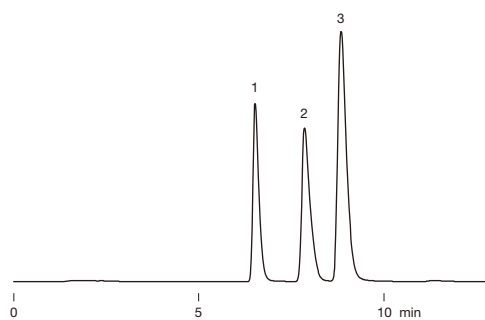


Column : Shodex ODP2 HP-4D
 Eluent : H₂O/CH₃CN=55/45
 Flow rate : 0.6mL/min
 Detector : UV (254nm)
 Column temp. : 40°C

Column : Shodex Asahipak ODP-50 4D
 Eluent : H₂O/CH₃CN=35/65
 Flow rate : 0.6mL/min
 Detector : UV (254nm)
 Column temp. : 40°C

Imidazoles

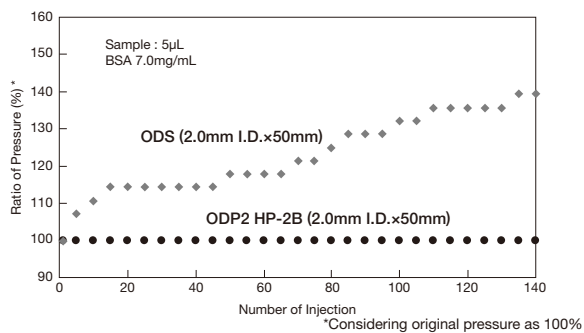
Sample : 0.1% each, 10 μ L
 1. Imidazole
 2. 2-Methylimidazole
 3. 4-Methylimidazole



Column : Shodex ODP2 HP-4E
 Eluent : 10mM Na₂HPO₄ aq./CH₃CN=90/10
 Flow rate : 0.8mL/min
 Detector : UV (220nm)
 Column temp. : 40°C

Influence of repeated protein injection on column pressure

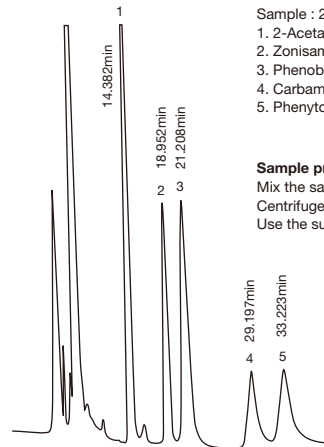
ODP2 HP columns are packed with gels with increased surface polarity and smaller pore size which prevent the adsorption of proteins. BSA was injected multiple times to both ODS and ODP2 HP columns. A significant column pressure increase was observed for the ODS column, while no considerable change was observed for the ODP2 HP column even after 140 injections.



Column : Shodex ODP2 HP-2B
 ODS from other manufacturer
 Eluent : 1mM CH₃COONH₄ aq./CH₃CN=90/10
 Flow rate : 0.2mL/min
 Detector : UV (220nm)
 Column temp. : 30°C

Anticonvulsant in serum

Sample : 20 μ L
 1. 2-Acetaminophenol (I.S.) 10 μ g/mL
 2. Zonisamide 13.0 μ g/mL
 3. Phenobarbital 19.0 μ g/mL
 4. Carbamazepine 4.5 μ g/mL
 5. Phenytoin 9.0 μ g/mL

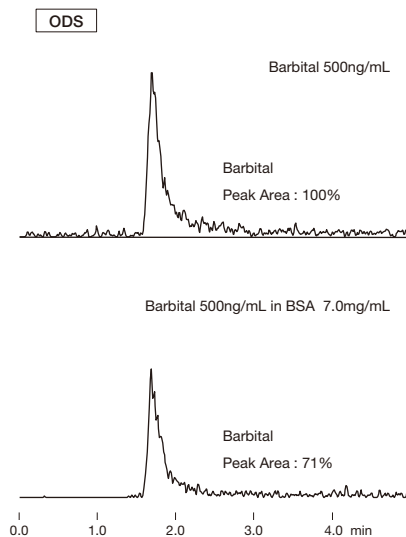
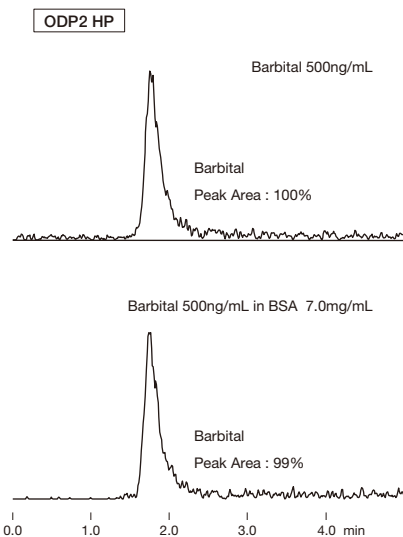


Sample pretreatment:
 Mix the same volumes of serum and acetonitrile. Centrifuge the mixture at 6000g for 5minutes. Use the supernatant as sample.

Data courtesy of Katsuko Hara.MT
 Yutaka Komiyama.Ph.D.,
 Department of Clinical Sciences
 and Laboratory Medicine,
 Kansai Medical University.

Column : Shodex ODP2 HP-4E
 Eluent : 25mM Sodium phosphate buffer (pH5.2)/CH₃CN=680/320
 Flow rate : 0.35mL/min
 Detector : UV (210nm)
 Column temp. : 40°C

Comparison of barbital recovery rate using ODP2 HP-2B and ODS in the presence of BSA



For the LC/MS analysis of drugs in samples containing protein matrix, use of ODP2 HP column showed less matrix effect (ion suppression in this case) compared to when ODS column was used. This shows that ODP2 HP column does not retain protein and elute it as a void.

Column : Shodex ODP2 HP-2B
 ODS from other manufacturer
 Eluent : 10mM Ammonium acetate aq./CH₃CN=70/30
 Flow rate : 0.2mL/min
 Detector : ESI-MS (SIM Negative : m/z 183)
 Column temp. : 30°C
 Injection vol. : 10 μ L

● Polymer-based Reversed Phase Chromatography Columns (Asahipak)

Please refer to “Comparison of Shodex Reversed Phase Chromatography (RPC) Column Features” on page 6 and 7 for features.

■ Standard columns

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7621001	Asahipak ODP-40 4D	≥ 11,000	Octadecyl	4	250	4.6 × 150	H ₂ O/CH ₃ CN=35/65
F7621002	Asahipak ODP-40 4E	≥ 17,000	Octadecyl	4	250	4.6 × 250	H ₂ O/CH ₃ CN=35/65
F7620002	Asahipak ODP-50 6D	≥ 9,000	Octadecyl	5	250	6.0 × 150	H ₂ O/CH ₃ CN=35/65
F7620001	Asahipak ODP-50 6E	≥ 14,000	Octadecyl	5	250	6.0 × 250	H ₂ O/CH ₃ CN=35/65
F6710001	Asahipak ODP-50G 6A	(guard column)	Octadecyl	5	–	6.0 × 10	H ₂ O/CH ₃ CN=35/65
F6710023	Asahipak ODP-50 4B	≥ 2,500	Octadecyl	5	250	4.6 × 50	H ₂ O/CH ₃ CN=35/65
F7620004	Asahipak ODP-50 4D	≥ 9,000	Octadecyl	5	250	4.6 × 150	H ₂ O/CH ₃ CN=35/65
F7620003	Asahipak ODP-50 4E	≥ 14,000	Octadecyl	5	250	4.6 × 250	H ₂ O/CH ₃ CN=35/65
F6710022	Asahipak ODP-50G 4A	(guard column)	Octadecyl	5	–	4.6 × 10	H ₂ O/CH ₃ CN=35/65
F7620009	Asahipak ODP-50 2D	≥ 5,000	Octadecyl	5	250	2.0 × 150	H ₂ O/CH ₃ CN=35/65
F6713001	Asahipak ODP-50G 2A	(guard column)	Octadecyl	5	–	2.0 × 10	H ₂ O/CH ₃ CN=35/65
F7620006	Asahipak C8P-50 4D	≥ 7,000	Octyl	5	250	4.6 × 150	H ₂ O/CH ₃ CN=35/65
F7620005	Asahipak C8P-50 4E	≥ 11,000	Octyl	5	250	4.6 × 250	H ₂ O/CH ₃ CN=35/65
F6710002	Asahipak C8P-50G 4A	(guard column)	Octyl	5	–	4.6 × 10	H ₂ O/CH ₃ CN=35/65
F7620008	Asahipak C4P-50 4D	≥ 6,000	Butyl	5	250	4.6 × 150	H ₂ O/CH ₃ CN=35/65
F7620007	Asahipak C4P-50 4E	≥ 9,000	Butyl	5	250	4.6 × 250	H ₂ O/CH ₃ CN=35/65
F6710003	Asahipak C4P-50G 4A	(guard column)	Butyl	5	–	4.6 × 10	H ₂ O/CH ₃ CN=35/65

Base Material: Polyvinyl alcohol

■ 3mm I.D columns [Customized columns]

Product Code	Product Name	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length
F7621101	Asahipak ODP-40 3B	Octadecyl	4	250	3.0 × 50
F7621102	Asahipak ODP-40 3D	Octadecyl	4	250	3.0 × 150
F6714013	Asahipak ODP-40G 3A (guard column)	Octadecyl	4	250	3.0 × 10

Base Material: Polyvinyl alcohol

■ Semi-micro columns *The following semi-micro columns are made to order.

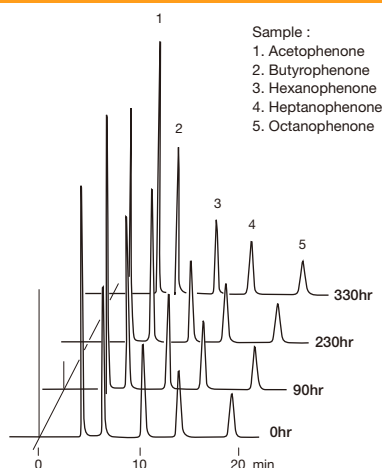
Product Code	Product Name	Functional Group	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length
F7838023	ODP40-2B	Octadecyl	4	250	2.0 × 50
F7838022	ODP40-2D	Octadecyl	4	250	2.0 × 150

Base Material: Polyvinyl alcohol

■ 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
F6820001	Asahipak ODP-50 10E	≥ 10,000	5	10.0 × 250	ODP-40, ODP-50
F6820035	Asahipak ODP-90 20F	≥ 9,000	9	20.0 × 300	ODP-40, ODP-50
F6710004	Asahipak ODP-130G 7B	(guard column)	13	7.5 × 50	(guard column)
F6820003	Asahipak C8P-50 10E	≥ 8,000	5	10.0 × 250	C8P-50
F6714004	Asahipak C8P-50G 7B	(guard column)	5	7.5 × 50	(guard column)
F6820005	Asahipak C4P-50 10E	≥ 7,000	5	10.0 × 250	C4P-50
F6714005	Asahipak C4P-50G 7B	(guard column)	5	7.5 × 50	(guard column)

Alkaline tolerance of ODP-50

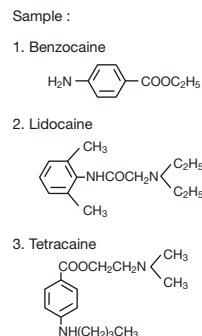
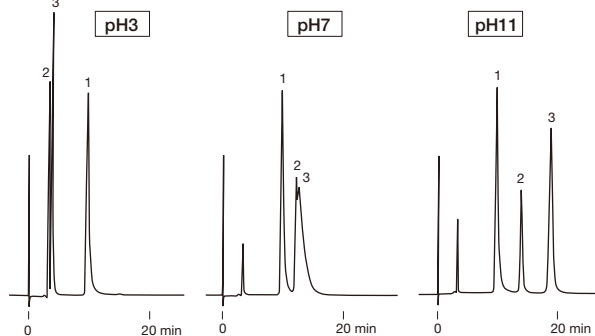


Sample :
 1. Acetophenone
 2. Butyrophenone
 3. Hexanophenone
 4. Heptanophenone
 5. Octanophenone

Column : Shodex Asahipak ODP-50 4D
 Eluent : 10mM NaOH aq. (pH12.0)/CH₃CN=35/65
 Flow rate : 0.6mL/min
 Detector : UV (254nm)
 Column temp. : 30°C

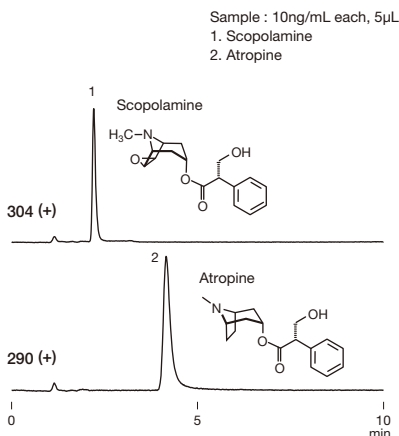
Local anesthetics

Dissociation of tertiary amino groups in basic drugs can be suppressed by making pH of the eluent higher than pKa of the amino groups. This increases the relative hydrophobicity of the basic drugs, thereby allowing the column to retain the drugs stronger and provide baseline separation of them.



Column : Shodex Asahipak ODP-50 4D
 Eluent : 25mM Phosphate buffer/CH₃CN=60/40
 Flow rate : 0.6mL/min
 Detector : UV (254nm)
 Column temp. : 30°C

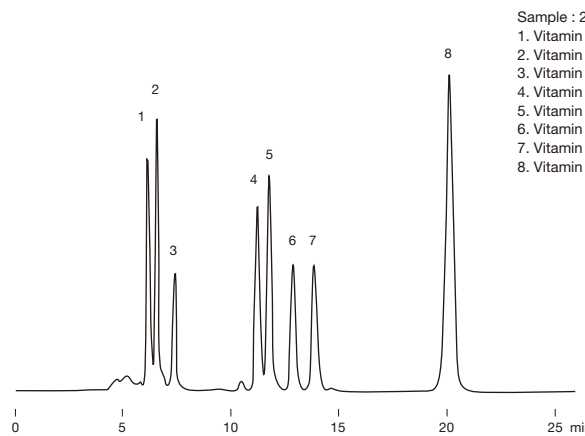
LC/MS analysis of basic drugs



Sample : 10ng/mL each, 5μL
 1. Scopolamine
 2. Atropine

Column : Shodex ODP40-2D
 Eluent : 0.05% NH₃ aq./CH₃CN=50/50
 Flow rate : 0.2mL/min
 Detector : ESI-MS (SIM)
 Column temp. : 30°C

Fat-soluble vitamins

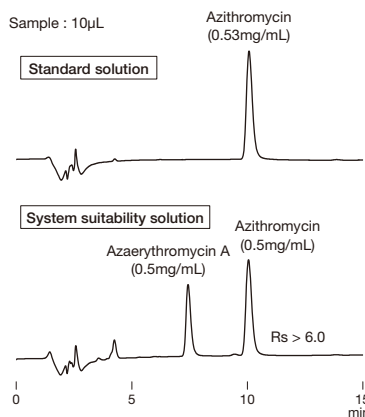


Sample : 20μL

1. Vitamin K ₃	1.5μg/mL
2. Vitamin A	1.0 IU/mL
3. Vitamin A acetate	0.5 IU/mL
4. Vitamin D ₂	13.2μg/mL
5. Vitamin D ₃	13.2 IU/mL
6. Vitamin E acetate	2.4μg/mL
7. Vitamin E	2.5μg/mL
8. Vitamin K ₁	2.4μg/mL

Column : Shodex Asahipak ODP-50 4E
 Eluent : CH₃CN/CH₃OH=50/50
 Flow rate : 0.6mL/min
 Detector : UV (280nm)
 Column temp. : 30°C

Analysis of azithromycin following USP method



Sample : 10μL
 Azithromycin (0.53mg/mL)

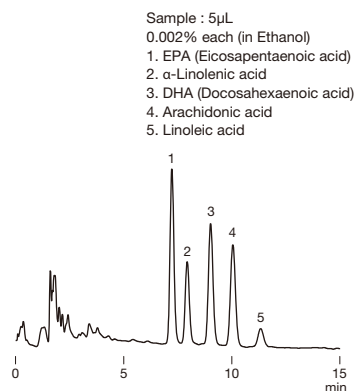
Standard solution

System suitability solution

Azaerythromycin A (0.5mg/mL)

Column : Shodex Asahipak ODP-50 4E
 Eluent : 6.7g/L Dibasic potassium phosphate aq. (pH11.0 adjusted with 10M KOH) /CH₃CN=40/60
 Flow rate : 1.0mL/min
 Detector : UV (210nm)
 Column temp. : 40°C

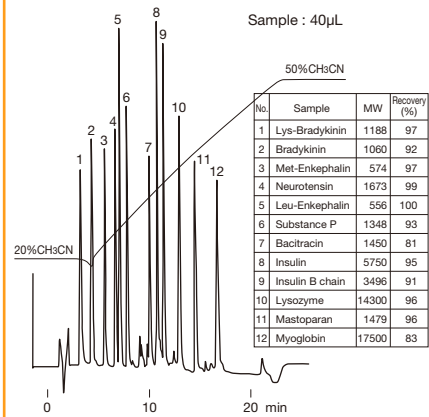
Unsaturated fatty acids



Sample : 5μL
 0.002% each (in Ethanol)
 1. EPA (Eicosapentaenoic acid)
 2. α-Linolenic acid
 3. DHA (Docosahexaenoic acid)
 4. Arachidonic acid
 5. Linoleic acid

Column : Shodex Asahipak ODP-50 4D
 Eluent : 0.1% H₃PO₄ in (H₂O/CH₃CN=30/70)
 Flow rate : 1.0mL/min
 Detector : UV (215nm)
 Column temp. : 40°C

Gradient analysis of proteins and peptides



Sample : 40μL

No.	Sample	MW	Recovery (%)
1	Lys-Bradykinin	1188	97
2	Bradykinin	1060	92
3	Met-Enkephalin	574	97
4	Neurotensin	1673	99
5	Leu-Enkephalin	556	100
6	Substance P	1348	93
7	Bacitracin	1450	81
8	Insulin	5750	95
9	Insulin B chain	3496	91
10	Lysozyme	14300	96
11	Mastoparan	1479	96
12	Myoglobin	17500	83

Column : Shodex Asahipak ODP-50 6D
 Eluent : (A); 0.05% TFA aq./CH₃CN=80/20
 (B); 0.05% TFA aq./CH₃CN=50/50
 Linear gradient; (A) to (B), 20min
 Flow rate : 1.0mL/min
 Detector : UV (220nm)
 Column temp. : 30°C

● Polymer-based Reversed Phase Chromatography Columns (RSpak)

Please refer to “Comparison of Shodex Reversed Phase Chromatography (RPC) Column Features” on page 6 and 7 for features.

■ Standard columns

Product Code	Product Name	Plate Number (TP/column)	Functional Group	Base Material	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length	Shipping Solvent
F7009000	RSpak RP18-415	≥ 5,000	-	Styrene divinylbenzene copolymer	6	450	4.6 x 150	H ₂ O/CH ₃ CN=5/95
F6709558	RSpak RP18-G	(guard column)	-	Styrene divinylbenzene copolymer	6	-	4.6 x 10	H ₂ O/CH ₃ CN/THF=40/30/30
F7001001	RSpak DS-613	≥ 6,500	-	Styrene divinylbenzene copolymer	6	200	6.0 x 150	H ₂ O/CH ₃ CN/THF=30/40/30
F7001012	RSpak DS-413	≥ 11,000	-	Styrene divinylbenzene copolymer	3.5	200	4.6 x 150	H ₂ O/CH ₃ CN/THF=40/30/30
F6700140	RSpak DS-G	(guard column)	-	Styrene divinylbenzene copolymer	10	-	4.6 x 10	H ₂ O/CH ₃ CN/THF=30/40/30
F7001004	RSpak DE-613	≥ 7,000	-	Polymethacrylate	6	25	6.0 x 150	H ₂ O
F7001005	RSpak DE-413	≥ 11,000	-	Polymethacrylate	4	25	4.6 x 150	H ₂ O/CH ₃ CN=50/50
F7009030	RSpak DE-413L	≥ 17,000	-	Polymethacrylate	4	25	4.6 x 250	H ₂ O/CH ₃ CN=50/50
F6700150	RSpak DE-G 4A (RSpak DE-G)	(guard column)	-	Polymethacrylate	10	-	4.6 x 10	H ₂ O
F7001007	RSpak DE-213	≥ 8,000	-	Polymethacrylate	4	25	2.0 x 150	H ₂ O/CH ₃ CN=50/50
F6700151	RSpak DE-G 2A (RSpak DE-SG)	(guard column)	-	Polymethacrylate	6	-	2.0 x 10	H ₂ O/CH ₃ CN=50/50
F7001002	RSpak DM-614	≥ 4,500	-	Polyhydroxymethacrylate	10	200	6.0 x 150	5mM H ₃ PO ₄ aq.
F6700160	RSpak DM-G 4A (RSpak DM-G)	(guard column)	-	Polyhydroxymethacrylate	12	-	4.6 x 10	5mM H ₃ PO ₄ aq.
F7008140	RSpak NN-814	≥ 9,000	Sulfo	Polyhydroxymethacrylate	10	200	8.0 x 250	0.1M Sodium phosphate buffer (pH3.0)
F7008150	RSpak NN-614	≥ 4,000	Sulfo	Polyhydroxymethacrylate	10	200	6.0 x 150	0.1M Sodium phosphate buffer (pH3.0)
F6700510	RSpak NN-G	(guard column)	Sulfo	Polyhydroxymethacrylate	10	-	6.0 x 50	0.1M Sodium phosphate buffer (pH3.0)
F7008160	RSpak NN-414	≥ 6,000	Sulfo	Polyhydroxymethacrylate	10	200	4.6 x 150	0.1M Sodium phosphate buffer (pH3.0)
F7008240	RSpak JJ-50 4D	≥ 4,500	Quaternary ammonium	Polyvinyl alcohol	5	100	4.6 x 150	H ₂ O/CH ₃ CN=40/60
F7008220	RSpak JJ-50 2D	≥ 3,500	Quaternary ammonium	Polyvinyl alcohol	5	100	2.0 x 150	H ₂ O/CH ₃ CN=40/60

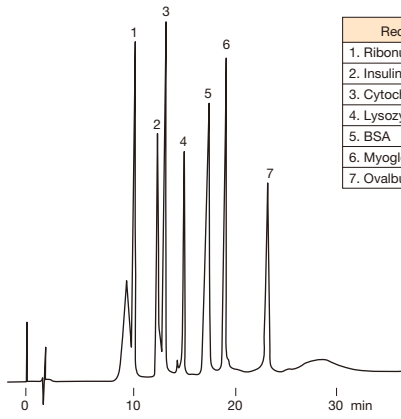
■ **Semi-micro columns** *The following semi-micro columns are made to order.

Product Code	Product Name	Functional Group	Base Material	Particle Size (μm)	Pore Size (Å)	Column Size (mm) I.D. x Length
F7840123	DE413-2B	-	Polymethacrylate	4	25	2.0 × 50
F7840121	DE413-2E	-	Polymethacrylate	4	25	2.0 × 250
F7860122	NN414-2D	Sulfo	Polyhydroxymethacrylate	10	200	2.0 × 150

■ **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
F6513013	RSpak DE-2013	≥ 10,000	12	20.0 × 300	DE-413, DE-613
F6700190	RSpak DE-G 8B (RSpak DE-LG)	(guard column)	12	8.0 × 50	DE-413, DE-613
F6514014	RSpak DM-2014	≥ 5,000	12	20.0 × 300	DM-614
F6700404	RSpak DM-G 8B (RSpak DM-LG)	(guard column)	12	8.0 × 50	(guard column)

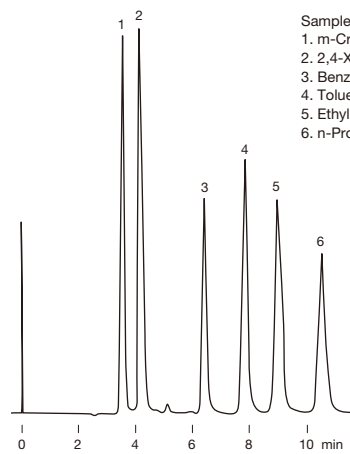
Separation and recovery rate of standard proteins



Recovery (%)	
1. Ribonuclease A	93
2. Insulin	98
3. Cytochrome c	100
4. Lysozyme	100
5. BSA	98
6. Myoglobin	108
7. Ovalbumin	-

Column : Shodex RSpak RP18-415
Eluent : (A); 0.1% TFA aq./CH₃CN=99/1
 (B); 0.1% TFA aq./CH₃CN=5/95
 Linear gradient; (B%) 20% to 60%, 20min
Flow rate : 1.0mL/min
Detector : UV (220nm)
Column temp. : Room temp.

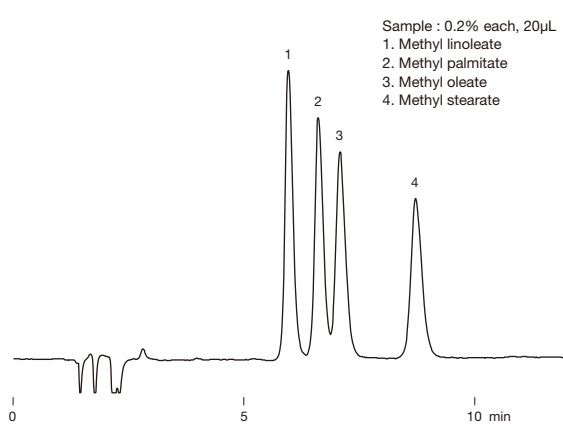
Alkylbenzenes



Sample : 5µL	
1. m-Cresol	0.1%
2. 2,4-Xylenol	0.1%
3. Benzene	0.5%
4. Toluene	0.5%
5. Ethylbenzene	0.5%
6. n-Propylbenzene	0.5%

Column : Shodex RSpak DS-613
Eluent : H₂O/CH₃CN/THF=30/40/30
Flow rate : 1.0mL/min
Detector : UV (254nm)
Column temp. : 40°C

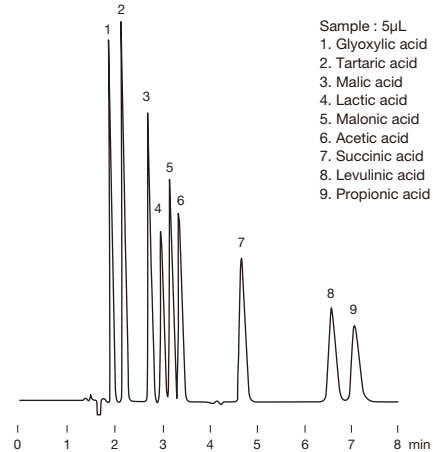
Fatty acid methyl esters



Sample : 0.2% each, 20µL	
1. Methyl linoleate	
2. Methyl palmitate	
3. Methyl oleate	
4. Methyl stearate	

Column : Shodex RSpak DS-413
Eluent : H₂O/CH₃CN/THF=25/45/30
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 40°C

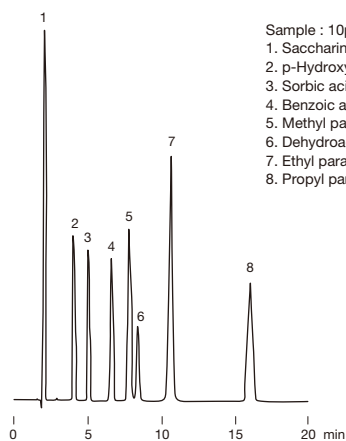
Organic acids



Sample : 5µL	
1. Glyoxylic acid	1.78mg/mL
2. Tartaric acid	1.95mg/mL
3. Malic acid	2.06mg/mL
4. Lactic acid	2µL/mL
5. Malonic acid	1.95mg/mL
6. Acetic acid	2µL/mL
7. Succinic acid	2.05mg/mL
8. Levulinic acid	1.95mg/mL
9. Propionic acid	2µL/mL

Column : Shodex RSpak DE-413
Eluent : 10mM H₃PO₄ aq.
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 50°C

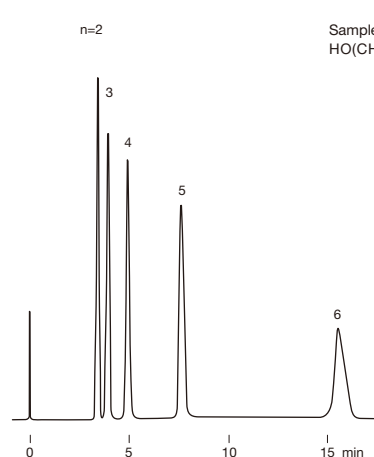
Food additives (Preservatives)



Sample : 10µL	
1. Saccharin sodium	0.005%
2. p-Hydroxybenzoic acid	0.005%
3. Sorbic acid	0.02%
4. Benzoic acid	0.02%
5. Methyl paraben	0.01%
6. Dehydroacetic acid	0.01%
7. Ethyl paraben	0.02%
8. Propyl paraben	0.02%

Column : Shodex RSpak DE-413
Eluent : 50mM KH₂PO₄ + 0.1% H₃PO₄ aq.
 /CH₃CN=65/35
Flow rate : 1.0mL/min
Detector : UV (210nm)
Column temp. : 40°C

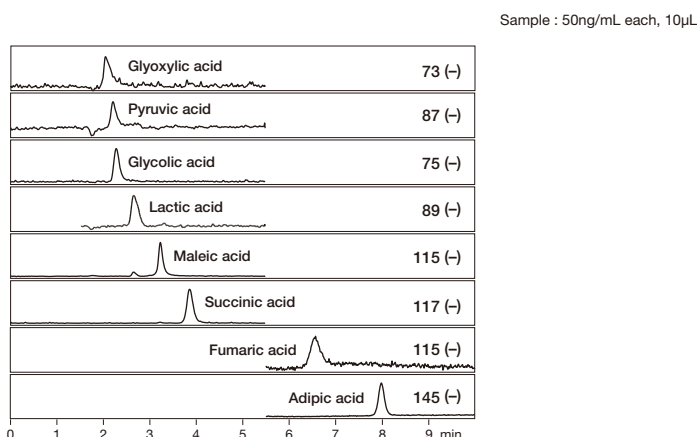
Diols



Sample : 1% each, 7.5µL	
HO(CH ₂) _n OH	

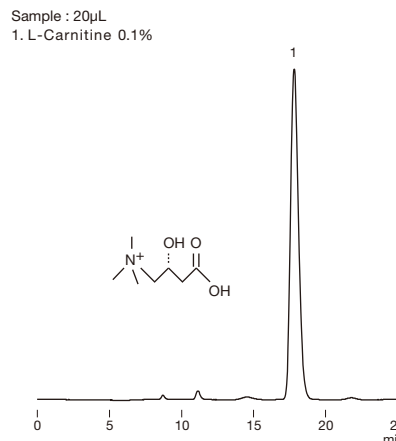
Column : Shodex RSpak DE-613
Eluent : H₂O
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 60°C

LC/MS analysis of organic acids



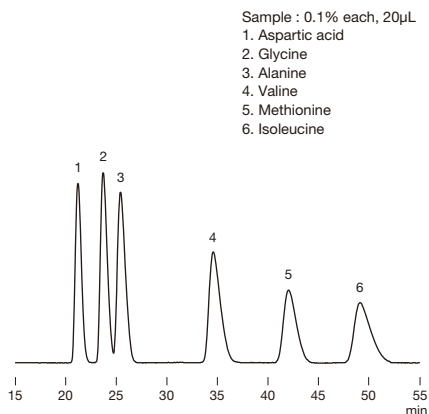
Column : Shodex RSpak DE-213
Eluent : (A); 0.1% (v/v) Formic acid aq./ (B); CH₃CN
 Linear gradient; (B%) 5% (0min) → 5% (2min) → 15% (2.5min) → 15% (10min)
Flow rate : 0.2mL/min
Detector : ESI-MS (SIM)
Column temp. : 30°C

Carnitine



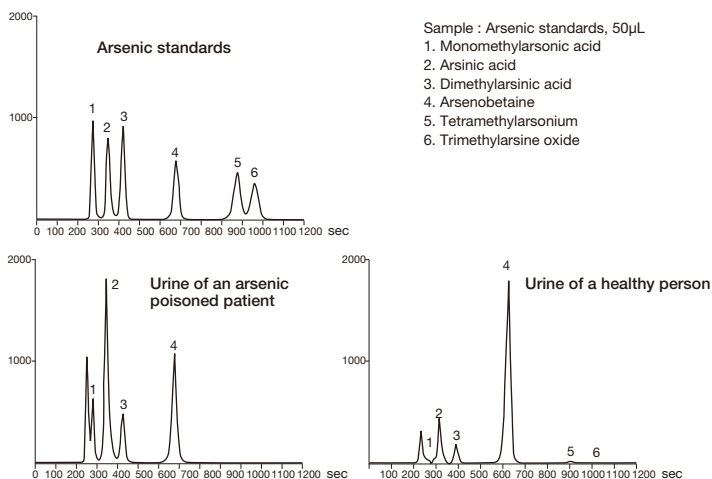
Column : Shodex RSpak NN-814
Eluent : 0.1M H₃PO₄ aq.
Flow rate : 1.0mL/min
Detector : UV (210nm)
Column temp. : 25°C

Amino acids



Column : Shodex RSpak NN-814
Eluent : 40mM H₃PO₄ aq.
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 40°C

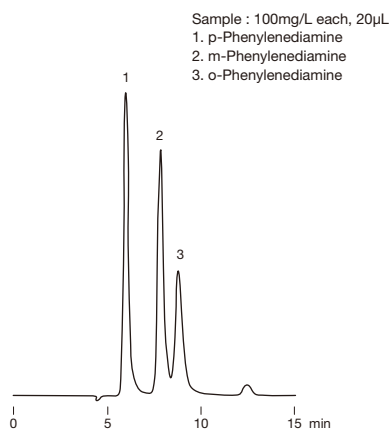
Speciation of arsenic



Column : Shodex RSpak NN-614
Eluent : 5mM HNO₃/8mM NH₄NO₃ aq.
Flow rate : 0.8mL/min
Detector : ICP-MS (SIM m/z 75)

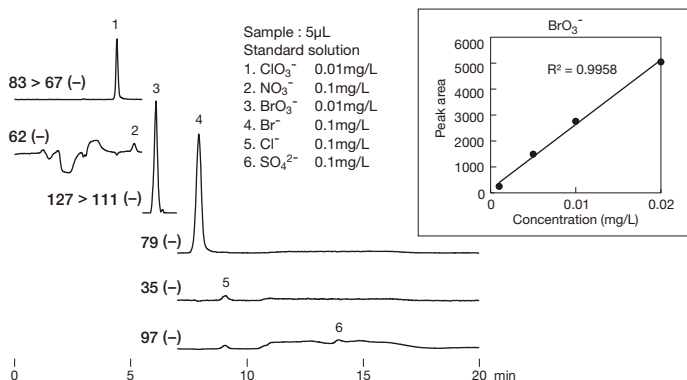
Source:
 Noriko Tsunoda,
 Pharmacia. 1998, vol.34, No.12, p.1237-1241

Phenylenediamine isomers



Column : Shodex RSpak JJ-50 4D
Eluent : 25mM Ammonium acetate buffer
 (pH9.2)/CH₃CN=70/30
Flow rate : 0.4mL/min
Detector : UV (254nm)
Column temp. : 30°C

High sensitive analysis of bromate by LC/MS/MS



Column : Shodex RSpak JJ-50 2D
Eluent : (A); 200mM HCOONH₄ aq./ (B); CH₃CN
 Linear gradient (High pressure);
 (B%) 85% (0min) → 85% (8min) → 50% (9min) → 50% (14min)
 → 85% (15min) → 85% (20min)
Flow rate : 0.3mL/min
Detector : ESI-MS/MS (MRM) for ClO₃⁻, BrO₃⁻
 ESI-MS (SIM) for NO₃⁻, Br⁻, Cl⁻, SO₄²⁻
Column temp. : 50°C