

COSMOSIL C₁₈-PAQ



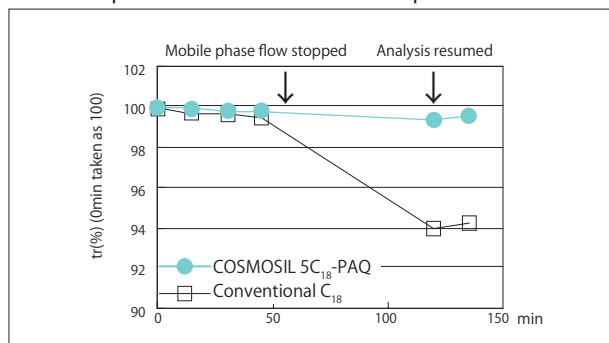
- Compatible with 100% water based mobile phase

Suitable Samples

- Hydrophilic compounds
- Organic acids, nucleic acid bases, etc.

Stable Performance

- Stable performance under 100% aqueous conditions



The figure shows the change of retention time for thymine with 100% aqueous mobile phase (20 mmol/l phosphate buffer, pH 7). The sample was analyzed 4 times (1 hour). Flow of mobile phase was then stopped for 1 hour. The sample was analyzed under the same condition again after 1 hour. The conventional C₁₈ column showed change of retention time, but COSMOSIL 5C₁₈-PAQ maintained stable retention time.

Applications

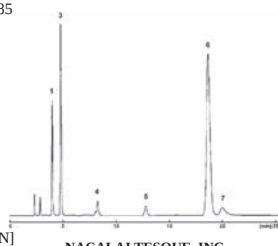
- Energy Drink

COSMOSIL Application Data

Column: COSMOSIL 5C₁₈-PAQ
Column size: 4.6mm I.D.-250mm
Mobile phase: Methanol/ 5mmol/l Sodium 1-Hexanesulfonate, 20mmol/l Phosphoric Acid = 15/85
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV220nm

Sample: Nutrient drink
1: Citric Acid
2: L-Carnitine
3: Nicotinamide
4: Vitamin B₆ [Pyridoxine]
5: Vitamin B₁ [Thiamine]
6: Caffeine
7: Flavin Mononucleotide [FMN]

Injection Vol. 1.0μl

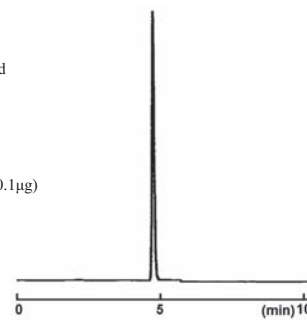
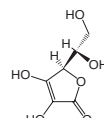


- Vitamin C

COSMOSIL Application Data

Column: COSMOSIL 5C₁₈-PAQ
Column size: 4.6mm I.D.-250mm
Mobile phase: 20mmol/l Phosphoric Acid
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV245nm, 0.16AUFS

Sample: L(+)-Ascorbic Acid [Vitamin C] (0.1μg)



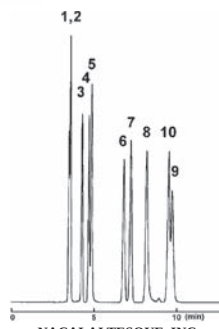
AP-0372

- Organic Acids

COSMOSIL Application Data

Column: COSMOSIL 5C₁₈-PAQ
Column size: 4.6mm I.D.-250mm
Mobile phase: 20mmol/l Phosphate buffer(pH2.5)
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV210nm

Sample: 1: Glycolic Acid (6.3μg)
2: L-(+)-Tartaric Acid (4.0μg)
3: L-(-)-Malic Acid (6.4μg)
4: Lactic Acid (13μg)
5: Acetic Acid (13μg)
6: Citric Acid (6.3μg)
7: Succinic Acid (13μg)
8: Maleic Acid (0.06μg)
9: Propionic Acid (13μg)
10: Fumaric Acid (0.03μg)



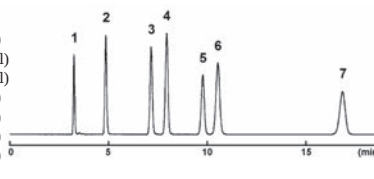
AP-1058

- Nucleic Acid Metabolites

COSMOSIL Application Data

Column: COSMOSIL 5C₁₈-PAQ
Column size: 4.6mm I.D.-250mm
Mobile phase: 20mmol/l Phosphate buffer(pH2.5)
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV240nm

Sample: 1: Allantoin (2.0mg/ml)
2: Guanine (0.05mg/ml)
3: Hypoxanthine (0.05mg/ml)
4: Uric Acid (0.1mg/ml)
5: Xanthine (0.2mg/ml)
6: Adenosine (0.2mg/ml)
7: Inosine (0.1mg/ml)
Inj. Vol.: 1.0μl



AP-1517

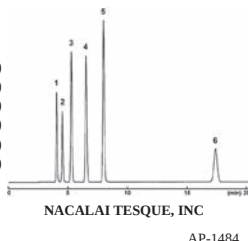
Applications

● Fish Freshness Indicator, K value

COSMOSIL Application Data

Column: COSMOSIL 5C₁₈-PAQ
Column size: 4.6mm I.D.-250mm
Mobile phase: 20mmol/l Phosphate buffer(pH7.0)
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV260nm

Sample:
1; Inosine-5'-monophosphate (0.40mg/ml)
2; Adenosine-5'-triphosphate (0.25mg/ml)
3; Adenosine-5'-diphosphate (0.40mg/ml)
4; Adenosine-5'-monophosphate (0.40mg/ml)
5; Hypoxanthine (0.25mg/ml)
6; Inosine (0.25mg/ml)
Inj. Vol.: 1.0μl

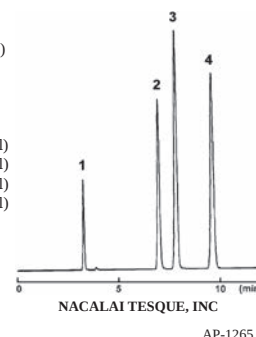
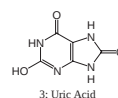


● Urate Metabolites

COSMOSIL Application Data

Column: COSMOSIL 5C₁₈-PAQ
Column size: 4.6mm I.D.-250mm
Mobile phase: 20mmol/l Phosphate buffer(pH2.5)
Flow rate: 1.0 ml/min
Temperature: 30°C
Detection: UV220nm

Sample: 1; Allantoin (0.5mg/ml)
2; Hypoxanthine (0.5mg/ml)
3; Uric Acid (0.5mg/ml)
4; Xanthine (0.5mg/ml)
Inj. Vol.: 1.0μl



Ordering Information

● COSMOSIL 5C₁₈-PAQ Analytical / Preparative Columns (Particle Size: 5 μm)

Packed Column

I.D. x Length (mm)	Product Number
1.0× 50	05792-61
1.0× 150	05793-51
2.0× 30	05878-51
2.0× 50	05794-41
2.0× 100	05470-71
2.0× 150	34449-71
2.0× 250	05795-31
3.0× 100	05796-21
3.0× 150	05797-11
3.0× 250	05798-01
4.6× 30	05879-41
4.6× 50	34451-21

I.D. x Length (mm)	Product Number
4.6× 100	05799-91
4.6× 150	02486-71
4.6× 250	02485-81
6.0× 150	34419-61
6.0× 250	05800-41
10× 50	05801-31
10× 100	16586-31
10× 150	34466-41
10× 250	34376-21
20× 50	05804-01
20× 100	16587-21

I.D. x Length (mm)	Product Number
20× 150	34476-11
20× 250	34373-51
28× 100	16588-11
28× 150	16589-01
28× 250	34456-71

Guard Column

I.D. x Length (mm)	Product Number
4.6× 10	02484-91
4.6× 10 Cartridge*	19181-44
10× 20	34457-61
20× 20	05803-11
28× 50	34455-81

* 2 cartridges included. Guard cartridge holder required; refer to page 78.

● COSMOSIL 15C₁₈-PAQ Preparative Columns (Particle Size: 15 μm)

Packed Column

I.D. x Length (mm)	Product Number
28× 250	05888-21
50× 250	05890-71
50× 500	05891-61

Guard Column

I.D. x Length (mm)	Product Number
28× 50	05887-31
50× 50	05889-11

● COSMOSIL 3C₁₈-PAQ Fast LC Columns (Particle Size: 3 μm)

Packed Column

I.D. x Length (mm)	Product Number
2.0× 50	19773-81
2.0× 75	19774-71
2.0× 100	19779-21
2.0× 150	19780-81
2.0× 250	19781-71
3.0× 50	19784-41
3.0× 75	19786-21
3.0× 100	19787-11

I.D. x Length (mm)	Product Number
3.0× 150	19788-01
3.0× 250	19789-91
4.6× 50	19869-41
4.6× 75	19870-01
4.6× 100	19871-91
4.6× 150	19872-81
4.6× 250	19873-71

Guard Cartridge

I.D. x Length (mm)	Product Number
2.0× 10 Cartridge*	19874-74
4.6× 10 Cartridge*	19875-64

* 2 cartridges included. Guard cartridge holder required; refer to page 78.

COSMOSIL 3C₁₈-EB



- Excellent for basic compounds
- 3 μm C₁₈ column with reduced tailing and high resolution

Suitable Samples

- For quality control of drugs
- Compounds that induce peak tailing, such as basic compounds

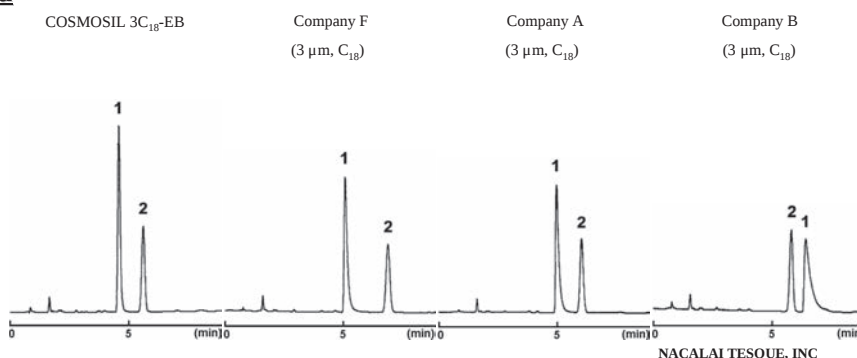
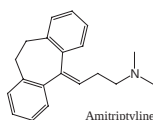
Analysis of Basic Compounds

COSMOSIL 3C₁₈-EB uses a new end-capping method to reduce the number of residual silanol groups, which can cause peak tailing with basic compounds.

COSMOSIL Application Data

Column: COSMOSIL 3C₁₈-EB
 Column size: 4.6mm I.D.-75mm
 Mobile phase: Acetonitrile/ 20mmol/l Phosphate buffer(pH7.0) = 60/40
 Flow rate: 1.0 ml/min
 Temperature: 40°C
 Detection: UV254nm

Sample: 1; Amitriptyline (0.2mg/ml)
 2; Propylbenzene (I.S.) (2.0mg/ml)
 Inj. Vol: 1.0μl



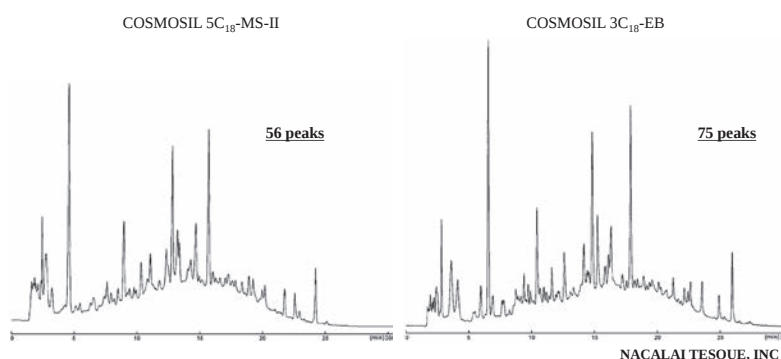
Advanced / Precise Separation of Multicomponents

The application below is analysis of red wine. COSMOSIL 3C₁₈-EB (3 μm) provides more peaks comparing to conventional 5 μm columns. COSMOSIL 3C₁₈-EB is suitable for analysis of many-component samples.

COSMOSIL Application Data

Column: COSMOSIL **
 Column size: 4.6mm I.D.-150mm
 Mobile phase: A: 20mmol/l Phosphate buffer(pH2.5)
 B: Methanol
 B conc. 10 → 90% 30min Linear gradient
 Flow rate: 1.0 ml/min
 Temperature: 30°C
 Detection: UV300nm

Sample: Red Wine (Cabernet Sauvignon)
 Inj. Vol: 10μl



NACALAI TESQUE, INC

AP-1268

Applications

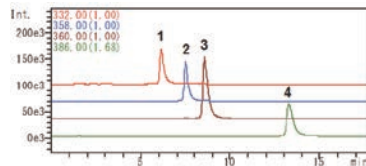
● Quinolone Antimicrobials

COSMOSIL Application Data

Column: COSMOSIL 3C₁₈-EB
 Column size: 2.0mm I.D.-150mm
 Mobile phase: 0.1% Formic Acid-Acetonitrile/ H₂O = 15/85
 Flow rate: 0.2 ml/min
 Temperature: 40°C
 Detection: ESI-MS, Positive, SIM

Sample:

1; Ciprofloxacin (21mg/L)
 2; Danofloxacin (25mg/L)
 3; Enrofloxacin (25mg/L)
 4; Sarafloxacin (25mg/L)
 Inj. Vol.: 1.0μl



NACALAI TESQUE, INC

AP-1426

● Esomeprazole

COSMOSIL Application Data

Column: COSMOSIL 3C₁₈-EB
 Column size: 4.6mm I.D.-100mm
 Mobile phase: A; Acetonitrile/ Solution A = 100mL/100mL, dilute with H₂O to 1L
 B; Acetonitrile/ Solution A = 800mL/10mL, dilute with H₂O to 1L
 [Solution A; 5.2mmol/L NaH₂PO₄, 31.5mmol/L Na₂HPO₄(pH7.6)]
 B conc. 0 → 20%(0 → 10min), 20 → 100%(10 → 30min) ‡

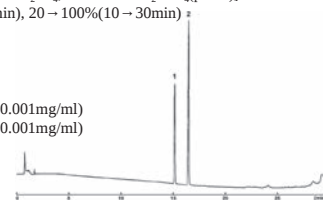
Flow rate: 1.0 ml/min

Temperature: 40°C

Detection: UV302nm

Sample:

1; Omeprazole Related Compound A (0.001mg/ml)
 2; Omeprazole (0.001mg/ml)
 Inj. Vol.: 20μl



NACALAI TESQUE, INC

USP37(3), Esomeprazole Magnesium Delayed-Release Capsules, Impurities

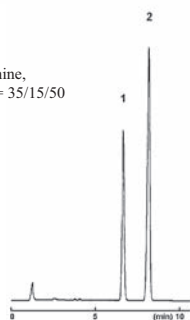
AP-1341

● Amlodipine, Benazepril

COSMOSIL Application Data

Column: COSMOSIL 3C₁₈-EB
 Column size: 4.6mm I.D.-100mm
 Mobile phase: Methanol/ Acetonitrile/ 0.2% Triethylamine,
 20mmol/L KH₂PO₄(pH3.0 with H₃PO₄) = 35/15/50
 Flow rate: 1.0 ml/min
 Temperature: 40°C
 Detection: UV237nm

Sample: 1; Amlodipine (7.7μg/ml)
 2; Benazepril (22.5μg/ml)
 Inj. Vol.: 50μl



NACALAI TESQUE, INC

USP38(1), Amlodipine and Benazepril Hydrochloride Capsules, Performance Tests

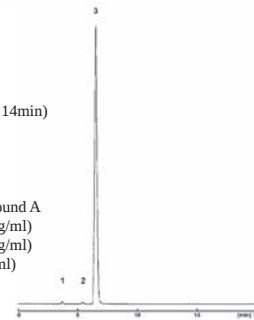
AP-1345

● Hydrochlorothiazide

COSMOSIL Application Data

Column: COSMOSIL 3C₁₈-EB
 Column size: 4.6mm I.D.-50mm
 Mobile phase: A; 0.5% Formic Acid
 B; Acetonitrile/ Methanol = 3/1
 B conc. 3%(0-5min), 3 → 36%(5 → 14min)
 Flow rate: 1.0 ml/min
 Temperature: 35°C
 Detection: UV275nm

Sample: 1; Benzothiadiazine related compound A (0.0032mg/ml)
 2; Chlorothiazide (0.0032mg/ml)
 3; Hydrochlorothiazide (0.32mg/ml)
 Inj. Vol.: 10μl



NACALAI TESQUE, INC

USP28(6), Hydrochlorothiazide, Assay, Related compounds

AP-1355

Ordering Information

● COSMOSIL 3C₁₈-EB Fast LC Columns (Particle Size: 3 μm)

Packed Column

I.D. x Length (mm)	Product Number
2.0 × 50	09794-21
2.0 × 75	09795-11
2.0 × 100	09796-01
2.0 × 150	09797-91
2.0 × 250	09798-81
3.0 × 50	09799-71
3.0 × 75	09800-21
3.0 × 100	09811-81

I.D. x Length (mm)	Product Number
3.0 × 150	09814-51
3.0 × 250	09827-91
4.6 × 50	09840-01
4.6 × 75*	09841-91
4.6 × 100*	09842-81
4.6 × 150*	09843-71
4.6 × 250	09844-61

Guard Column / Guard Cartridge

I.D. x Length (mm)	Product Number
2.0 × 10 Cartridge†	11892-74
4.6 × 10	09839-41
4.6 × 10 Cartridge†	11890-94

* Columns for validation
 † 2 cartridges included. Guard cartridge holder required; refer to page 78.

COSMOCORE 2.6C₁₈



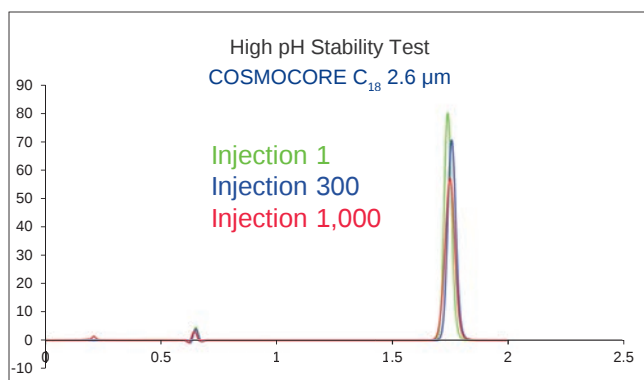
- Core-shell particles
- Ultra-high performance LC results with conventional HPLC equipment
- Same number of theoretical plates as sub-2 µm columns with half the back pressure

Suitable Samples

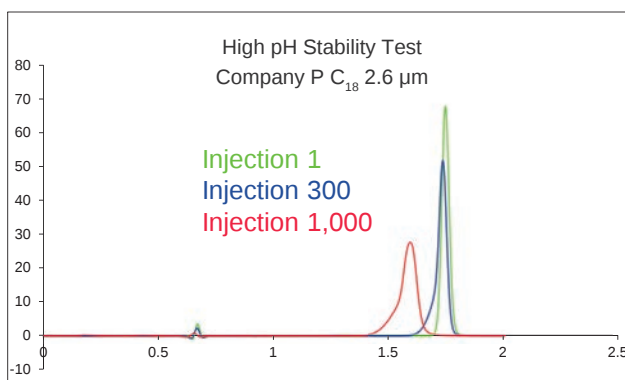
- For quality control of drugs
- Compounds that induce peak tailing, such as basic compounds

Excellent pH Stability

Under accelerated pH 10.4, 40°C stability test, COSMOCORE C₁₈ column shows superior stability compared with other core shell C₁₈ phases.



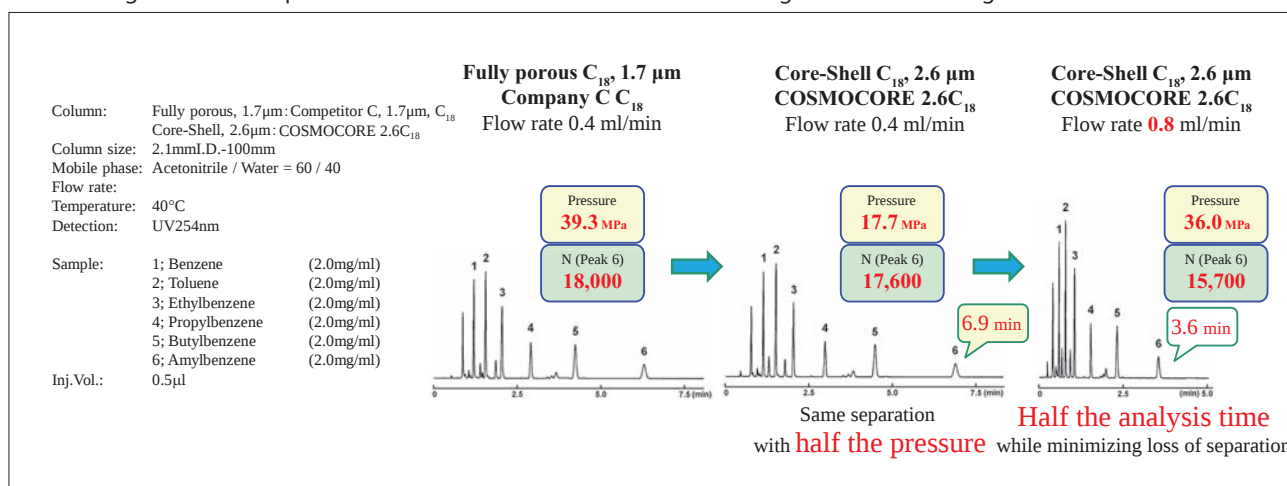
Column size: 2.1 mm x 100mm
Sample: Caffeine (0.05 mg/ml)
Flow rate: 0.4 ml/min



Mobile phase: 0.35% Ammonium hydroxide/acetonitrile
= 90/10 (pH 10.4)
Injection volume: 1 µL
Temperature: 40°C

Reduced Back Pressure and Faster Analyses

COSMOCORE 2.6C₁₈ delivers performance equivalent to sub-2 µm particles at faster flow rate and analysis time while maintaining a lower back pressure. COSMOCORE can also be used in longer column size to gain additional resolution.



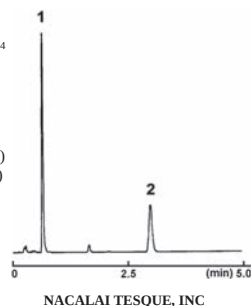
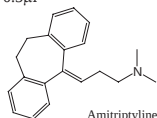
Applications

● Amitriptyline

COSMOCORE Application Data

Column: COSMOCORE 2.6C₁₈
 Column size: 2.1mm I.D.-50mm
 Mobile phase: Acetonitrile/ 10mmol/l CH₃COONH₄
 = 50/50
 Flow rate: 0.4 ml/min
 Temperature: 40°C
 Detection: UV254nm

Sample: 1; Amitriptyline (0.2mg/ml)
 2; *n*-Propylbenzene (I.S.) (2.0mg/ml)
 Inj. Vol: 0.5μl

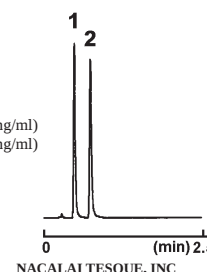
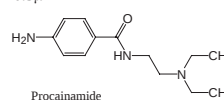


● Procainamide

COSMOCORE Application Data

Column: COSMOCORE 2.6C₁₈
 Column size: 2.1mm I.D.-50mm
 Mobile phase: Acetonitrile/ 20mmol/l Phosphate
 buffer(pH7.0) = 10/90
 Flow rate: 0.4 ml/min
 Temperature: 40°C
 Detection: UV270nm

Sample: 1; Procainamide (0.05mg/ml)
 2; *N*-Acetylprocainamide (0.05mg/ml)
 Inj. Vol: 0.5μl

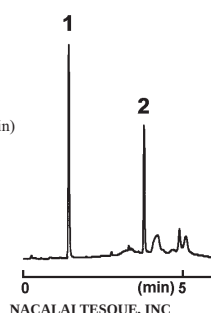
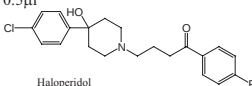


● Haloperidol

COSMOCORE Application Data

Column: COSMOCORE 2.6C₁₈
 Column size: 2.1mm I.D.-50mm
 Mobile phase: A; Acetonitrile/ 20mmol/l Phosphate
 buffer(pH7.0) = 10/90
 B; Acetonitrile/ 20mmol/l Phosphate
 buffer(pH7.0) = 50/50
 B conc. 0→100%(0→3min), 100%(3-5min)
 Flow rate: 0.4 ml/min
 Temperature: 40°C
 Detection: UV220nm

Sample: 1; 4-(4-Chlorophenyl)-
 4-hydroxypiperidine (0.1mg/ml)
 2; Haloperidol (0.1mg/ml)
 Inj. Vol: 0.5μl

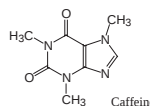


● Caffeine

COSMOCORE Application Data

Column: COSMOCORE 2.6C₁₈
 Column size: 2.1mm I.D.-100mm
 Mobile phase: Acetonitrile/ H₂O = 10/90
 Flow rate: 0.4 ml/min
 Temperature: 40°C
 Detection: UV275nm

Sample: 1; Theobromine (0.05mg/ml)
 2; Theophylline (0.05mg/ml)
 3; Caffeine (0.05mg/ml)
 Inj. Vol.: 1.0μl



AP-1413

Ordering Information

● COSMOCORE 2.6C₁₈ Analytical Columns (Particle Size: 2.6 μm)

Packed Column

I.D. x Length (mm)	Product Number	I.D. x Length (mm)	Product Number	I.D. x Length (mm)	Product Number
2.1 × 30	12632-31	3.0 × 30	12611-01	4.6 × 30	12601-31
2.1 × 50	12631-41	3.0 × 50	12609-51	4.6 × 50	12600-41
2.1 × 75	12630-51	3.0 × 75	12608-61	4.6 × 75	12599-91
2.1 × 100	12614-71	3.0 × 100	12607-71	4.6 × 100	12598-01
2.1 × 150	12612-91	3.0 × 150	12602-21	4.6 × 150	12597-11
				4.6 × 250	12596-21

COSMOCORE's connector is the same type as Waters UPLC® columns.