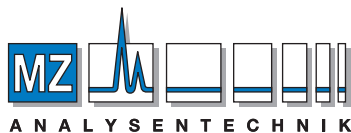


 **Imtakt**

HPLC TECHNICAL INFORMATION

**Chemical Materials
Organic Chemistry**



ANALYSENTECHNIK

AUTHORIZED DISTRIBUTOR

MZ-Analysentechnik GmbH, Barcelona-Allee 17 • D-55129 Mainz

Tel +49 6131 880 96-0, Fax +49 6131 880 96-20

e-mail: info@mz-at.de, www.mz-at.de

Cadenza CD-C18

250 x 4.6 mm

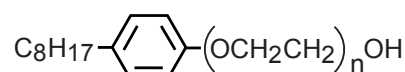
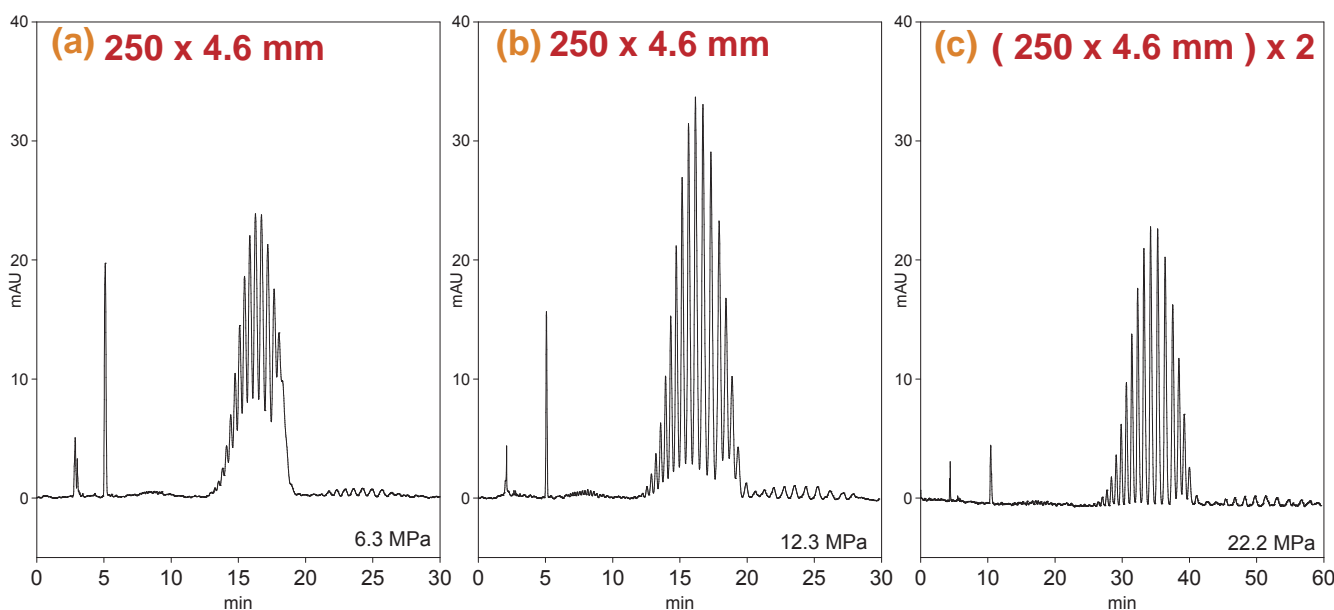
Technical

Highly-Efficient Separation of Surfactant

Conventional 5µm ODS

Cadenza CD-C18

Cadenza CD-C18



Triton X-100

ACN / water = 65 / 35, 0.8 mL/min, UV at 254 nm

Triton X-100, a surfactant including a poly-oxyethylene chain with a different degree of polymerization, is a difficult chemical compound ODS column separation.

Chromatogram (a) is a separation by a conventional 5µm column and the degree of polymerization recognition is insufficient. Chromatogram (b) shows that Cadenza CD-C18 particularly improves separation. Moreover, Chromatogram (c) shows a nearly perfect separation achieved by connecting two Cadenzas with each other.

Cadenza CD-C18's impressive ability to recognize molecules in the stationary phase and outstanding 50,000 plates lends itself to improve recognition of oxy-ethylene within Triton X-100.

Cadenza CD-C18 pushes the envelope of history to open up a new era of high separation ability in the reversed-phase analysis mode.

Cadenza CD-C18

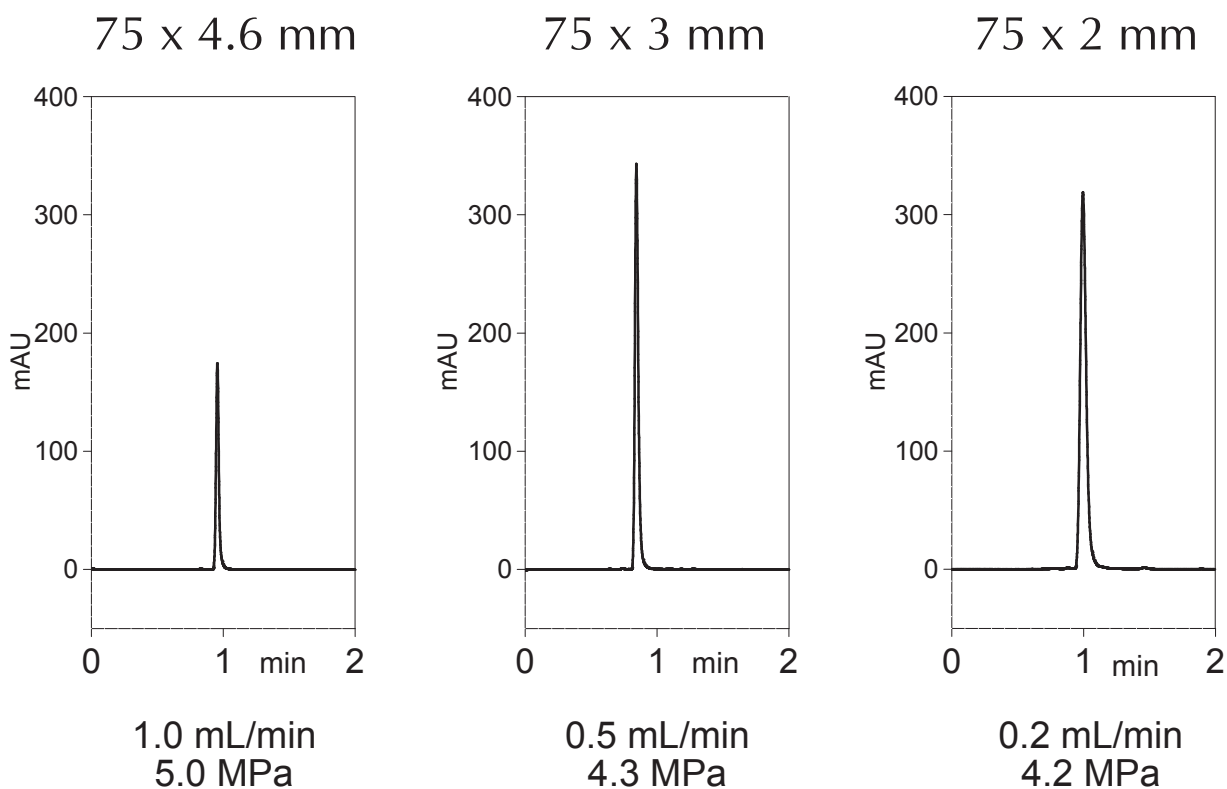
Application

75 x 4.6 mm

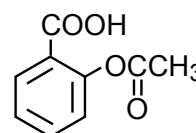
75 x 3 mm

75 x 2 mm

Acetylsalicylic acid from Tablet



Cadenza CD-C18
 ACN / water / acetic acid = 60 / 40 / 0.1
 UV at 260 nm, 37 °C
 acetylsalicylic acid from tablet
 5 mg/mL, 0.4 uL



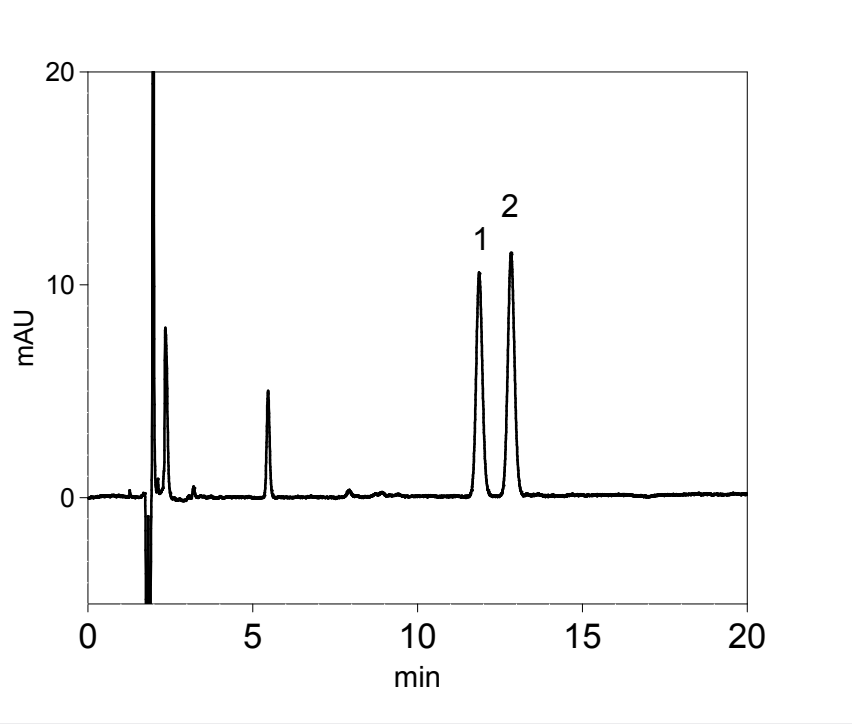
Acetylsalicylic acid

Cadenza CD-C18

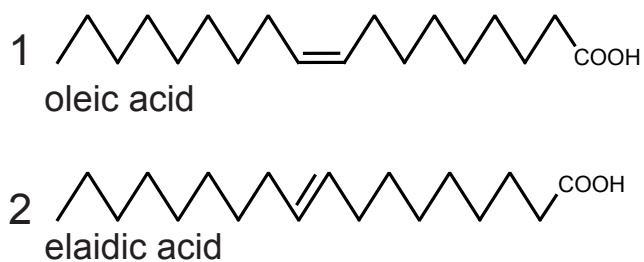
150 x 4.6 mm

Application

cis - trans Isomers of 9-octadecenoic acid



Cadenza CD-C18, 150 x 4.6 mm
 ACN / water / formic acid = 90 / 10 / 0.05
 0.8 mL/min, 37 °C
 UV at 215 nm, 3.7 MPa

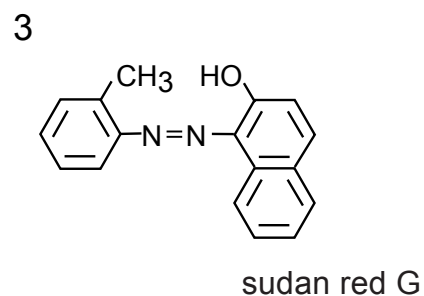
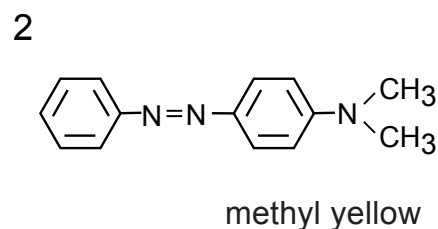
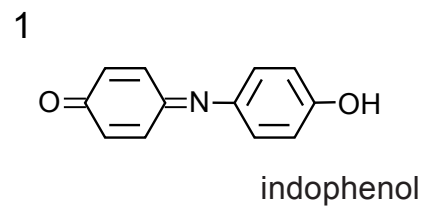
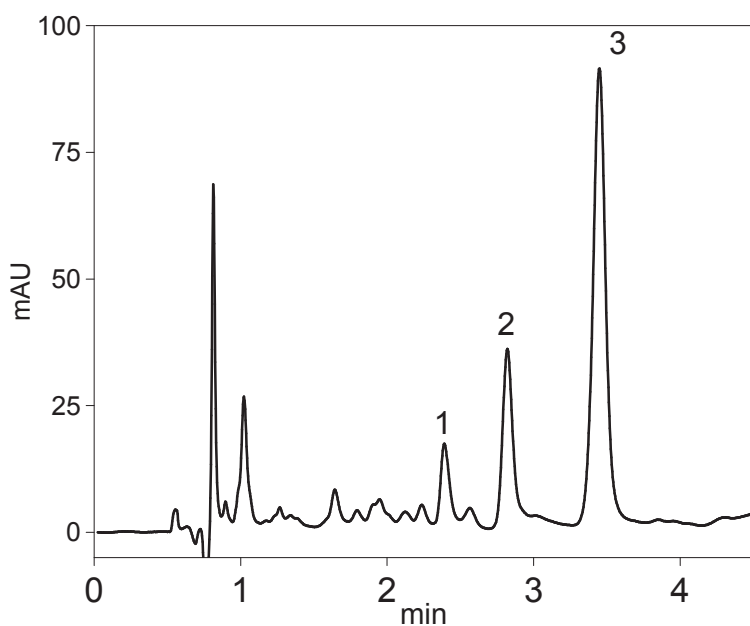


Cadenza CD-C18

75 x 4.6 mm

Application

Dyes



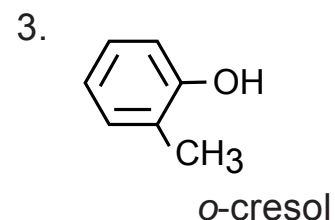
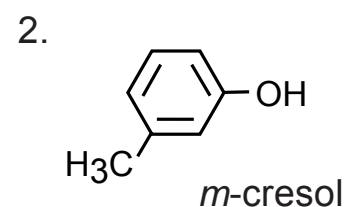
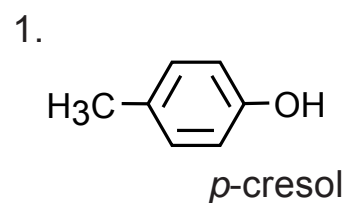
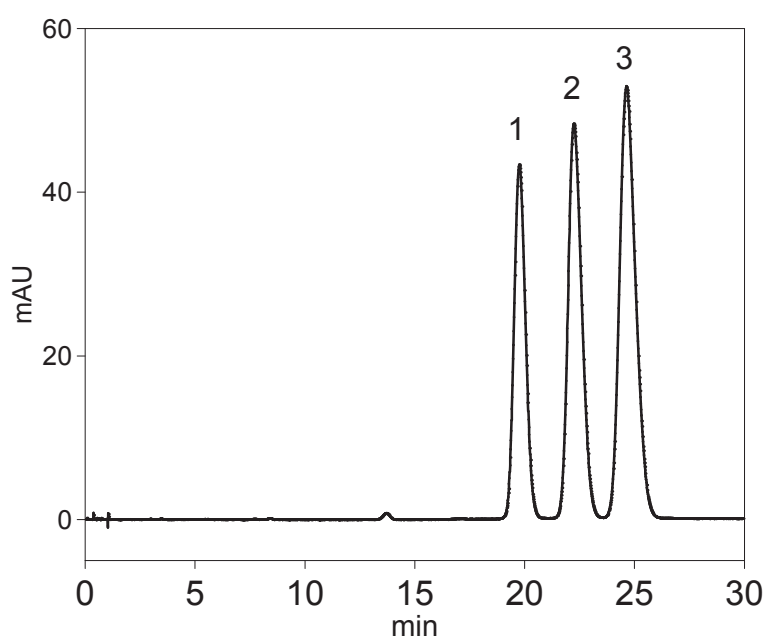
Cadenza CD-C18, 75 x 4.6 mm
 acetonitrile / water / formic acid = 80 / 20 / 0.05
 1.0 mL/min, 37 °C
 UV at 220 nm, 2.6 MPa

Cadenza CD-C18

75 x 4.6 mm

Application

Cresol isomers



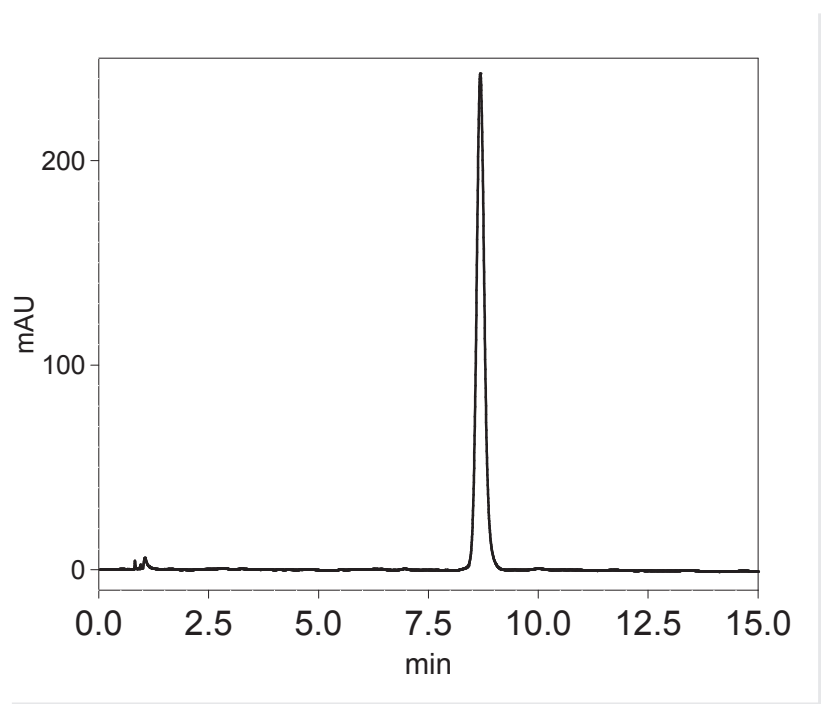
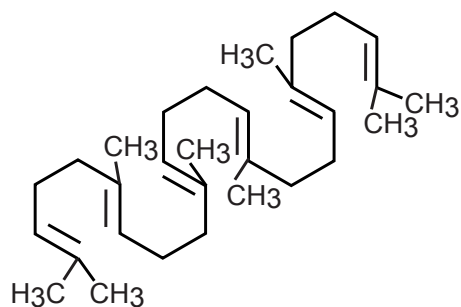
Cadenza CD-C18, 75 x 4.6 mm
 acetonitrile / 5mM beta-cyclodextrin = 10 / 90
 1.0 mL/min, 7.2 MPa, UV at 260 nms, 37 °C
 1.0 uL/mL x 1.0 uL

Cadenza CD-C18

75 x 4.6 mm

Application

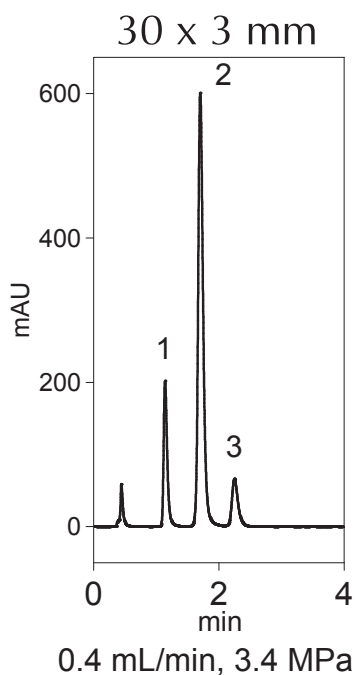
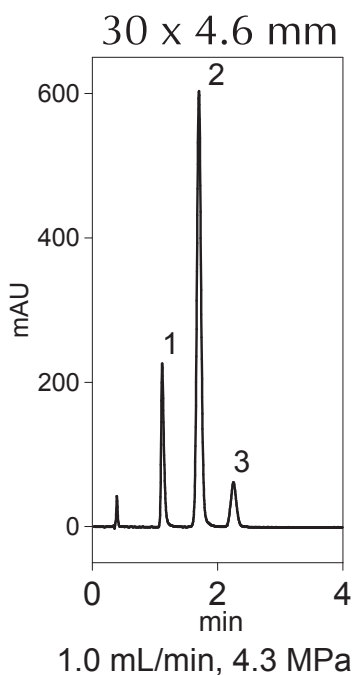
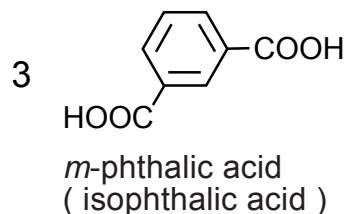
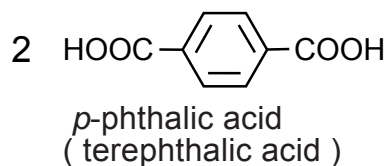
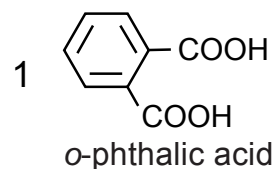
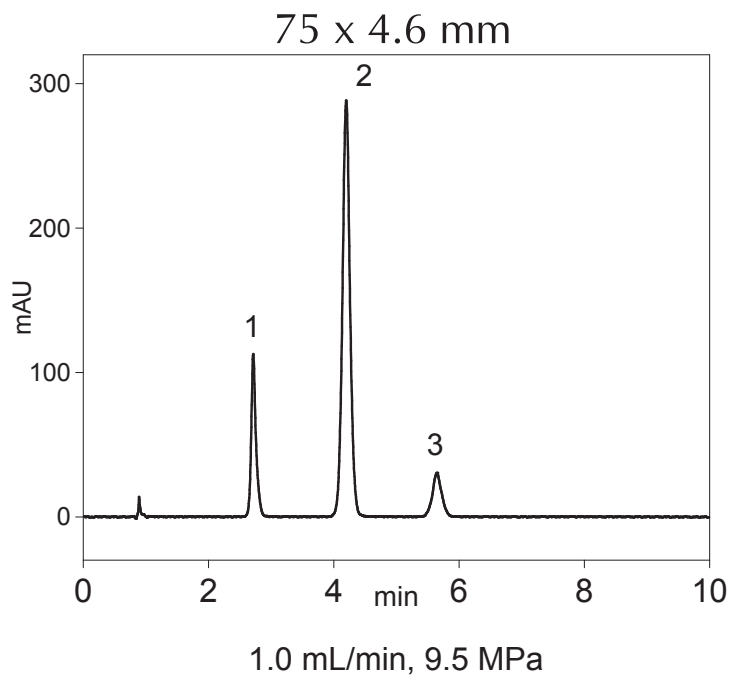
Squalene



Cadenza CD-C18, 75 x 4.6 mm
 methanol
 1.0 mL/min, 37 °C
 3.2 MPa
 UV at 210 nm

Cadenza CD-C18 75 x 4.6 mm 30 x 4.6 mm 30 x 3 mm Application

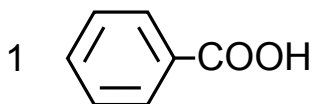
Isomers of Phthalic Acid



Cadenza CD-C18
MeOH / water / formic acid
= 30 / 70 / 0.1
37 °C, UV at 260 nm

Cadenza CD-C18 75 x 4.6 mm 50 x 4.6 mm Application

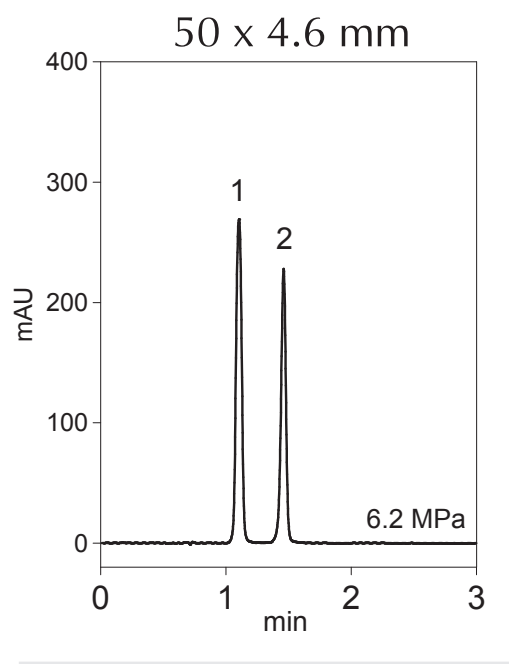
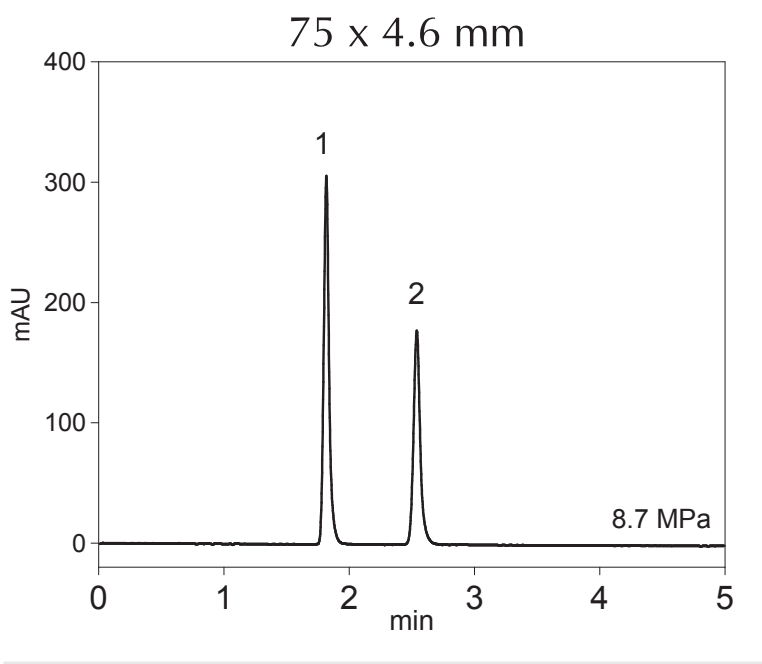
Food Preservatives



benzoic acid



sorbic acid

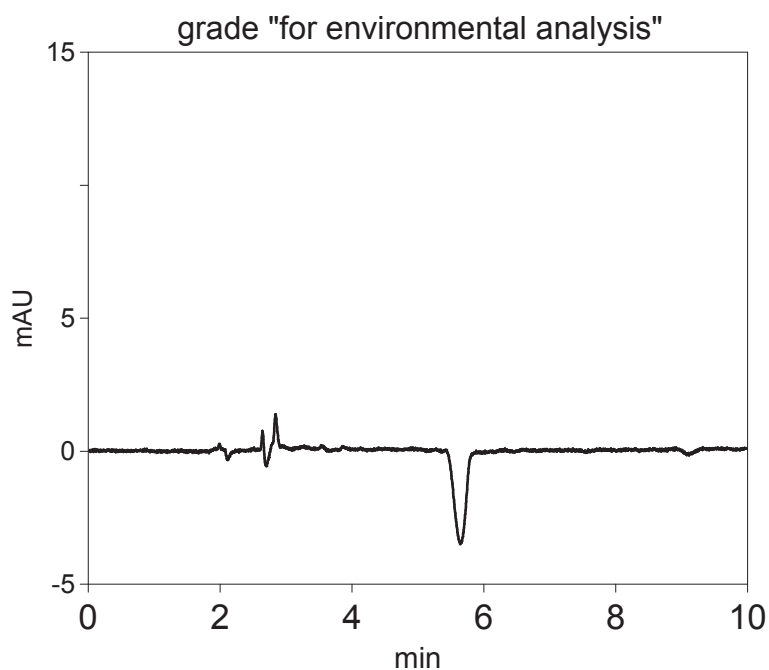
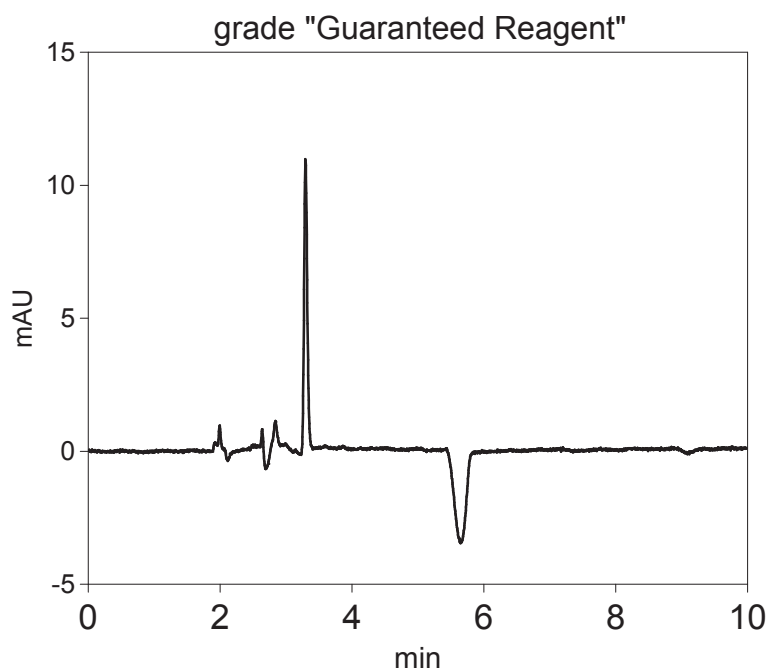


Cadenza CD-C18
 methanol / 20 mM CH₃COONH₄ = 20 / 80
 1.0 mL/min, 37 °C, UV at 230 nm
 1. benzoic acid 0.5 mg/mL
 2. sorbic acid 0.25 mg/mL 1.0uL inj.

Cadenza CD-C18

250 x 4.6 mm

Application

Impurities in Hexane

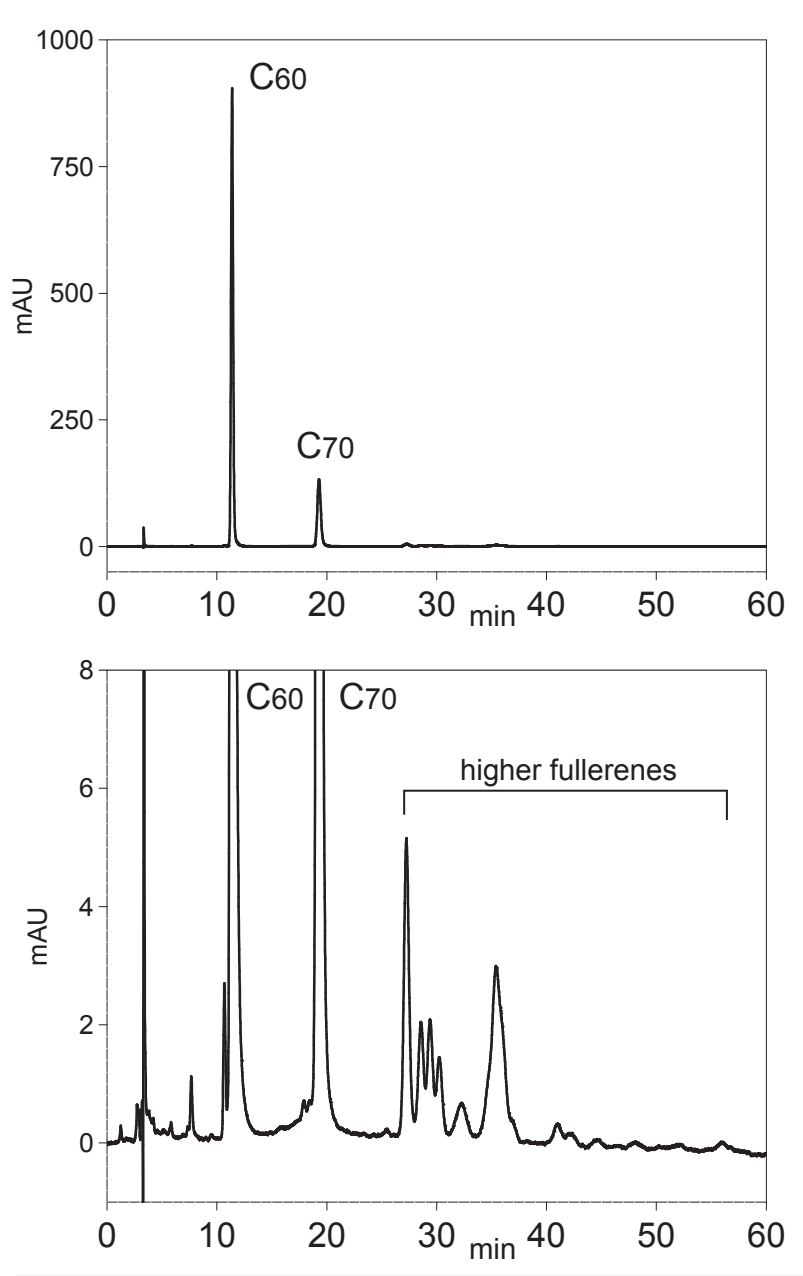
Cadenza CD-C18
250 x 4.6 mm
ACN / TFA = 100 / 0.1
1.0 mL/min, 37 °C
6.9 MPa, UV at 210 nm
1.0 uL injection

Cadenza CD-C18

250 x 3 mm

Application

Fullerene and Higher Fullerenes



Cadenza CD-C18, 250 x 3 mm
 hexane / 2-propanol = 40 / 60
 0.4 mL/min, 30 °C
 UV at 325 nm
 15.3 MPa

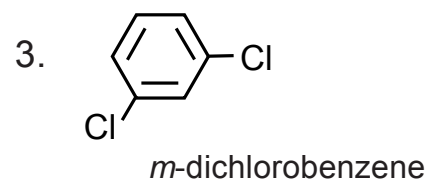
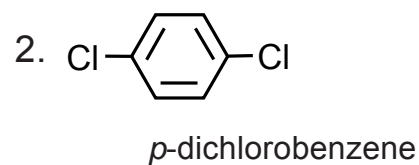
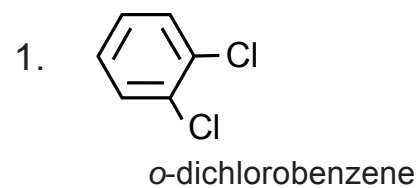
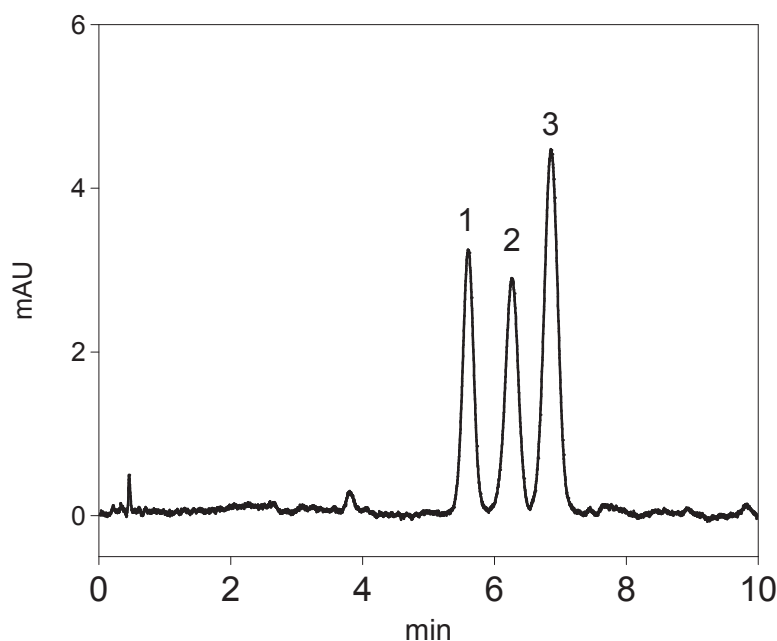
Courtesy of Dr. Naoki Komatsu, Kyoto Univ.

Cadenza CD-C18

50 x 4.6 mm

Application

Dichlorobenzene isomers



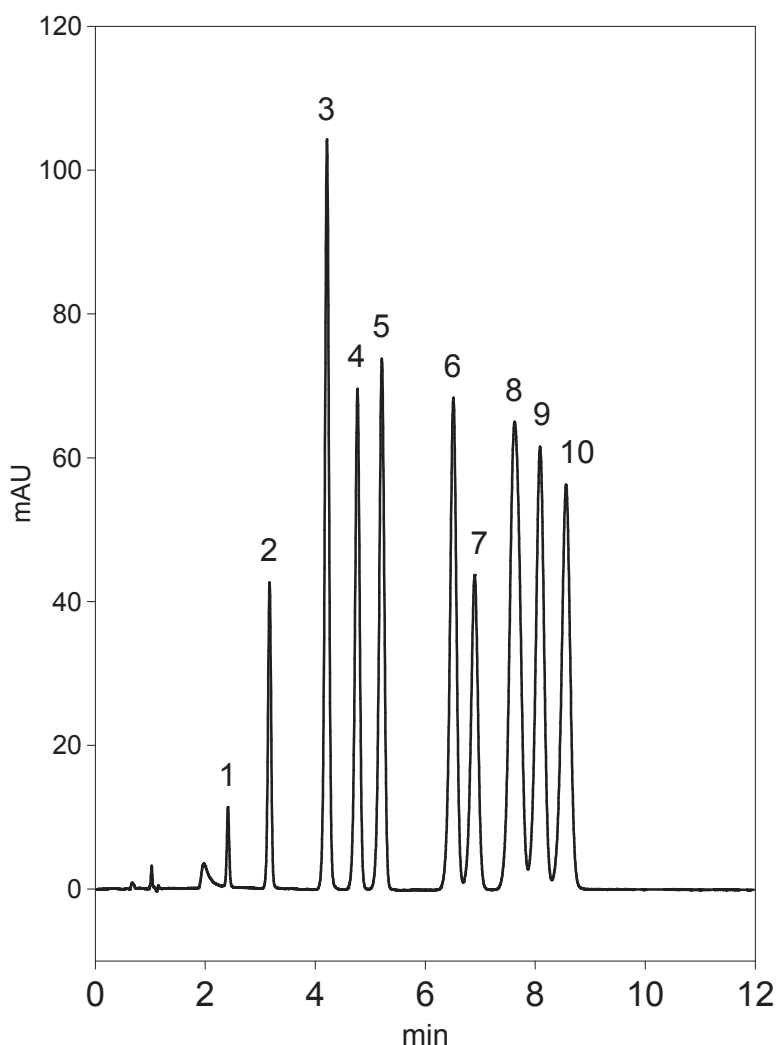
Cadenza CD-C18, 50 x 4.6 mm
acetonitrile / water = 50 / 50
1.0 mL/min, 4.4 MPa, 37 °C, UV at 260 nm
1uL injection,
0.1% solution

Cadenza CD-C18

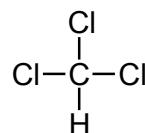
100 x 4.6 mm

Application

Indoor air pollutants



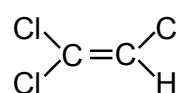
Cadenza CD-C18, 100 x 4.6 mm
 water / methanol = 30 / 70
 1.0 mL/min, 13.2 MPa
 37 °C, UV at 210 nm



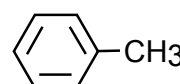
1
chloroform



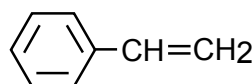
2
benzene



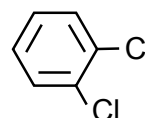
3
trichlorethylene



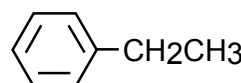
4
toluene



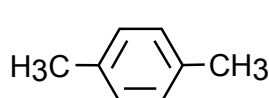
5
styrene



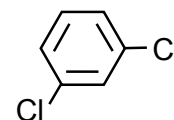
6
o-dichlorbenzene



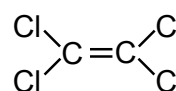
7
ethylbenzene



8
p-xylene



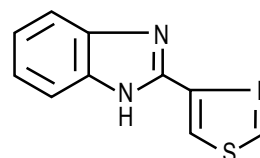
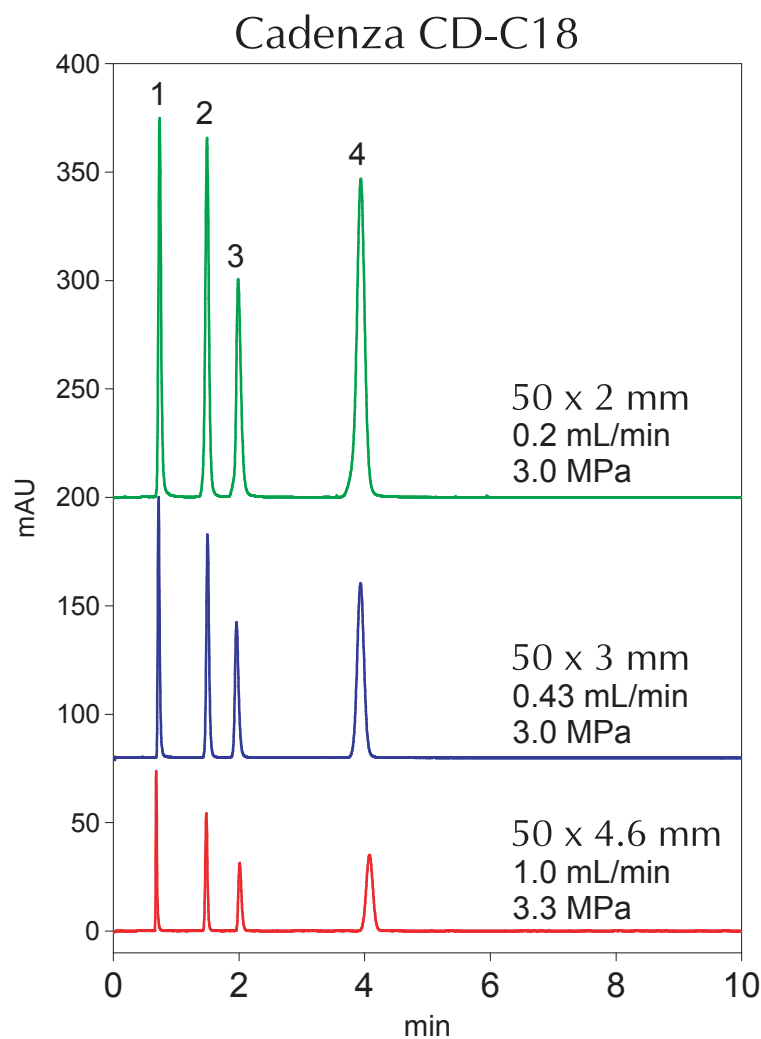
9
m-dichlorbenzene



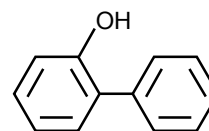
10
tetrachlorethylene

Cadenza CD-C18 50 x 2 mm 50 x 3 mm 50 x 4.6 mm Application

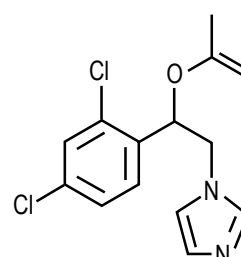
Fungicides for Citrus Fruits



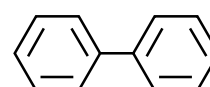
1
thiabendazole



2
o-phenylphenol



3
imazalil



4
diphenyl

Cadenza CD-C18
5 mM CH₃COONH₄ / ACN = 40 / 60
37 °C, UV at 260 nm, 2.0 uL inj.

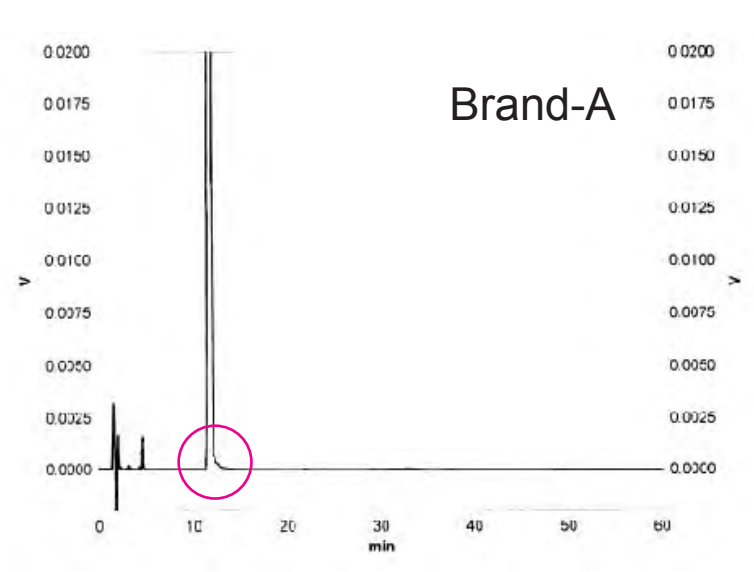
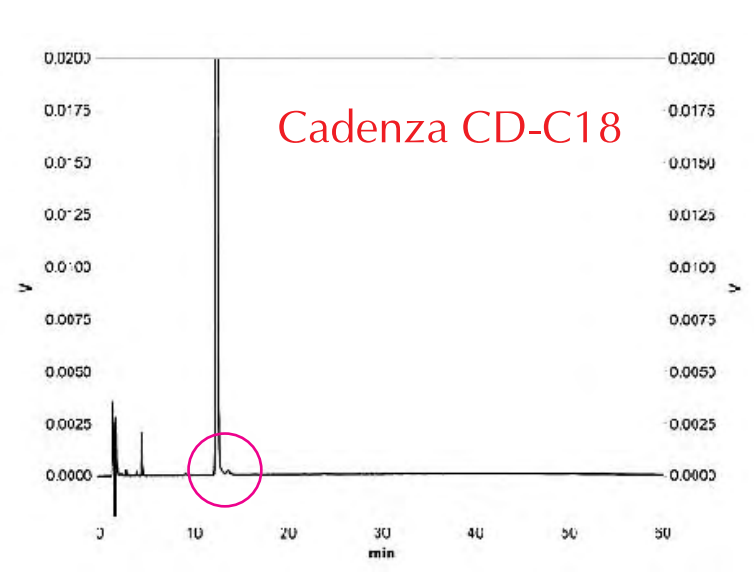
Cadenza CD-C18

150 x 4.6 mm

Application

Impurities separation for pharmaceutical compound

医薬品候補化合物中の不純物



150 x 4.6 mm
 20 mM Na₂SO₄ / acetonitrile / acetic acid = 45 / 55 / 1
 1.0 mL/min, 40 °C, UV at 254 nm

Courtesy of Hiroshi Okumura

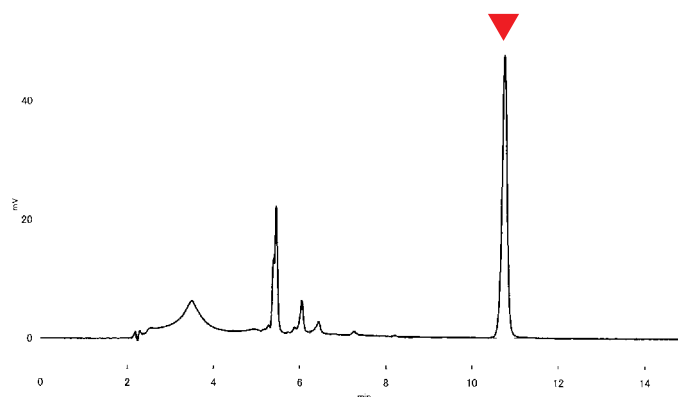
Cadenza CD-C18

250 x 2 mm
250 x 3 mm

Application

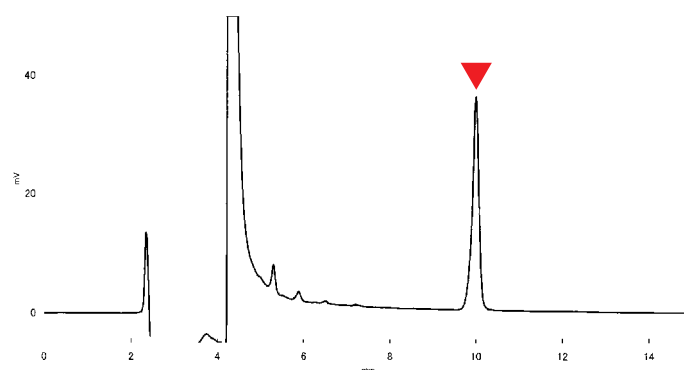
Column size comparison
for elution of investigational medication

医薬品候補化合物の溶出に関するカラムサイズ比較



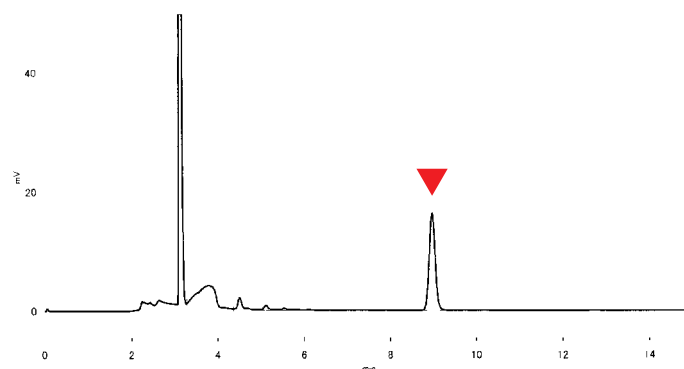
Cadenza CD-C18
250 x 2 mm

0.2 mL/min
500 µL inj.



Cadenza CD-C18
250 x 3 mm

0.4 mL/min
500 µL inj.



Brand-A
150 x 6 mm

1 mL/min
500 µL inj.

acetonitrile / water / phosphoric acid = 600 / 400 / 1, 40 °C, 280 nm

Courtesy of Hiroshi Okumura

Cadenza CD-C18

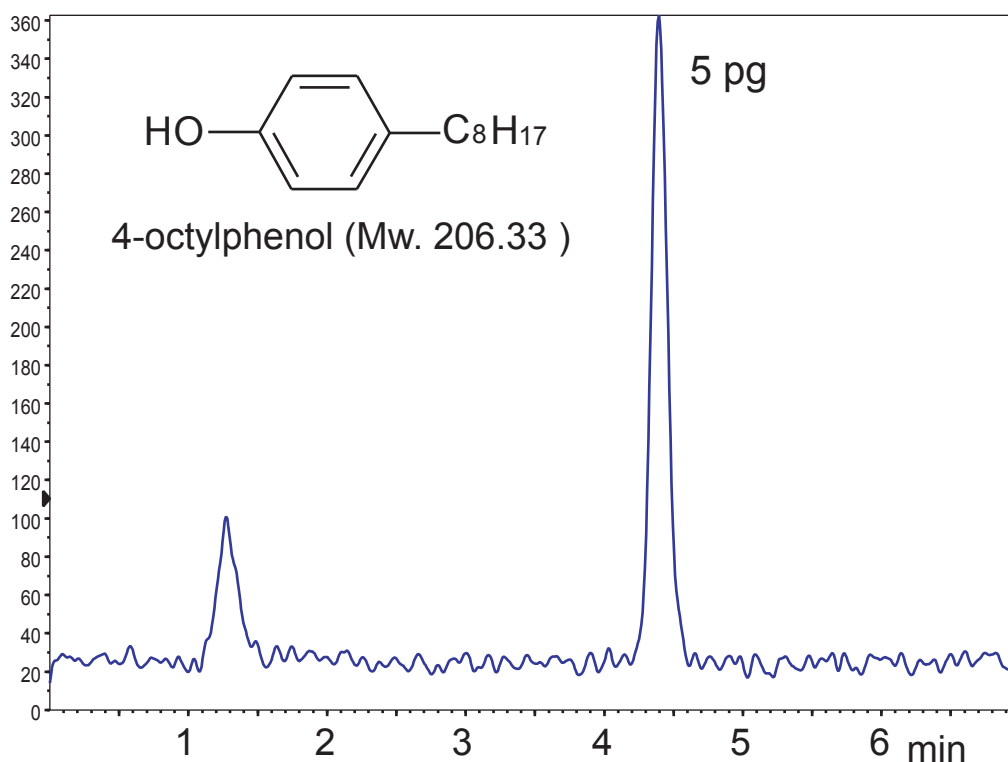
100 x 2 mm

Application

LC-MS Application for Endocrine Disruptor

LC-MSアプリケーション (環境ホルモン, オクチルフェノール)

API4000 (TAKARA BIO INC.)



Cadenza CD-C18, 100 x 2 mm
 80% methanol, 0.2 mL/min, 40 °C, 5µL(1pg/µL)
 API4000: ESI, MRM Negative, Q1/Q3 : 205 / 106

Courtesy of J.Watanabe, TAKARA BIO INC.

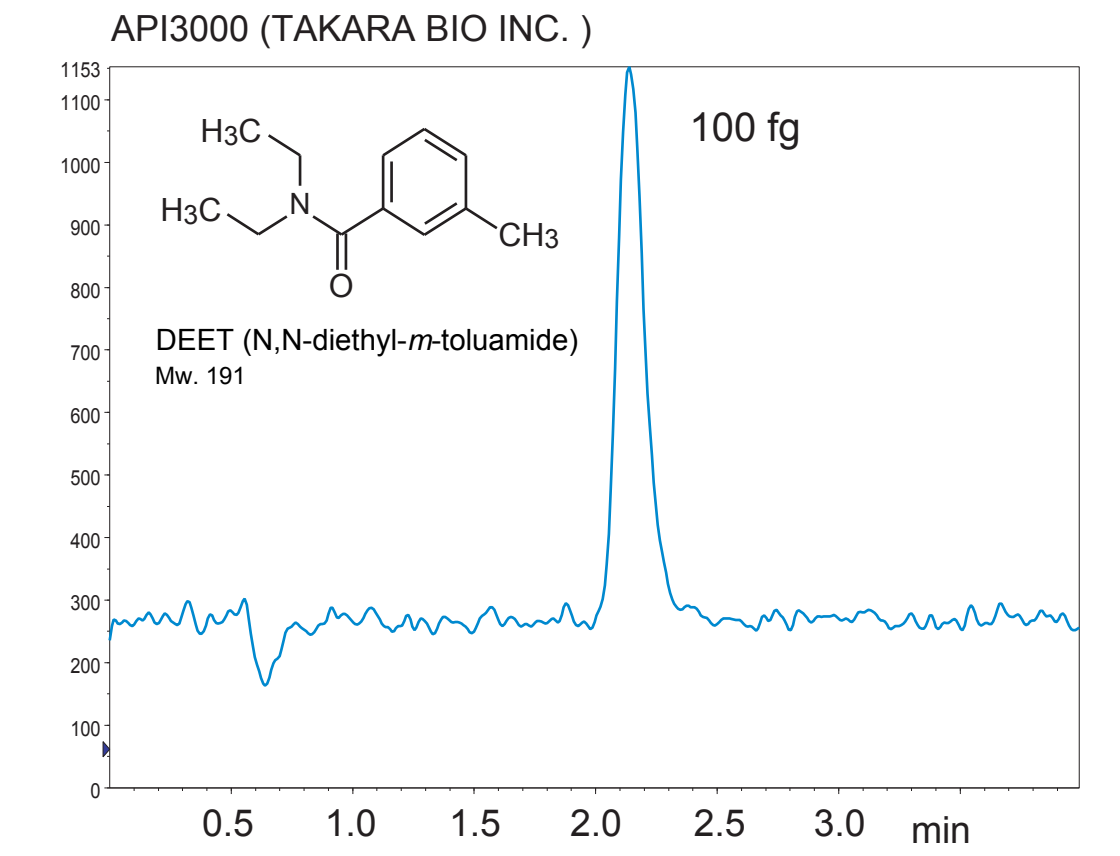
Cadenza CD-C18

50 x 2 mm

Application

LC-MS Application for Bug Repellent Active Ingredient

LC-MSアプリケーション（虫除けスプレーの有効成分）



Cadenza CD-C18, 50 x 2 mm
 0.1% formic acid / 60% methanol, 0.2 mL/min, 40 °C, 5µL (20fg/µL)
 API3000: ESI, MRM Positive
 Q1/Q3: 192/119

Courtesy of J.Watanabe, TAKARA BIO INC.

Unison UK-C18

Unison UK-C8

Unison UK-Phenyl

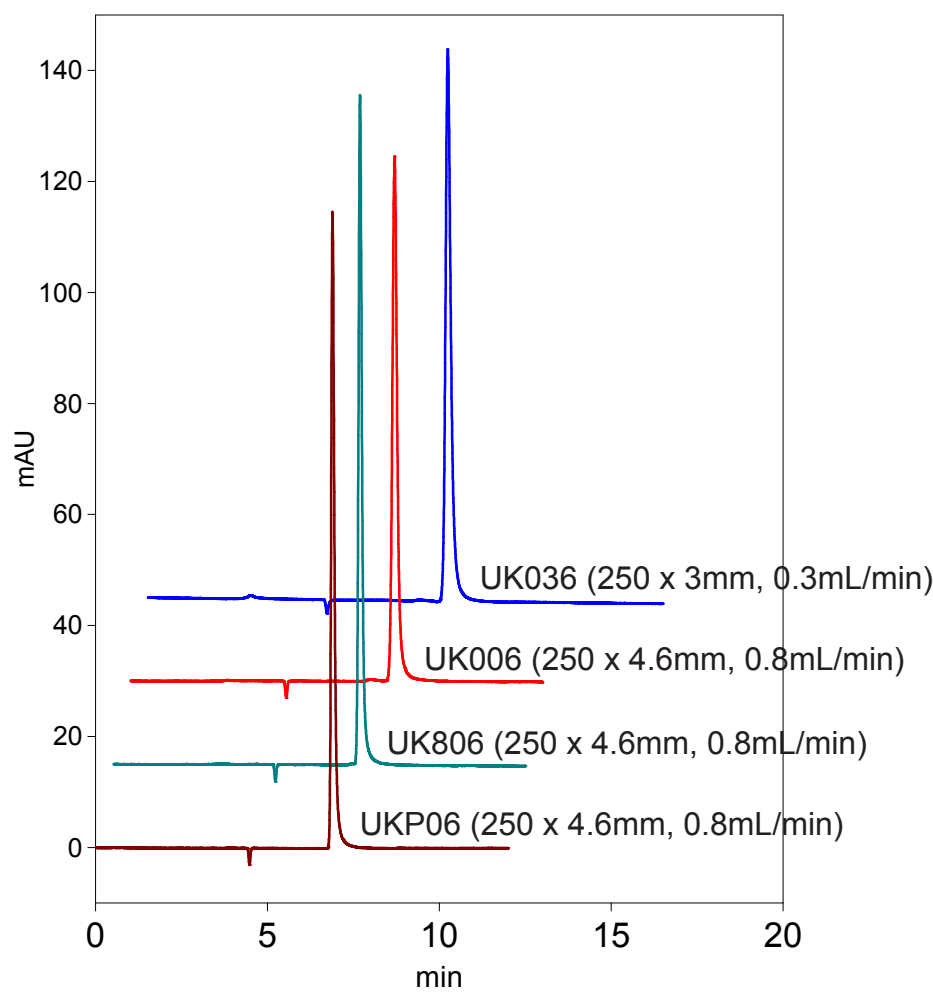
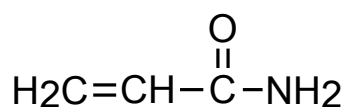
250 x 4.6 mm

250 x 3 mm

Application

Acrylamide

アクリルアミド



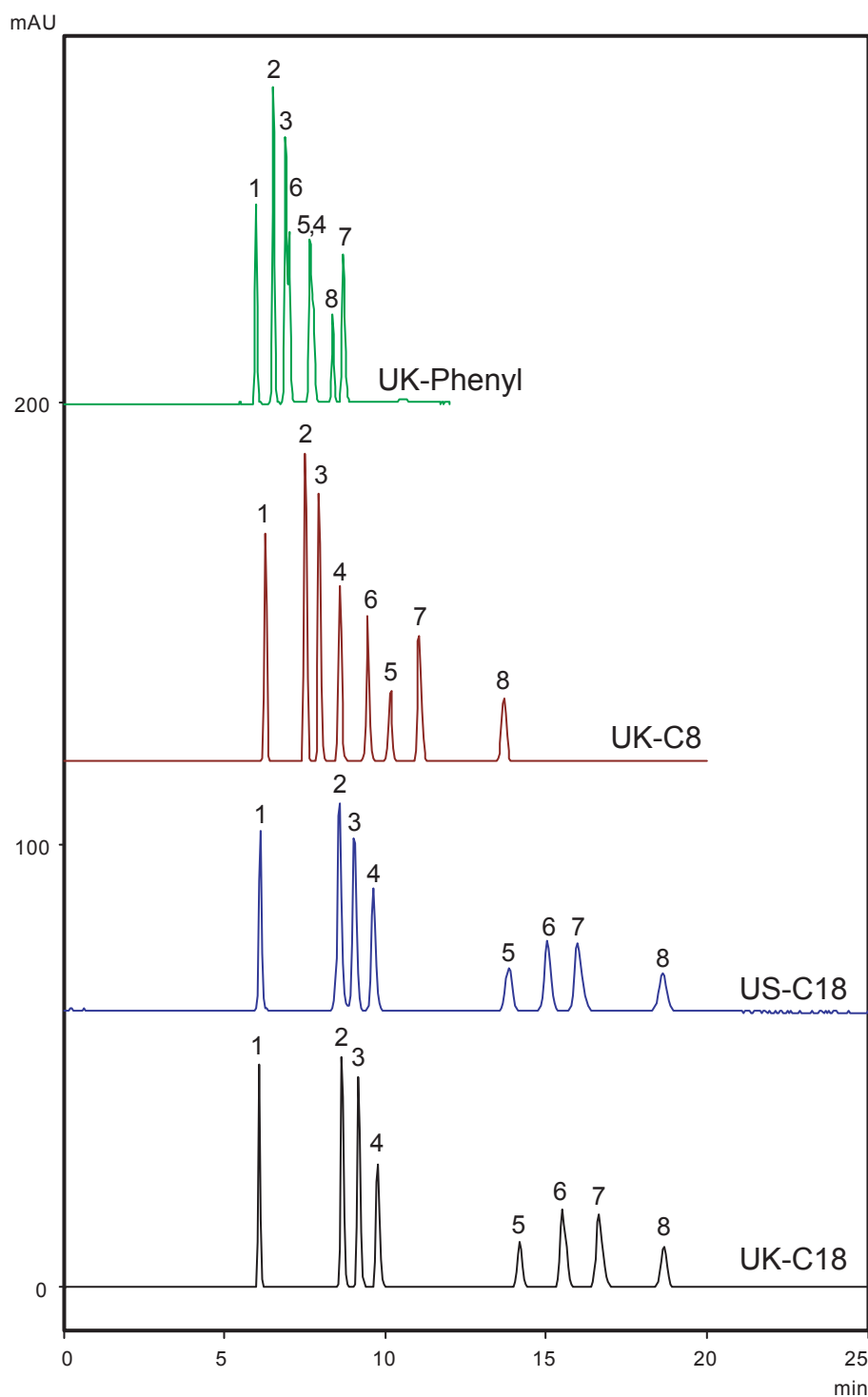
water / formic acid = 100 / 0.1
 37 °C, UV at 230 nm
 acrylamide, 1mg/mL x 1uL

Unison UK-Phenyl
 Unison UK-C8
 Unison US-C18
 Unison UK-C18

250 x 4.6 mm

Application

Organic Acids
 有機酸



- 1 HCOOH
formic acid
- 2 HOOCCH₂COOH
malonic acid
- 3 CC(O)C(=O)O
lactic acid
- 4 CH₃COOH
acetic acid
- 5 OC(=O)C=CC(=O)O
maleic acid
- 6 OC(=O)C(O)C(=O)O
citric acid
- 7 HOOC(CH₂)₂COOH
succinic acid
- 8 OC(=O)C=CC(=O)O
fumaric acid

Unison, 250 x 4.6 mm
 20 mM H₃PO₄
 0.6 mL/min, 37 °C
 UV at 210 nm

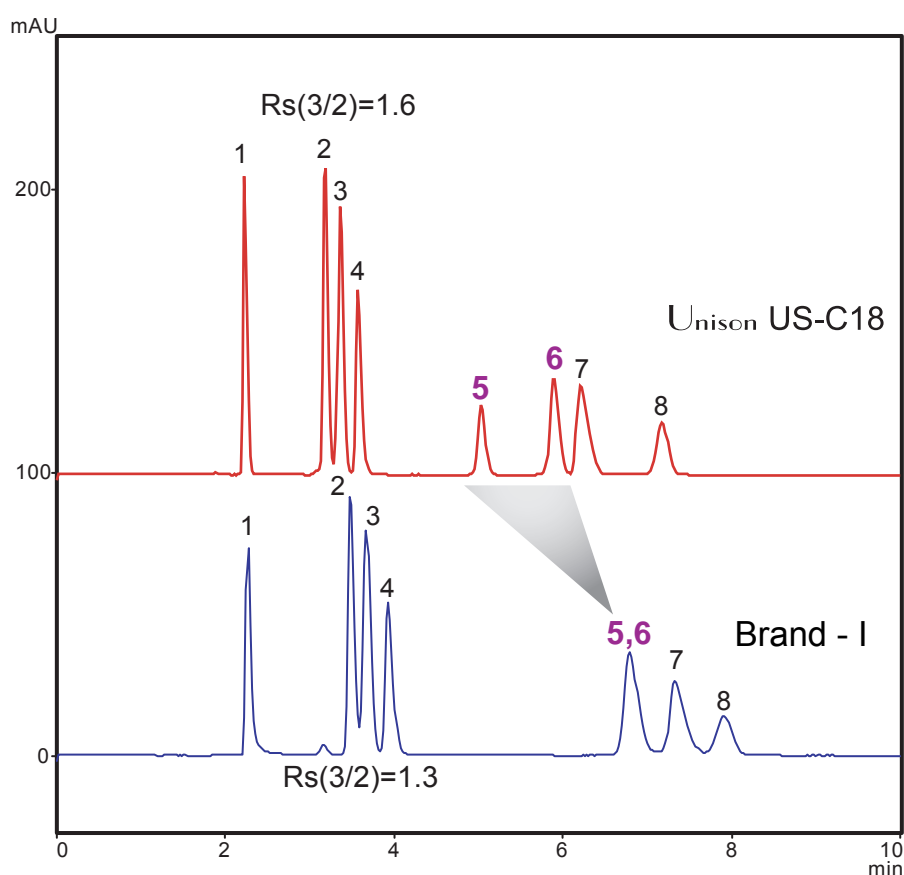
Unison US-C18

150 x 4.6 mm

Application

Organic Acids

有機酸



1 HCOOH
formic acid

2 HOOCCH₂COOH
malonic acid

3 CC(O)C(=O)O
lactic acid

4 CH₃COOH
acetic acid

5 OC(=O)C=C(O)C(=O)O
maleic acid

6 OC(=O)C(O)C(=O)O
citric acid

7 HOOC(CH₂)₂COOH
succinic acid

8 OC(=O)C=CC(=O)O
fumaric acid

150 x 4.6 mm
20 mM H₃PO₄
1.0 mL/min, 37 °C, UV at 210 nm

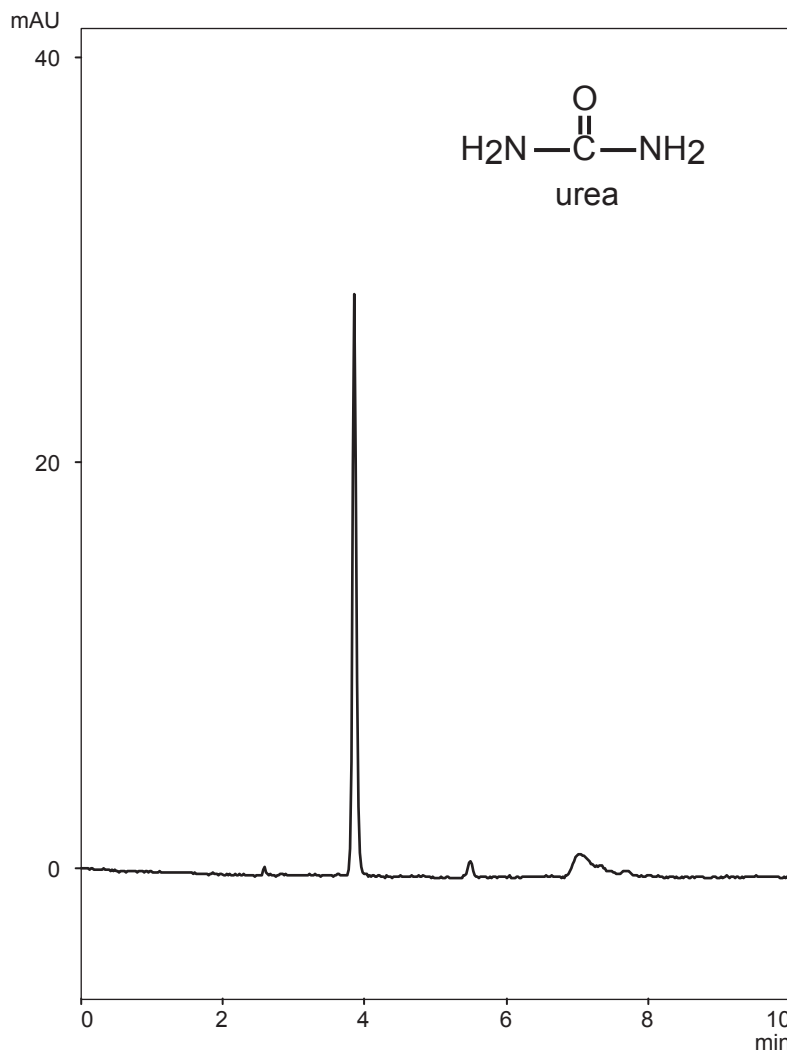
Unison UK-C18

250 x 4.6 mm

Application

Urea

尿素



Unison UK-C18, 250 x 4.6 mm
 water / HFBA = 100 / 0.1
 0.8 mL/min, ambient
 UV at 210 nm, 13 MPa
 100 µg (20 µL)

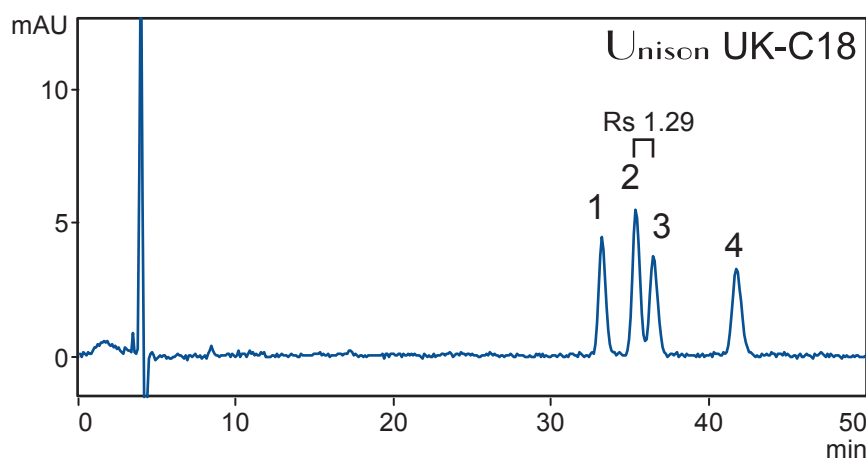
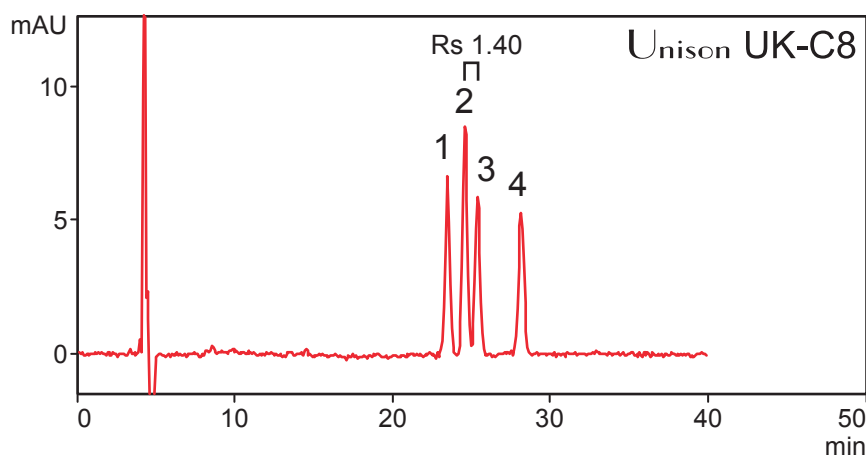
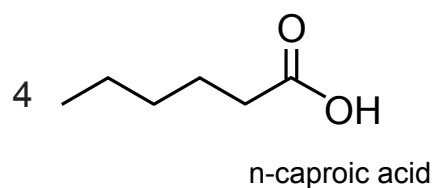
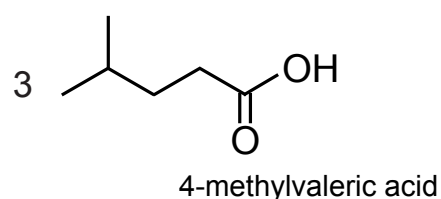
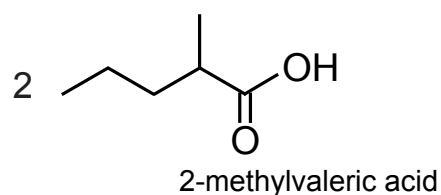
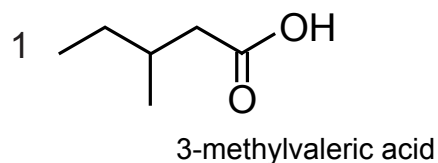
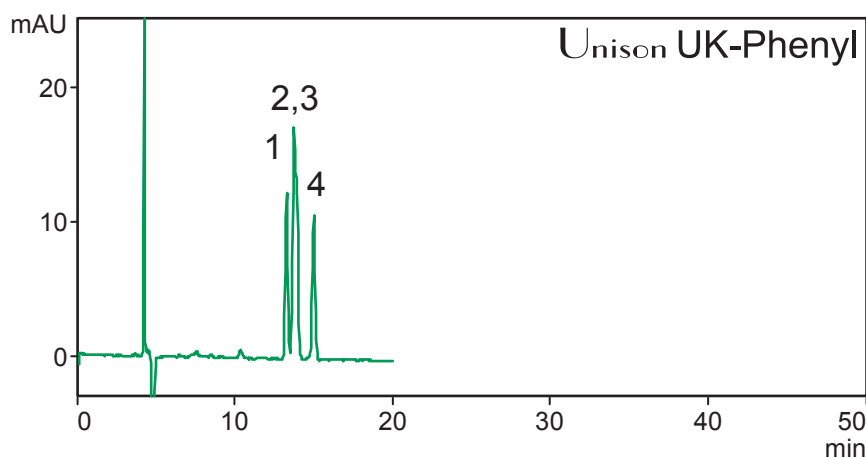
Unison UK-C18
 Unison UK-C8
 Unison UK-Phenyl

250 x 4.6 mm

Application

Caproic Acid Isomers

カプロン酸異性体



Unison, 250 x 4.6 mm
 water / acetonitrile / TFA
 = 80/20/0.1
 0.8 mL/min, 37 °C
 210 nm, 10µg (5µL)

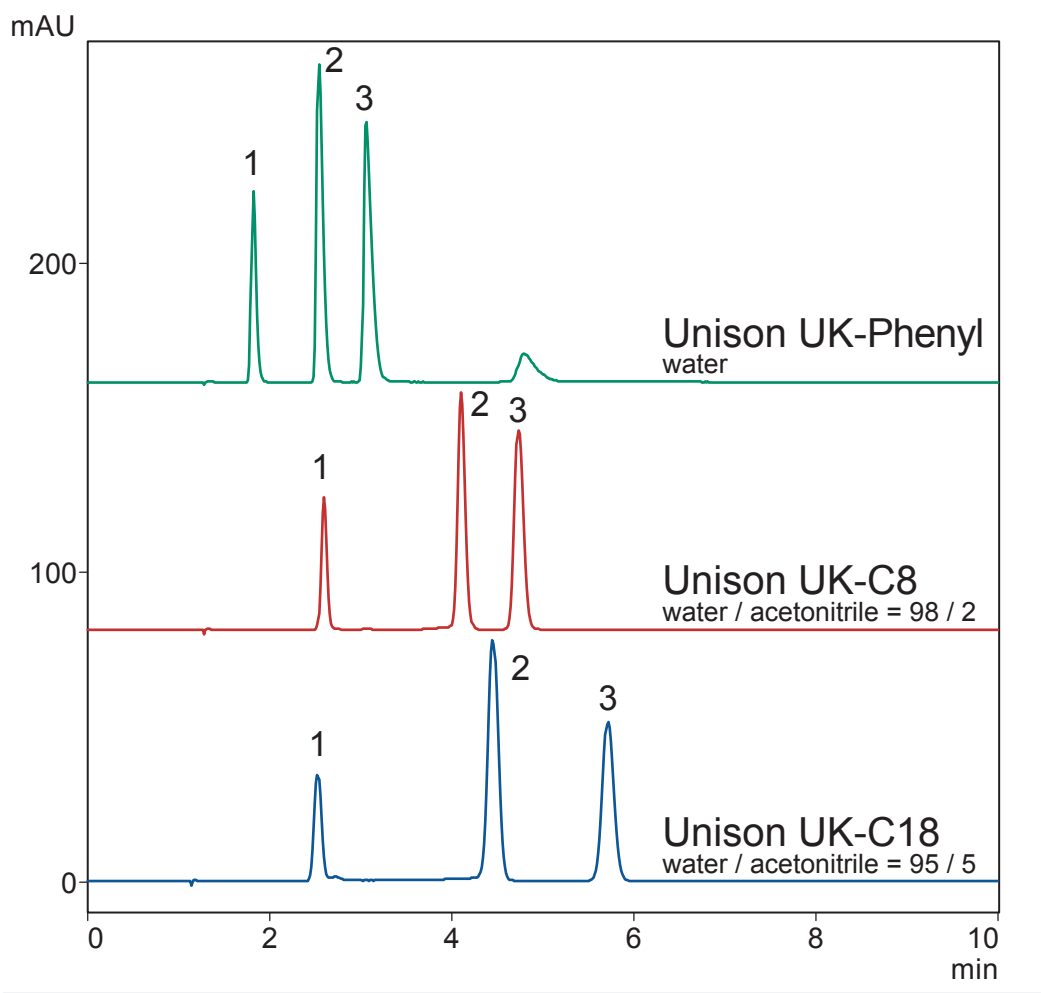
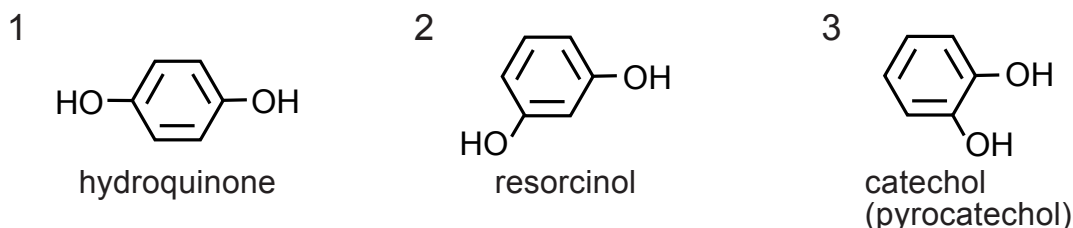
Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18

75 x 4.6 mm

Application

Hydroquinone Isomers (Dihydroxybenzenes)

ハイドロキノン異性体 (ジヒドロキシベンゼン)



Unison, 75 x 4.6 mm
 1 mL/min, 37 °C, 260 nm
 2 µg (2µL)

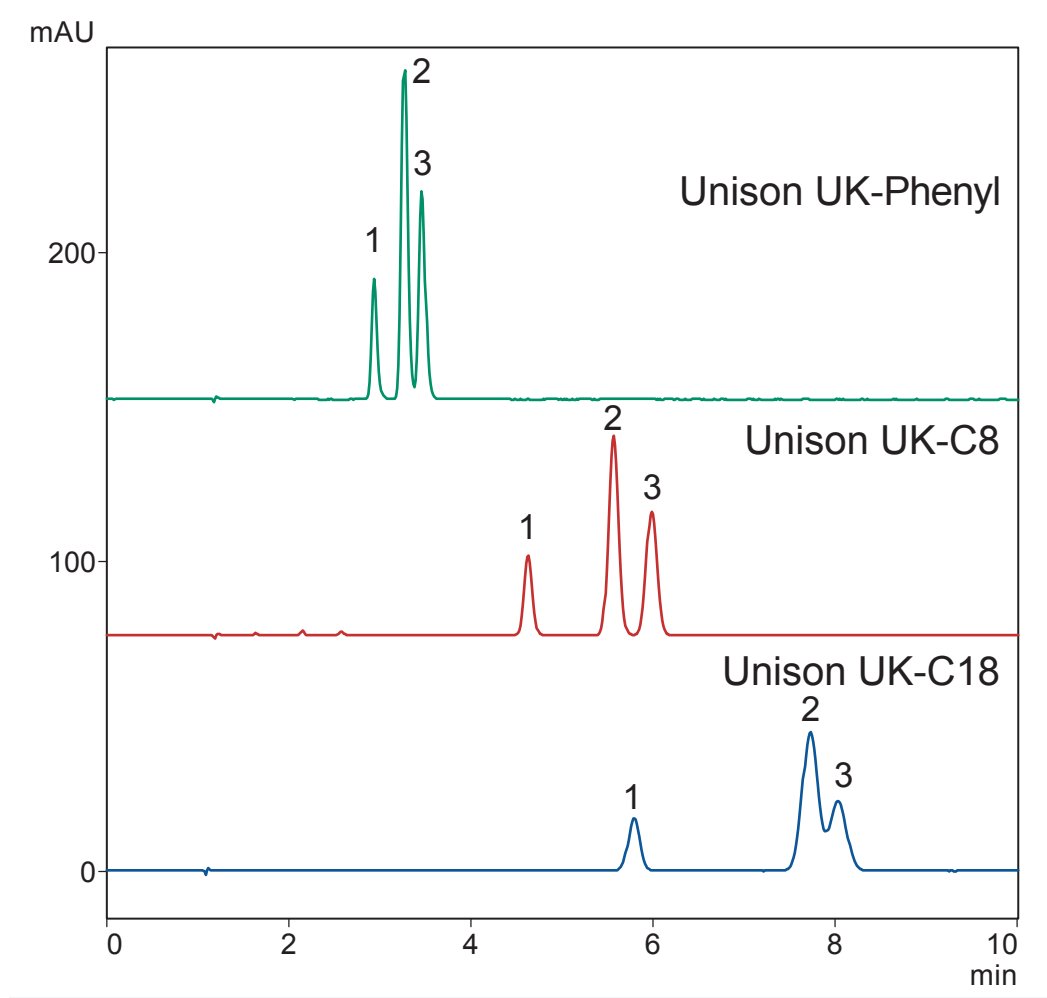
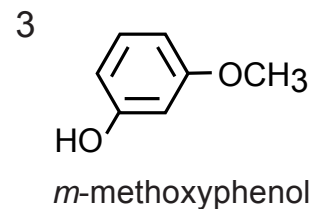
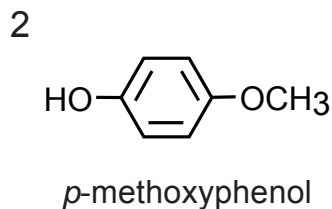
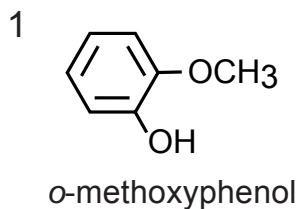
Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18

75 x 4.6 mm

Application

Methoxyphenol Isomers

メキシフェノール異性体



Unison, 75 x 4.6 mm
 water / acetonitrile = 85 / 15
 1 mL/min, 37 °C, 260 nm
 2 µg (2µL)

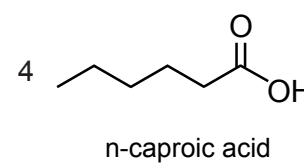
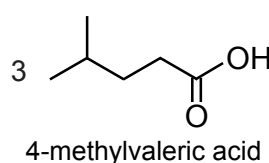
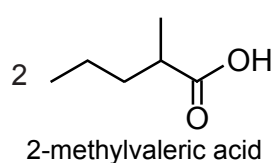
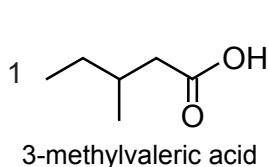
Unison UK-C8

500 x 4.6 mm

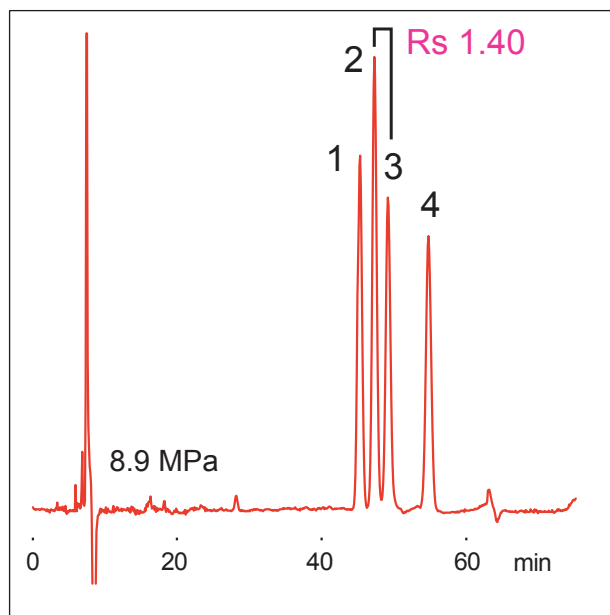
Application

Caproic Acid Isomers

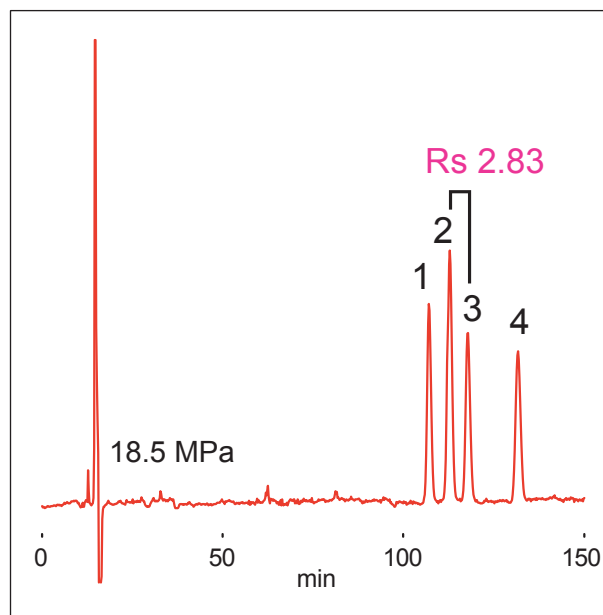
カプロン酸異性体



250 x 4.6 mm



500 x 4.6 mm



Unison UK-C8
water / acetonitrile / TFA = 80/20/0.1
0.5 mL/min, room temp., 210 nm, 10 μ L)

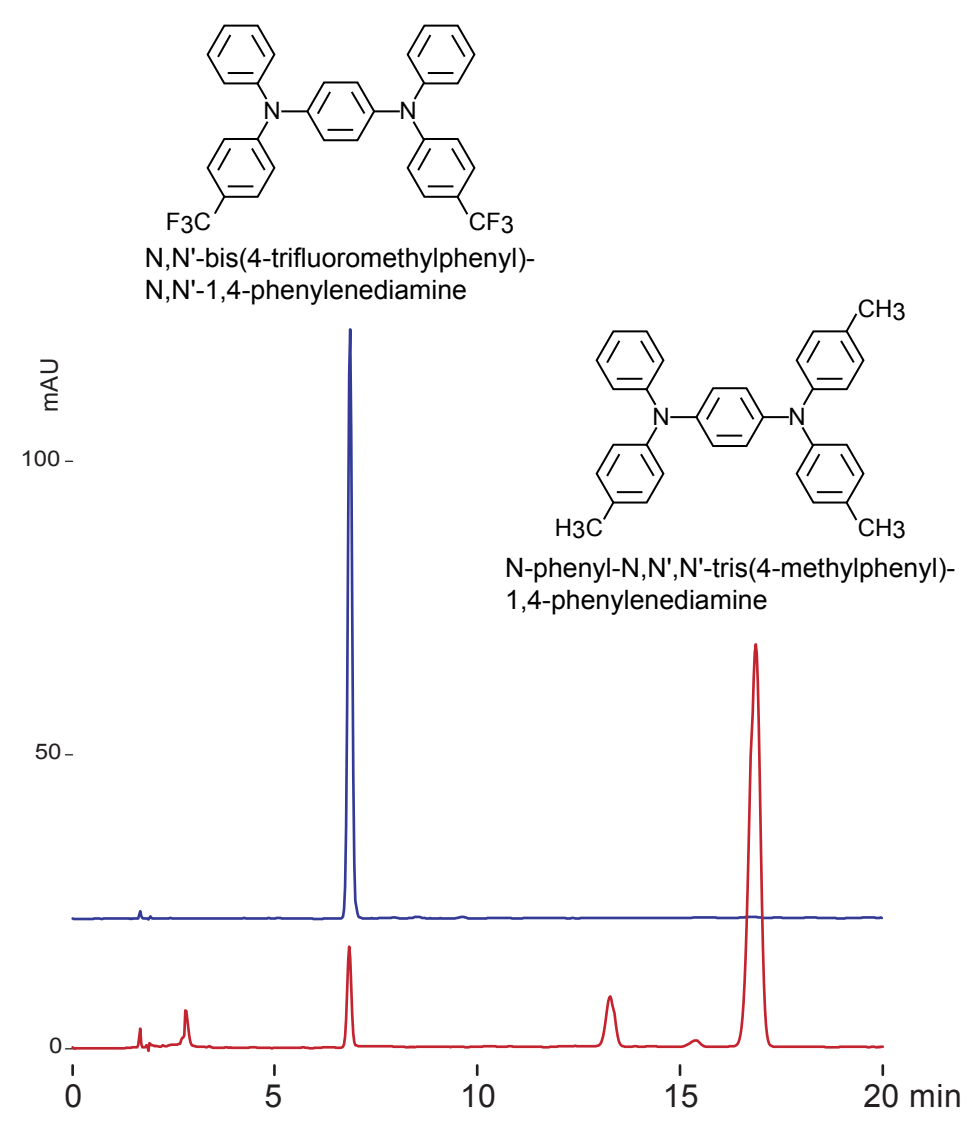
Cadenza CD-C18

150 x 4.6 mm

Application

EL Materials

EL材料



Cadenza CD-C18, 150 x 4.6 mm (CD005)
 water / methanol / acetic acid = 5 / 95 / 0.1 □
 1 mL/min, 260 nm, 37°C, 17.5 µg

Courtesy of Dr. Shigetoshi Yamada, Faculty of Engineering, Shizuoka Univ.

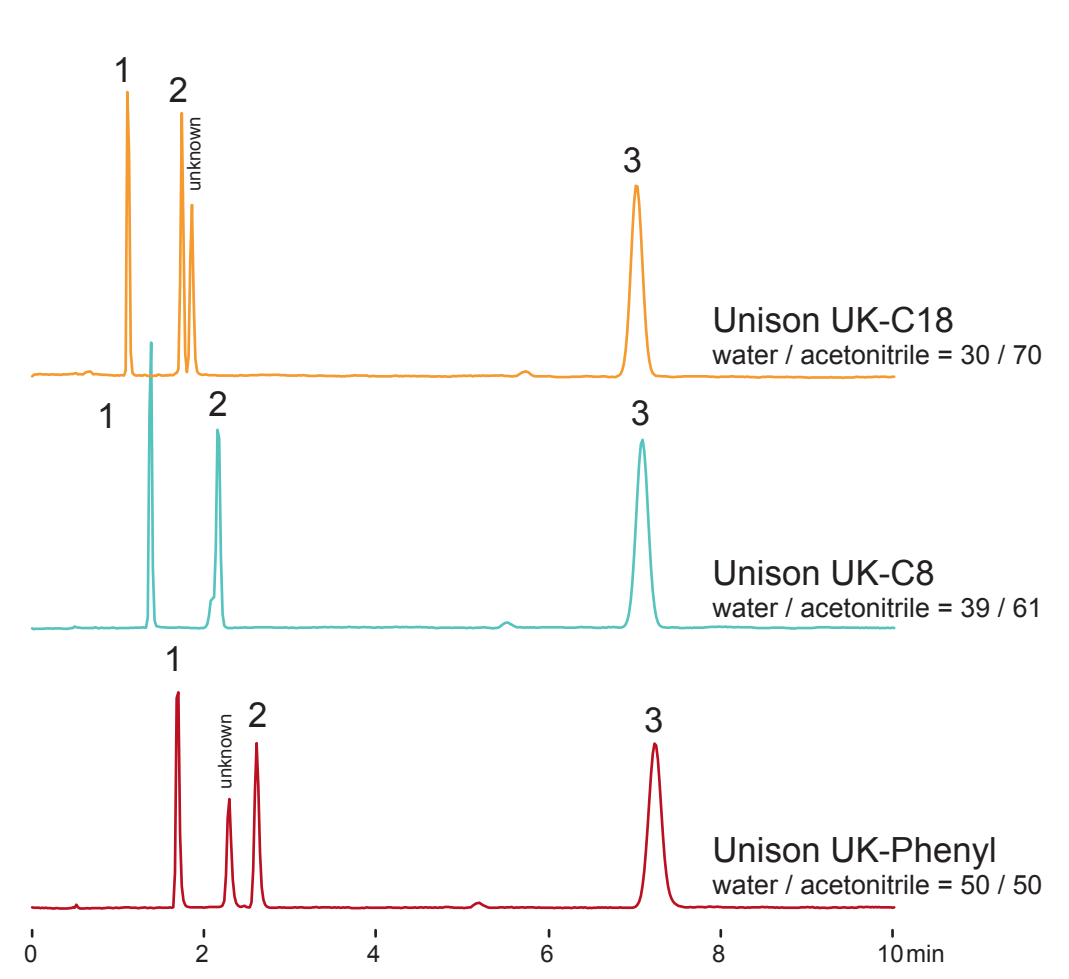
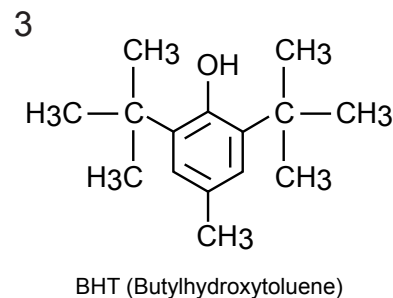
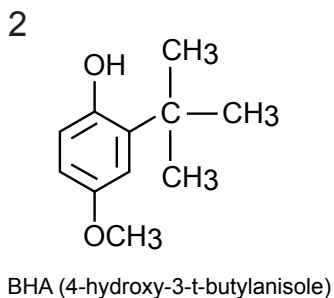
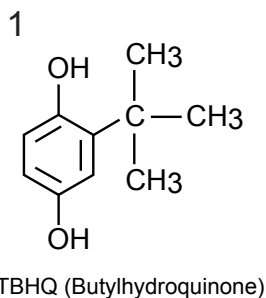
Unison UK-C8
 Unison UK-C18
 Unison UK-Phenyl

75 x 4.6 mm

Application

Antioxidants

酸化防止剤



75 x 4.6 mm
 1 mL/min, 37 °C, 260 nm

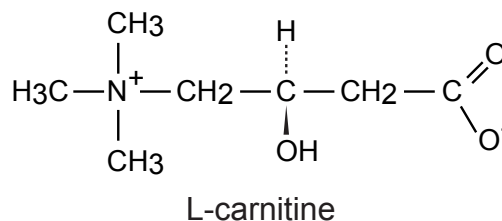
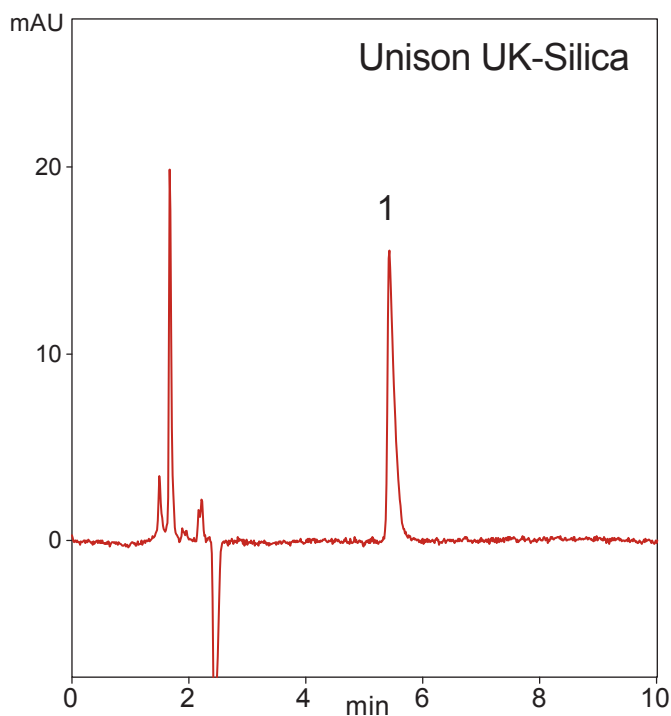
Unison UK-Silica
Unison UK-C18

150 x 3 mm
75 x 4.6 mm

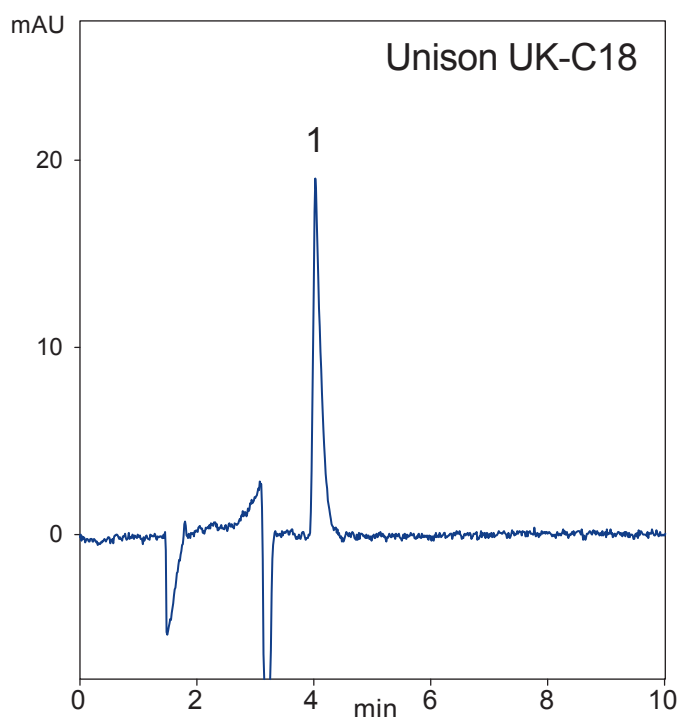
Application

L-Carnitine

L-カルニチン



Unison UK-Silica, 150 x 3 mm
acetonitrile / 50mM ammonium acetate
= 65 / 35, 0.5 mL/min (7MPa)
37 °C, 210 nm, 2µL(20µg)



Unison UK-C18, 75 x 4.6 mm
water / heptafluoro-n-butyric acid
= 100 / 0.1, 1 mL/min (7MPa)
37 °C, 210 nm, 2µL(20µg)

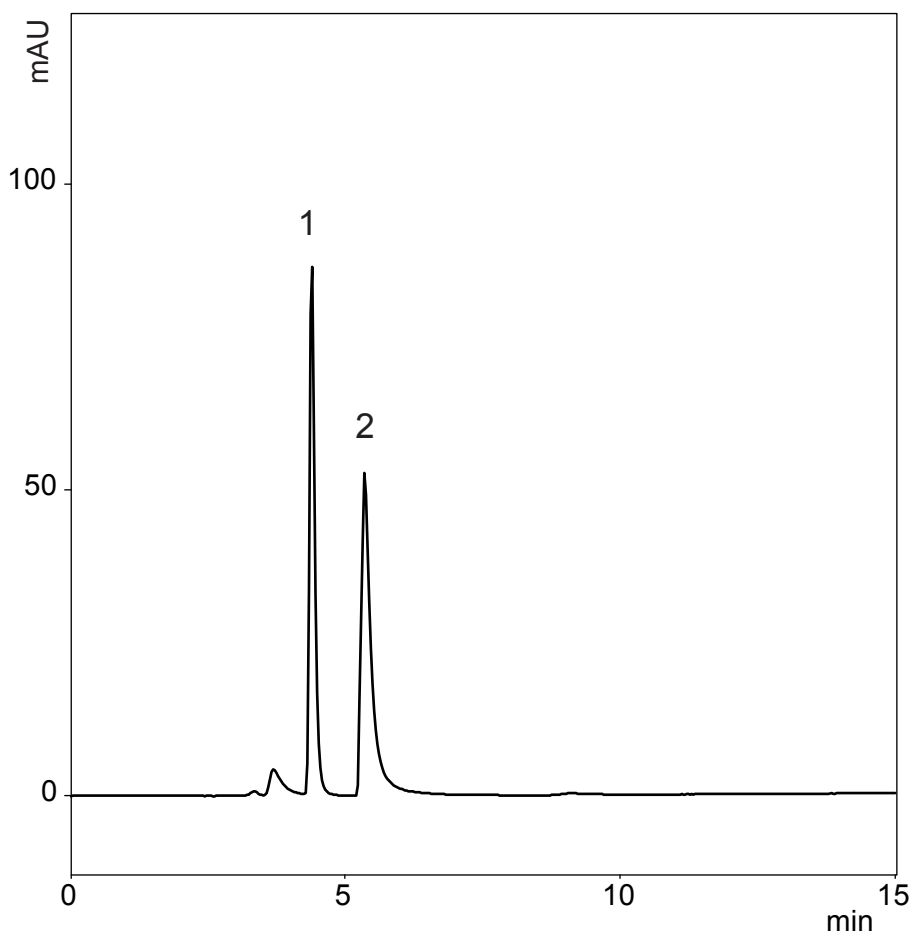
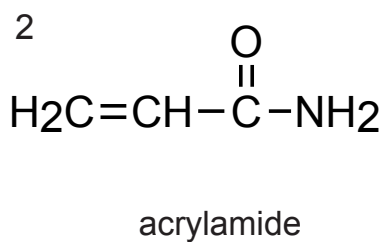
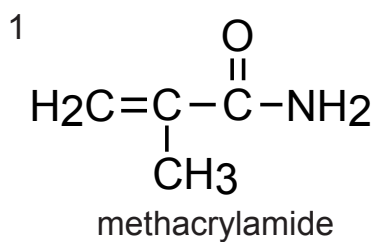
Unison UK-Silica

250 x 2 mm

Application

Acrylamide

アクリルアミド



Unison UK-Silica, 250 x 2 mm
 THF / acetic acid = 100 / 1
 0.2 mL/min (7MPa), 37 °C, 260 nm
 1µL (2µg)

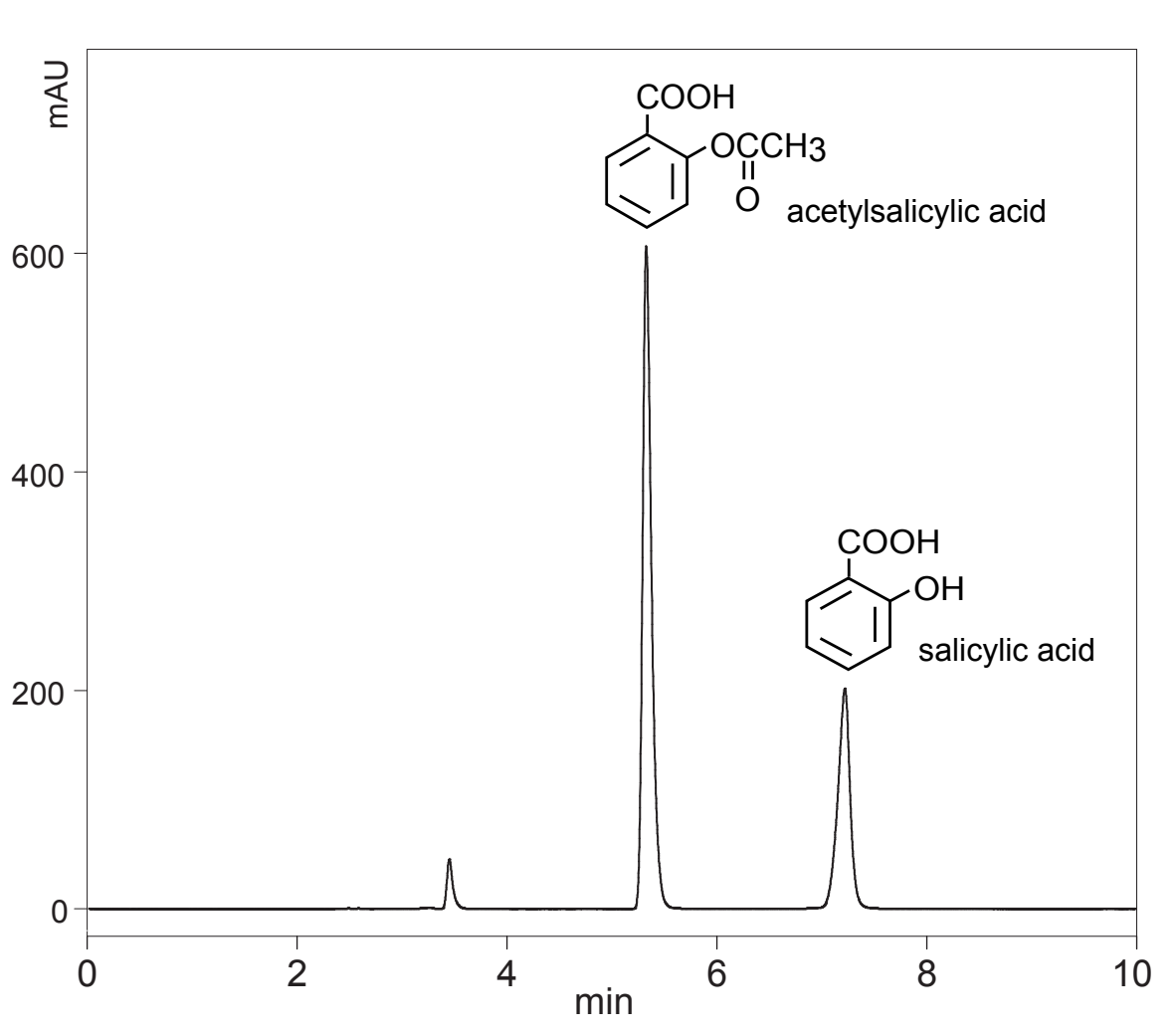
Cadenza CD-C18

150 x 4.6 mm

Application

Acetylsalicylic Acid, Salicylic Acid

アセチルサリチル酸, サリチル酸



Cadenza CD-C18, 150 x 4.6 mm
 water / acetonitrile / formic acid = 60 / 40 / 0.1
 0.6 mL/min (7MPa), room temp.
 260 nm, 0.4 μ L (20 μ g)

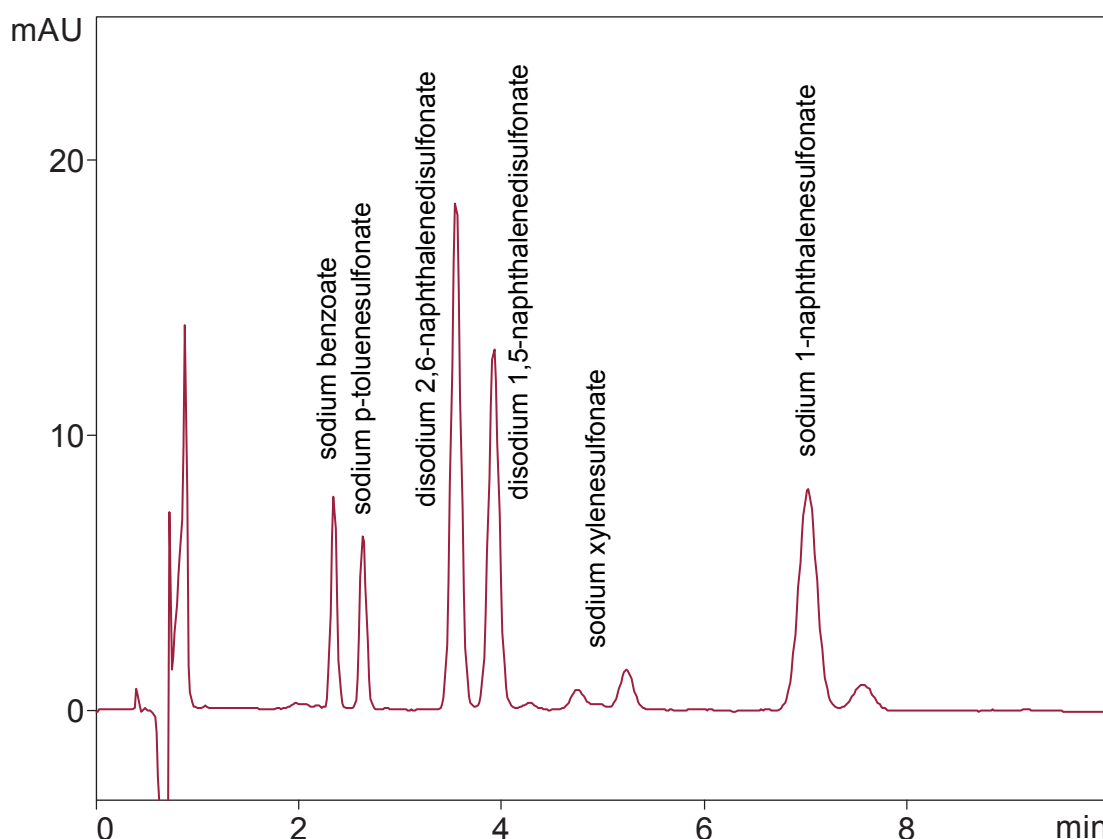
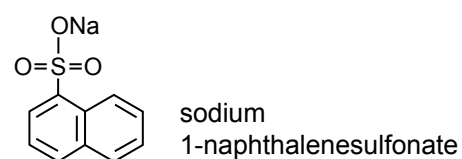
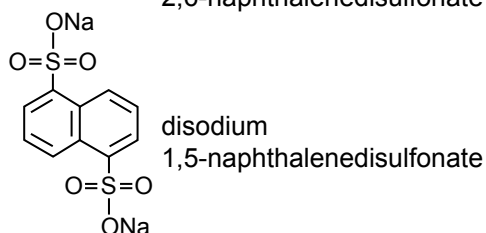
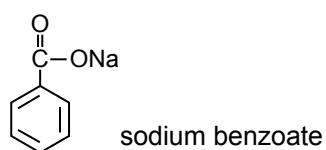
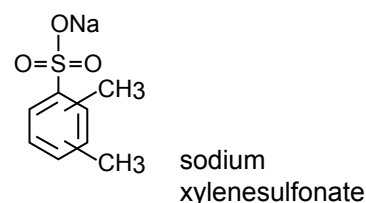
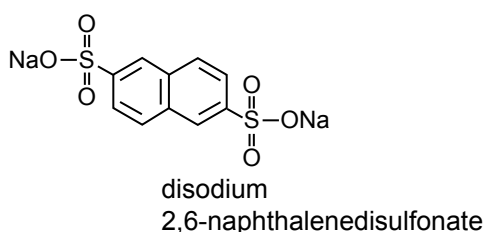
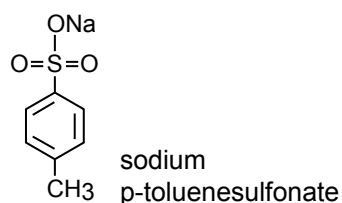
Cadenza CD-C18

50 x 4.6 mm

Application

Aromatic Sulfonates

芳香族スルホン酸塩



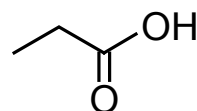
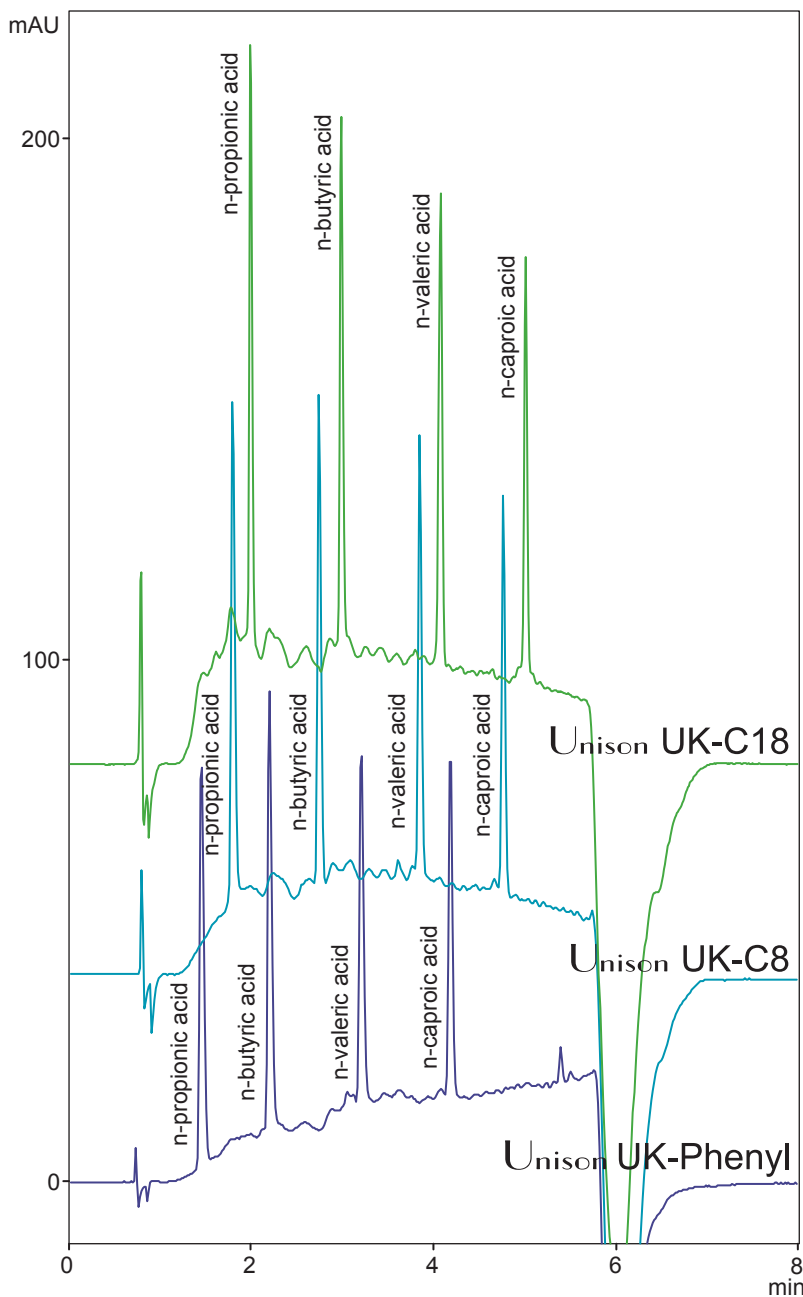
Cadenza CD-C18, 50 x4.6mm
10mM dihexylammonium acetate / tetrahydrofuran = 80 / 20
1mL/min, 37deg.C, 225nm, 20uL

Unison UK-C18
 Unison UK-C8
 Unison UK-Phenyl

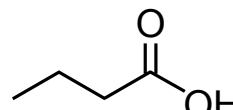
50 x 4.6 mm

Application

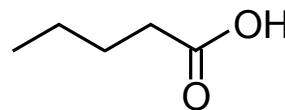
Short-Chain Fatty Acids
 短鎖脂肪酸



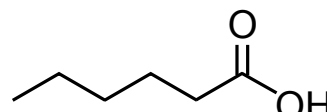
n-propionic acid



n-butyric acid



n-valeric acid



n-caproic acid

Unison, 50 x 4.6 mm
 A: water / TFA = 100 / 0.1 □
 B: acetonitrile / TFA = 100 / 0.1 □
 0.5 - 50%B (0-5min)
 1 mL/min, 37 deg.C, 210 nm

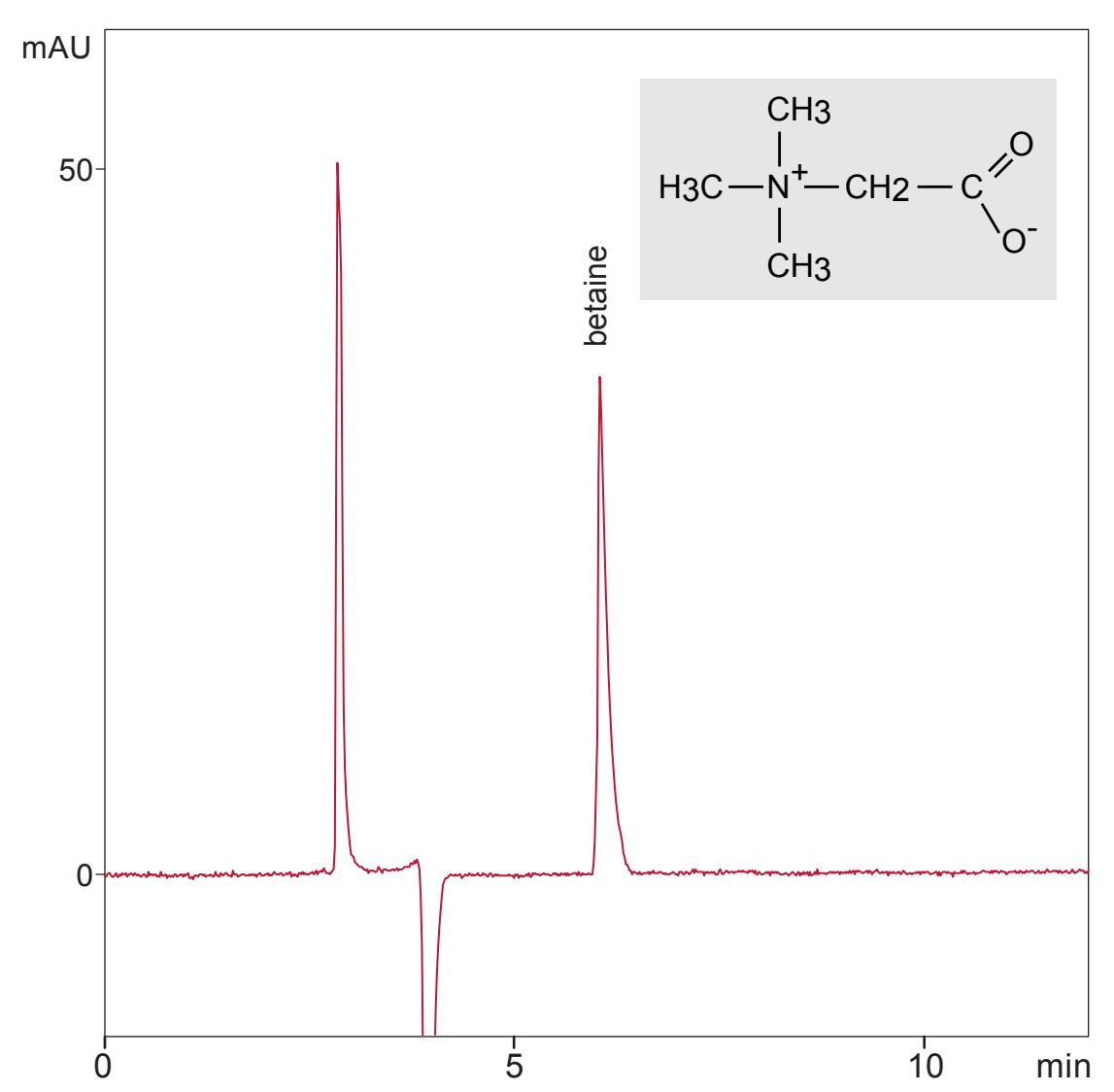
Unison UK-Silica

250 x 3 mm

Application

Betaine

ベタイン



Unison UK-Silica, 250 x 3 mm
 acetonitrile / 50mM ammonium formate = 70 / 30
 0.5 mL/min (10MPa), 37 deg.C, 210 nm, 2uL(20ug)

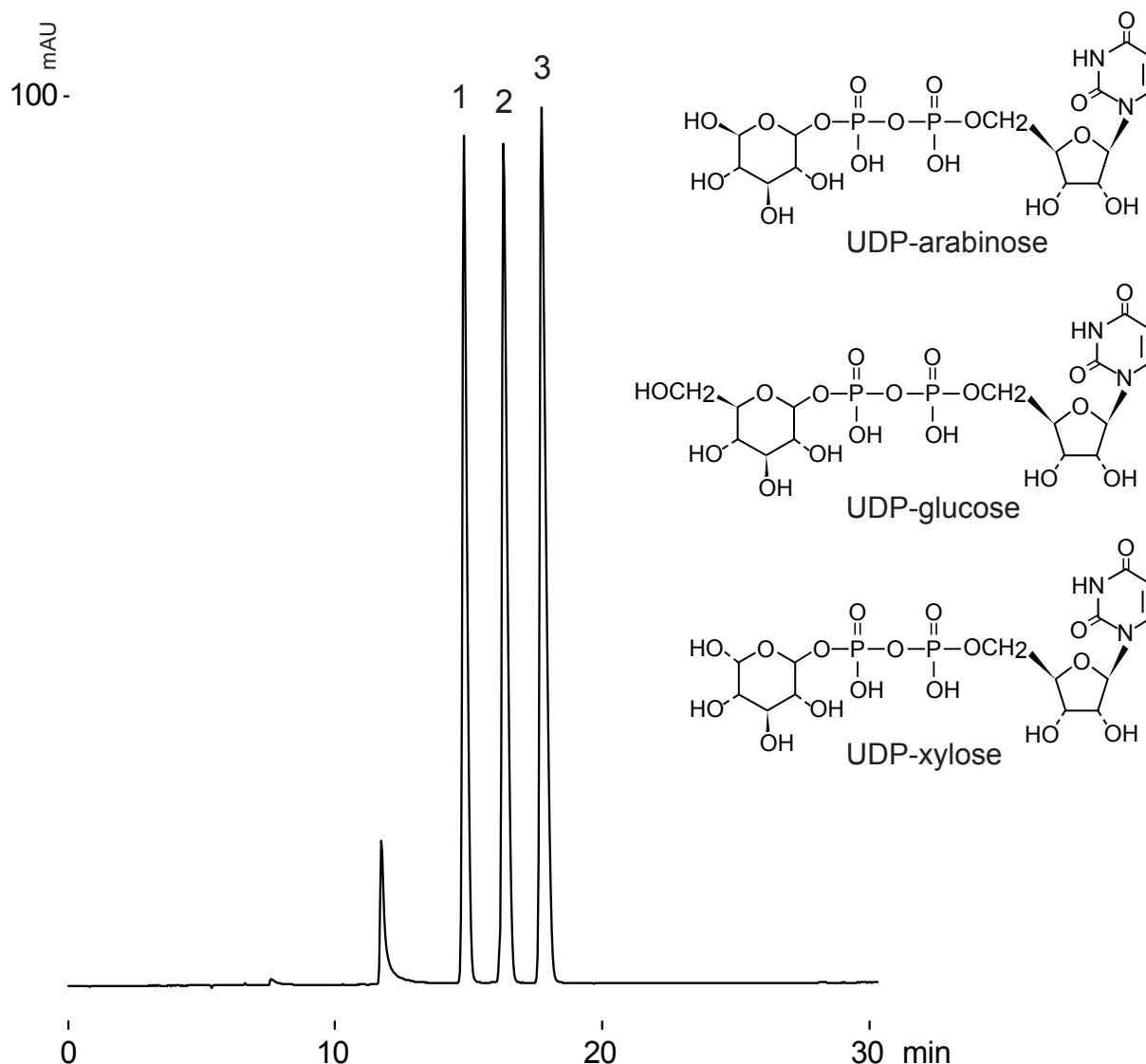
Unison UK-C18

250 x 4.6 mm

Application

UDP-Sugars

UDP糖



Unison UK-C18, 250 x 4.6 mm
 water / triethylamine / acetic acid (100 / 0.2 / 0.1)
 0.8 mL/min (13MPa), 37 deg.C, 260 nm, 5 uL (2.5 ug)

Courtesy of Prof. Shinichi Kitamura, Osaka Pref. Univ.

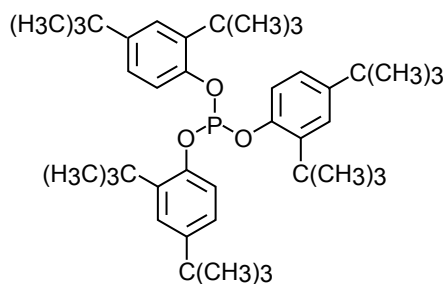
Cadenza CL-C18
 Unison UK-C18
 Cadenza CD-C18
 Unison UK-Silica

75 x 4.6 mm
 250 x 4.6 mm

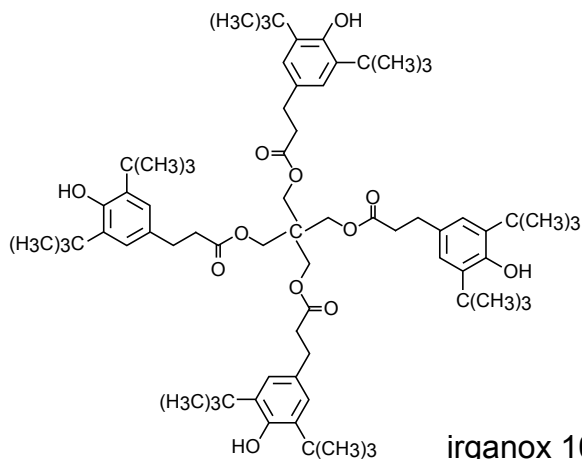
Application

Antioxidants

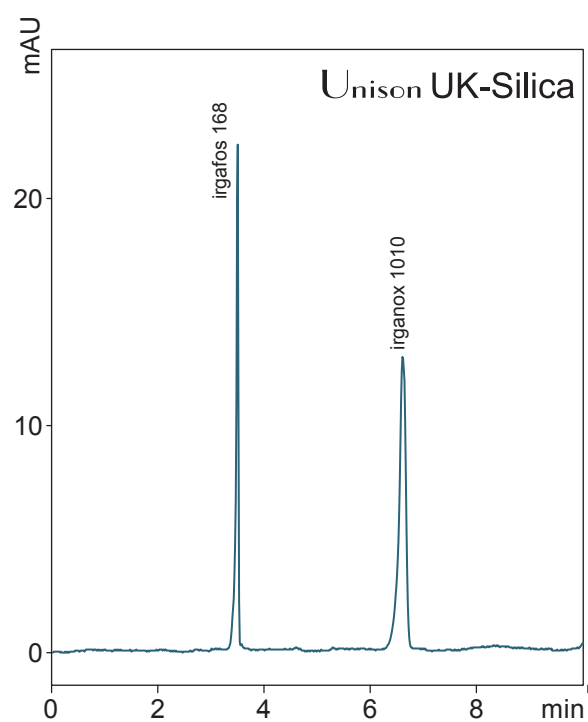
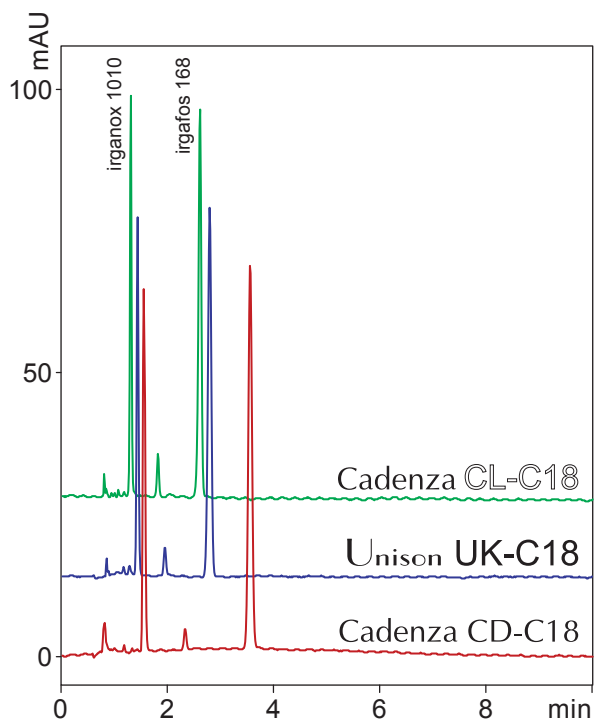
酸化防止剤



irgafos 168



irganox 1010



75 x 4.6 mm
 acetonitrile / tetrahydrofuran
 = 80 / 20
 1 mL/min, 37 deg.C, 230nm

Unison UK-Silica
 250 x 4.6 mm
 hexane / ethyl acetate = 90 / 10
 1 mL/min, 37 deg.C, 270nm

Cadenza CD-C18

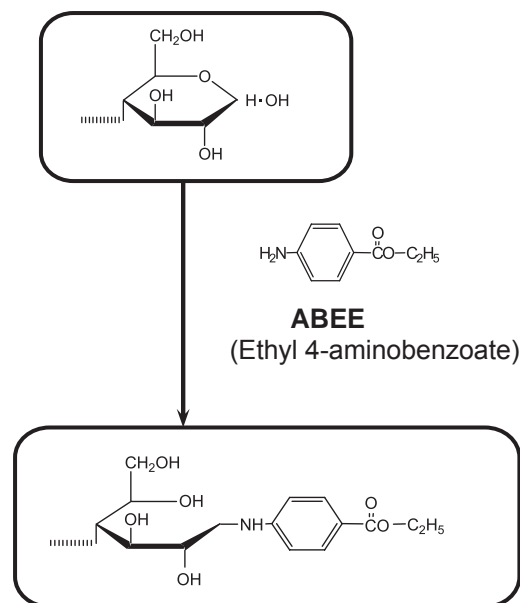
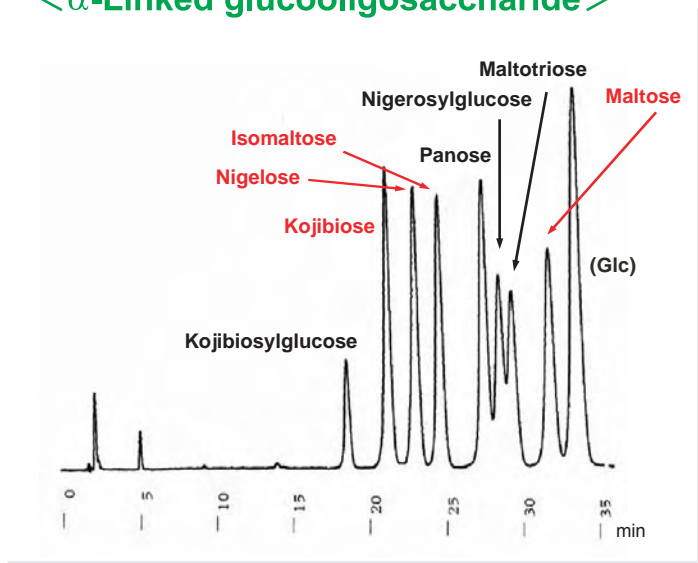
75 x 4.6 mm

Application

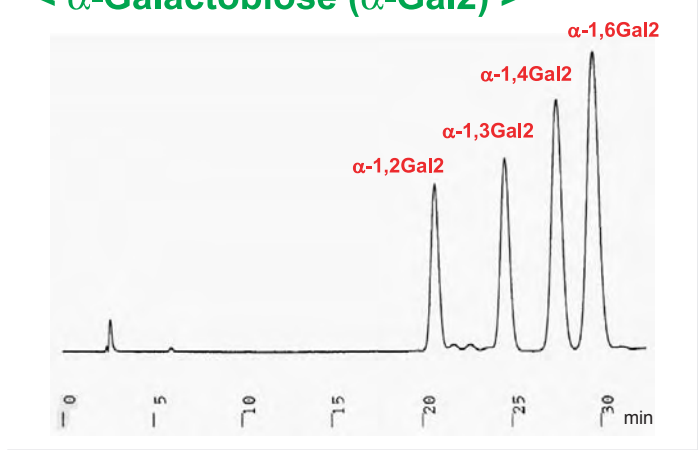
ABEE-Converted Oligosaccharide

ABEE標識化オリゴ糖

< α -Linked glucooligosaccharide >



< α -Galactobiose (α -Gal2) >



Cadenza CD-C18, 75 x 4.6 mm

0.1M ammonium acetate buffer (pH 4.0) / acetonitrile = 89 / 11 (v/v)

0.5 mL/min, 20 deg.C, 305 nm

Courtesy of Dr. Akiko Yamashita and Dr. Hiroyuki Hashimoto, Shinshu Univ., Japan

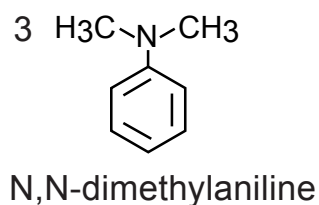
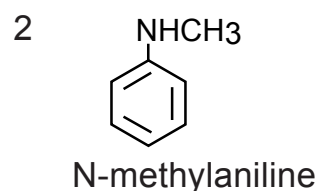
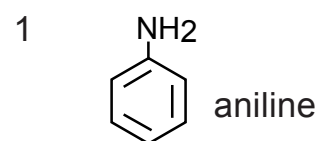
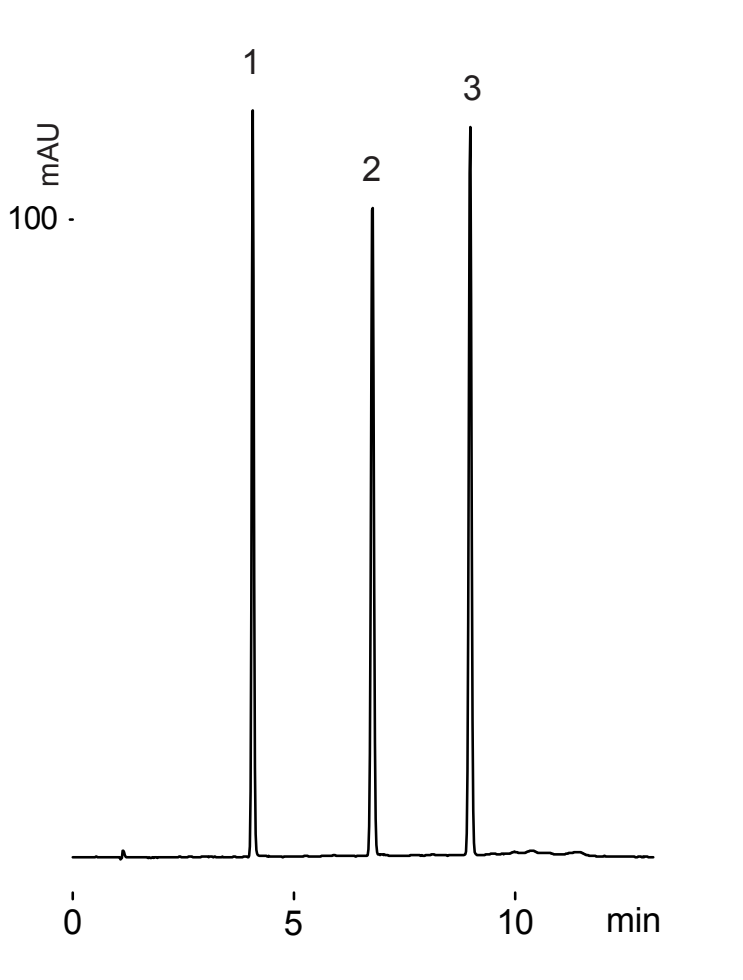
Unison UK-C18

75 x 4.6 mm

Application

Anilines

アニリン類



Unison UK-C18, 75 x 4.6 mm
 A: 10mM ammonium formate
 B: acetonitrile
 10 - 70%B (0-10min)
 1 mL/min (7MPa), 37 deg.C
 260 nm, 3 uL (0.1-0.7 uL/mL)

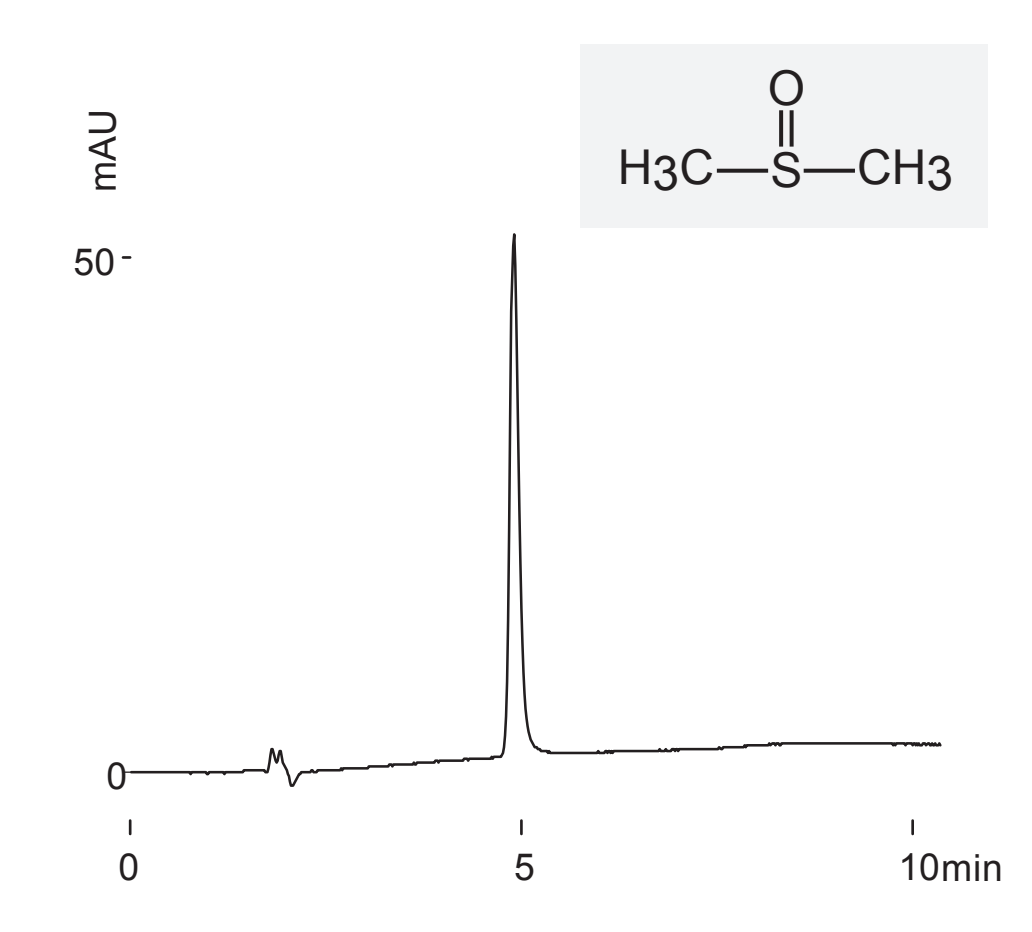
Unison UK-Silica

150 x 3 mm

Application

Dimethyl Sulfoxide (DMSO)

ジメチルスルホキシド



Unison UK-Silica, 150 x 3 mm
hexane / ethanol = 50 / 50
0.5 mL/min (6MPa), 37 deg.C, 220 nm
DMSO, 1uL/ml (1uL)

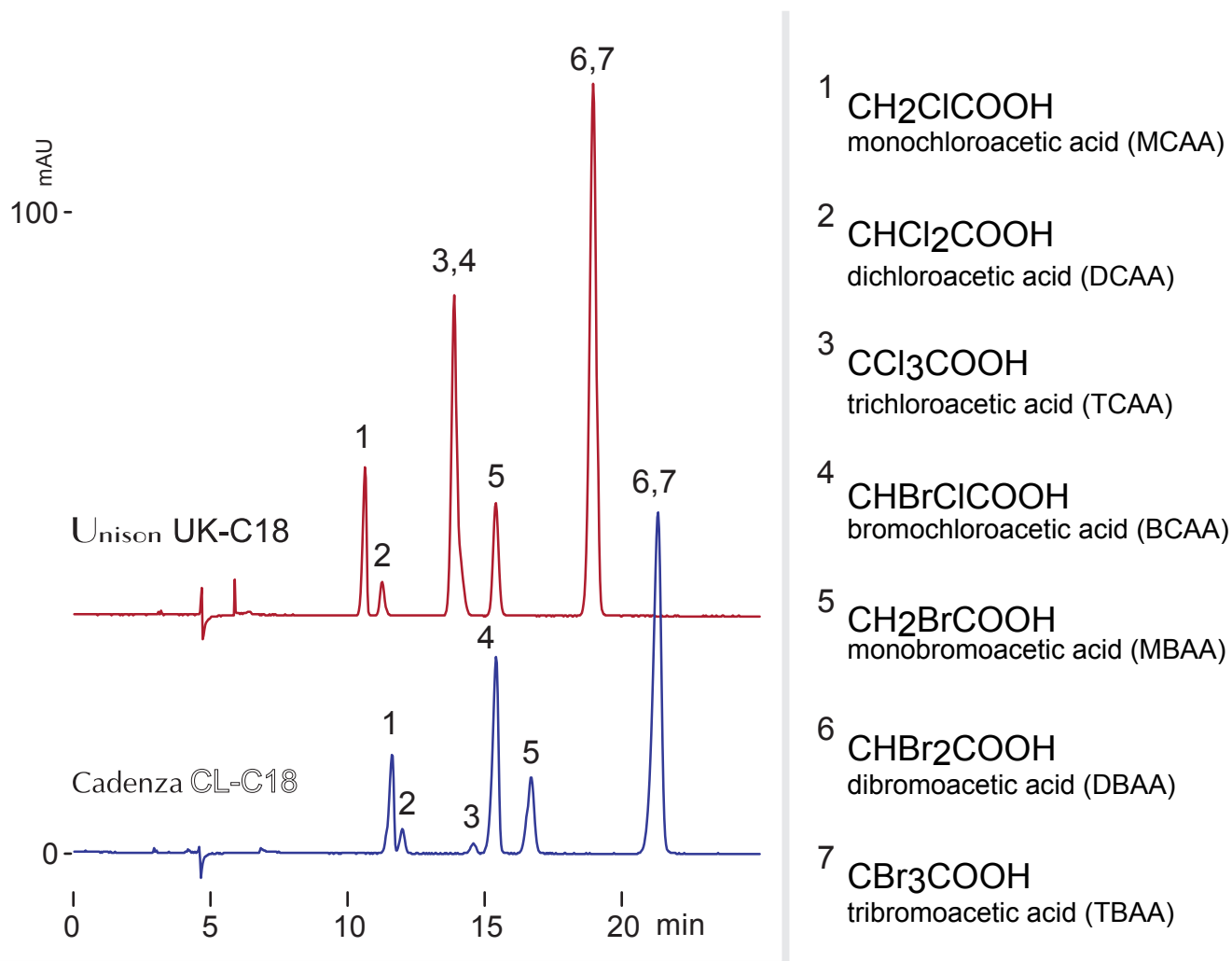
Unison UK-C18
Cadenza CL-C18

250 x 4.6 mm

Application

Halo Acetic Acids

ハロ酢酸



250 x 4.6 mm
water / trifluoroacetic acid = 100/0.1
0.8 mL/min, 37 deg.C, 220 nm, 5 μL (5mg)

Unison UK-Silica

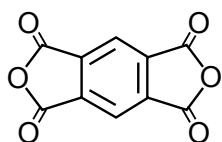
250 x 4.6 mm

Application

Pyromellitic acids

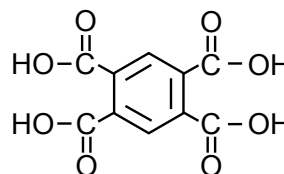
ピロメリト酸

1

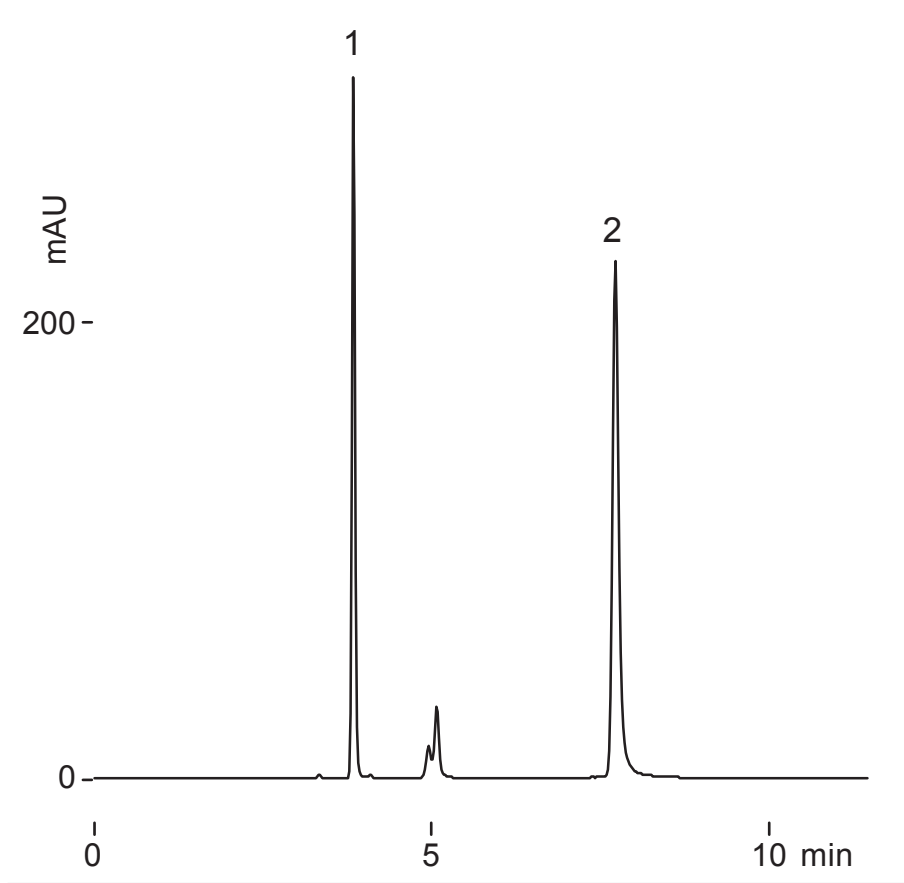


pyromellitic dianhydride

2



pyromellitic acid



Unison UK-Silica, 250 x 4.6 mm
 hexane / tetrahydrofuran / trifluoroacetic acid
 = 70 / 30 / 0.1
 1 mL/min, 37 deg.C, 260 nm, 1 uL (2 - 4.5ug)

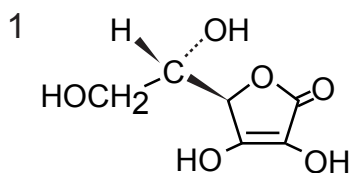
Unison UK-C18

250 x 4.6 mm

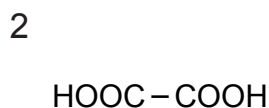
Application

Causative Substances of Urolithiasis

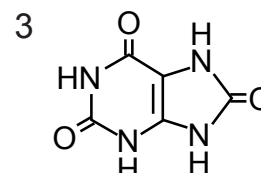
尿路結石症の原因物質



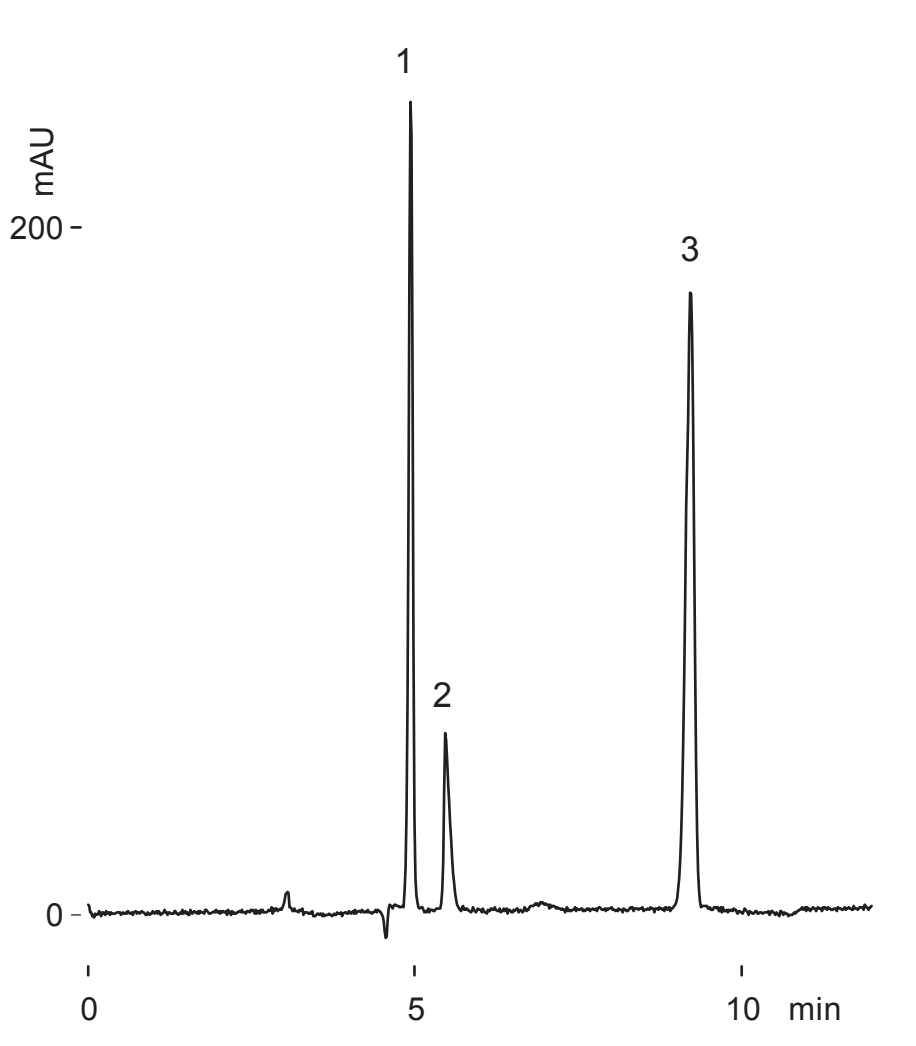
L-ascorbic acid



oxalic acid



Uric acid



Unison UK-C18, 250 x 4.6 mm
 water / triethylamine / acetic acid =100 / 1.25 / 0.5
 0.8 mL/min (14MPa), 37 deg.C, 220 nm, 1uL (2-35ug)

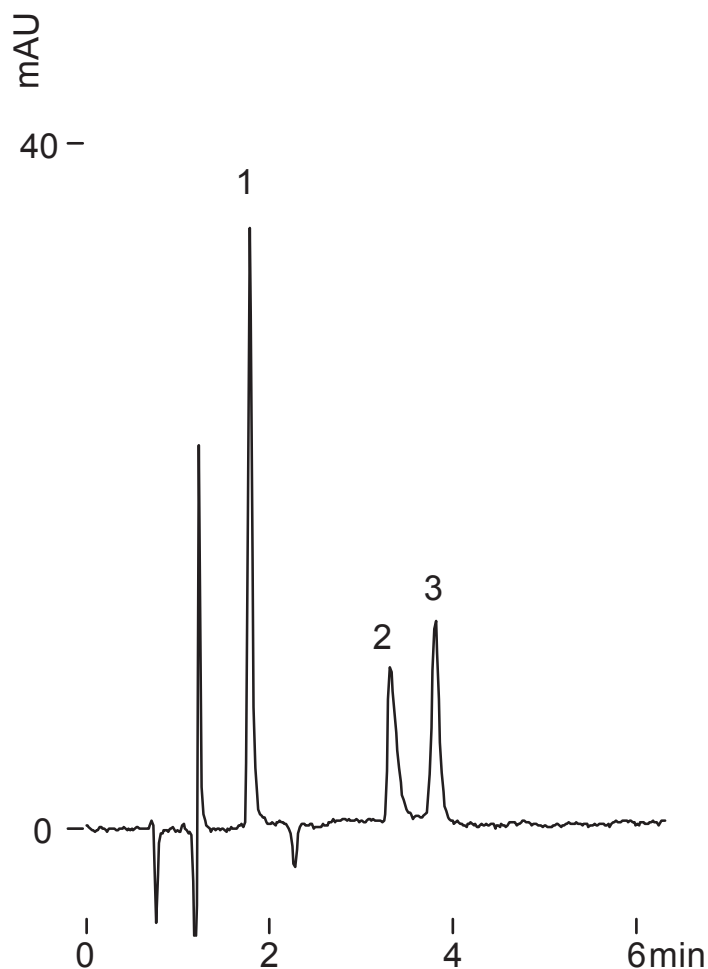
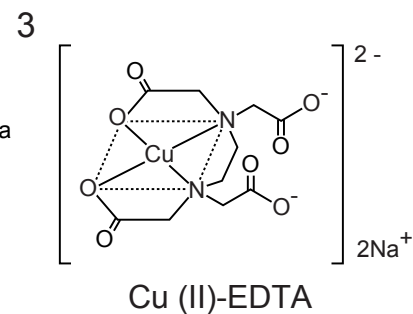
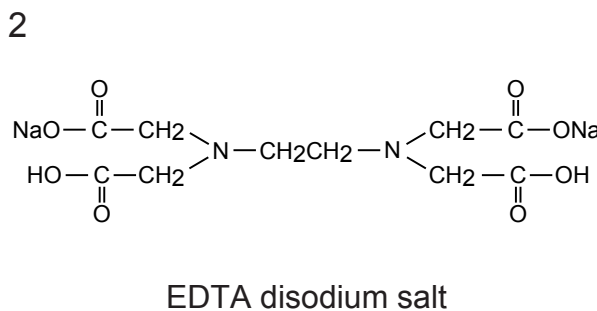
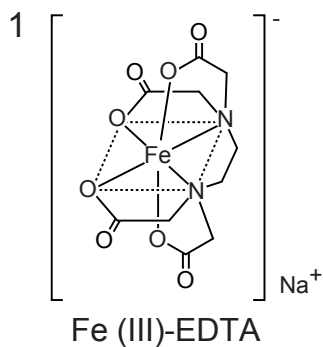
Unison UK-Phenyl

75 x 4.6 mm

Application

EDTA-chelates

EDTAキレート



Unison UK-Phenyl, 75 x 4.6 mm
 10mM tetrabutylammonium acetate + 20mM acetic acid
 + 20mM ammonium acetate / acetonitrile = 90/10 □
 1mL/min(5MPa), 37 degC, 210nm, 5uL(0.3-9.5ug)

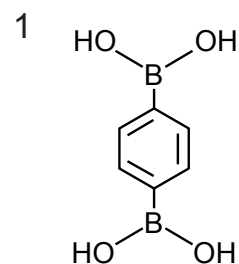
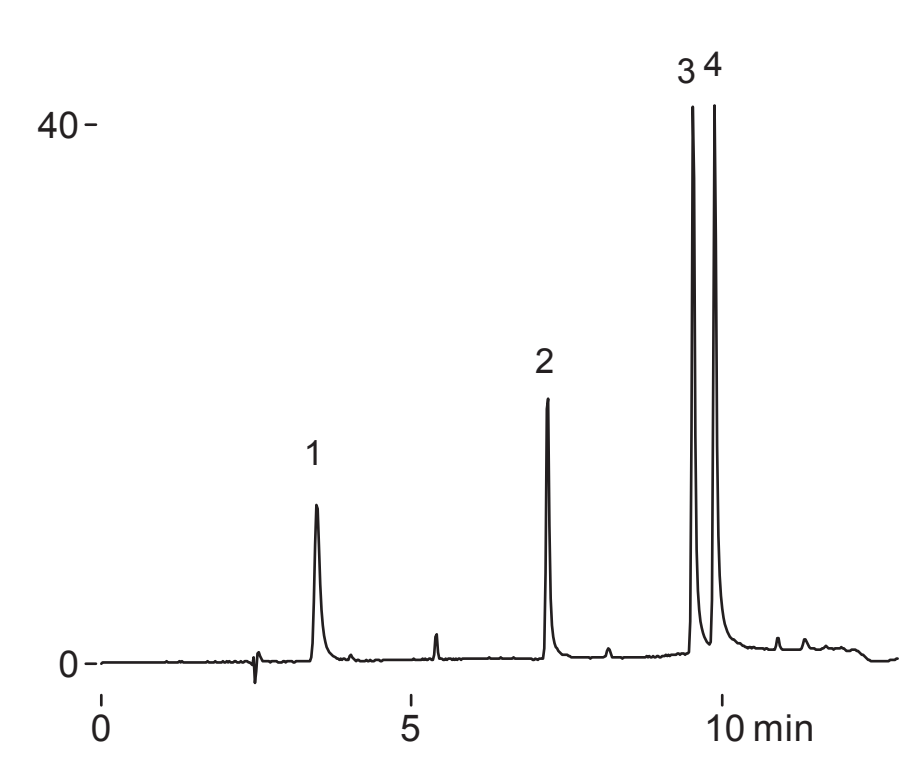
Cadenza CD-C18

150 x 3 mm

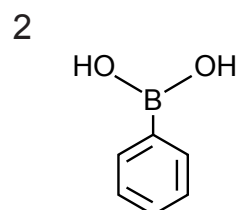
Application

Aromatic Boronic Acids

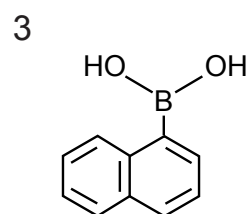
芳香族ボロン酸類



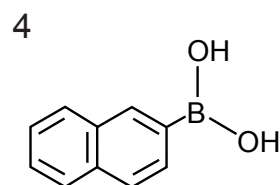
1,4-phenylenediboronic acid



benzeneboronic acid



1-naphthaleneboronic acid



2-naphthaleneboronic acid

Cadenza CD-C18, 150 x 3 mm
 A: water /TFA = 100 /0.1
 B: acetonitrile /TFA = 100 /0.1
 35-75%B (0-10 min)
 1 mL/min, 37 deg.C, 260 nm
 1 uL (0.2-0.6ug)

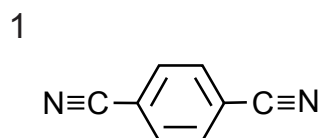
Cadenza CD-C18
Cadenza **HS-C18**

250 x 4.6 mm

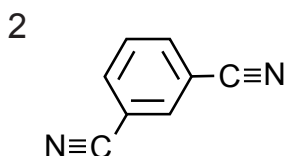
Application

Phthalonitrile

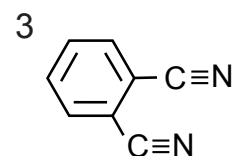
フタロニトリル



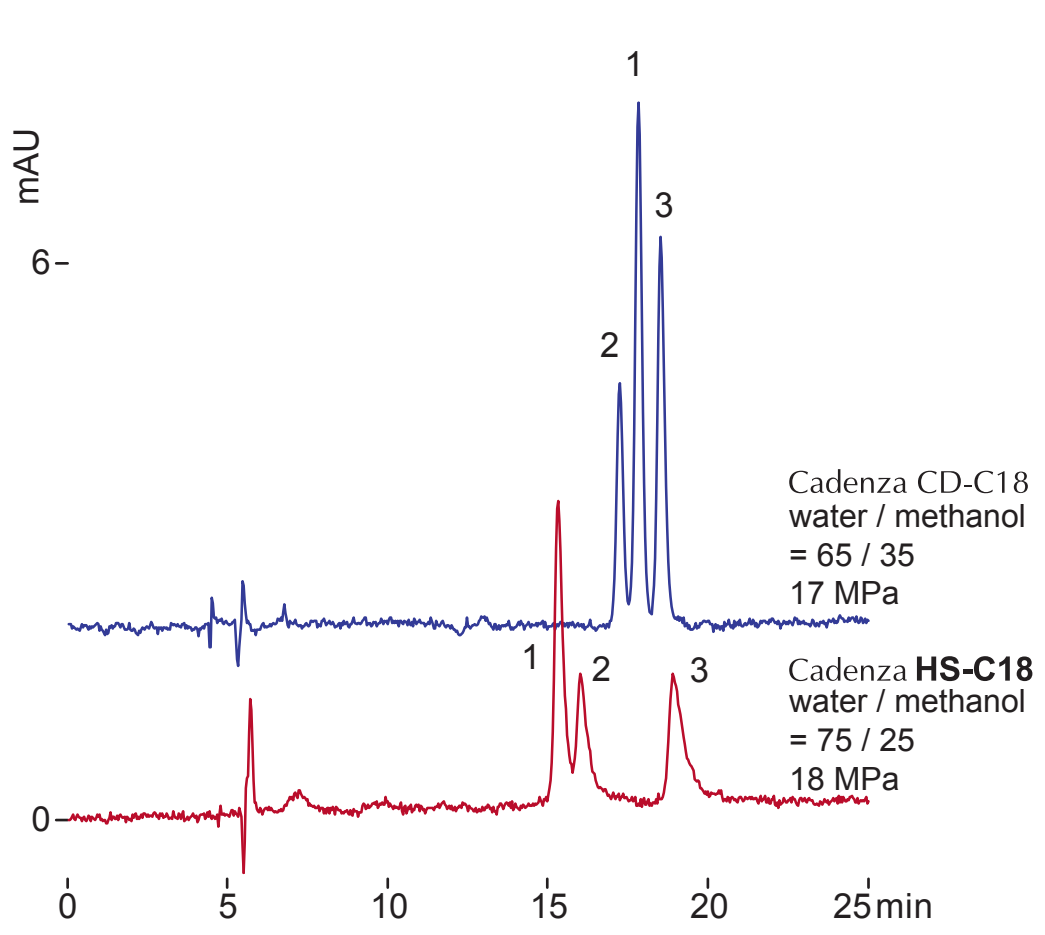
terephthalonitrile (*p*-)



isophthalonitrile (*m*-)



phthalonitrile (*o*-)



250 x 4.6 mm
0.6 mL/min, 37 deg.C
260 nm, 1 ug (2 uL)

Cadenza CD-C18
Cadenza **HS-C18**

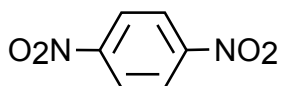
250 x 4.6 mm

Application

Dinitrobenzene

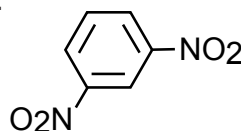
ジニトロベンゼン

1



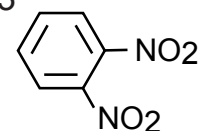
p-dinitrobenzene

2

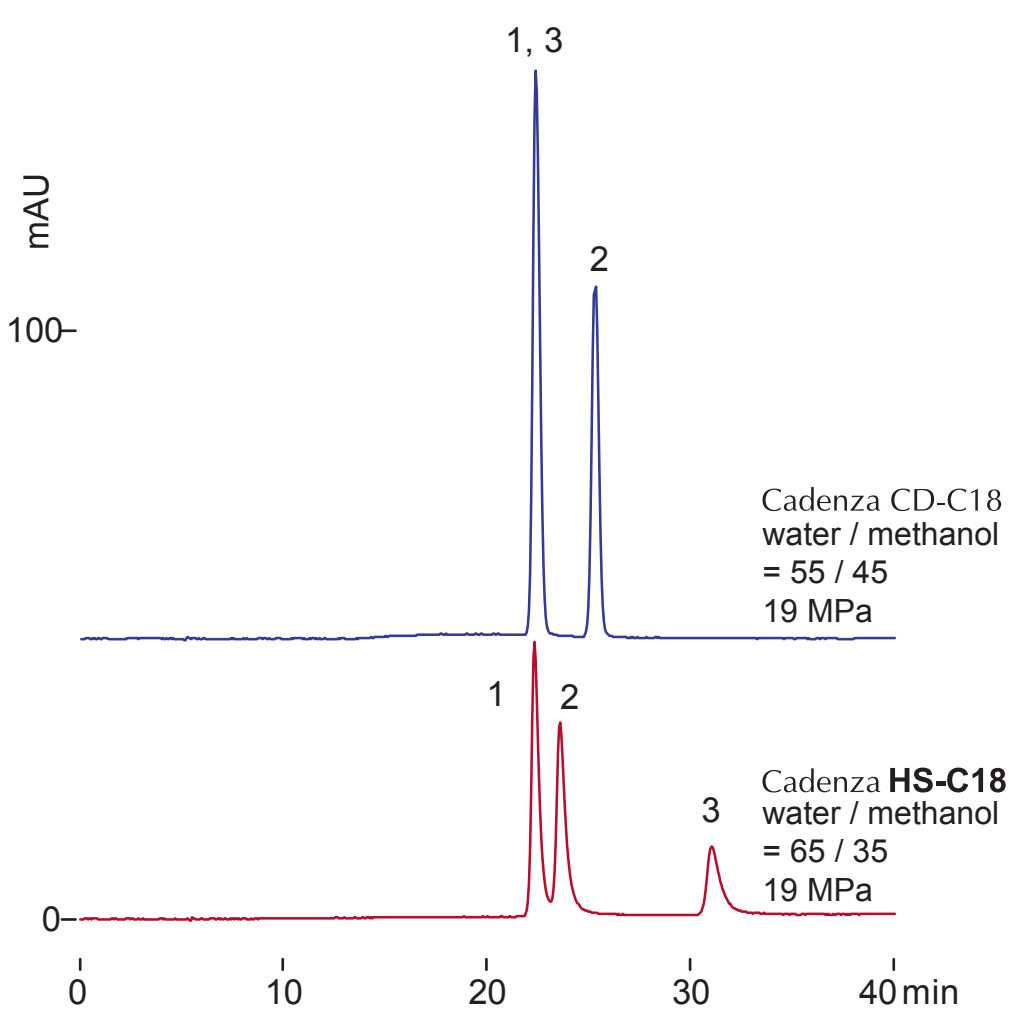


m-dinitrobenzene

3



o-dinitrobenzene



250 x 4.6 mm
0.6 mL/min, 37 deg.C
260 nm, 1 ug (2 uL)

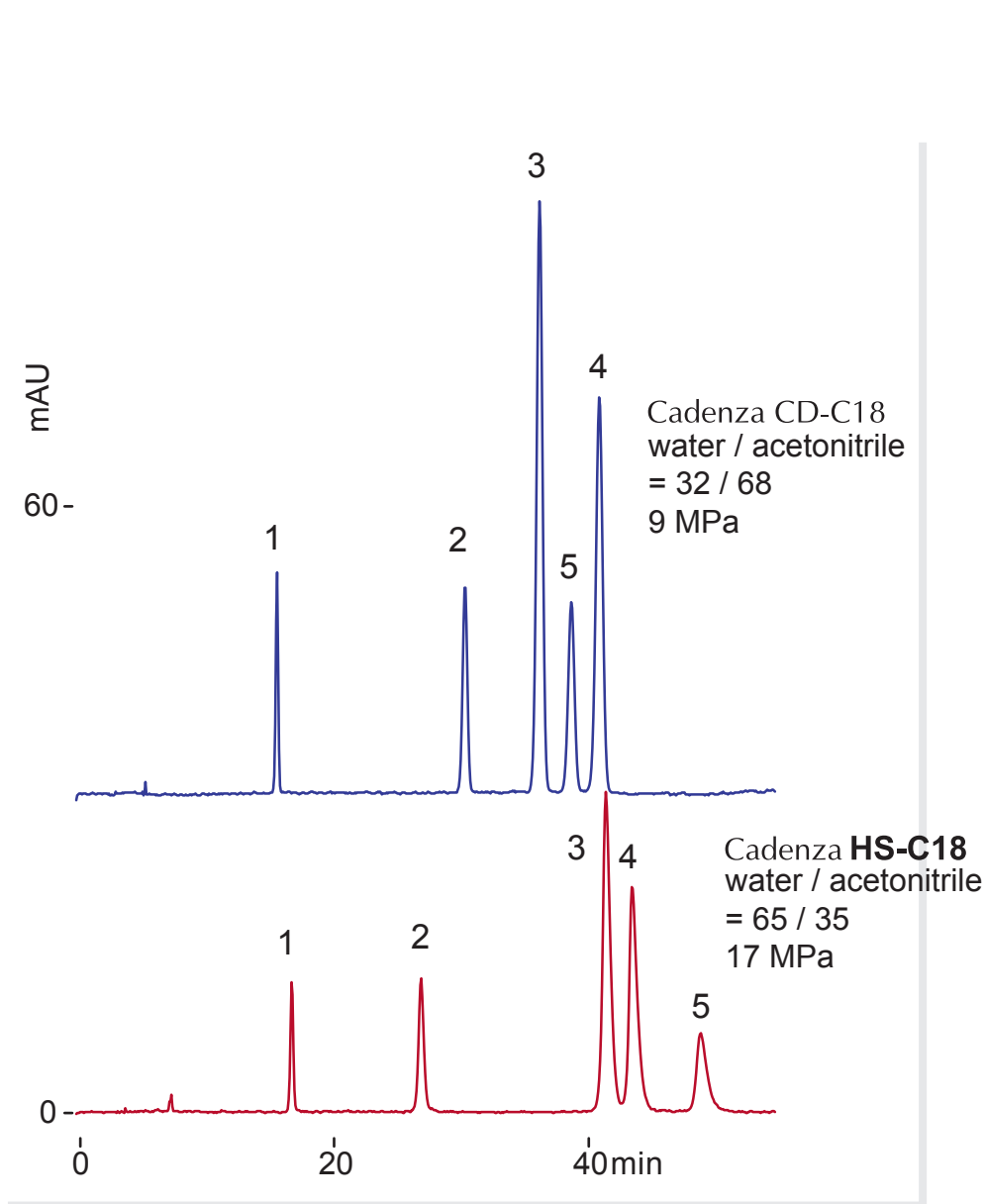
Cadenza CD-C18
Cadenza **HS-C18**

250 x 4.6 mm

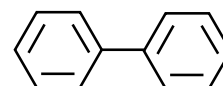
Application

Terphenyl related compounds

ターフェニル類縁化合物

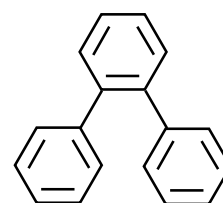


1



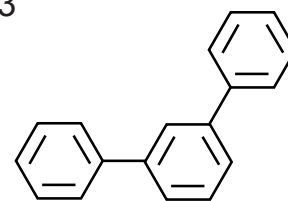
biphenyl

2



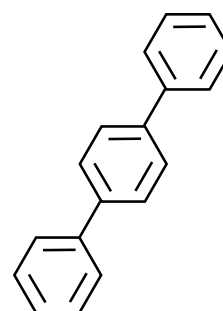
o-terphenyl

3



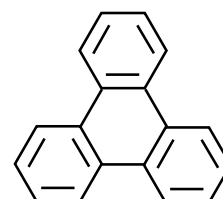
m-terphenyl

4



p-terphenyl

5



triphenylene

250 x 4.6 mm
0.8 mL/min, 37 deg.C
260 nm, 50-320 ng (2 uL)

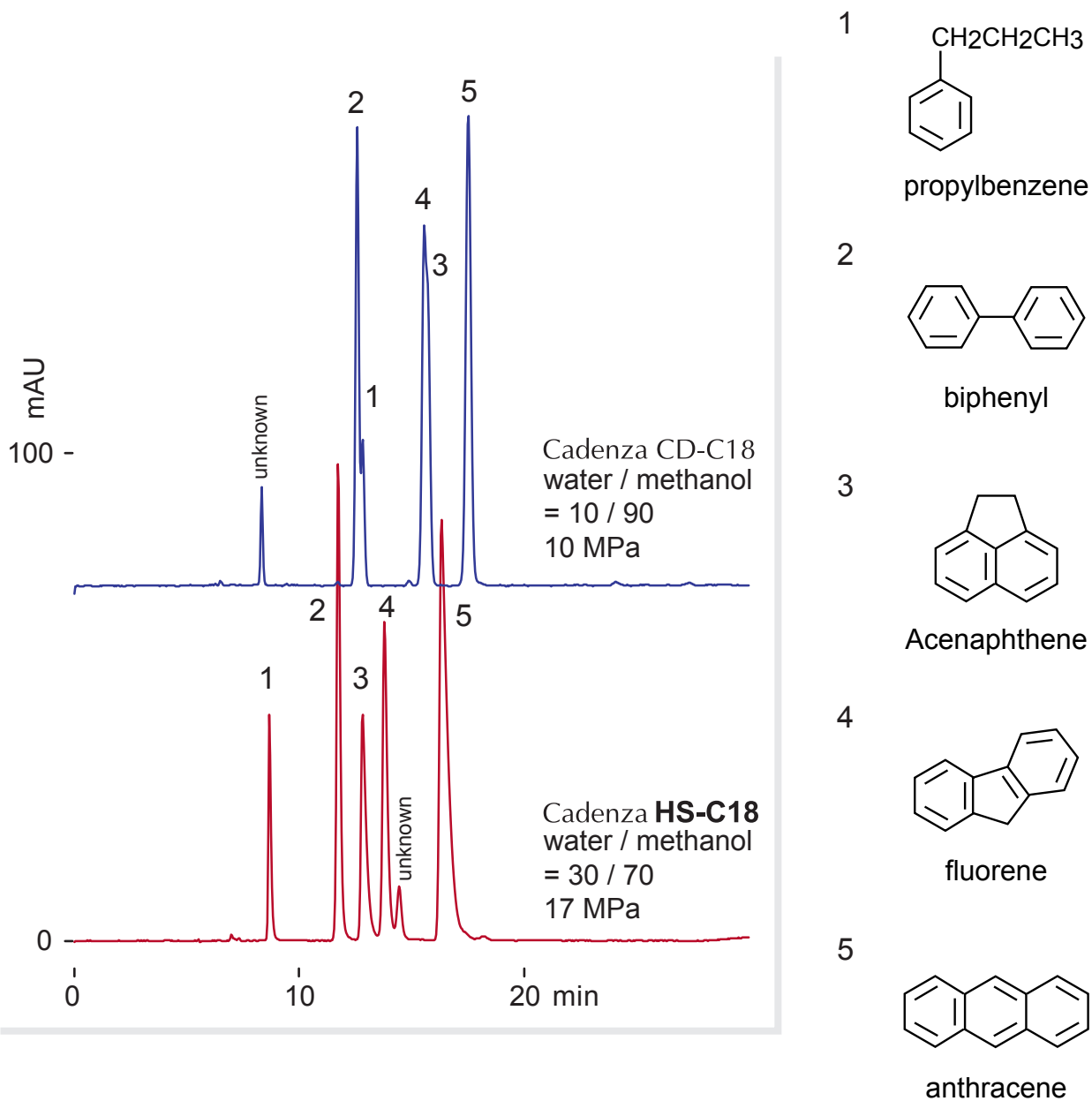
Cadenza CD-C18
Cadenza **HS-C18**

250 x 4.6 mm

Application

Polycyclic Aromatic Hydrocarbons (PAHs)

多環芳香族炭化水素



250 x 4.6 mm
0.5 mL/min, 37 deg.C
260 nm, 0.2-10 ug (1 uL)

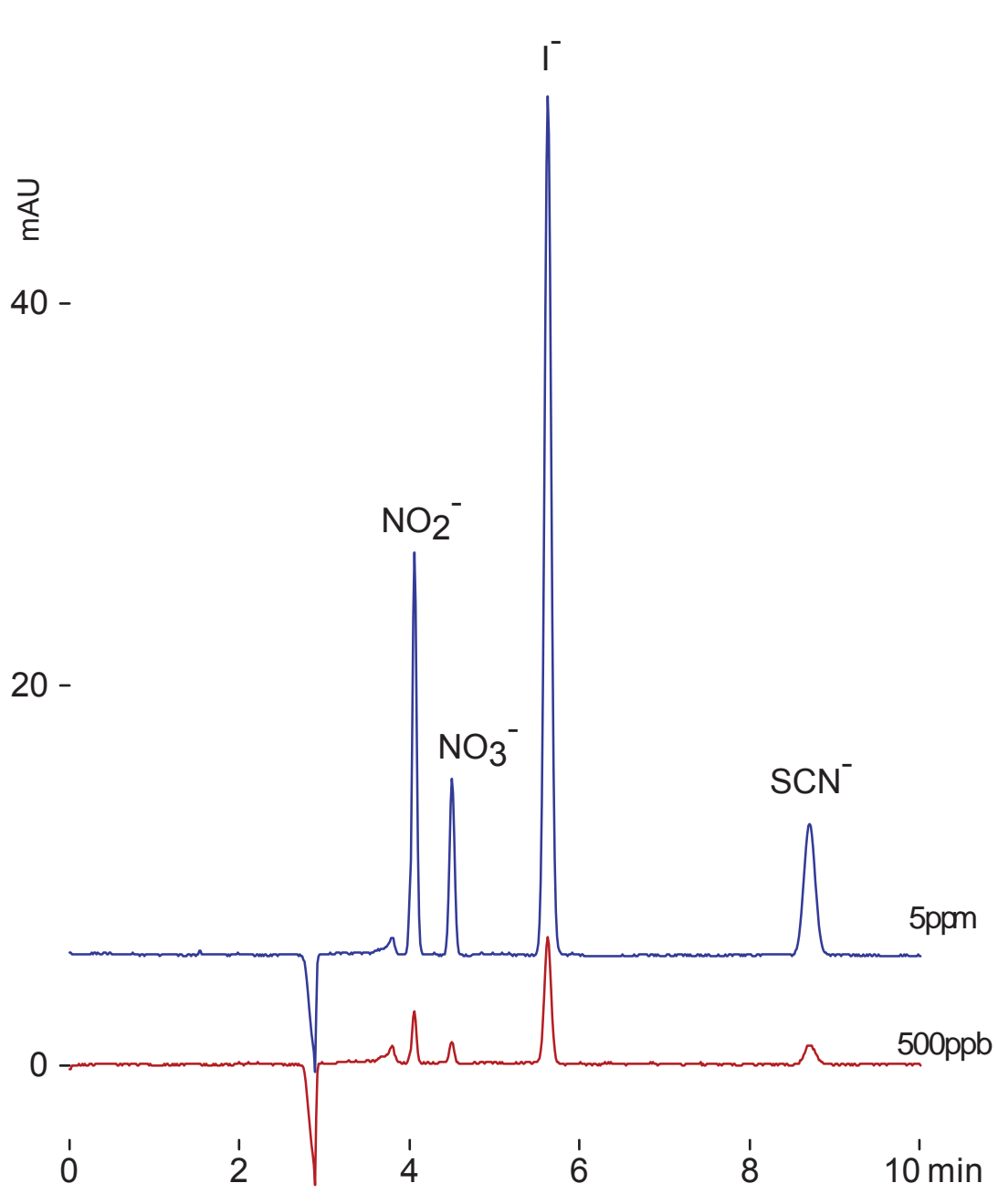
Unison UK-C18

150 x 4.6 mm

Application

Anions

陰イオンの分析



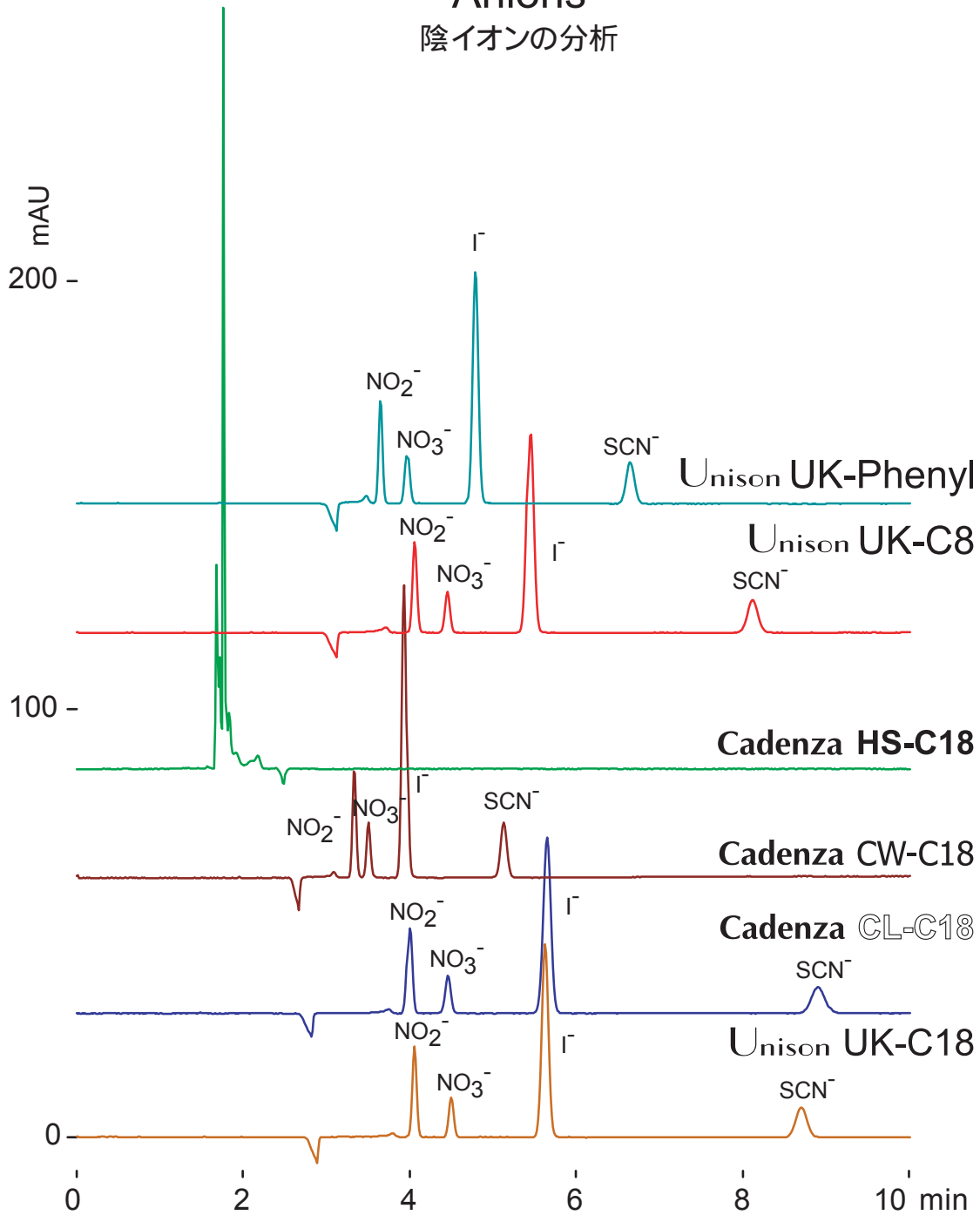
Unison UK-C18, 150 x 4.6 mm
10mM dibutylammonium acetate /acetonitrile = 90 /10
0.8 mL/min, 37 deg.C, 230 nm, 20uL

Unison UK-Phenyl Cadenza CW-C18
 Unison UK-C8 Cadenza CL-C18
 Cadenza HS-C18 Unison UK-C18

150 x 4.6 mm

Application

Anions
 陰イオンの分析



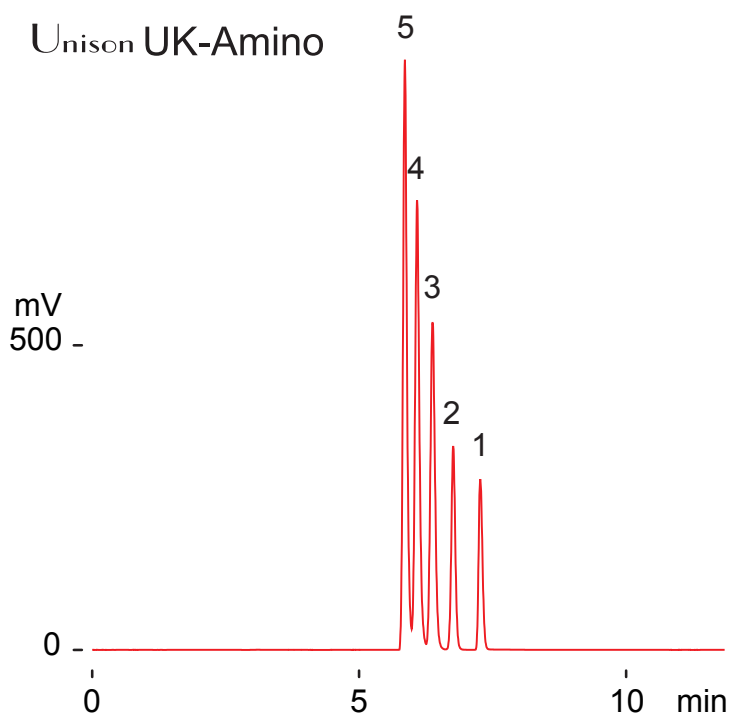
150 x 4.6 mm
 10mM dibutylammonium acetate /acetonitrile = 90 /10
 0.8 mL/min, 37 deg.C, 230 nm, 5ppm, 20uL

Unison UK-Amino
Cadenza CD-C18

250 x 3 mm

Application

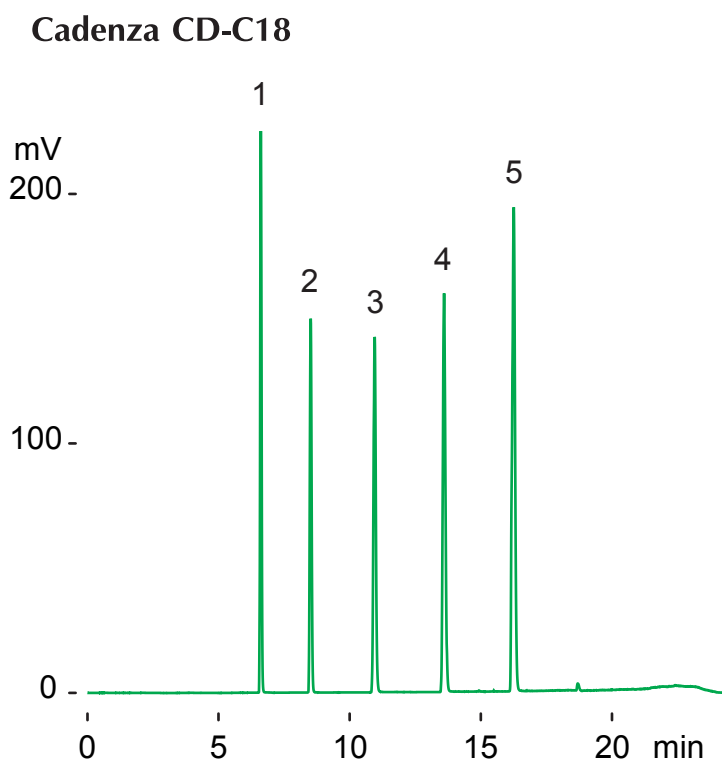
Fatty Acids
脂肪酸
CH₃(CH₂)_nCOOH



1. lauric acid (n=10)
2. myristic acid (n=12)
3. palmitic acid (n=14)
4. stearic acid (n=16)
5. arachidic acid (n=18)

normal phase

Unison UK-Amino, 250 x 3 mm
acetonitrile /
10mM ammonium acetate = 90 / 10
0.4mL/min (6 MPa), 50deg.C
ELSD, 0.5uL (0.6-3ug)



reversed phase

Cadenza CD-C18, 250 x 3 mm
A: water / formic acid = 100 / 0.1
B: acetonitrile / THF / formic acid
= 50 / 50 / 0.1
75-95%B (0-20min)
0.4mL/min (12 MPa), 37deg.C
ELSD, 0.7uL (0.8-4ug)

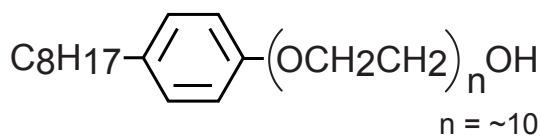
Unison UK-Amino
Cadenza CL-C18

250 x 4.6 mm

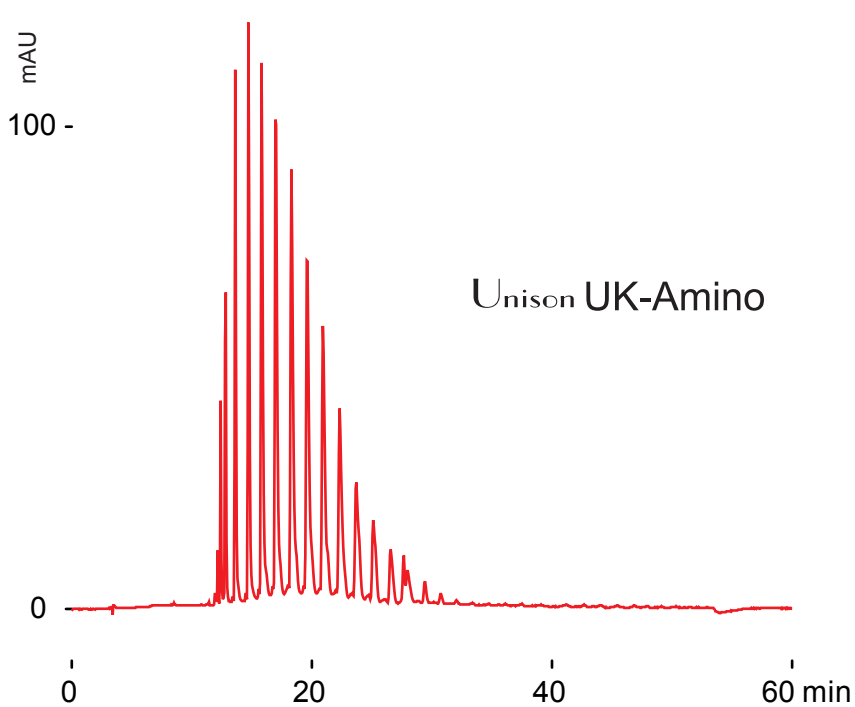
Application

Surfactant (triton)

界面活性剤(トリトン)

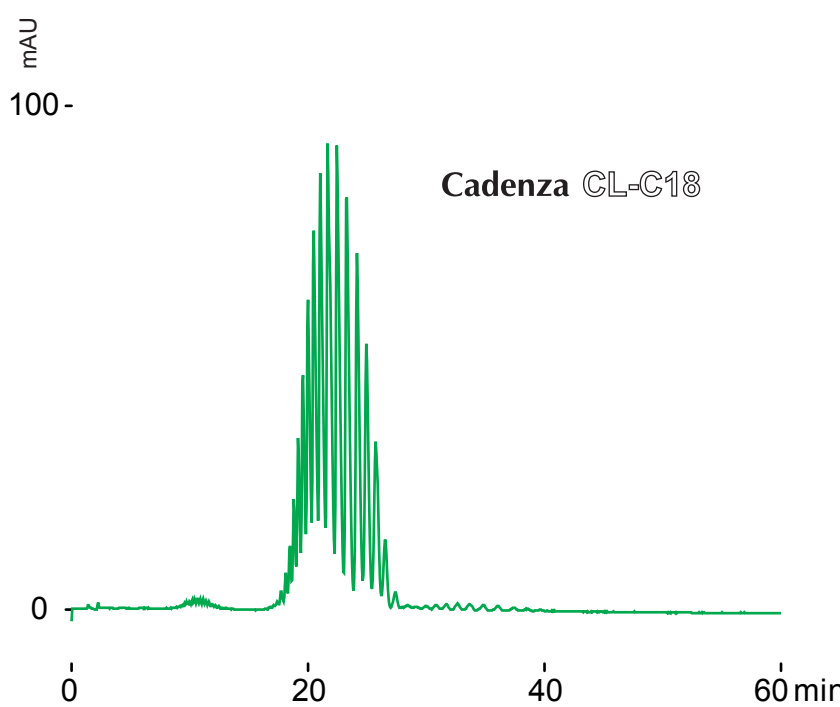


Triton X-100



normal phase

Unison UK-Amino
250 x 4.6 mm,
A: hexane, B: ethanol
0.2-10%B(0-50min)
1 mL/min 37 deg.C
260 nm, 5 uL (10% solution)



reversed phase

Cadenza CL-C18
250 x 4.6 mm
water / acetonitrile = 40 / 60
0.8 mL/min, 37 deg.C
260 nm, 5 uL (10% solution)

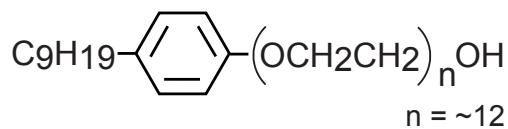
Unison UK-Amino
Cadenza CL-C18

250 x 4.6 mm

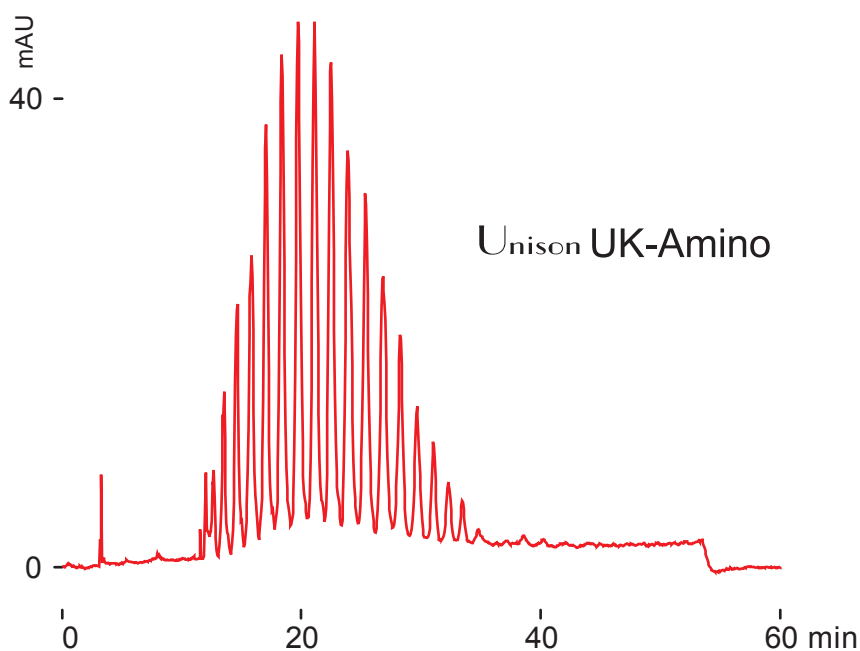
Application

Surfactant (Igepal)

界面活性剤(イゲパール)

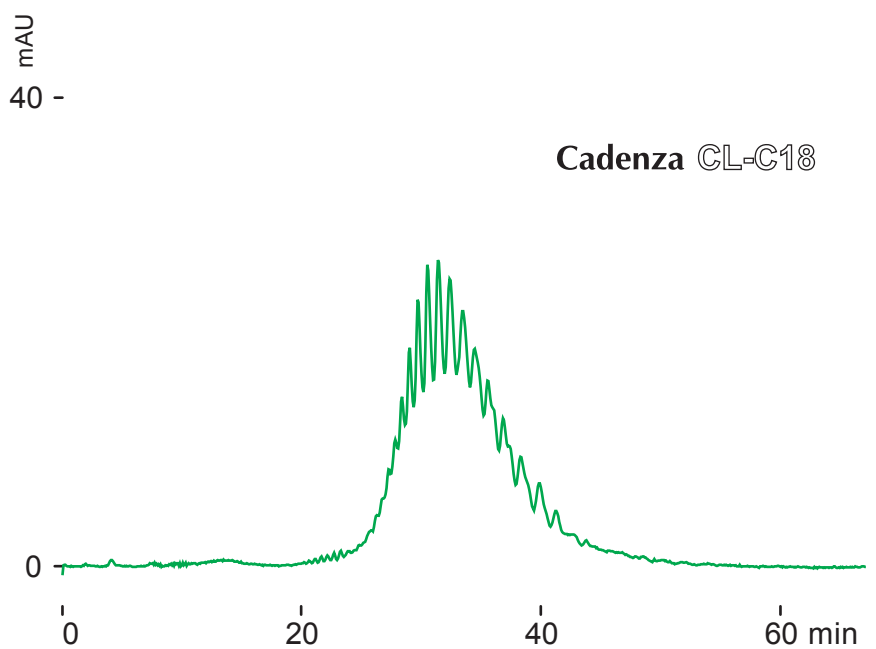


Igepal CO-720



normal phase

Unison UK-Amino
250 x 4.6 mm,
A: hexane, B: ethanol
0.2-10%B(0-50min)
1 mL/min 37 deg.C
260 nm, 5 uL (10% solution)



reversed phase

Cadenza CL-C18
250 x 4.6 mm
water / acetonitrile = 40 / 60
0.8 mL/min, 37 deg.C
260 nm, 5 uL (10% solution)

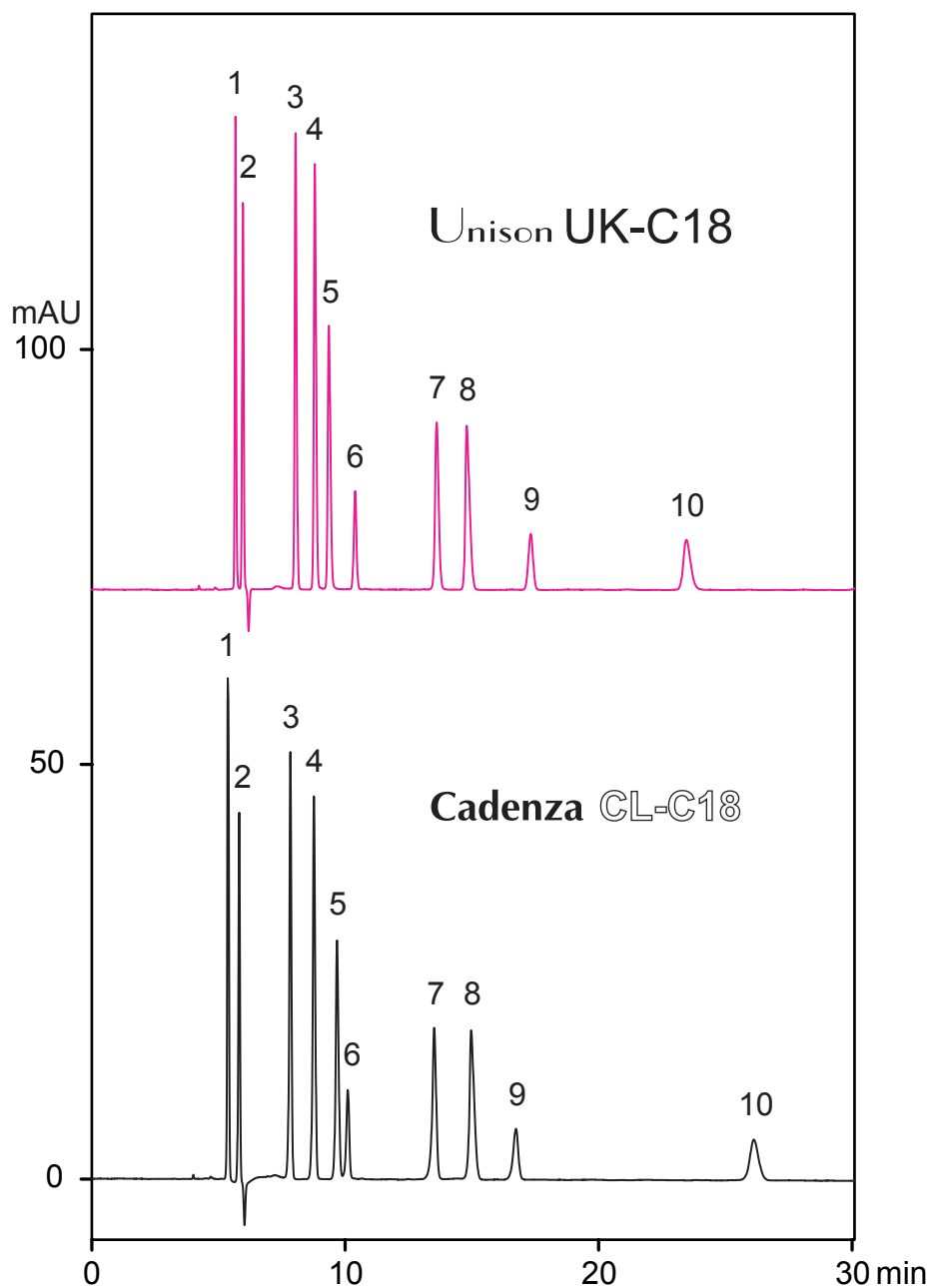
Unison UK-C18
Cadenza CL-C18

250 x 4.6 mm

Application

Organic Acids

有機酸



- 1 $\text{HOOC}\overset{\text{OH}}{\underset{\text{OH}}{\text{C}}}\text{HCOOH}$
tartaric acid
- 2 HCOOH
formic acid
- 3 $\text{HOOCCH}_2\text{COOH}$
malonic acid
- 4 $\text{CH}_3\overset{\text{OH}}{\text{C}}\text{HCOOH}$
lactic acid
- 5 CH_3COOH
acetic acid
- 6 $\text{HOOC}\text{C}=\text{C}\text{COOH}$
maleic acid
- 7 $\text{HOOC}\overset{\text{COOH}}{\text{C}}\text{HCH}_2\text{COOH}$
citric acid
- 8 $\text{HOOC}(\text{CH}_2)_2\text{COOH}$
succinic acid
- 9 $\text{HOOC}\text{C}=\text{C}\text{HCOOH}$
fumaric acid
- 10 $\text{CH}_3\text{CH}_2\text{COOH}$
propionic acid

250 x 4.6 mm
water / trifluoroacetic acid = 100 / 0.1
0.6 mL/min, 37 deg.C, 210 nm, 1.4uL (0.01-7ug)

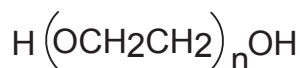
Unison UK-Amino
Cadenza CW-C18

250 x 4.6 mm

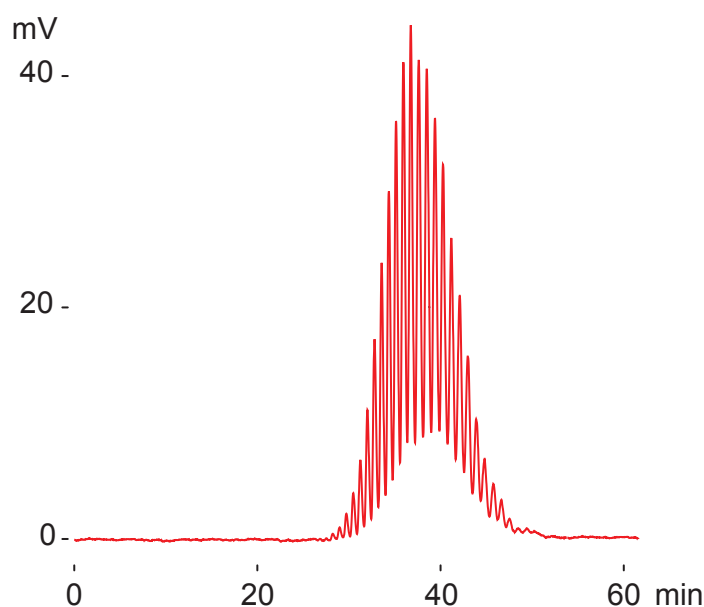
Application

Polyethylene glycol # 2000

ポリエチレングリコール # 2000

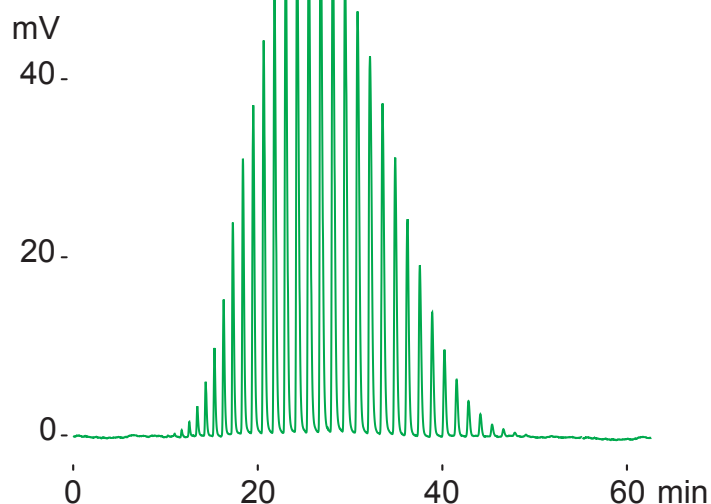


polyethylene glycol #2000 (Av. Mw. 2000)



normal phase

Unison UK-Amino, 250 x 4.6 mm
A: hexane, B: ethanol
7-11%B(0-50min)
1mL/min (6MPa), 37deg.C, ELSD
2uL (40ug)



reversed phase

Cadenza CW-C18, 250 x 4.6 mm
A: water, B: acetonitrile
25-30%B(0-46min)
1mL/min (18MPa), 37deg.C, ELSD
2uL (100ug)

Unison UK-Amino

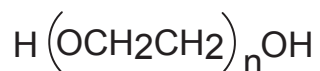
Cadenza CW-C18

150 x 4.6 mm

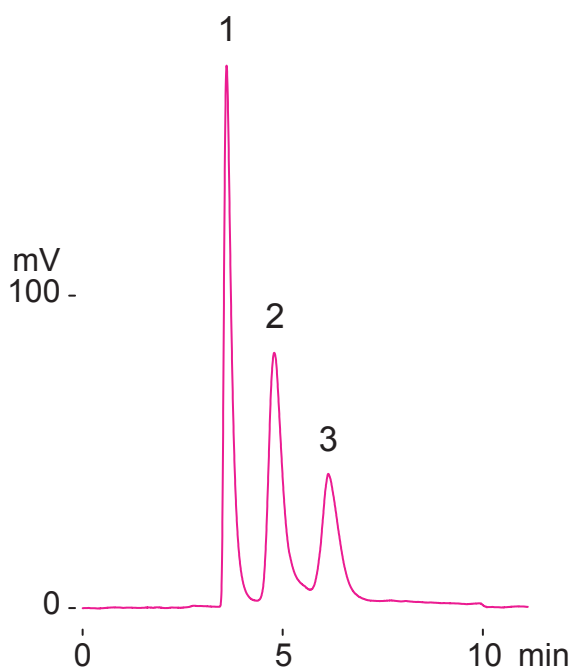
Application

Polyethylene glycol # 2000, 6000, 12000

ポリエチレングリコール # 2000, 6000, 12000

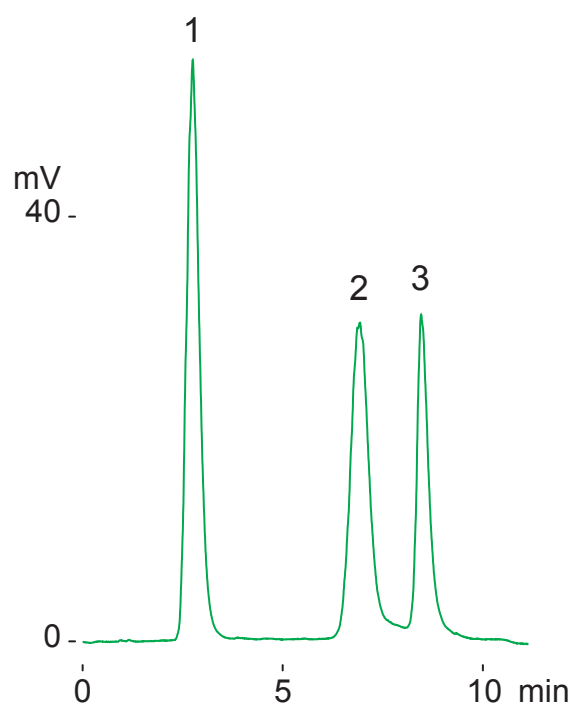


- 1 polyethylene glycol #2000 (Av. Mw. 2000)
- 2 polyethylene glycol #6000 (Av. Mw. 8500)
- 3 polyethylene glycol #12000 (Av. Mw. 12000)



normal phase

Unison UK-Amino, 150 x 4.6 mm
 A: hexane, B: tetrahydrofuran
 70-75%B(0-8min)
 1mL/min (4MPa), 60deg.C, ELSD
 0.4uL (3ug)



reversed phase

Cadenza CW-C18, 150 x 4.6 mm
 A: water, B: tetrahydrofuran
 10-15%B(0-10min)
 1mL/min (14MPa), 37deg.C, ELSD
 0.4uL (7ug)

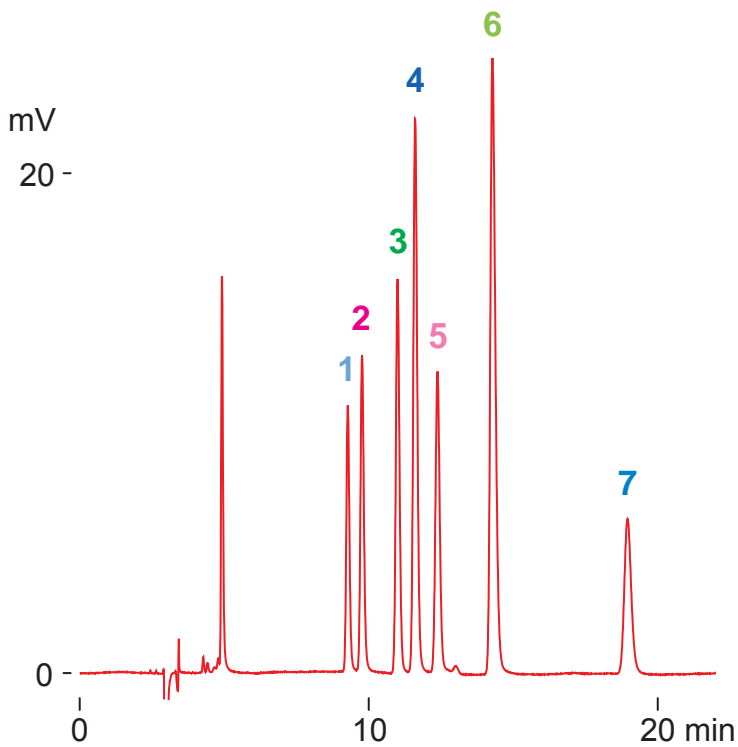
Unison UK-Amino
Cadenza CW-C18

250 x 3 mm

Application

Halo Acetic Acids

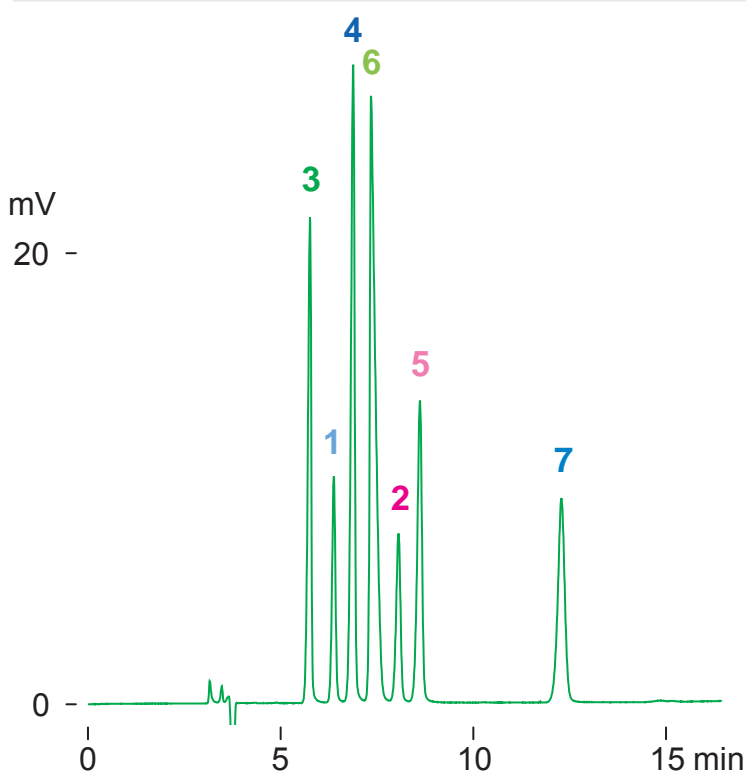
ハロ酢酸



- 1 CH_2ClCOOH
monochloroacetic acid (MCAA)
- 2 CH_2BrCOOH
monobromoacetic acid (MBAA)
- 3 CHCl_2COOH
dichloroacetic acid (DCAA)
- 4 CHBrClCOOH
bromochloroacetic acid (BCAA)
- 5 CHBr_2COOH
dibromoacetic acid (DBAA)
- 6 CCl_3COOH
trichloroacetic acid (TCAA)
- 7 CBr_3COOH
tribromoacetic acid (TBAA)

normal phase

Unison UK-Amino, 250 x 3 mm
acetonitrile /50mM TFA-ammonium
= 20 /80
0.4 mL/min (13 MPa), 37 deg.C
220 nm, 5 uL (40-400 ug)



reversed phase

Cadenza CW-C18, 250 x 3 mm
water /TFA = 100 /0.07
0.4 mL/min (14 MPa), 37 deg.C
220 nm, 5 uL (40-400 ug)

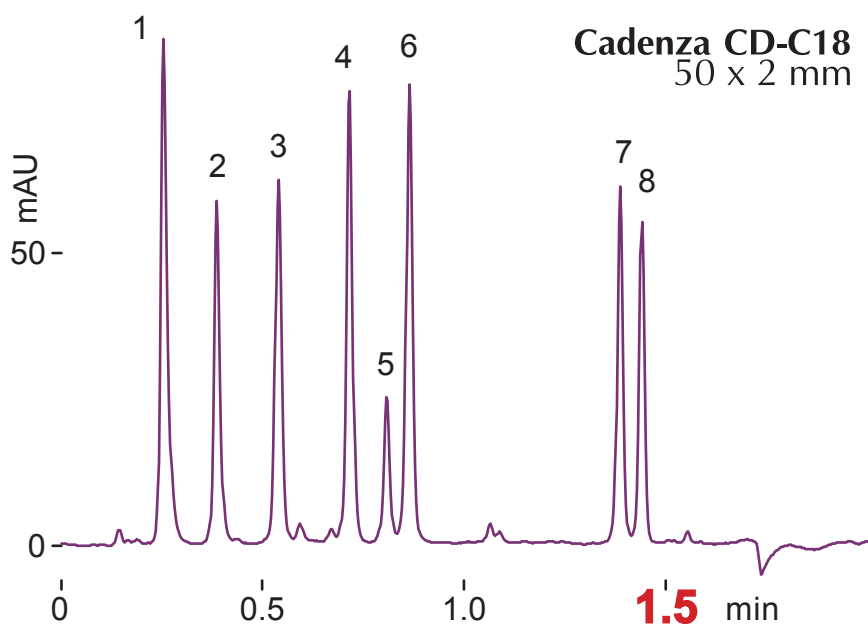
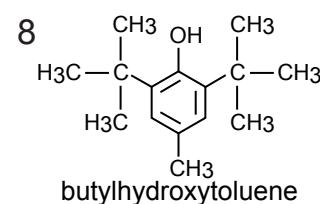
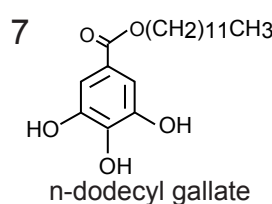
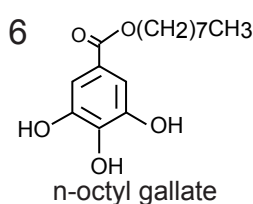
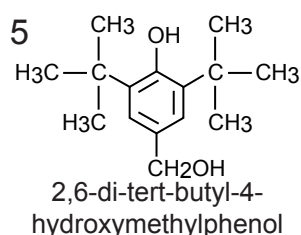
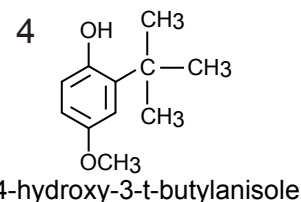
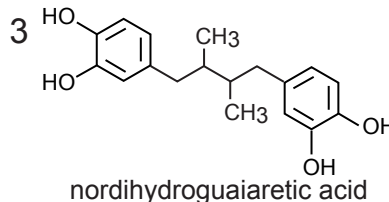
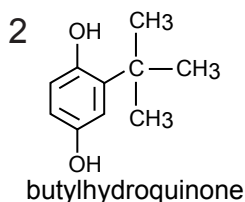
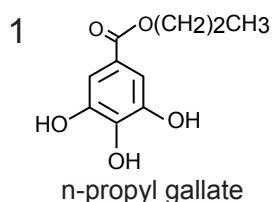
Cadenza CD-C18
Cadenza 5CD-C18

50 x 2 mm
150 x 4.6 mm

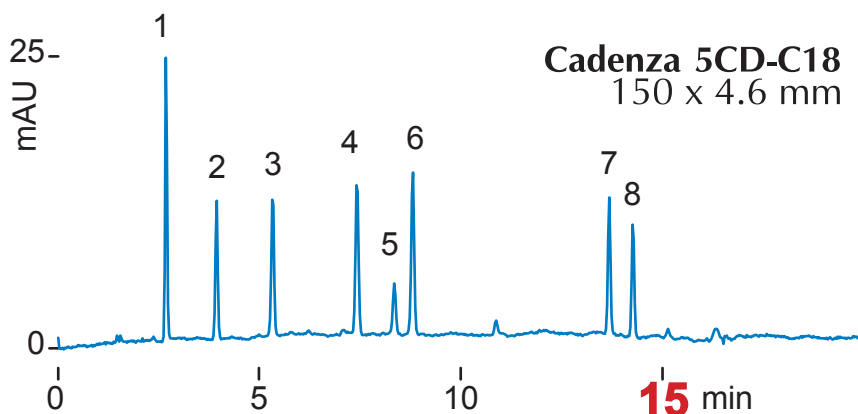
Application

Antioxidants

酸化防止剤



Cadenza CD-C18
50 x 2 mm
A: water / MeOH / TFA = 70 / 30 / 0.1
B: ACN / TFA = 100 / 0.1
30-60 %B (0-0.8min)
60-100 %B (0.8-1.5min)
0.8 mL/min (17MPa)
37 deg.C, 280 nm
1 uL (0.1-0.2ug)



Cadenza 5CD-C18
150 x 4.6 mm
A: water / MeOH / TFA = 70 / 30 / 0.1
B: ACN / TFA = 100 / 0.1
30-60 %B (0-8min)
60-100 %B (8-15min)
1 mL/min (6 MPa)
37 deg.C, 280 nm
1 uL (0.1-0.2ug)

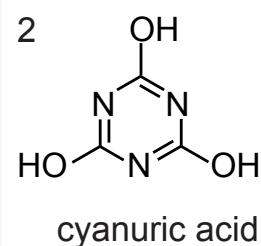
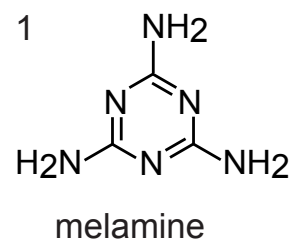
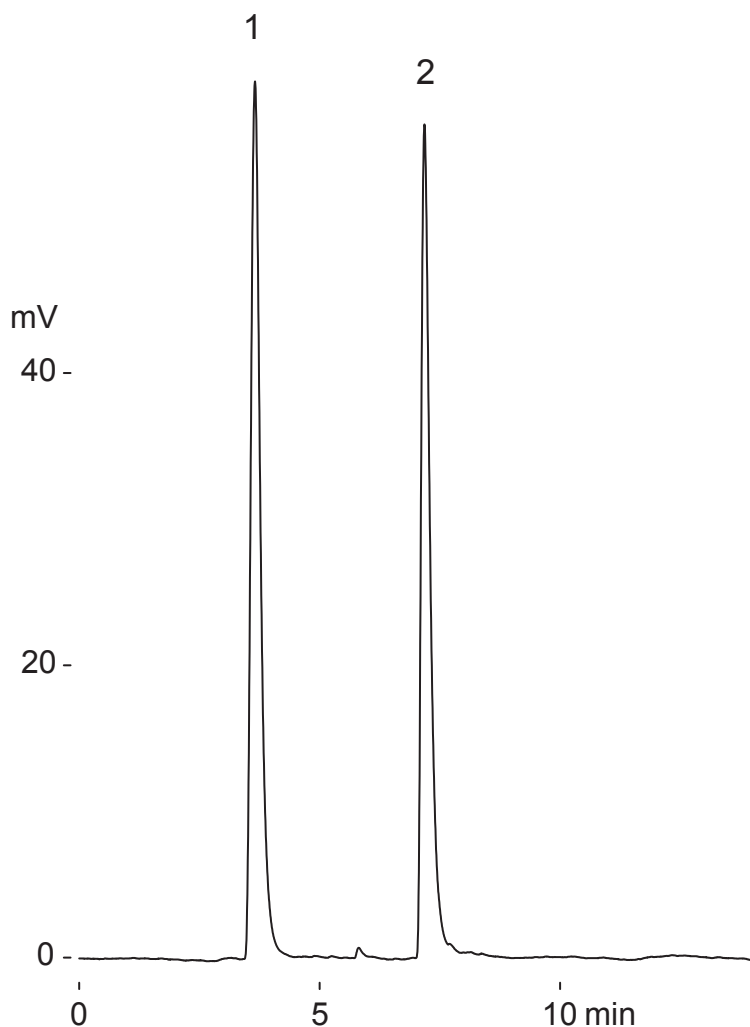
Unison UK-Amino

150 x 2 mm

Application

Melamine and Cyanuric acid

メラミン, シアヌル酸



Unison UK-Amino, 150 x 2 mm

A: acetonitrile

B: 10mM ammonium formate

10-35%B(0-10min), 0.2 mL/min (4MPa), 37 deg.C

ELSD, 2 uL(1ug, 2.5%NH₄OH)

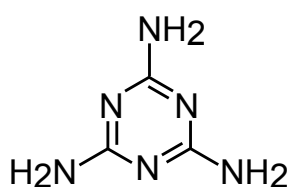
Unison UK-Amino

150 x 3 mm

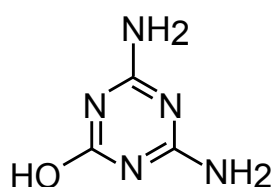
Application

LC-MS/MS: Melamine and Related Compounds

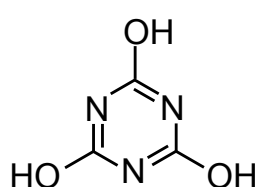
LC-MS/MS (メラミンと関連化合物)



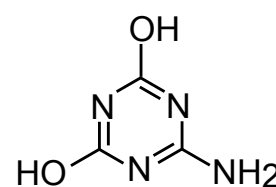
1. melamine



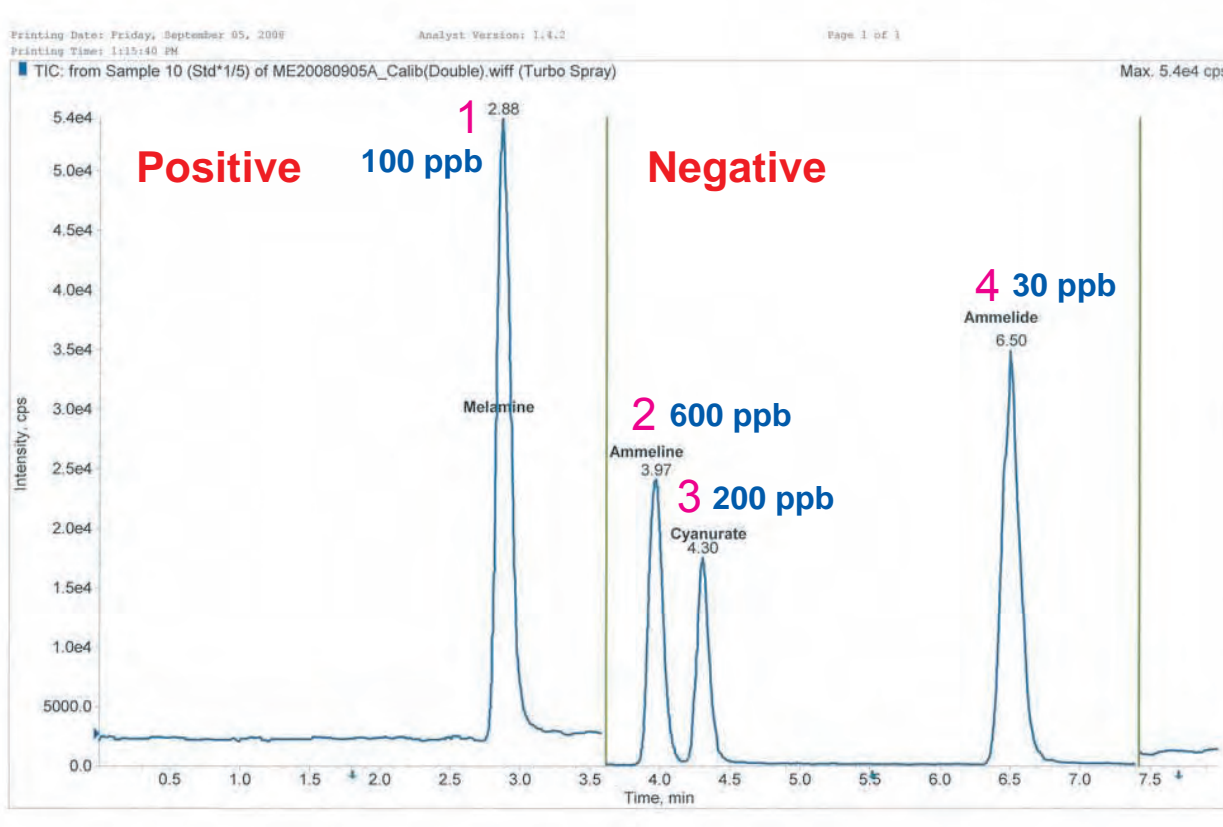
2. ammeline



3. cyanuric acid



4. ammelide



Unison UK-Amino, 150 x 3 mm

A: acetonitrile, B: 10mM ammonium acetate + 0.1% acetic acid
 25%B (Isocratic)

0.4 mL/min (5.9MPa), 40 deg.C, 5uL

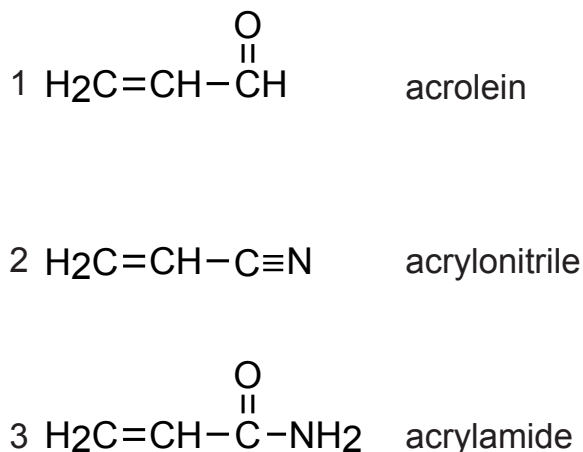
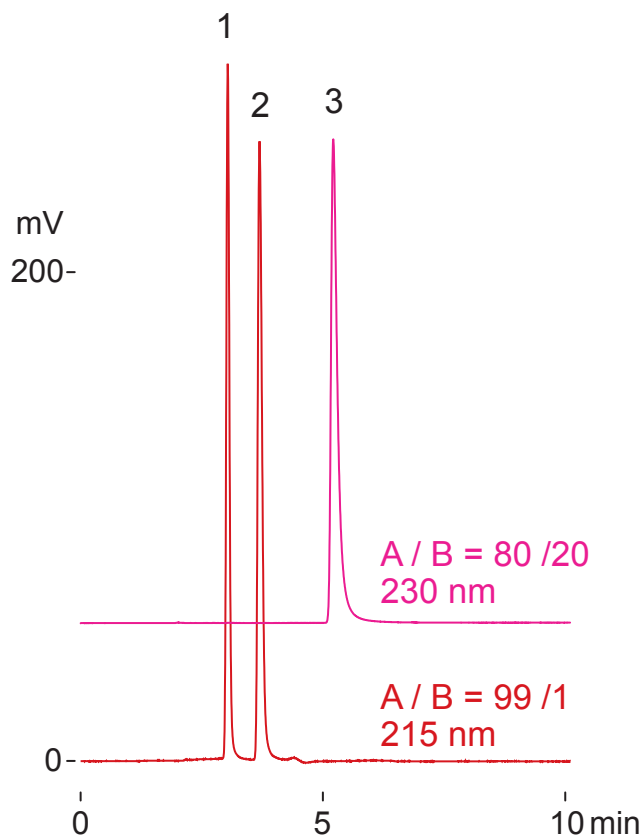
Unison UK-Amino
Unison UK-Phenyl

150 x 3 mm
250 x 3 mm

Application

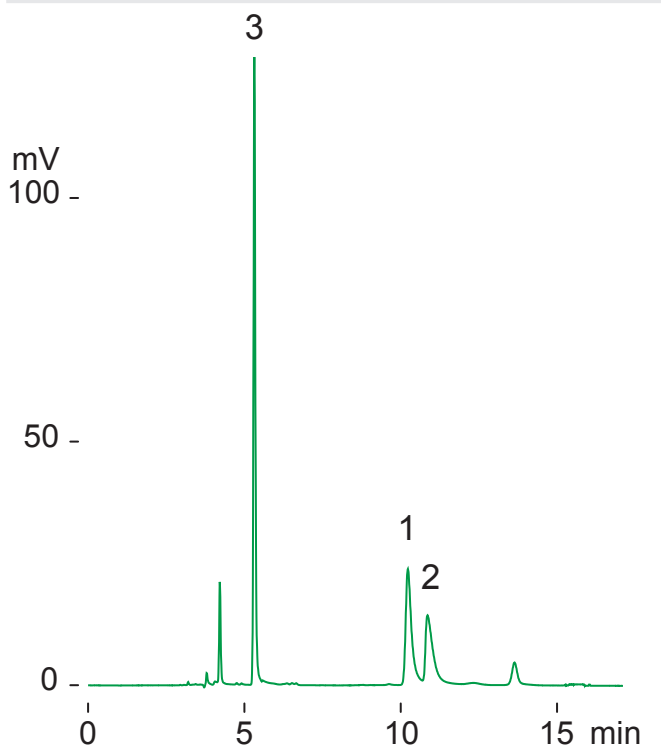
Acrylic Monomers

アクリルモノマー



normal phase

Unison UK-Amino, 150 x 3 mm
hexane / ethanol / TFA = A / B / 0.1
0.4 mL/min (3-4MPa), 37 deg.C,
0.2-0.4 uL
(1.2-3.6ug, dissolved with eluent)



reversed phase

Unison UK-Phenyl, 250 x 3 mm
water / methanol / TFA = 100 / 0.5 / 0.1
0.4 mL/min (12 MPa), 37 deg.C, 215 nm
0.4 uL (0.1-0.4ug)

Unison UK-Amino

150 x 3 mm

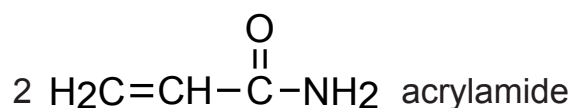
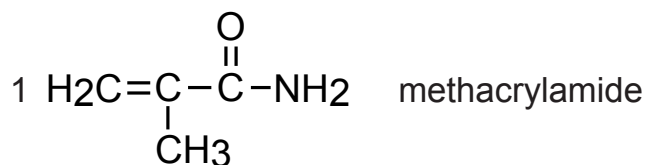
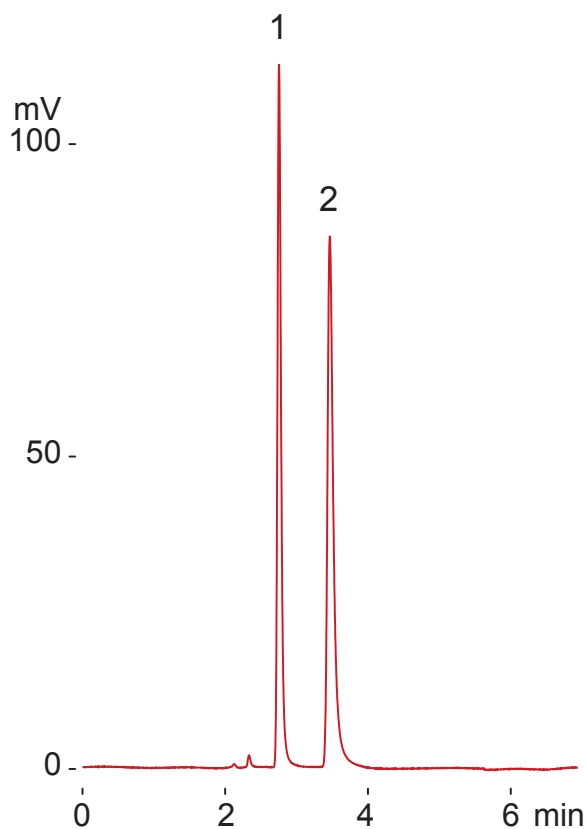
Cadenza CL-C18

250 x 3 mm

Application

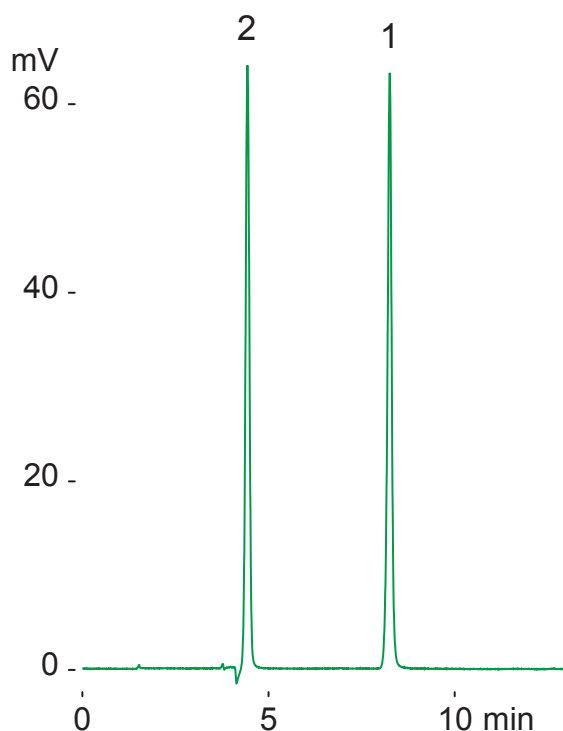
Acrylamide and Methacrylamide

アクリルアミド, メタクリルアミド



normal phase

Unison UK-Amino, 150 x 3 mm
THF /water /acetic acid = 100 /0.8 / 0.1
0.4 mL/min (5MPa), 37 deg.C, 230nm
1 uL (0.3-0.4ug, dissolved with eluent)



reversed phase

Cadenza CL-C18, 250 x 3 mm
water /acetonitrile /TFA = 97 /3 /0.1
0.4 mL/min (12 MPa), 45 deg.C, 230 nm
1 uL (0.3-0.4ug)

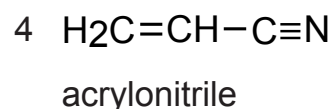
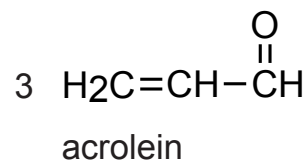
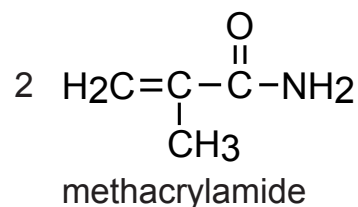
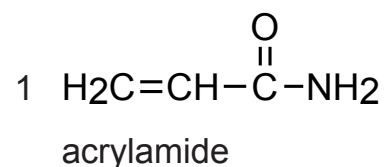
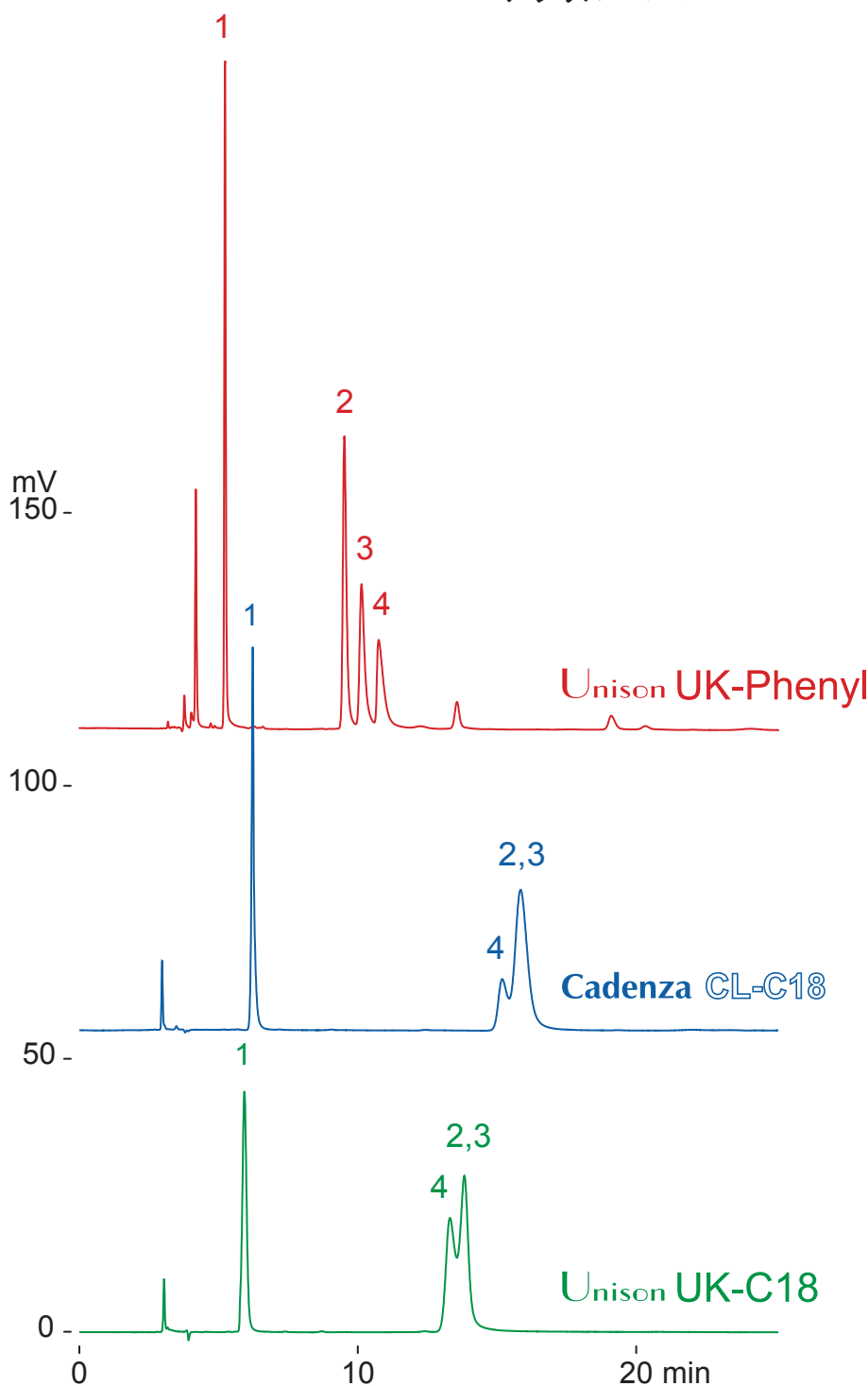
Unison UK-Phenyl
 Cadenza CL-C18
 Unison UK-C18

250 x 3 mm

Application

Acrylic Monomers

アクリルモノマー



250 x 3 mm
 water / methanol / TFA = 100 / 0.5 / 0.1
 0.4 mL/min (12-14MPa), 37 deg.C, 215 nm
 0.4 uL (0.1-0.3ug)

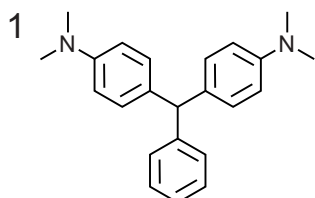
Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18
 Cadenza CD-C18
 Cadenza CW-C18

75 x 3 mm

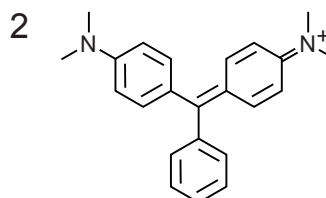
Application

Malachite Green and Metabolite

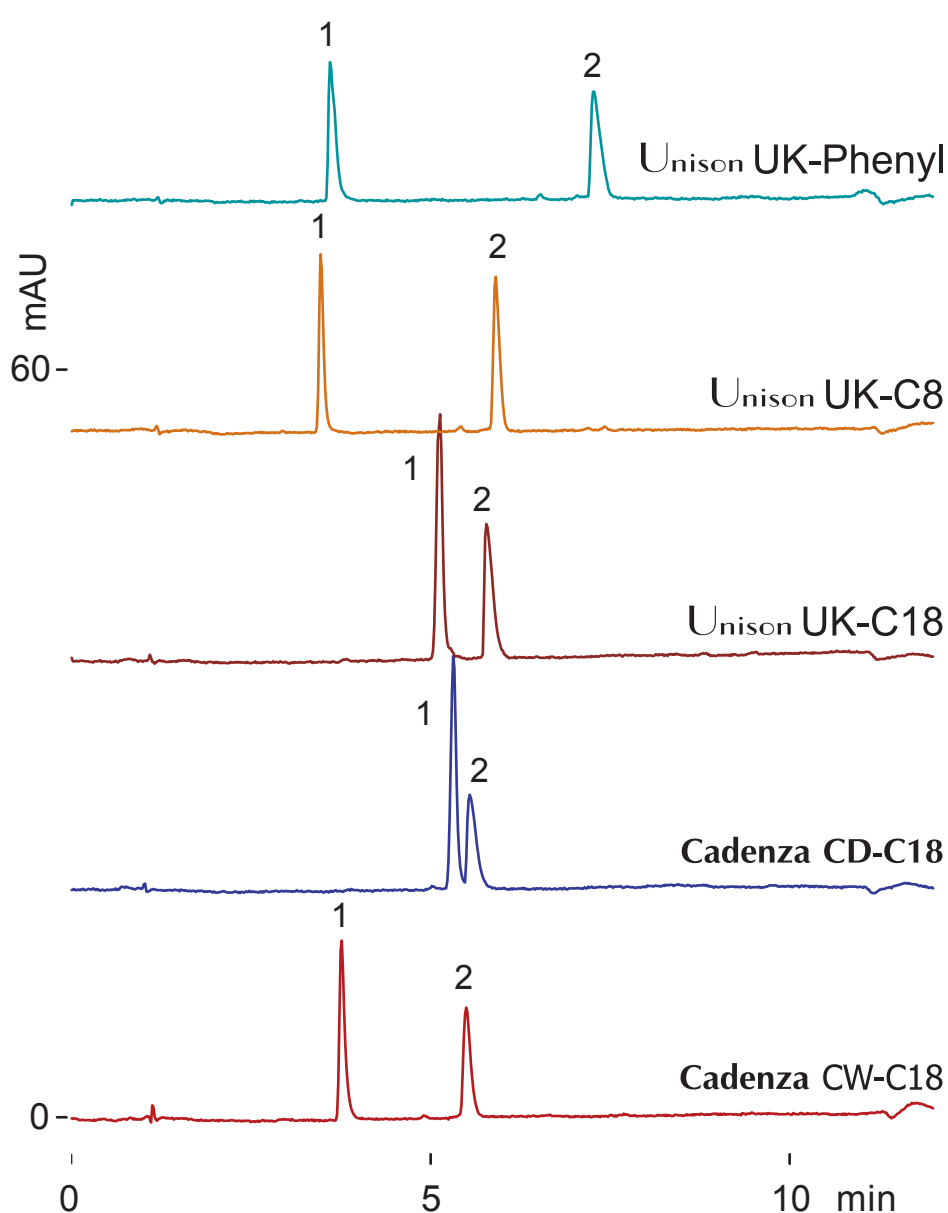
マラカイトグリーンと代謝物



leucomalachite green



malachite green



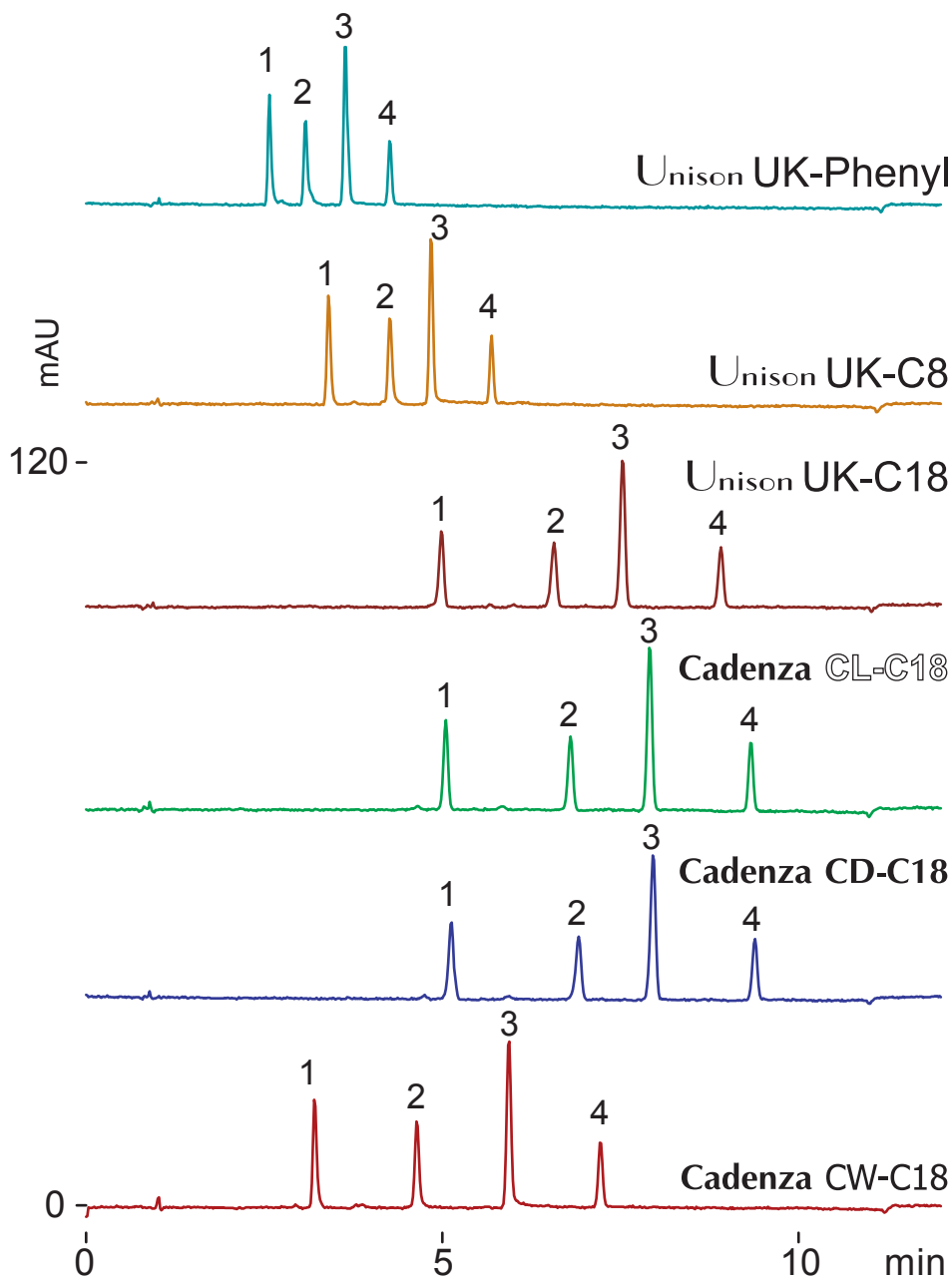
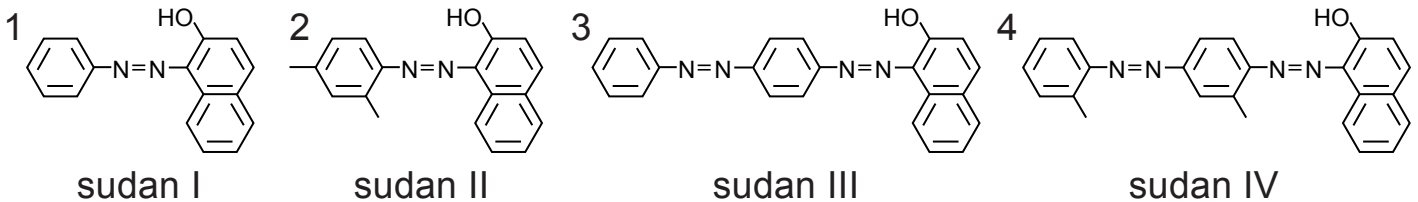
75 x 3 mm
 A: water /formic acid
 = 100 /0.1
 B: acetonitrile /formic acid
 = 100 /0.1
 30 - 70 %B (0-10 min)
 0.4 mL/min (5 MPa)
 37 deg.C, 260 nm
 1 uL (100 ng)

Unison UK-Phenyl
 Unison UK-C8
 Unison UK-C18
 Cadenza CL-C18
 Cadenza CD-C18
 Cadenza CW-C18

75 x 4.6 mm

Application

Sudan Dyes
 スダン色素



75 x 4.6 mm
 A: water / formic acid
 = 100 / 0.1
 B: acetone / formic acid
 = 100 / 0.1
 60 - 90 %B (0-10 min)
 1 mL/min (7-8 MPa)
 37 deg.C, 500 nm
 2 uL (40 ng)

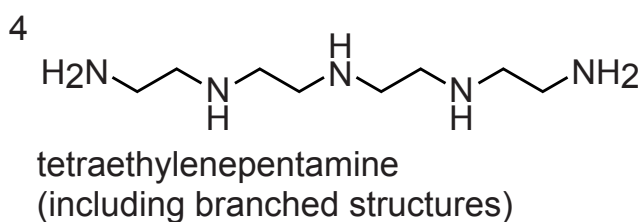
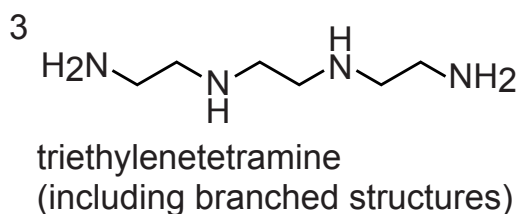
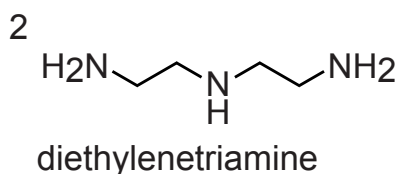
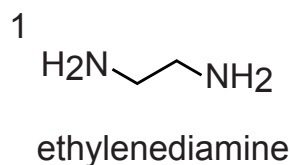
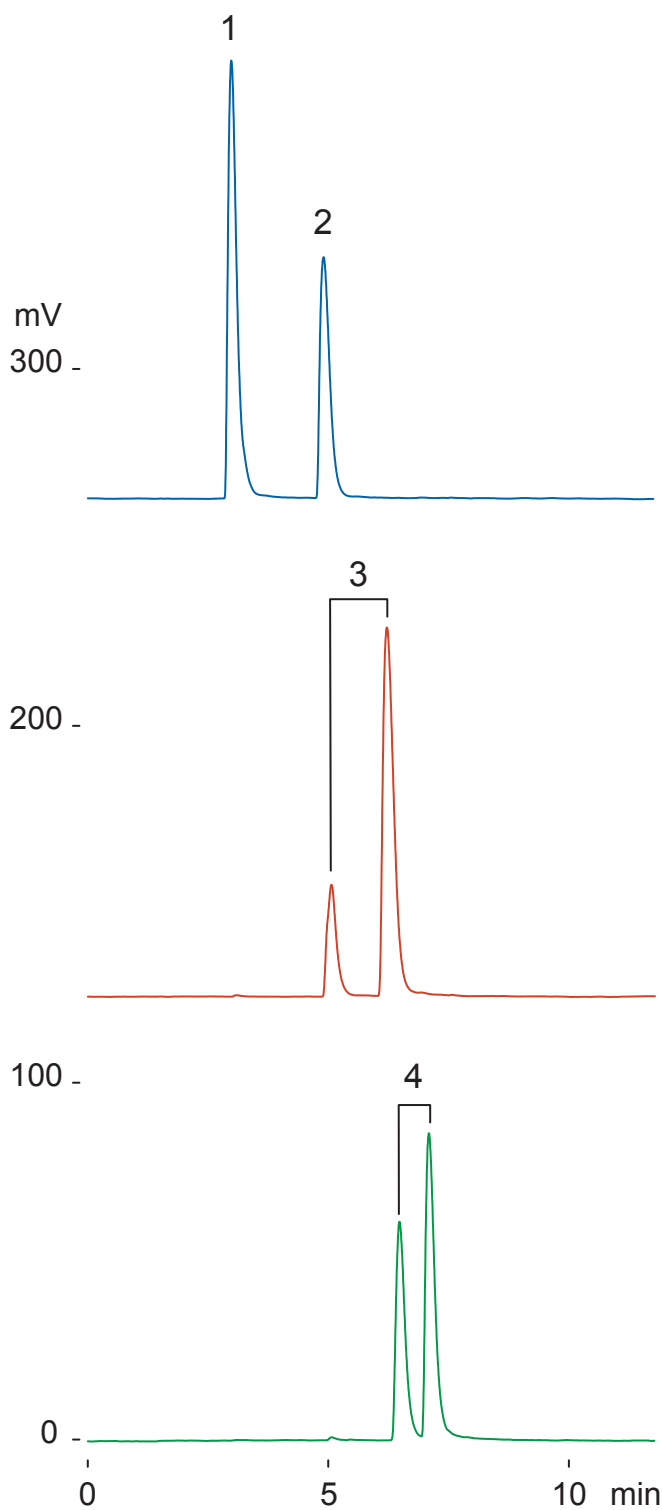
Unison UK-C18

75 x 3 mm

Application

Aliphatic amines

脂肪族アミン



Unison UK-C18, 75 x 3 mm
 A: water / HFBA = 100 / 0.1
 B: acetonitrile / HFBA = 100 / 0.1
 20-40%B (0-7min)
 0.4 mL/min (7 MPa), 37 deg.C, ELSD
 0.8 uL (1-2 nL)

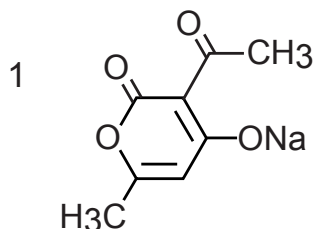
Unison UK-Amino
Unison UK-Silica

150 x 2 mm

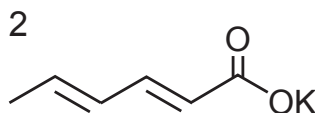
Application

Food preservatives (normal phase)

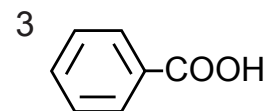
保存料の順相分析



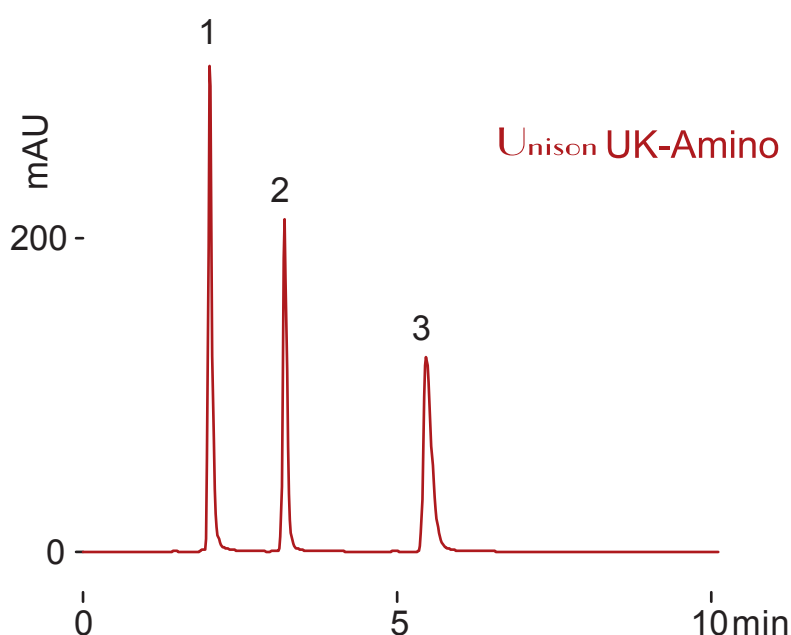
sodium dehydroacetate



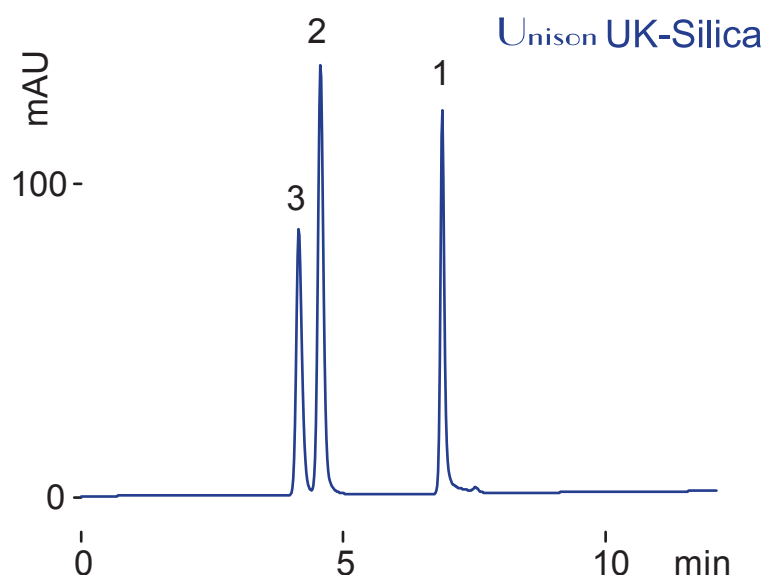
potassium sorbate



benzoic acid



Unison UK-Amino, 150 x 2 mm
acetonitrile / water / acetic acid
= 98 / 2 / 1
0.2mL/min (3MPa), 37 deg.C
280 nm, 0.6 uL (0.3-3ug)



Unison UK-Silica, 150 x 2 mm
A: hexane / formic acid
= 100 / 0.5
B: tetrahydrofuran / formic acid
= 100 / 0.5
2-15 %B (0-10min)
0.2mL/min (2MPa), 37 deg.C
280 nm, 1 uL (0.5-2.5ug)

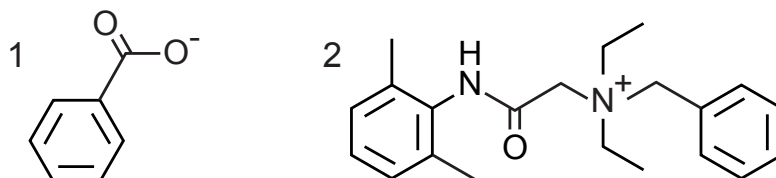
Unison UK-C18
 Cadenza CL-C18
 Cadenza CD-C18
 Cadenza CW-C18

50 x 3 mm

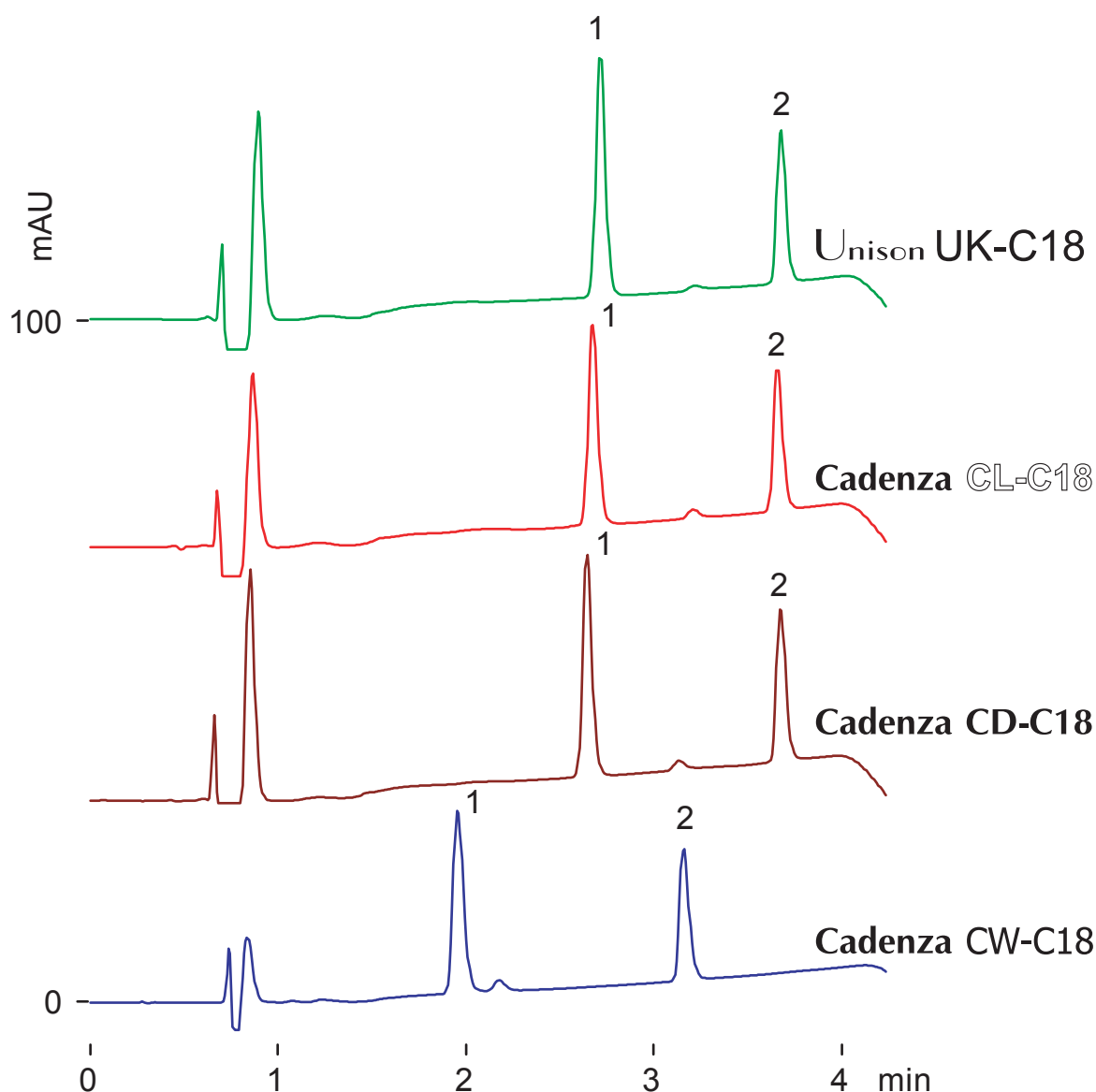
Application

Denatonium benzoate

安息香酸デナトニウム



denatonium benzoate



50 x 3 mm

A: water / TFA = 100 / 0.1, B: acetonitrile / TFA = 100 / 0.1
 20-50 %B (0-3min), 0.43 mL/min (3-4MPa)
 37 deg.C, 225 nm, 1 uL (100ppm)

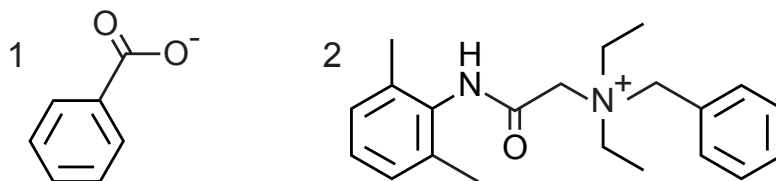
Cadenza CD-C18

50 x 3 mm

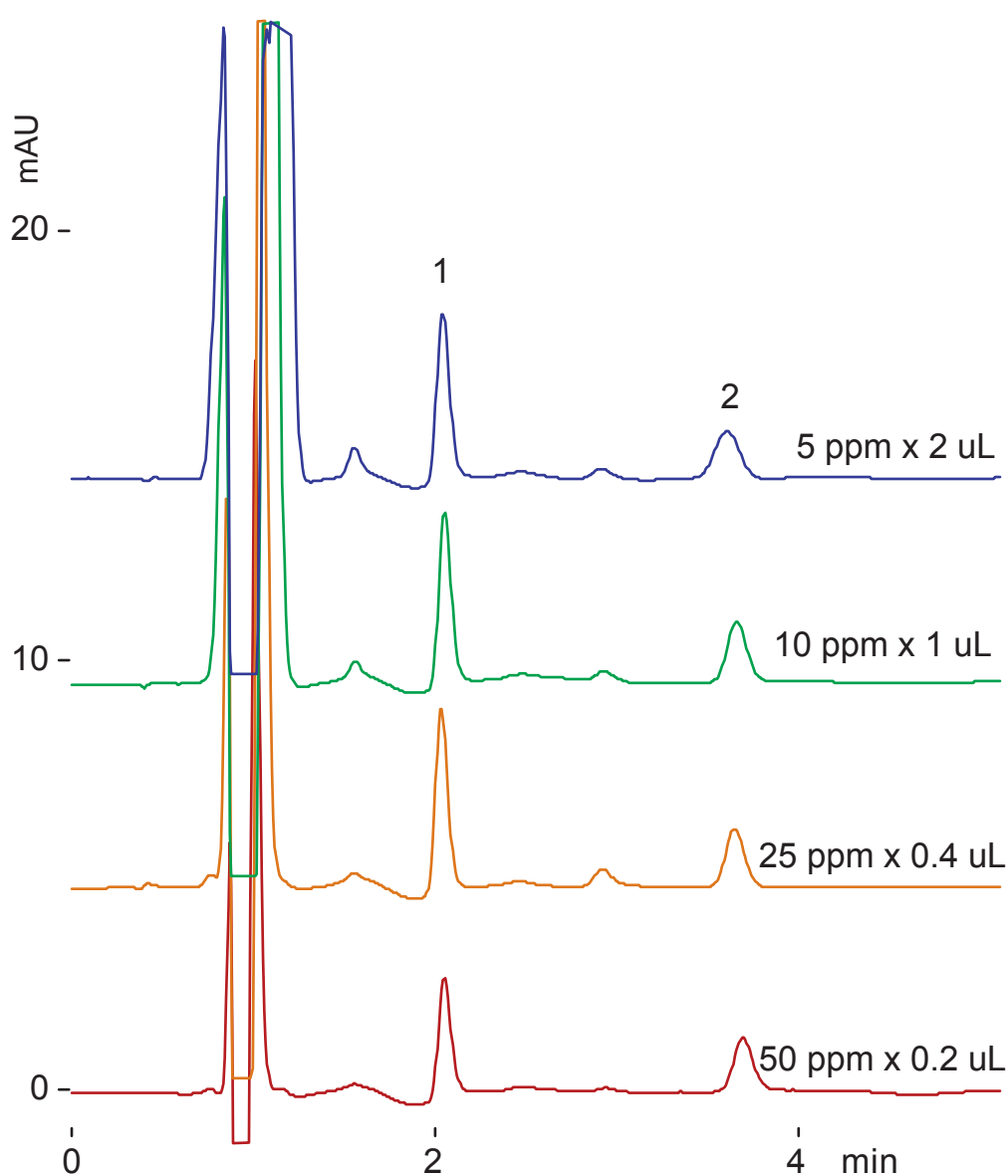
Application

Denatonium benzoate

安息香酸デナトニウム



denatonium benzoate



Cadenza CD-C18, 50 x 3 mm
 water / acetonitrile / TFA = 65 / 35 / 0.1
 0.3 mL/min (2MPa), 37 deg.C, 225 nm

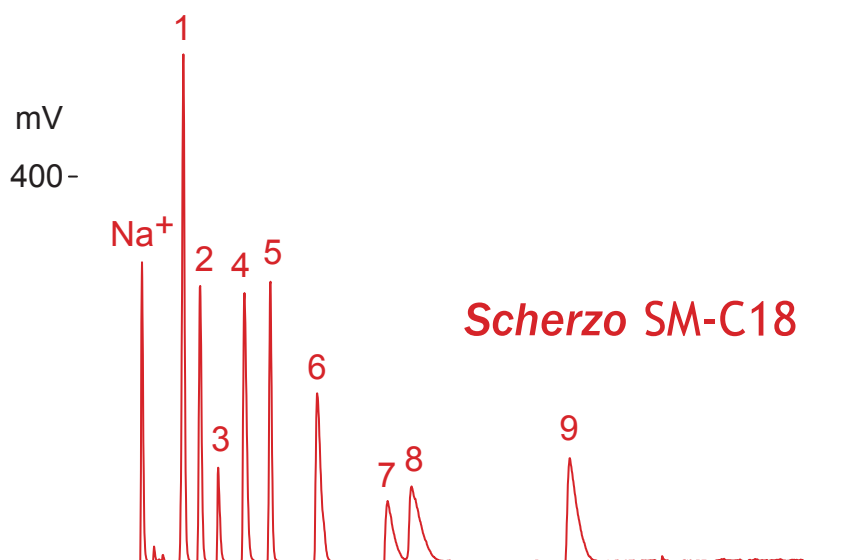
Scherzo SM-C18
Unison UK-C18

150 x 3 mm

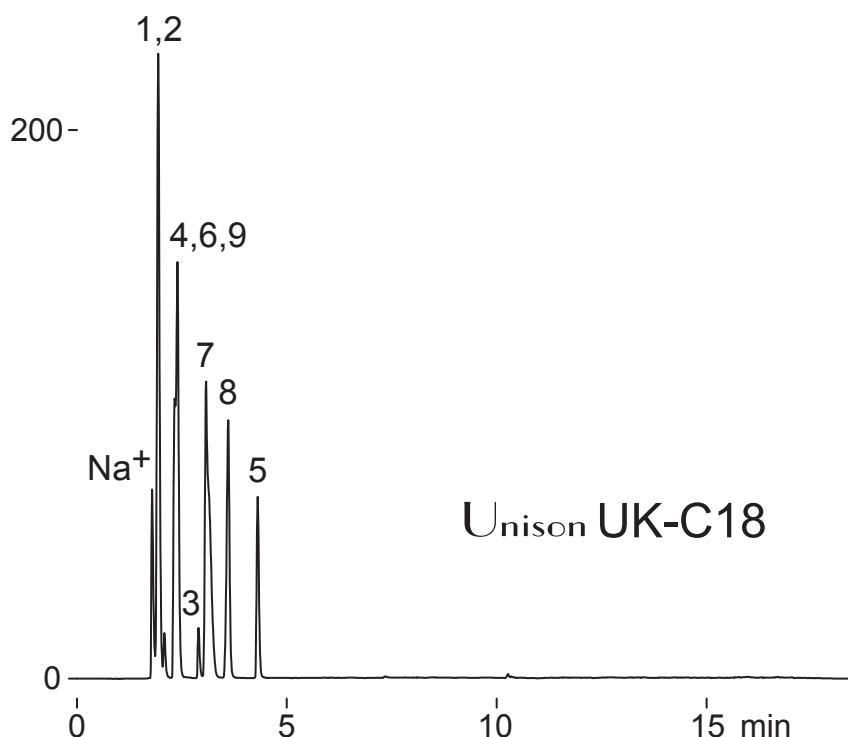
Application

Organic acids

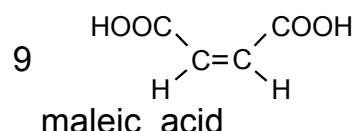
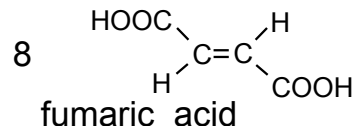
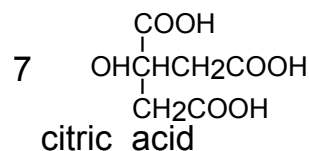
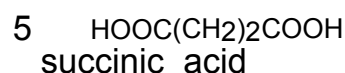
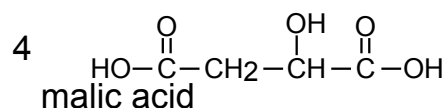
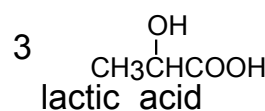
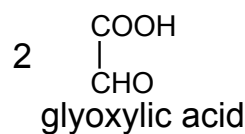
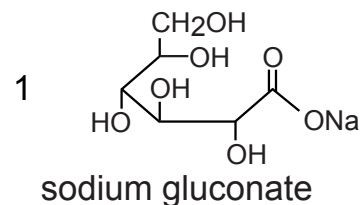
有機酸



Scherzo SM-C18



Unison UK-C18



150 x 3 mm

A: 40mM formic acid / 40mM ammonium formate / acetonitrile = 80 / 20 / 1
 B: 80mM formic acid / 80mM ammonium formate / acetonitrile = 56 / 14 / 30
 0 - 100 %B (0-15min), 0.4 mL/min(8-9 MPa), 37 deg.C
 ELSD (spray chamber 17deg.C, drift tube 42deg.C), 4 uL (1.6-22 ug)

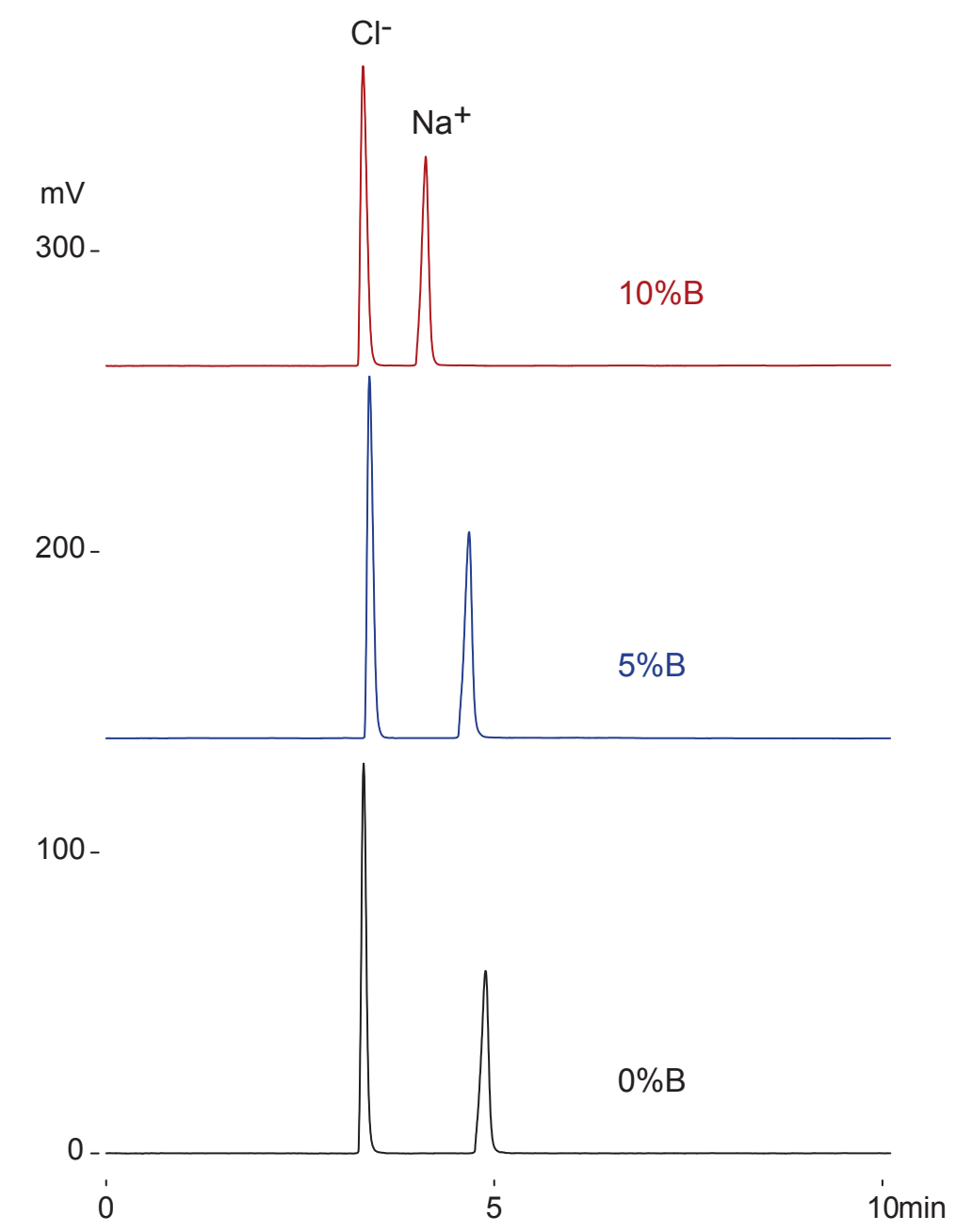
Scherzo SM-C18

150 x 3 mm

Application

Sodium chloride (NaCl)

食塩 (NaCl)



Scherzo SM-C18, 150 x 3 mm

A: 5mM ammonium formate, B: acetonitrile

0.4 mL/min (9-10 MPa), 37 deg.C

ELSD (spray chamber 20 deg.C, drift tube 45 deg.C)

1.6 uL (0.16ug NaCl)

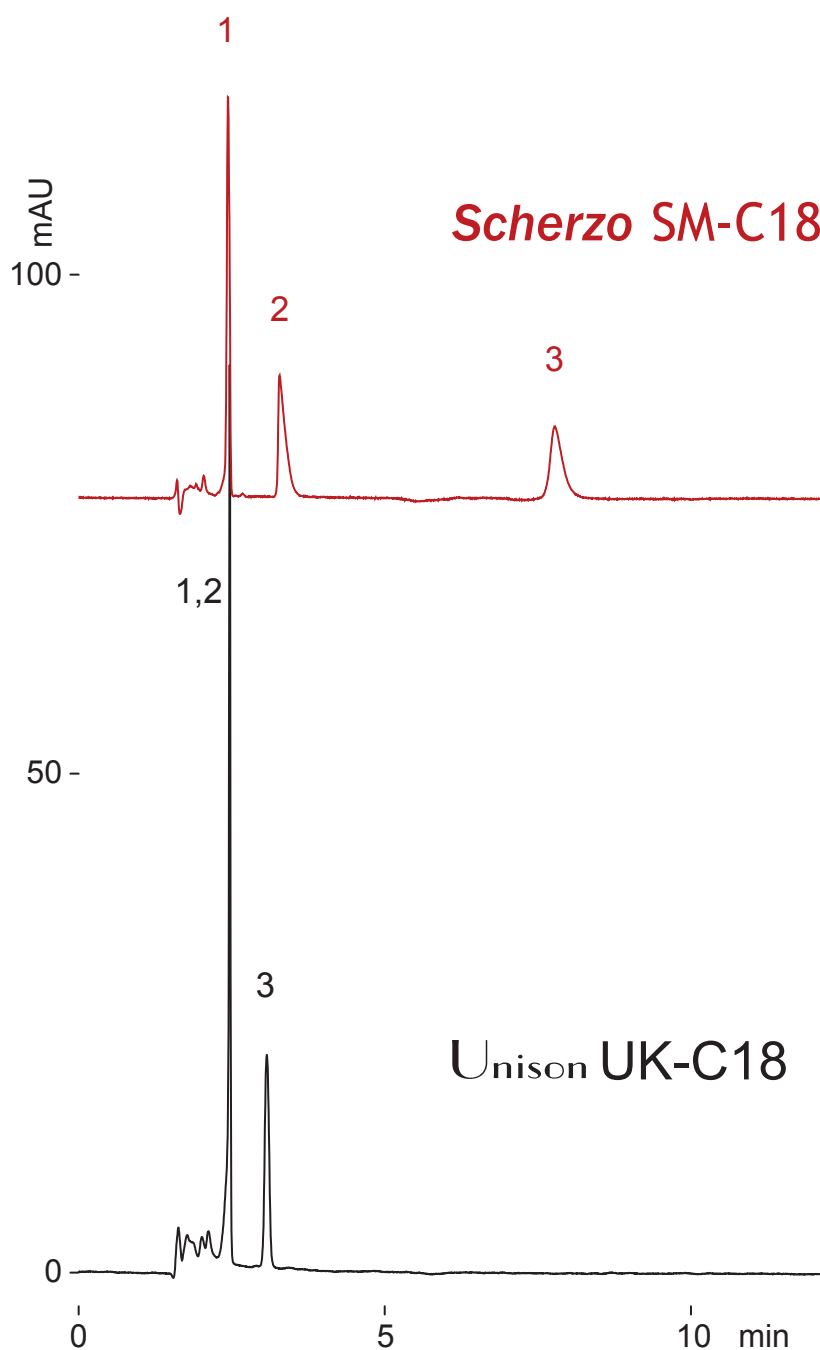
Scherzo SM-C18
Unison UK-C18

150 x 3 mm

Application

Acetic acid and trihaloacetic acids

酢酸, トリハロ酢酸



- 1 CH_3COOH
acetic acid (100ppm)
- 2 CF_3COOH
trifluoroacetic acid (100ppm)
- 3 CCl_3COOH
trichloroacetic acid (9ppm)

150 x 3 mm
100mM $\text{NH}_4\text{H}_2\text{PO}_4$ / acetonitrile = 80 / 20
0.4 mL/min (9-10MPa), 37 deg.C, 210 nm
20 uL

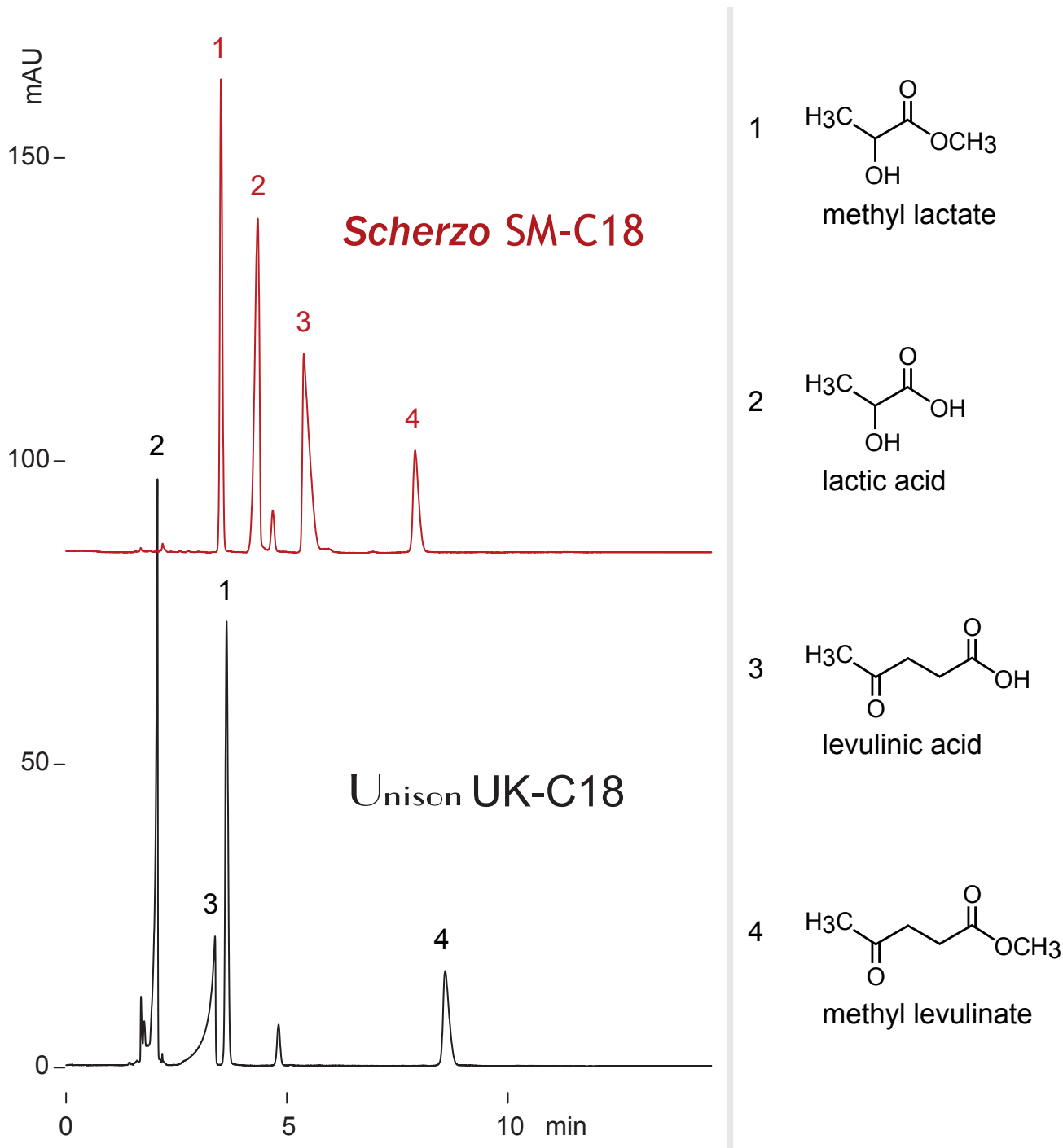
Scherzo SM-C18
Unison UK-C18

150 x 4.6 mm

Application

Levulinic acid, lactic acid and methyl esters

レブリン酸, 乳酸とそのメチルエステル



150 x 4.6 mm

5 mM NH₄H₂PO₄ / acetonitrile = 93 / 7

1 mL/min (11 MPa), 37 deg.C, 210 nm, 10 uL (13ug)

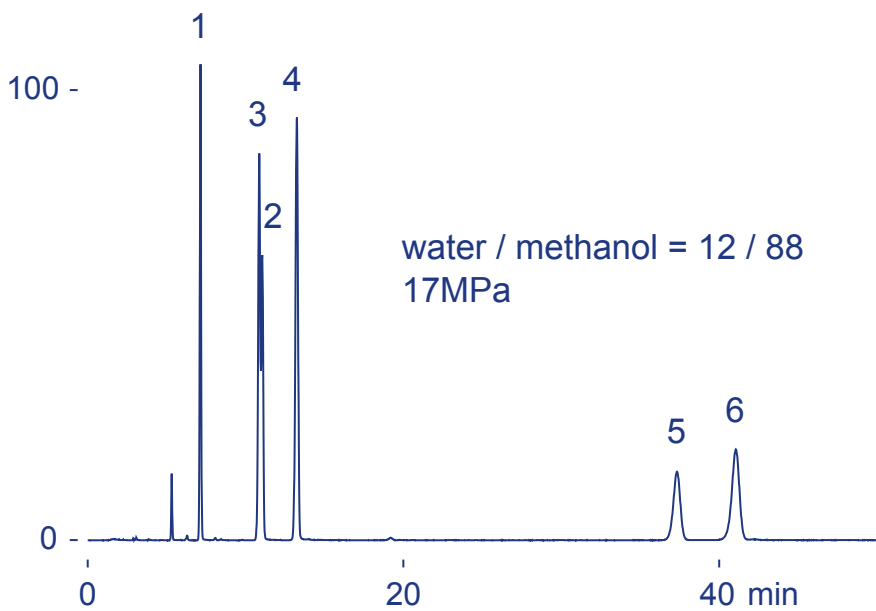
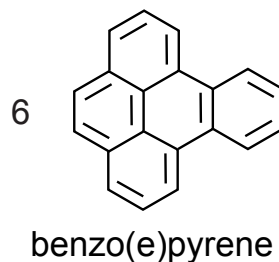
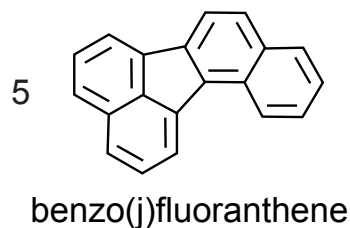
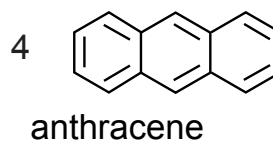
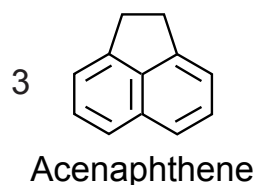
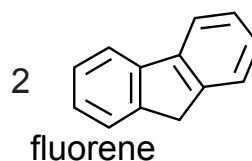
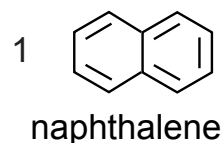
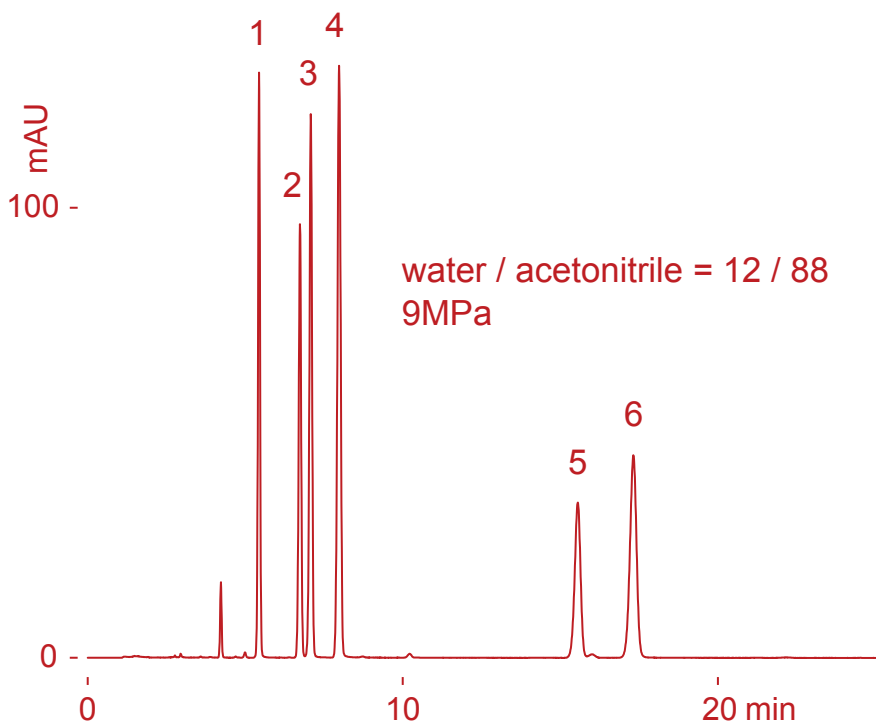
Cadenza CL-C18

250 x 3 mm

Application

Polycyclic aromatic hydrocarbons (PAHs)

多環芳香族炭化水素 (PAHs)



Cadenza CL-C18, 250 x 3 mm
0.4 mL/min, 37 deg.C, 260 nm
1.4 uL (0.05-0.7 ug)

Unison UK-Amino

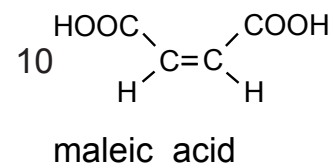
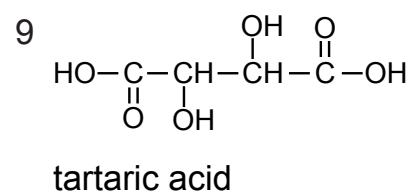
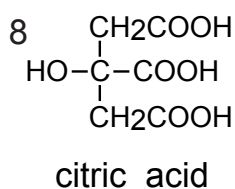
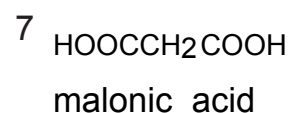
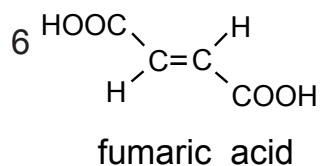
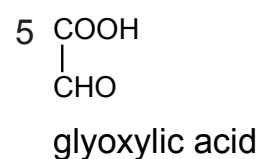
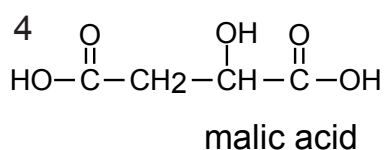
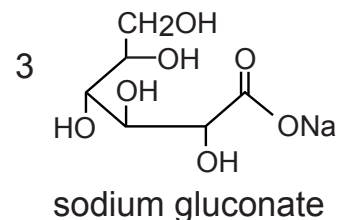
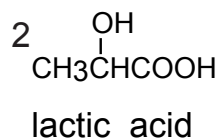
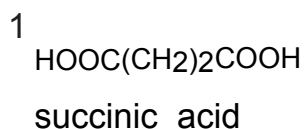
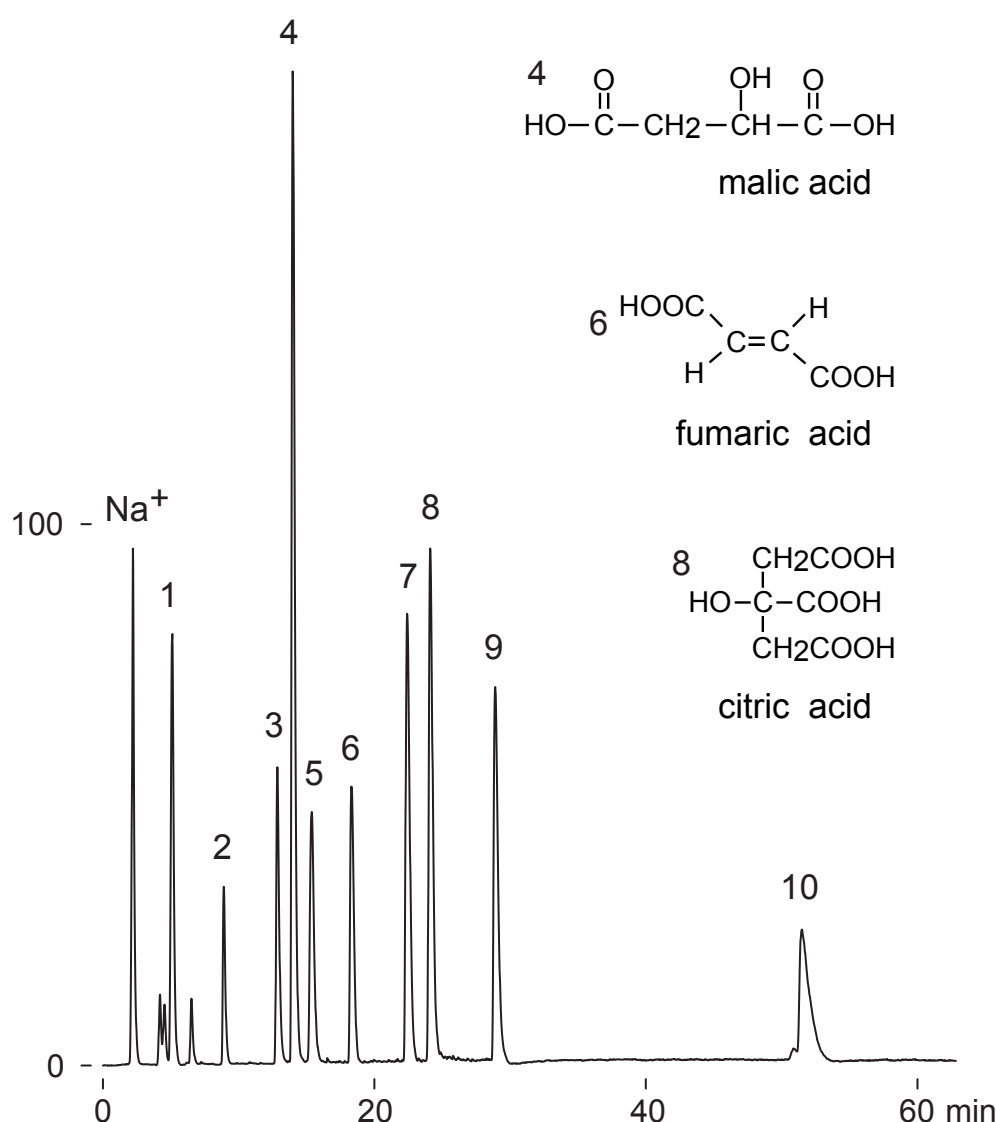
250 x 3 mm

Application

Organic acids

有機酸

mV
200 -



Unison UK-Amino, 250 x 3 mm

A: water / acetonitrile / formic acid = 30 / 70 / 0.1, B: water / formic acid = 100 / 2
10-60 %B (0-25min), 100 %B (25-60min)

0.4 mL/min (11MPa), 37 deg.C, ELSD (spray chamber 19 deg.C, drift tube 42 deg.C)
10 uL (2.3-14 ug, diluted with 2% formic acid)

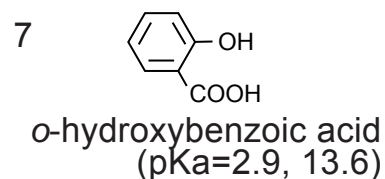
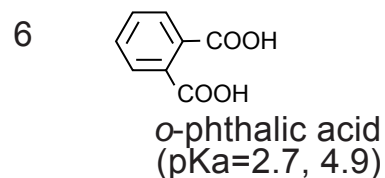
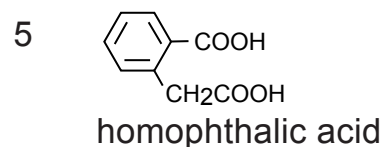
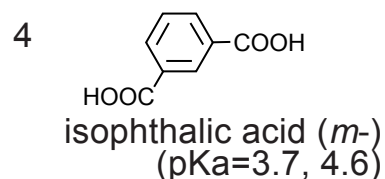
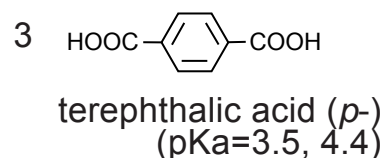
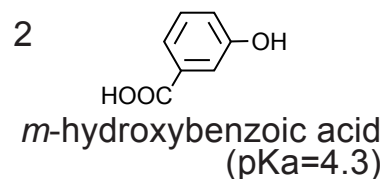
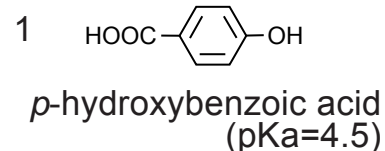
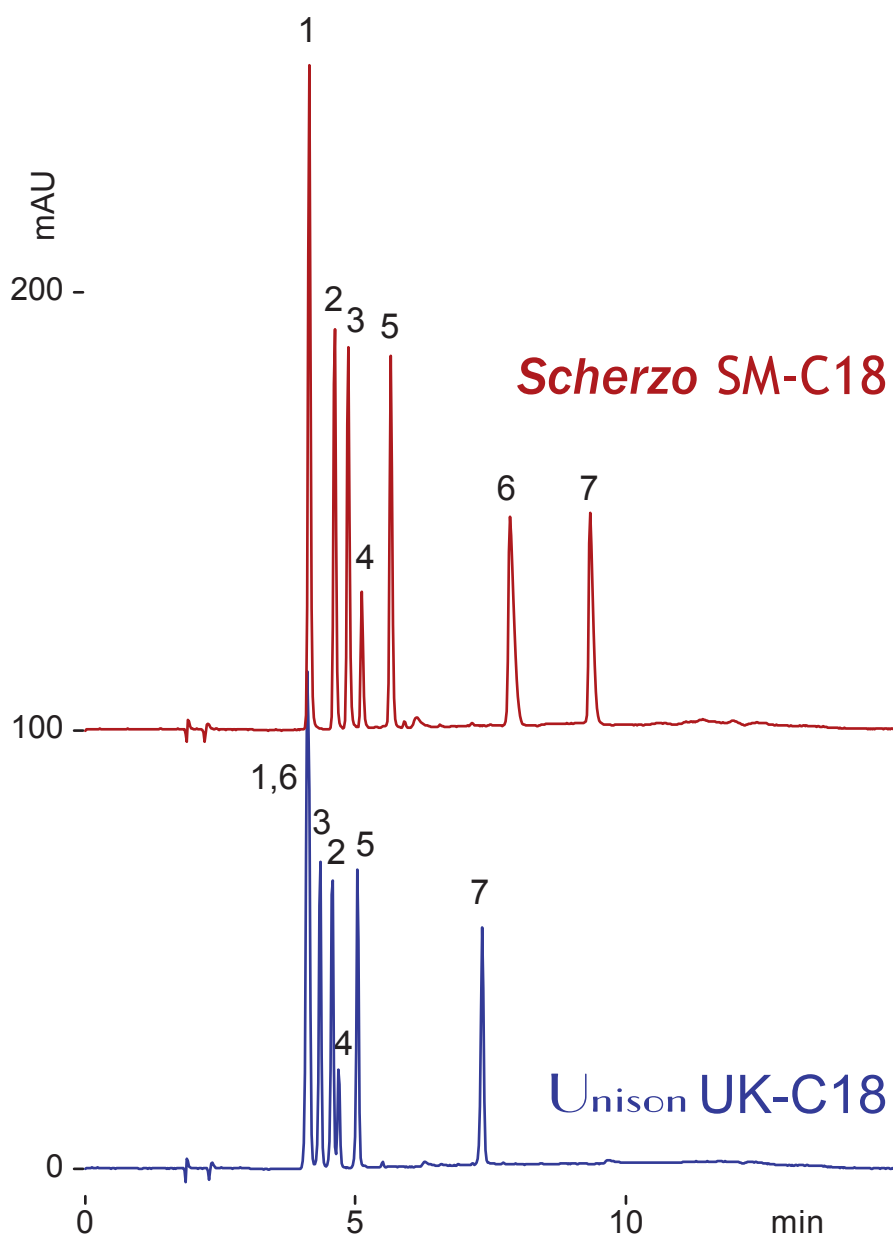
Scherzo SM-C18
Unison UK-C18

150 x 3 mm

Application

Aromatic carboxylic acids

芳香族カルボン酸



150 x 3 mm

A: water / formic acid = 100 / 0.1,

B: acetonitrile / formic acid = 100 / 2

20-70 %B (0-10min), 0.4 mL/min (9MPa)

37 deg.C, 275 nm, 2 uL (0.2-1 ug)

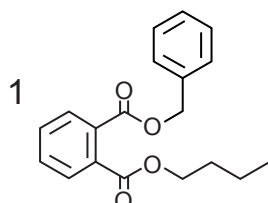
Cadenza CW-C18
Unison **UK-Phenyl**

75 x 3 mm

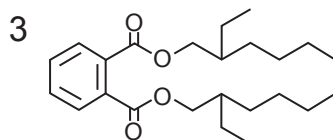
Application

Phthalate esters

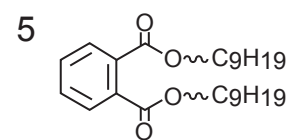
フタル酸エステル類



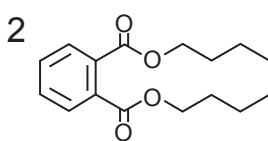
butylbenzyl phthalate
BBP



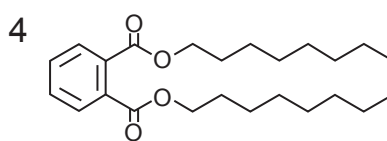
di-2-ethylhexyl phthalate
DEHP



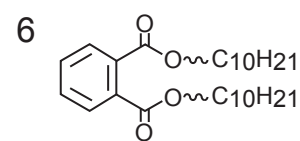
diisononyl phthalate
DINP



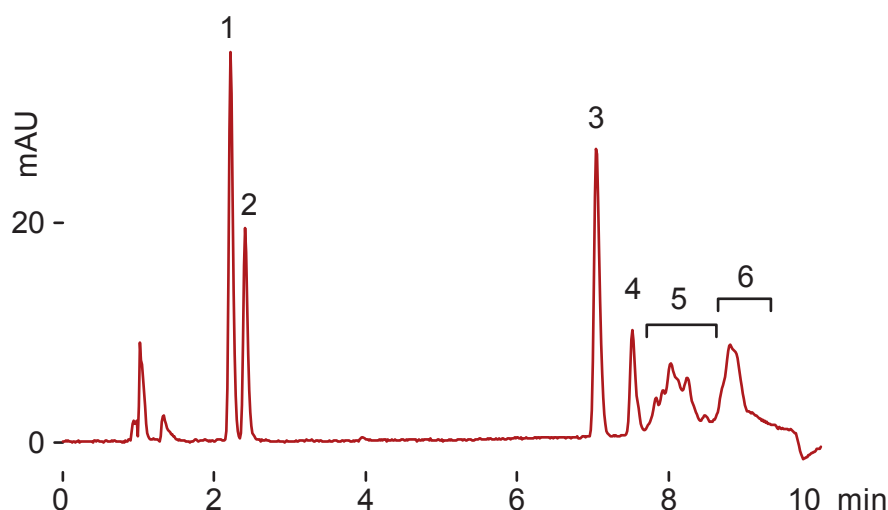
dibutyl phthalate
DBP



di-n-octyl phthalate
DNOP



diisodecyl phthalate
DIDP



Cadenza CW-C18

75 x 3 mm

A: water / acetic acid
= 100 / 0.1

B: acetonitrile / acetic acid
= 100 / 0.1

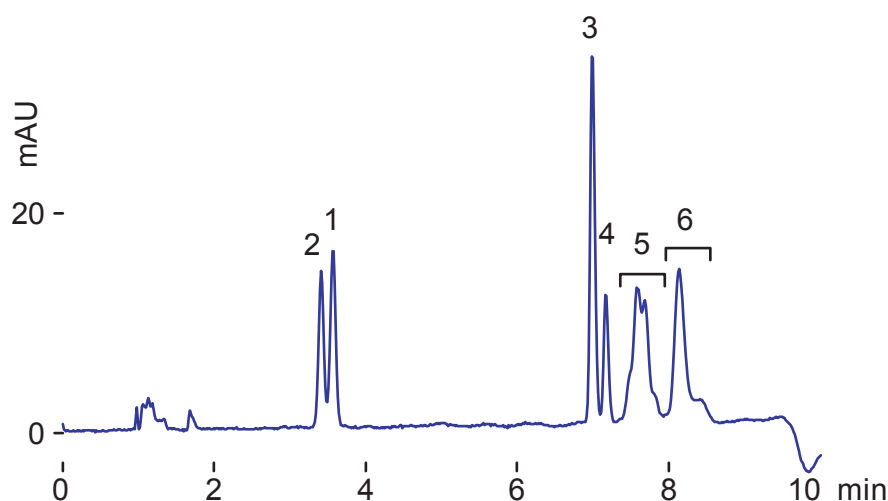
70-100 %B (0-8min)

70 %B (8-10min)

0.4 mL/min (4MPa)

37 deg.C, 275 nm

2 uL (0.1-0.5ug)



Unison UK-Phenyl

75 x 3 mm

A: water / acetic acid
= 100 / 0.1

B: methanol / acetic acid
= 100 / 0.1

70-90 %B (0-8min)

70 %B (8-10min)

0.4 mL/min (7MPa)

37 deg.C, 275 nm

2 uL (0.1-0.5ug)

Scherzo SM-C18

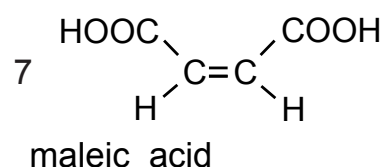
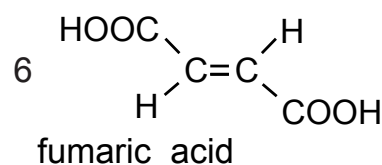
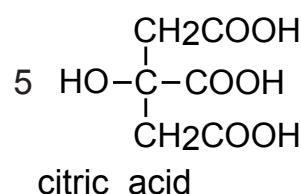
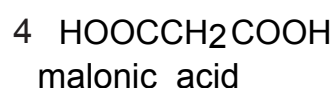
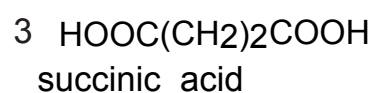
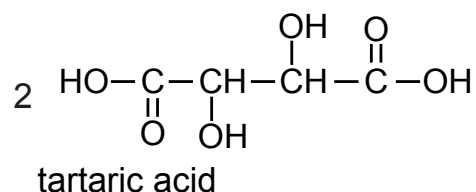
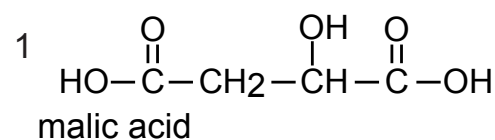
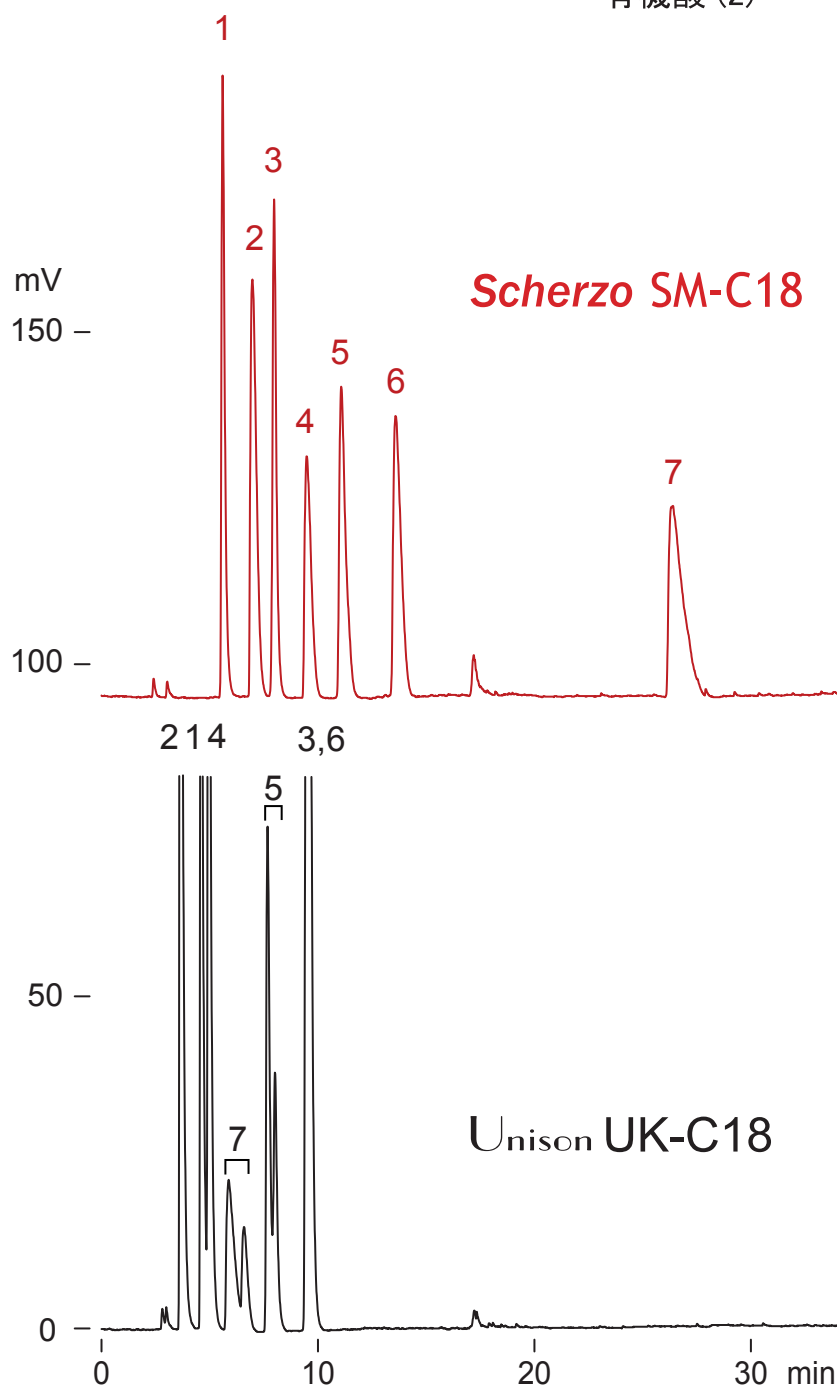
Unison UK-C18

250 x 3 mm

Application

Organic acids (2)

有機酸 (2)



250 x 3 mm

A: water / formic acid = 100 / 0.3, B: acetonitrile / formic acid = 100 / 2

0-5 %B (0-13min), 50 %B (13-30min)

0.4 mL/min (13MPa), 37 deg.C

ELSD (spray chamber 19deg.C, drift tube 43deg.C), 4 uL (3.8-6.2 ug)

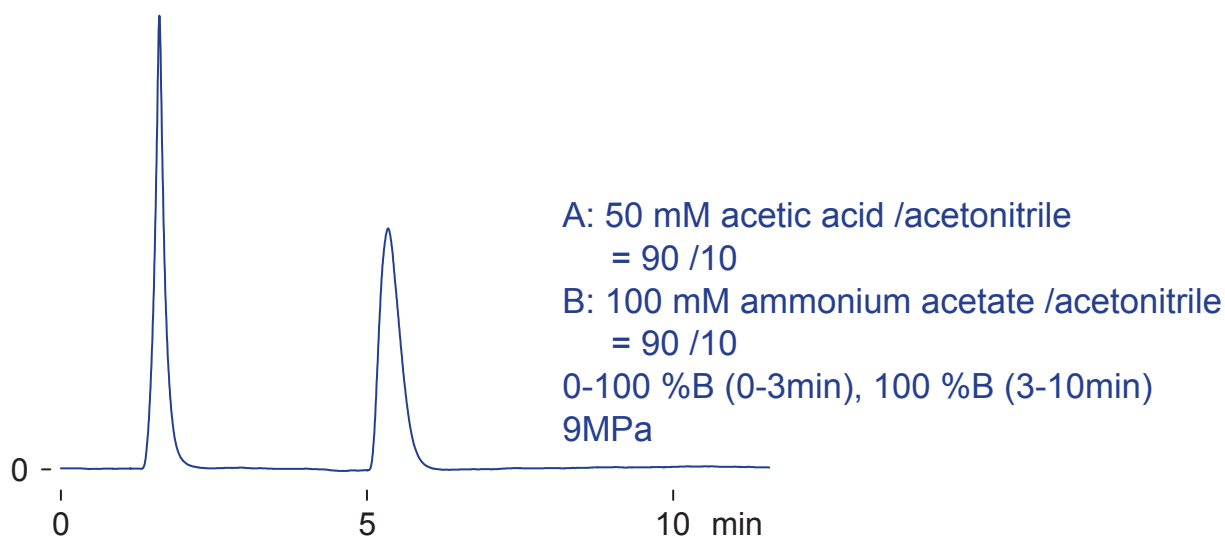
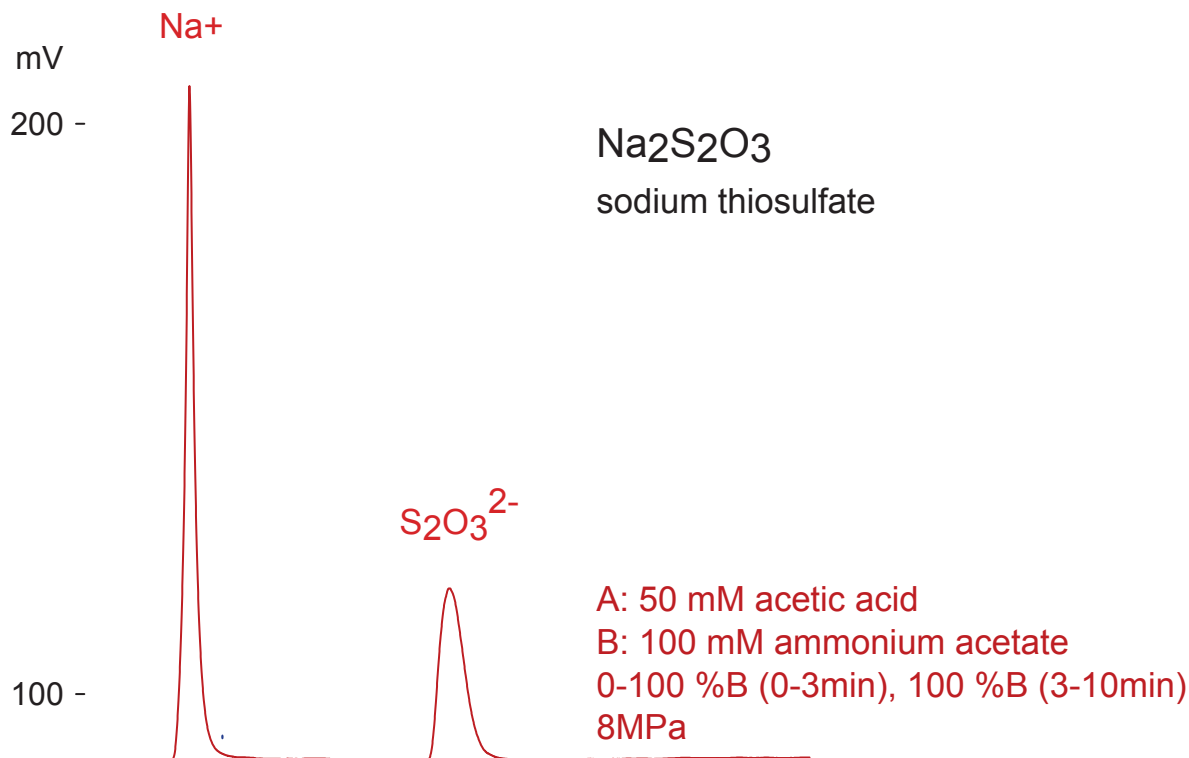
Scherzo SM-C18

150 x 3 mm

Application

Sodium thiosulfate

チオ硫酸ナトリウム



Scherzo SM-C18, 150 x 3 mm

0.4 mL/min, 37 deg.C,ELSD (spray chamber 50 deg.C, drift tube 100 deg.C)

1.6 uL (16 ug)

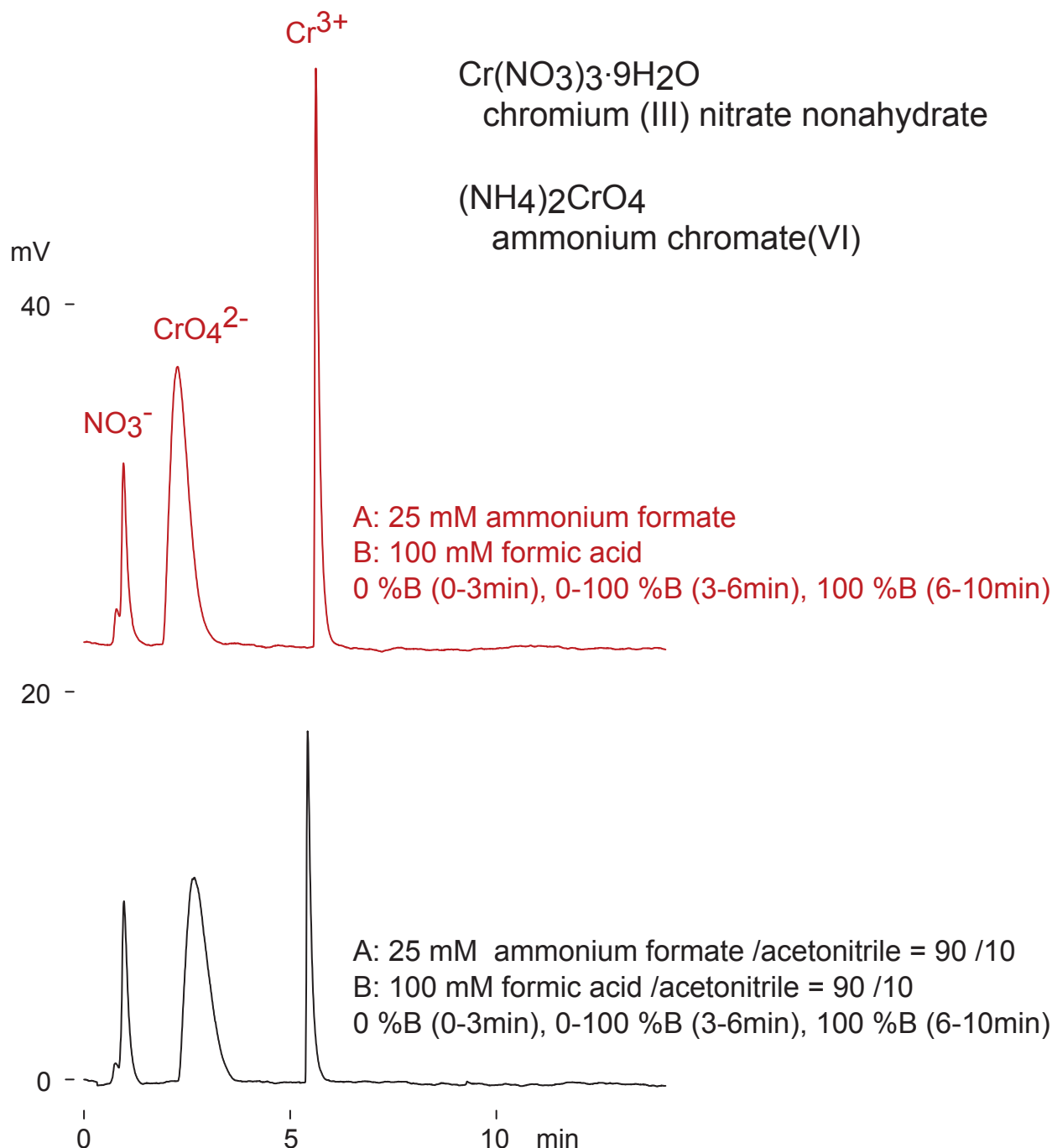
Scherzo SM-C18

50 x 3 mm

Application

Chromium (III) nitrate and ammonium chromate(VI)

硝酸クロム(III), クロム酸(VI)アンモニウム



Scherzo SM-C18, 50 x 3 mm
 0.4 mL/min (5MPa), 37 deg.C,
 ELSD (spray chamber 50deg.C, drift tube 100deg.C), 3 uL (10-20ug)

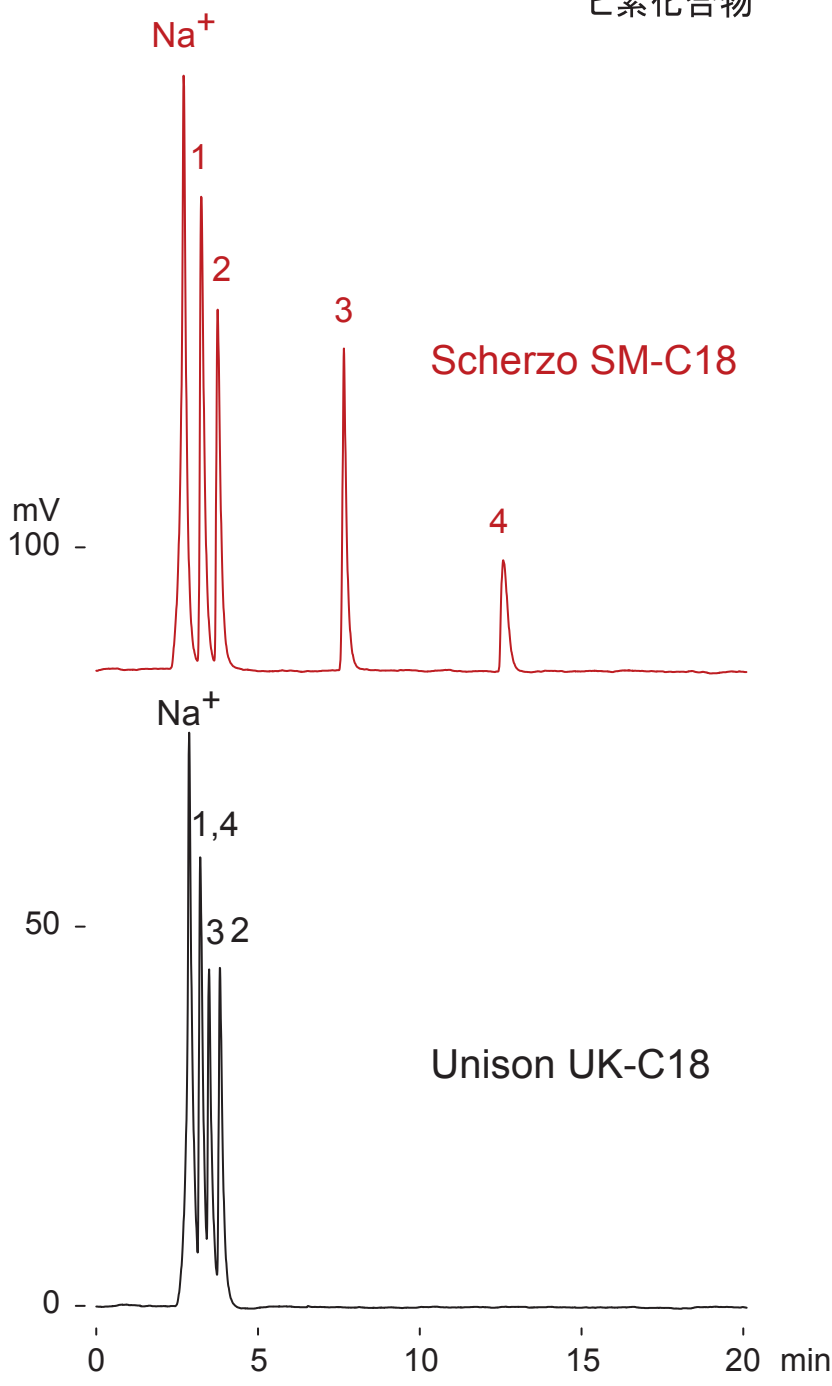
Scherzo SM-C18
Unison UK-C18

250 x 3 mm

Application

Arsenic compounds

ヒ素化合物



1 $O=As-ONa$
sodium arsenite

2 $H_3C-\overset{O}{\parallel}As-OH$
 |
 CH_3
dimethylarsinic acid
(DMAA)

3 $H_3C-\overset{O}{\parallel}As-OH$
 |
 OH
methylarsonic acid
(MAA)

4 $HO-\overset{O}{\parallel}As-ONa$
 |
 $ONa \cdot 7H_2O$
disodium hydrogenarsenate
heptahydrate

250 x 3 mm

A: water / formic acid = 100 / 0.01, B: water / formic acid = 100 / 1

0 %B (0-1.5min), 0-60 %B (01.5-15min)

0.4 mL/min (13MPa), 37 deg.C

ELSD (spray chamber 50deg.C, drift tube 100deg.C), 5 uL (6-22ug)

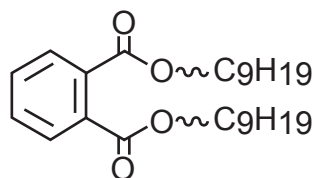
Presto FF-C18
Cadenza CD-C18

250 x 4.6 mm

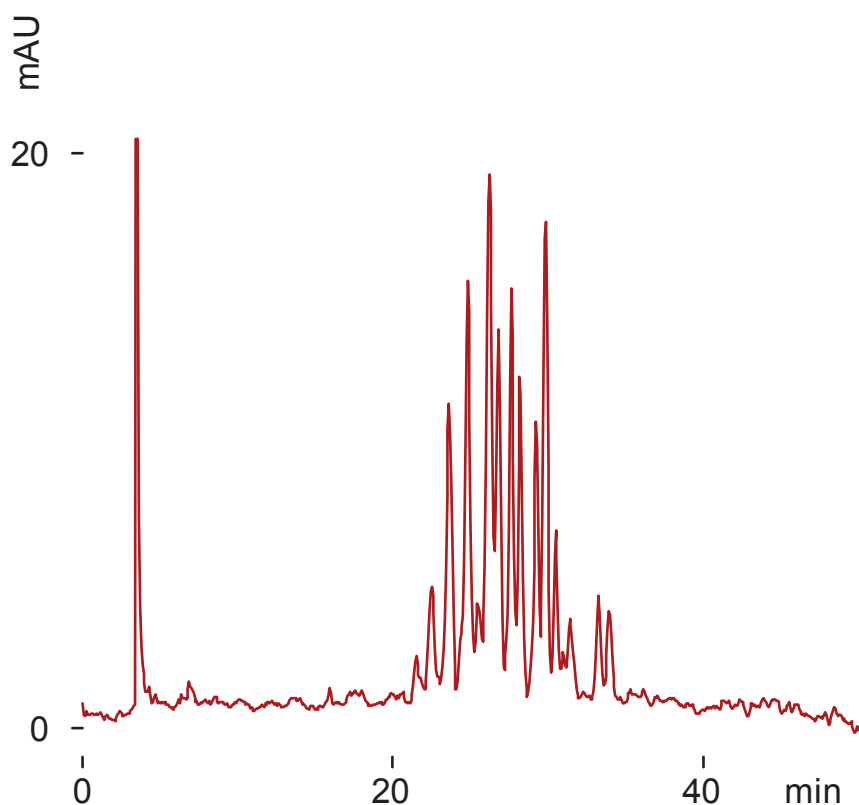
Application

Diisononyl phthalate

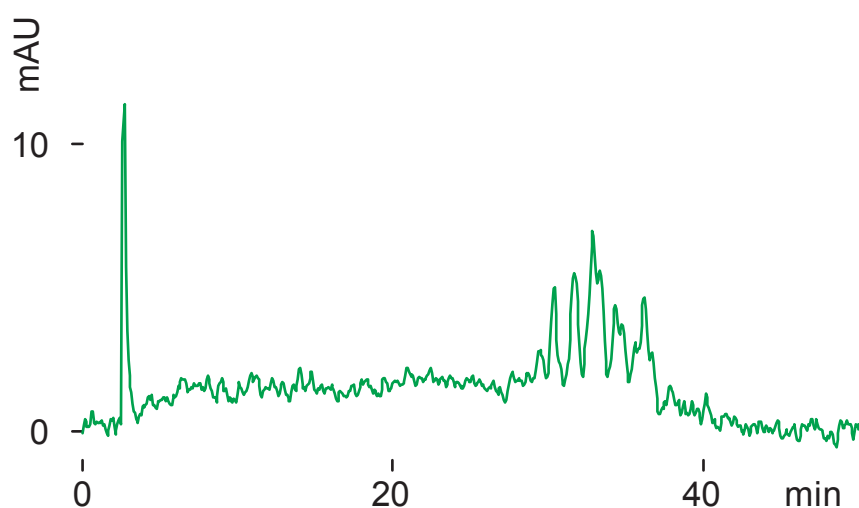
フタル酸ジイソノニル



diisononyl phthalate
DINP



Presto FF-C18
250 x 4.6 mm
water / acetonitrile = 40 / 60
0.45 mL/min (28MPa)
37 deg.C, 230 nm, 3 uL (3ug)



Cadenza CD-C18
250 x 4.6 mm
water / acetonitrile = 10 / 90
1 mL/min (9MPa)
37 deg.C, 230 nm, 3 uL (3ug)

Presto FF-C18

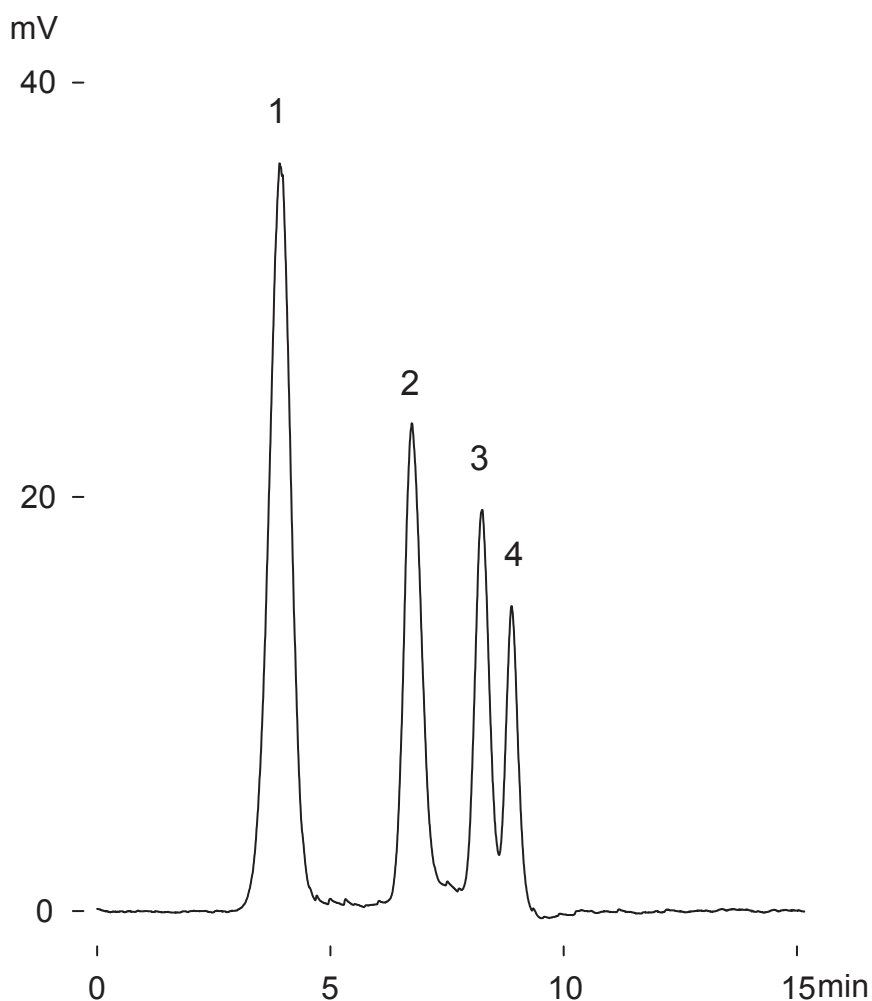
150 x 4.6 mm

Application

Polyethylene glycols (PEG)

ポリエチレングリコール

- $H(OCH_2CH_2)_nOH$
- 1 polyethylene glycol (ca. 2,000 Da)
 - 2 polyethylene glycol (ca. 8,500 Da)
 - 3 polyethylene glycol (ca. 12,000 Da)
 - 4 polyethylene glycol (ca. 20,000 Da)



Presto FF-C18, 150 x 4.6mm

A: water

B: acetonitrile

30-40 %B (0-2min), 40-60 %B (2-15min)

0.4 mL/min (24MPa), 37 deg.C

ELSD (spray chamber 50deg.C, drift tube 100deg.C), 3 uL (1.5-6ug)

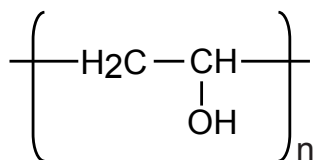
Presto FF-C18

150 x 4.6 mm

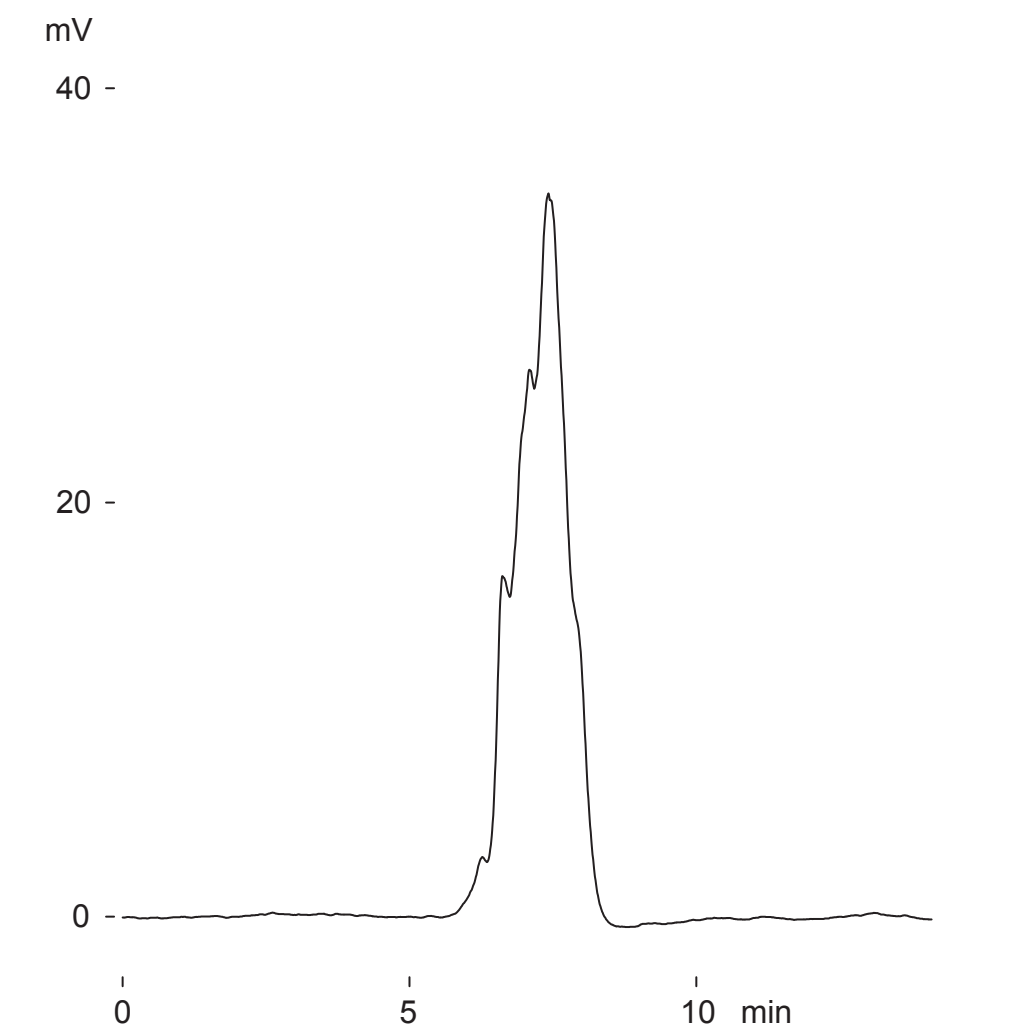
Application

Polyvinyl alcohol (PVA)

ポリビニルアルコール



polyvinyl alcohol



Presto FF-C18, 150 x 4.6mm

A: water

B: acetonitrile

5-90 %B (0-10min), 0.4 mL/min (22MPa), 37 deg.C

ELSD (spray chamber 50deg.C, drift tube 100deg.C), 2 uL (10ug)

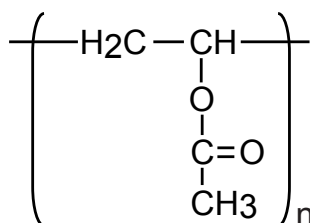
Presto FF-C18

150 x 4.6 mm

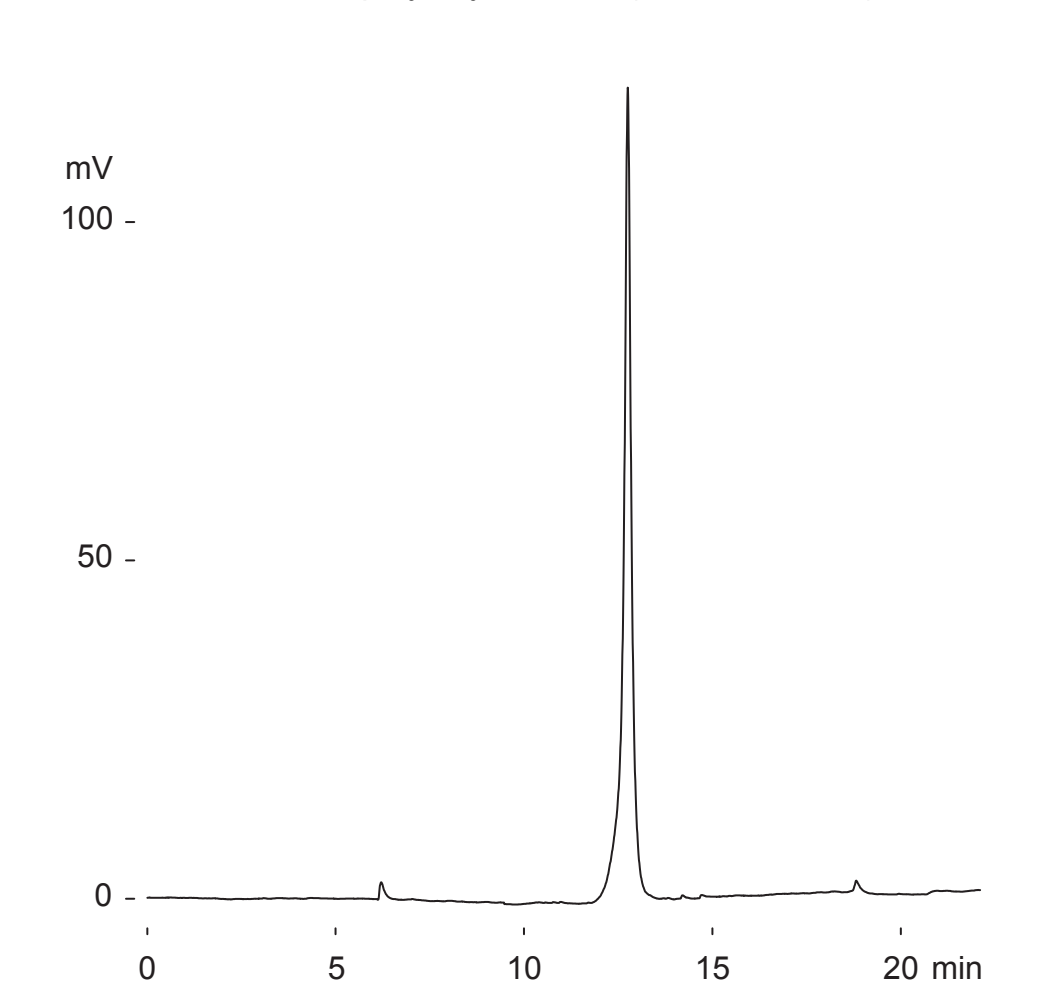
Application

Polyvinyl acetate

ポリ酢酸ビニル



polyvinyl acetate (120 ~ 140 kDa)



Presto FF-C18, 150 x 4.6 mm

A: water

B: acetonitrile

0-100 %B (0-10min), 100 %B (10-15min)

0.4 mL/min (15MPa), 50 deg.C,

ELSD (spray chamber 50 deg.C, drift tube 100 deg.C)

1 uL (5 ug, methanol)

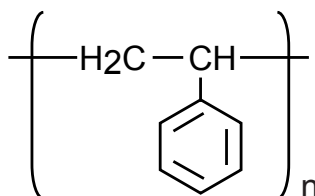
Presto FF-C18

150 x 4.6 mm

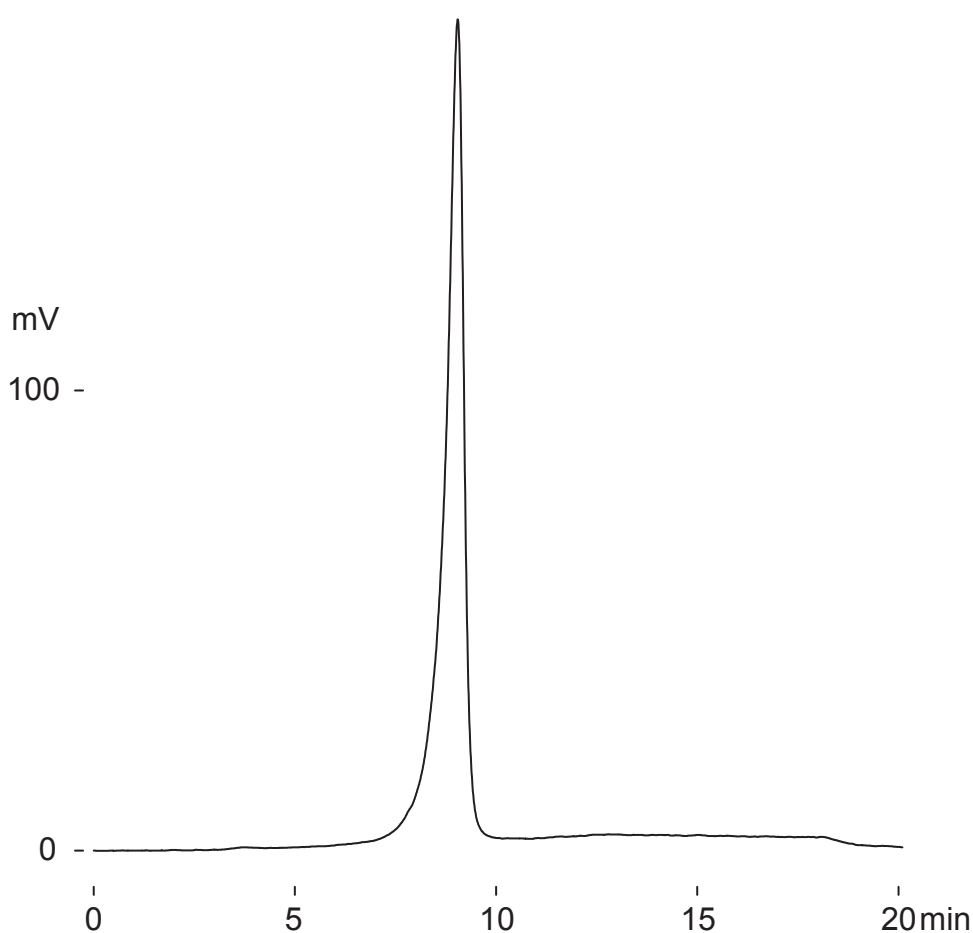
Application

Polystyrene

ポリスチレン



polystyrene (ca.200 kDa)



Presto FF-C18, 150 x 4.6mm
 A: acetonitrile
 B: tetrahydrofuran
 20-90 %B (0-15min), 0.4 mL/min (9MPa), 37 deg.C
 ELSD (spray chamber 50deg.C, drift tube 100deg.C)
 0.6 uL (3 ug, tetrahydrofuran)

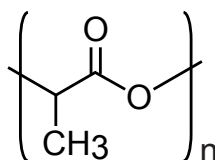
Presto FF-C18

150 x 4.6 mm

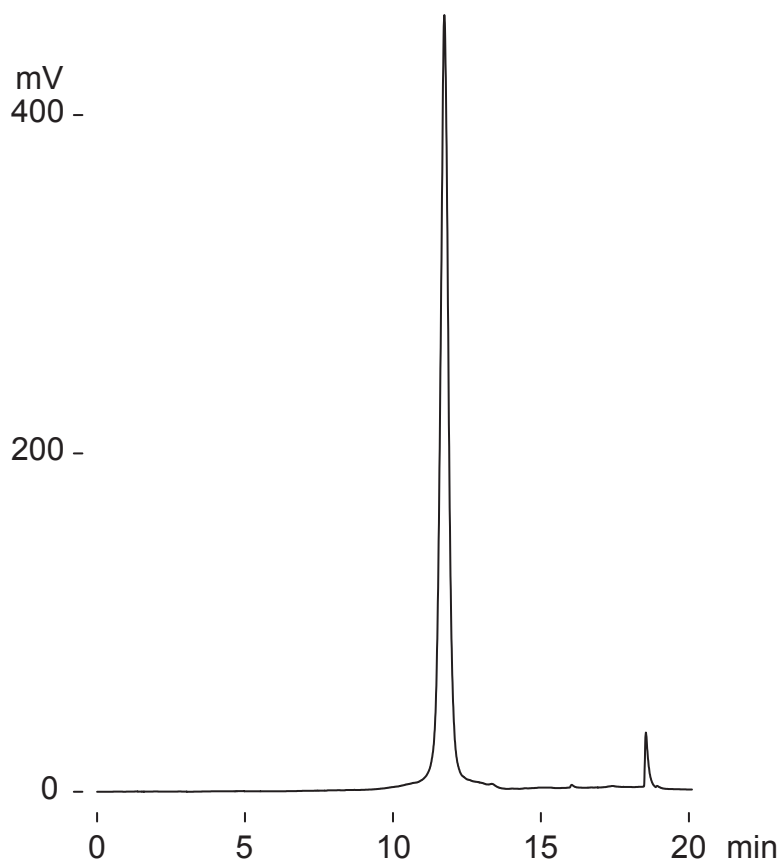
Application

Poly DL-Lactide

ポリ乳酸



poly DL-lactide
(75 ~120 kDa)



Presto FF-C18, 150 x 4.6 mm

A: water / formic acid = 100 / 0.1

B: tetrahydrofuran

0-100 %B (0-10min), 100 %B (10-15min)

0.4 mL/min (17MPa), 37 deg.C

ELSD (spray chamber 50 deg.C, drift tube 100 deg.C)

0.4 uL (0.4 ug, tetrahydrofuran)

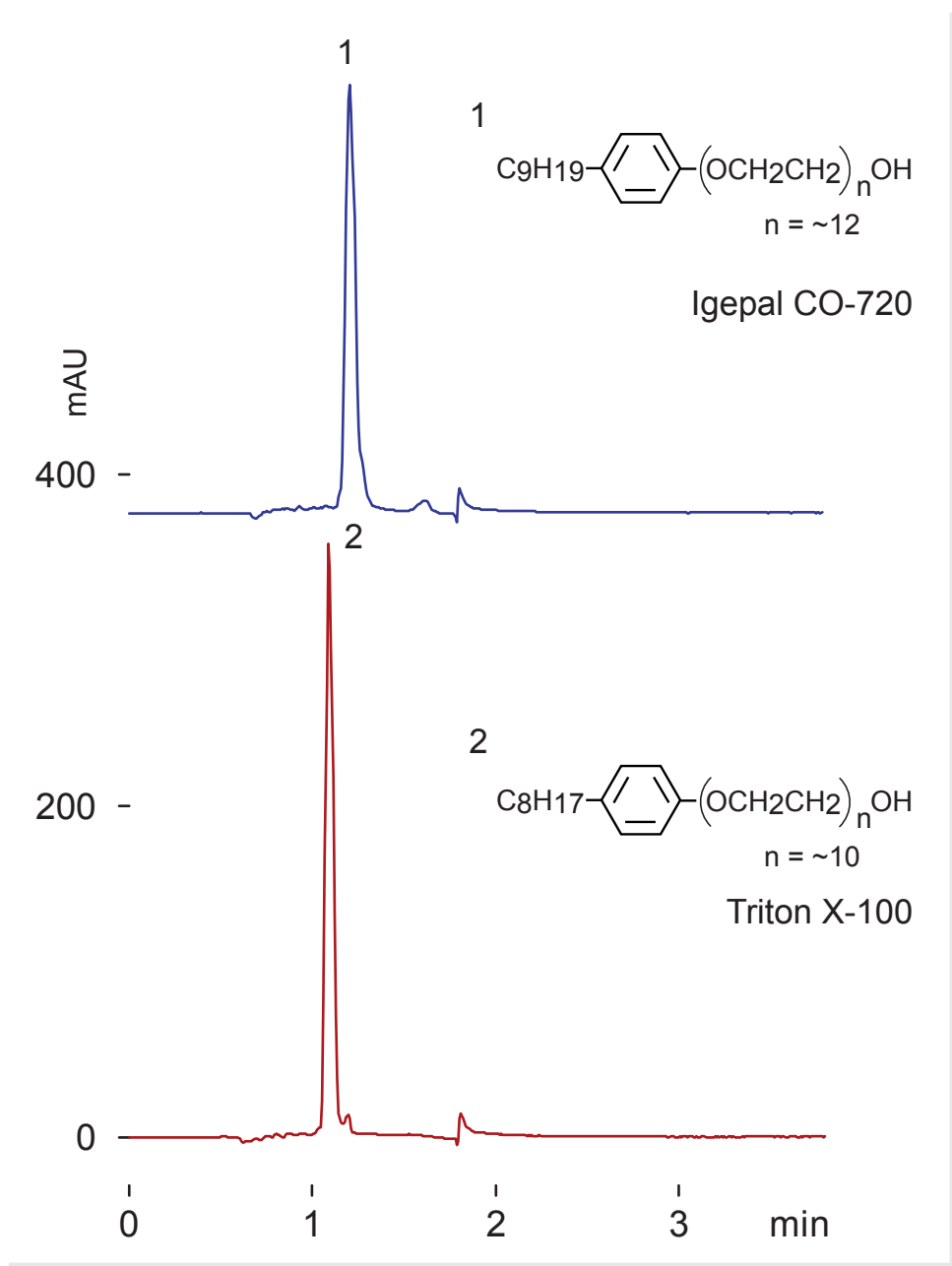
Presto FF-C18

30 x 4.6 mm

Application

Surfactants

界面活性剤



Presto FF-C18, 30 x 4.6 mm

A: water, B: acetonitrile, 0-90 %B (0-1.5min)

1 mL/min (9MPa), 37 deg.C, 260 nm, 0.4 uL

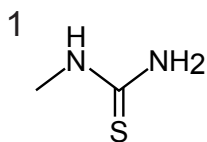
Unison UK-Amino

250 x 4.6 mm

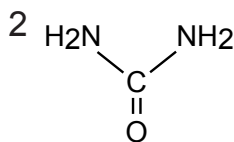
Application

Urea and related compounds

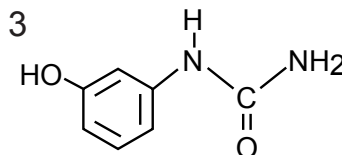
尿素と関連化合物



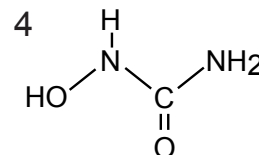
N-methylthiourea



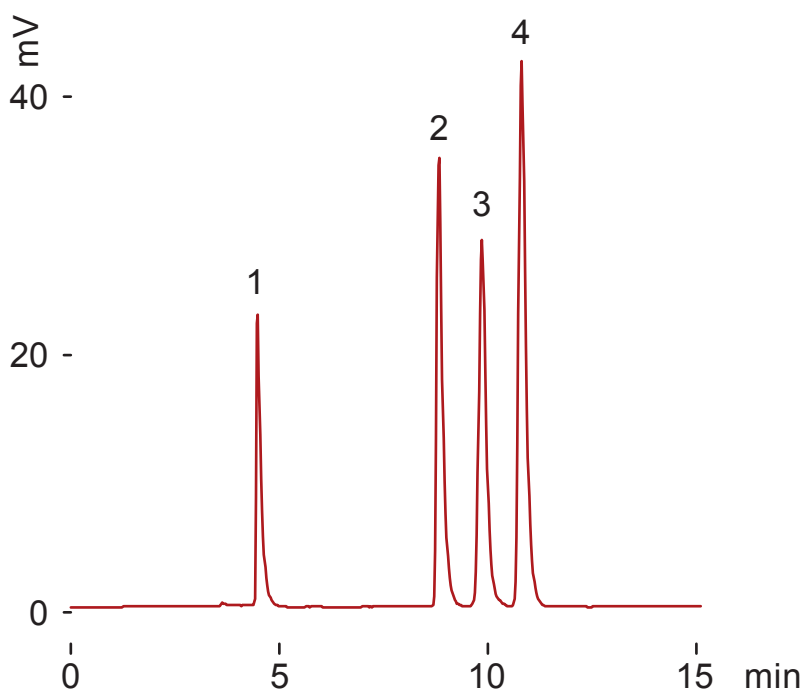
urea



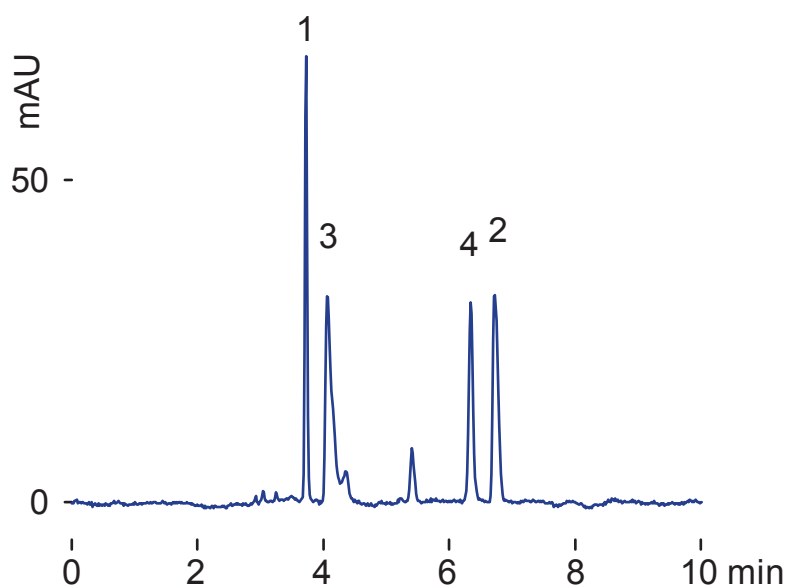
3-hydroxyphenylurea



hydroxyurea



Unison UK-Amino, 250 x 4.6 mm
acetonitrile / water / formic acid
= 95 / 5 / 0.1
1 mL/min (6MPa), 37 deg.C
ELSD (spray chamber 15 deg.C,
drift tube 50 deg.C)
4 uL (1-4 ug)



Unison UK-Amino, 250 x 4.6 mm
acetonitrile / 100 mM phosphoric
acid = 90 / 10
1 mL/min (6MPa), 37 deg.C
210 nm, 2 uL (0.06-70 ug)

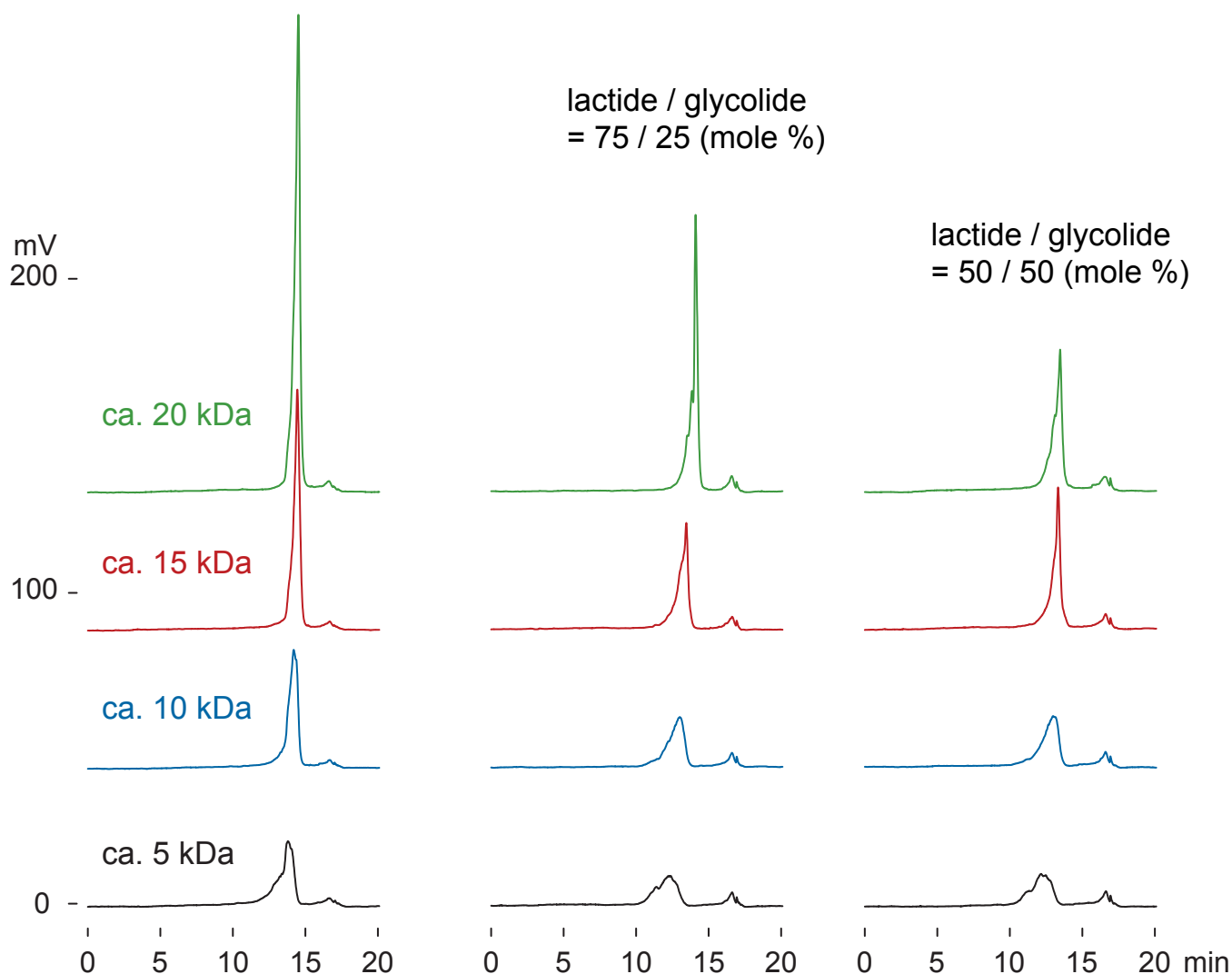
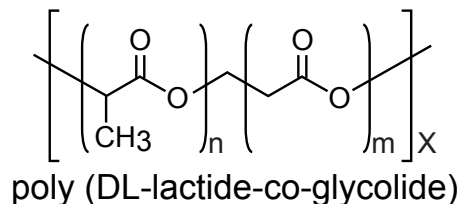
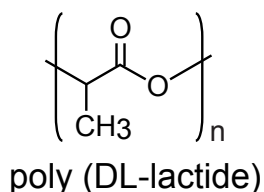
Cadenza CW-C18

150 x 3 mm

Application

**Biodegradable polymer
(poly (DL-lactide) and poly (DL-lactide-co-glycolide))**

生分解ポリマー (DL-乳酸ポリマー, DL-乳酸 / グリコール酸コポリマー)



Cadenza CW-C18, 150 x 3 mm

A: water / formic acid = 100 / 0.1

B: acetone / ethyl acetate / formic acid = 70 / 30 / 0.1

0-100 %B (0-15min), 0.6 mL/min (11MPa), 60 deg.C

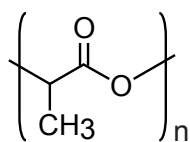
ELSD (spray chamber 45 deg.C, drift tube 100 deg.C), 1 uL (10ug, THF)

Unison UK-Amino

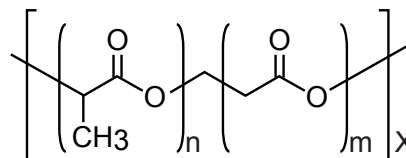
150 x 3 mm

Application

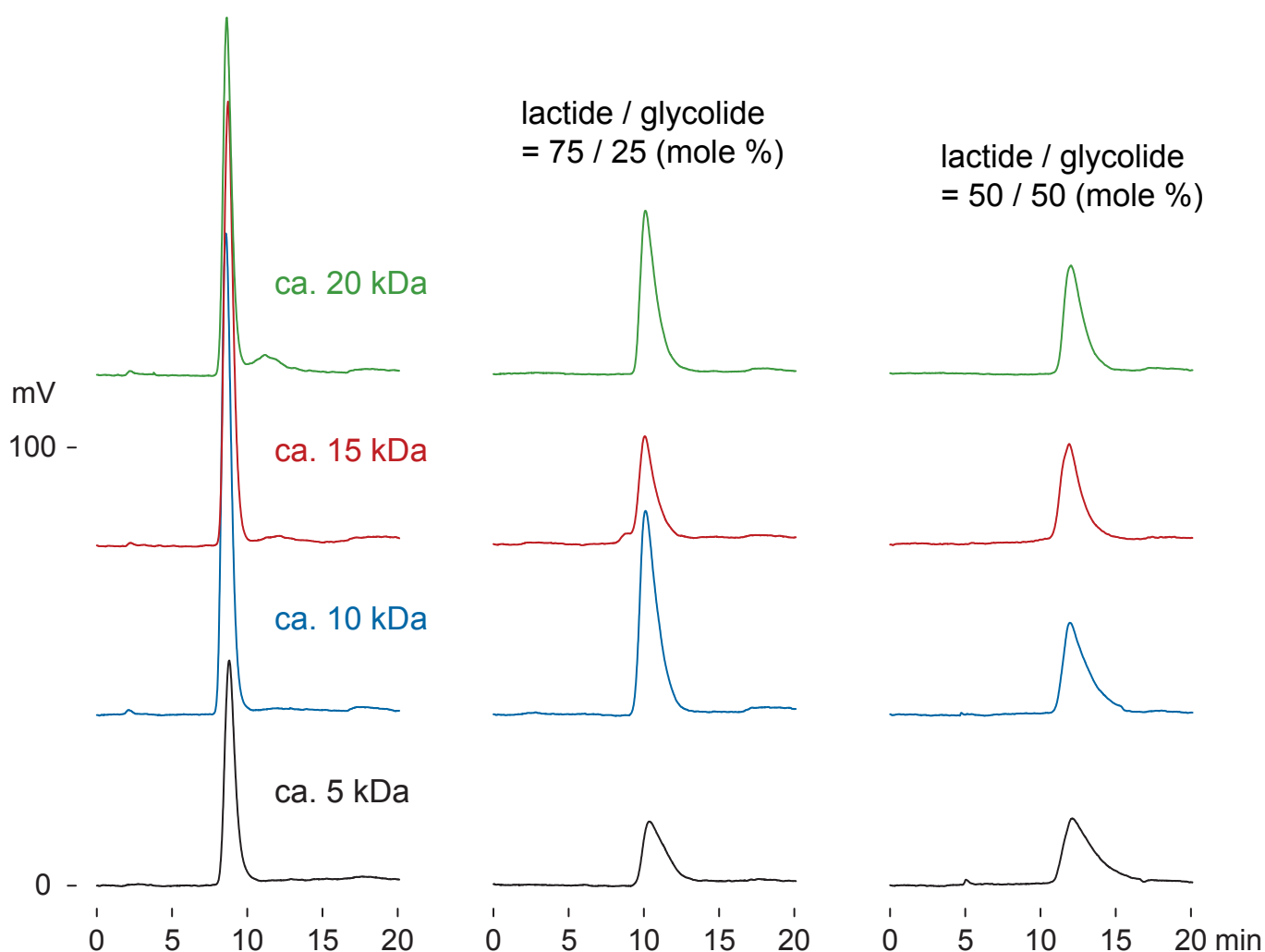
Biodegradable polymer
(poly (DL-lactide) and poly (DL-lactide-co-glycolide))
 生分解ポリマー (DL-乳酸ポリマー, DL-乳酸 / グリコール酸コポリマー)



poly (DL-lactide)



poly (DL-lactide-co-glycolide)



Unison UK-Amino , 150 x 3 mm

A: hexane / acetic acid = 100 / 0.1

B: acetone / acetic acid = 100 / 0.1

30-100 %B (0-10min), 100 %B (10-15min)

0.6 mL/min (4MPa), 60 deg.C

ELSD (spray chamber 50 deg.C, drift tube 100 deg.C), 0.6 uL (6 ug, THF)

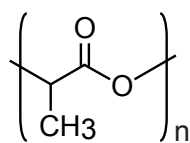
Presto FF-C18

30 x 4.6 mm

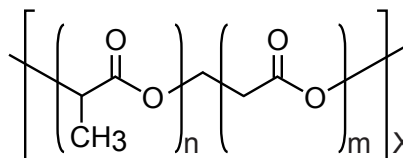
Application

**Biodegradable polymer
(poly (DL-lactide) and poly (DL-lactide-co-glycolide))**

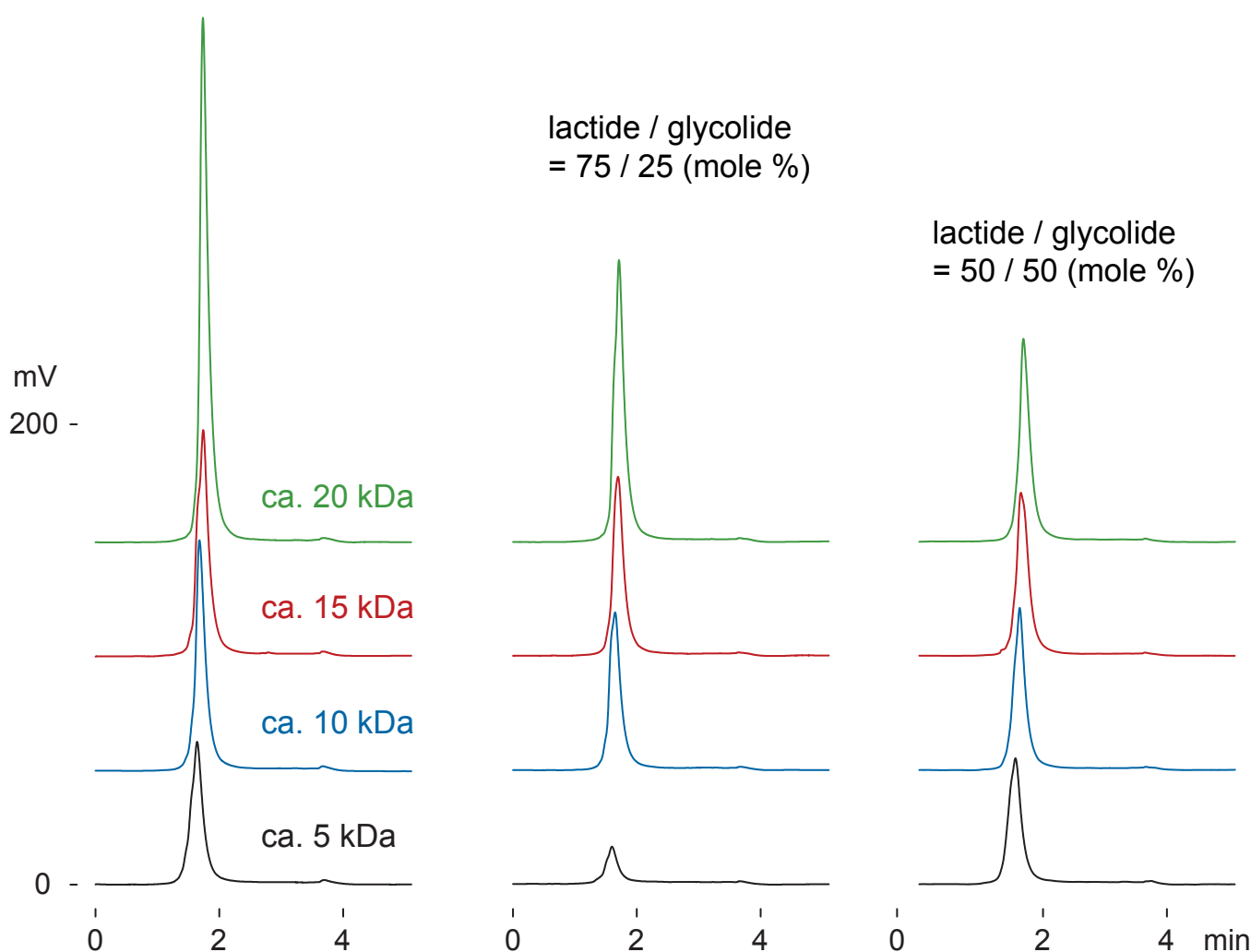
生分解ポリマー (DL-乳酸ポリマー, DL-乳酸 / グリコール酸コポリマー)



poly (DL-lactide)



poly (DL-lactide-co-glycolide)



Presto FF-C18, 30 x 4.6 mm

A: water / formic acid = 100 / 0.1

B: acetone / ethyl acetate / formic acid = 70 / 30 / 0.1

0-100 %B (0-1.5min), 100 %B (1.5-3min)

0.6 mL/min (4 MPa), 60 deg.C

ELSD (spray chamber 45 deg.C, drift tube 100 deg.C), 0.4 uL (4 ug, THF)

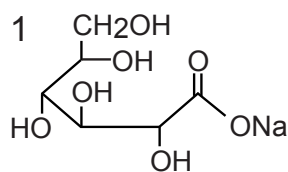
Unison UK-Amino

250 x 4.6 mm

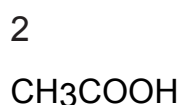
Application

Organic acids (Anion exchange mode)

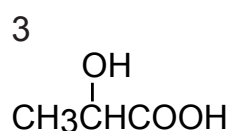
有機酸(アニオン交換モード)



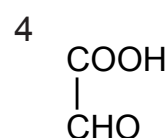
sodium gluconate



acetic acid



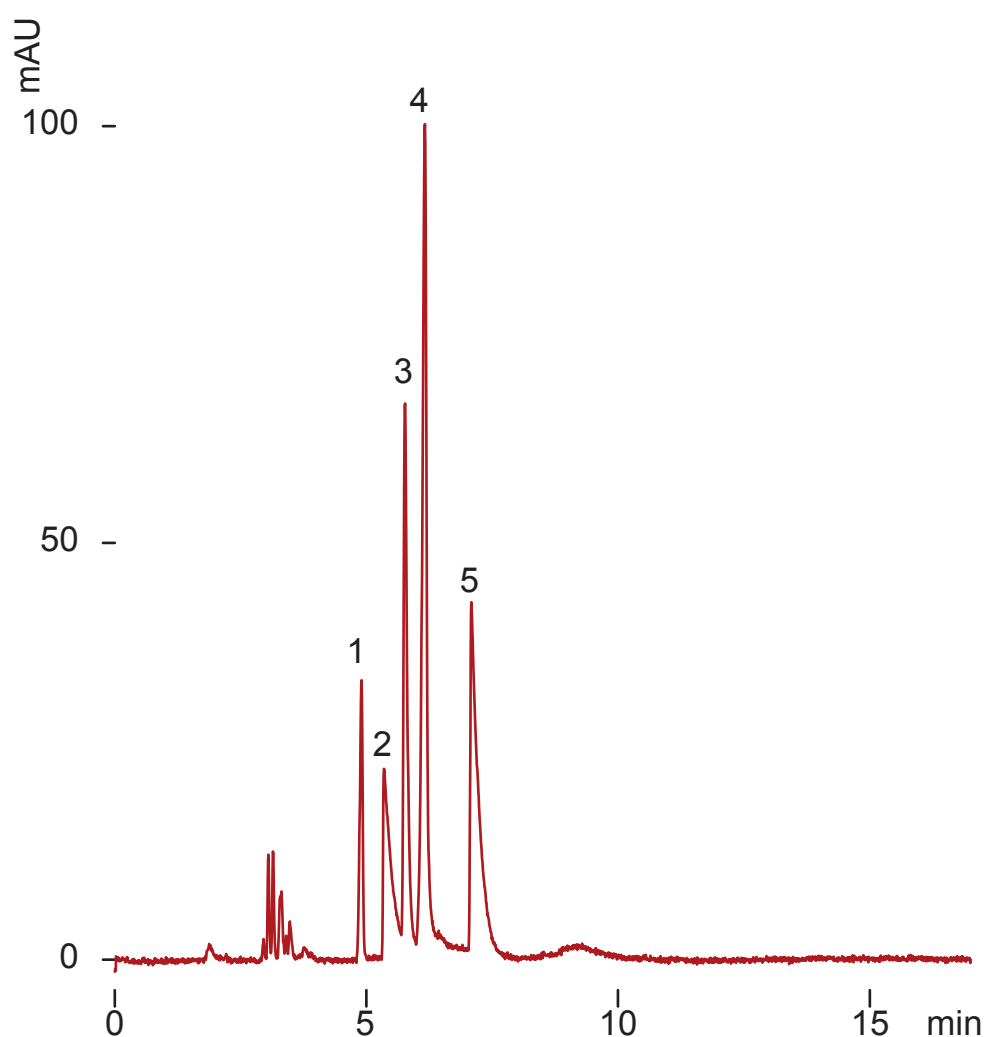
lactic acid



glyoxylic acid



formic acid



Unison UK-Amino, 250 x 4.6 mm

A: 50mM NH₄H₂PO₄

B: 50mM NH₄H₂PO₄ : 50mM (NH₄)₂HPO₄ = 1 : 1

0-50 %B (0-15min)

1 mL/min (18MPa), room temperature, 210 nm

5 uL (7.5 ug)

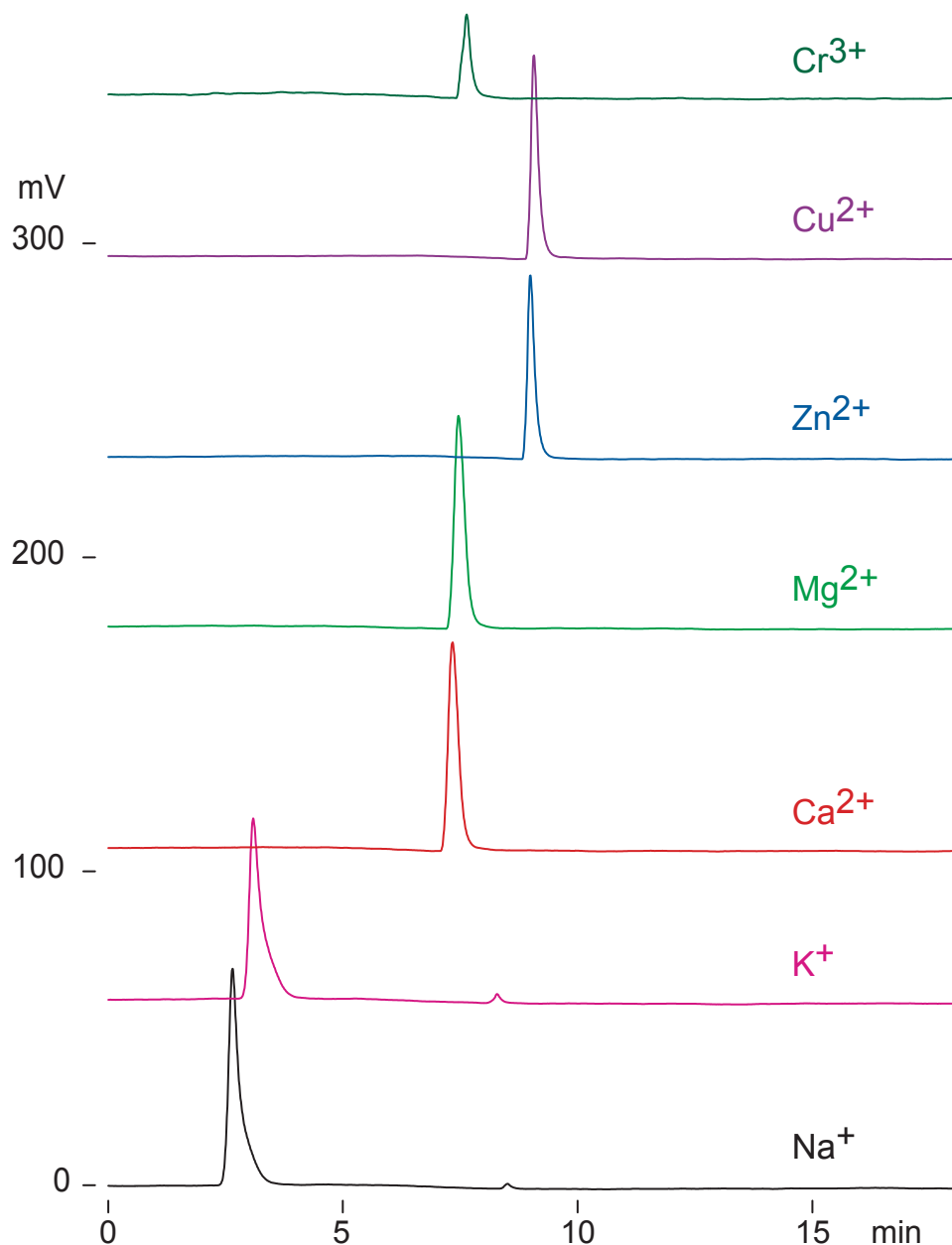
Scherzo SM-C18

150 x 3 mm

Application

Cations

陽イオン



Scherzo SM-C18, 150 x 3 mm
 A: 5 mM ammonium formate
 B: 100 mM formic acid
 0-50 %B (0-15 min)
 0.4 mL/min (10 MPa), 37 deg.C
 ELSD (spray chamber 50 deg.C, drift tube 100 deg.C)
 0.6 uL (0.7-2.4 ug)

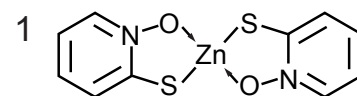
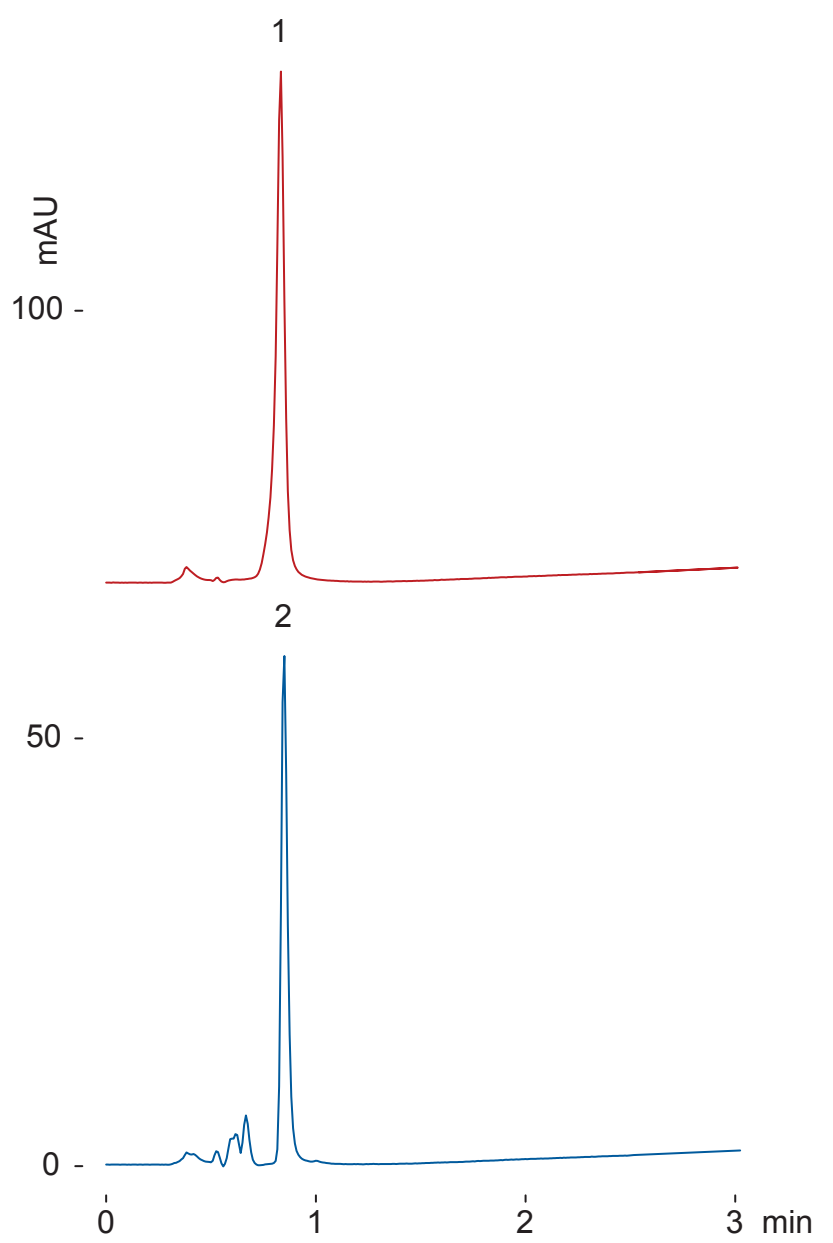
Unison UK-Phenyl

50 x 3 mm

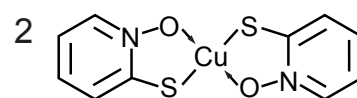
Application

Zinc pyriothione, copper pyriothione

ピリチオン亜鉛, ピリチオン銅



zinc pyriothione



copper pyriothione

Unison UK-Phenyl, 50 x 3 mm
 A: 5mM ammonium hydrogencarbonate
 B: tetrahydrofuran
 60-95 %B (0-3 min)
 0.4 mL/min (7 MPa), 37 deg.C, 330 nm
 0.2 uL (0.1 ug, tetrahydrofuran)

Unison UK-Phenyl

Unison UK-C8 Cadenza CD-C18

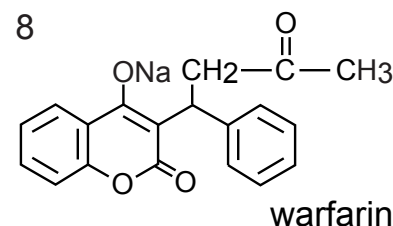
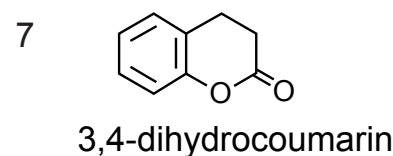
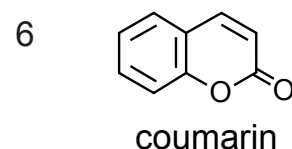
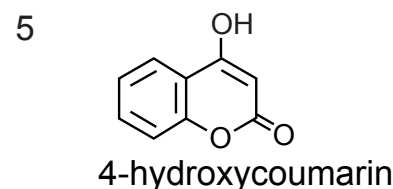
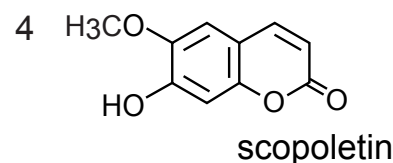
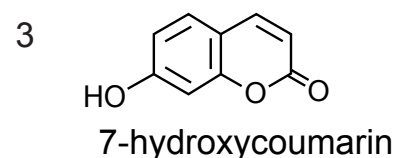
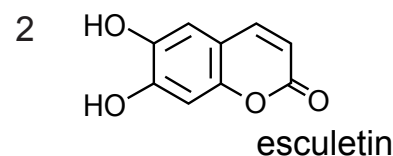
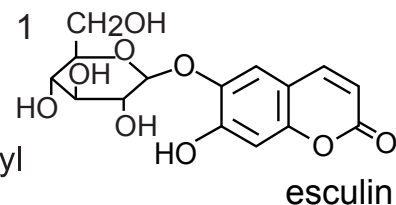
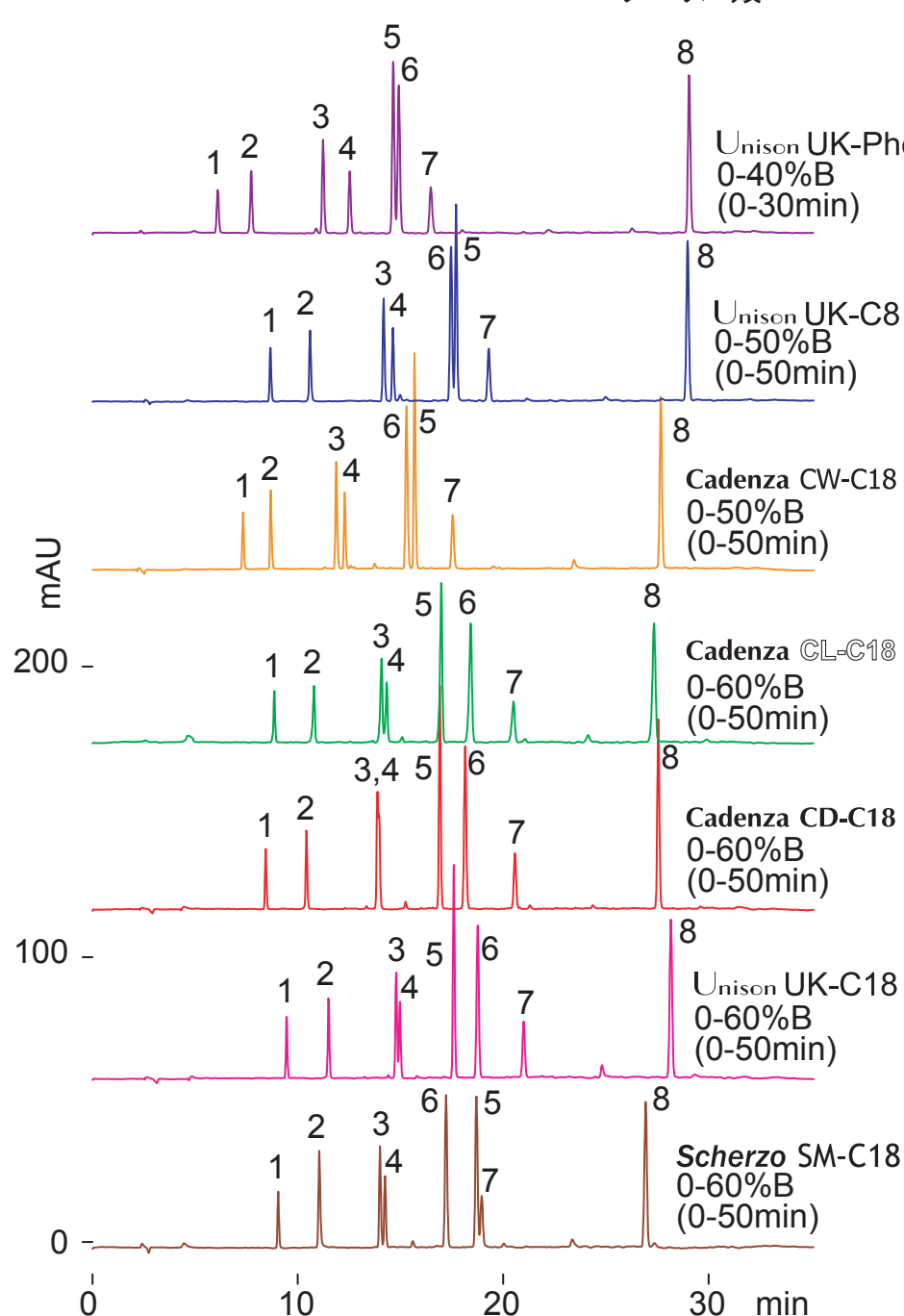
Cadenza CW-C18 Unison UK-C18

Cadenza CL-C18 Scherzo SM-C18 150 x 4.6 mm

Application

Coumarins

クマリン類



150 x 4.6 mm
A: water / acetic acid = 100 / 1
B: acetonitrile / acetic acid = 100 / 1
1 mL/min (9-11MPa), 37 deg.C, 270 nm
2 uL (0.2-1.2 ug)

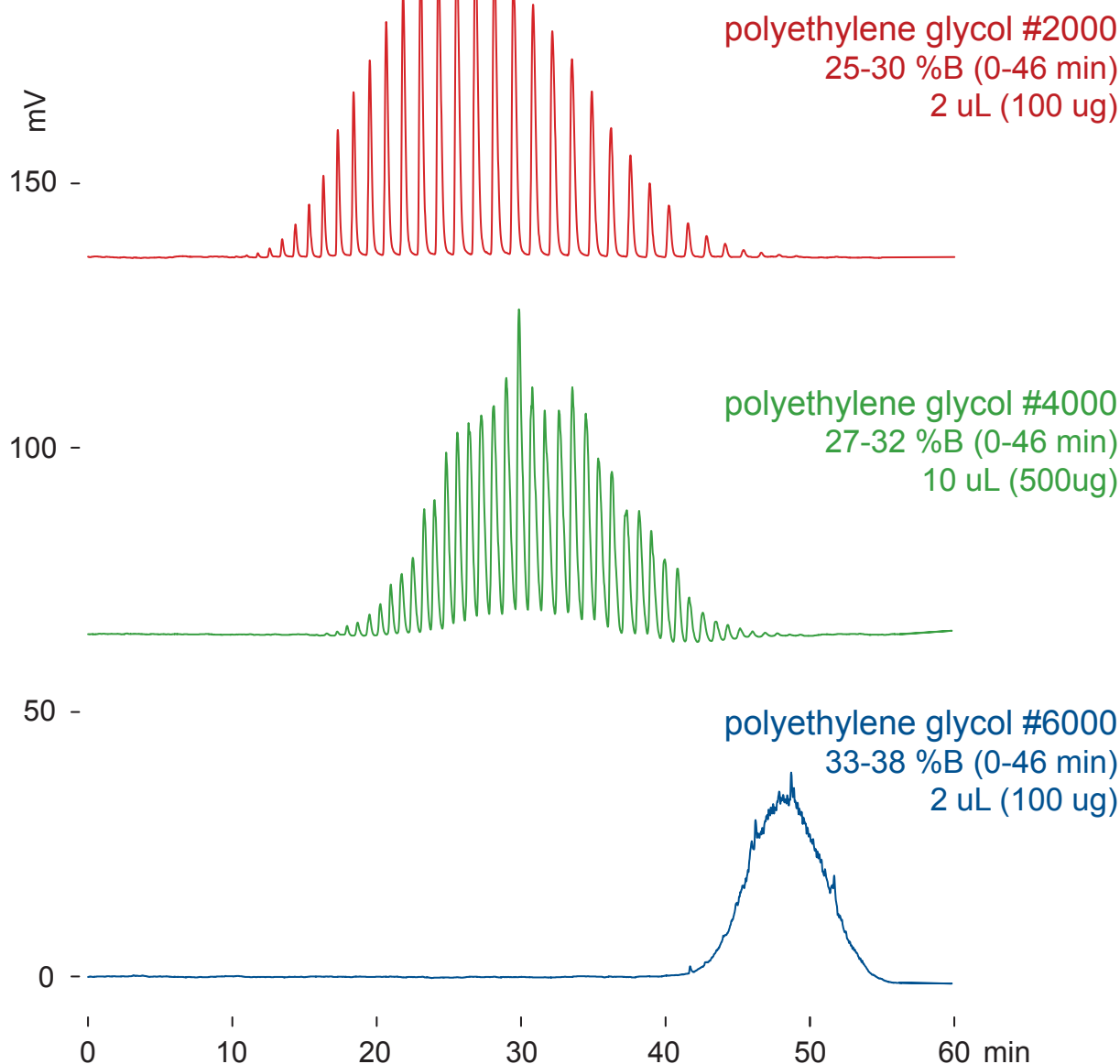
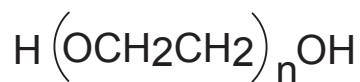
Cadenza CW-C18

250 x 4.6 mm

Application

Polyethylene glycol (PEG)

ポリエチレングリコール



Cadenza CW-C18, 250 x 4.6 mm

A: water, B: acetonitrile

1 mL/min (17-18 MPa), 37 deg.C

ELSD (spray chamber 50 deg.C, drift tube 100 deg.C)

Scherzo SM-C18

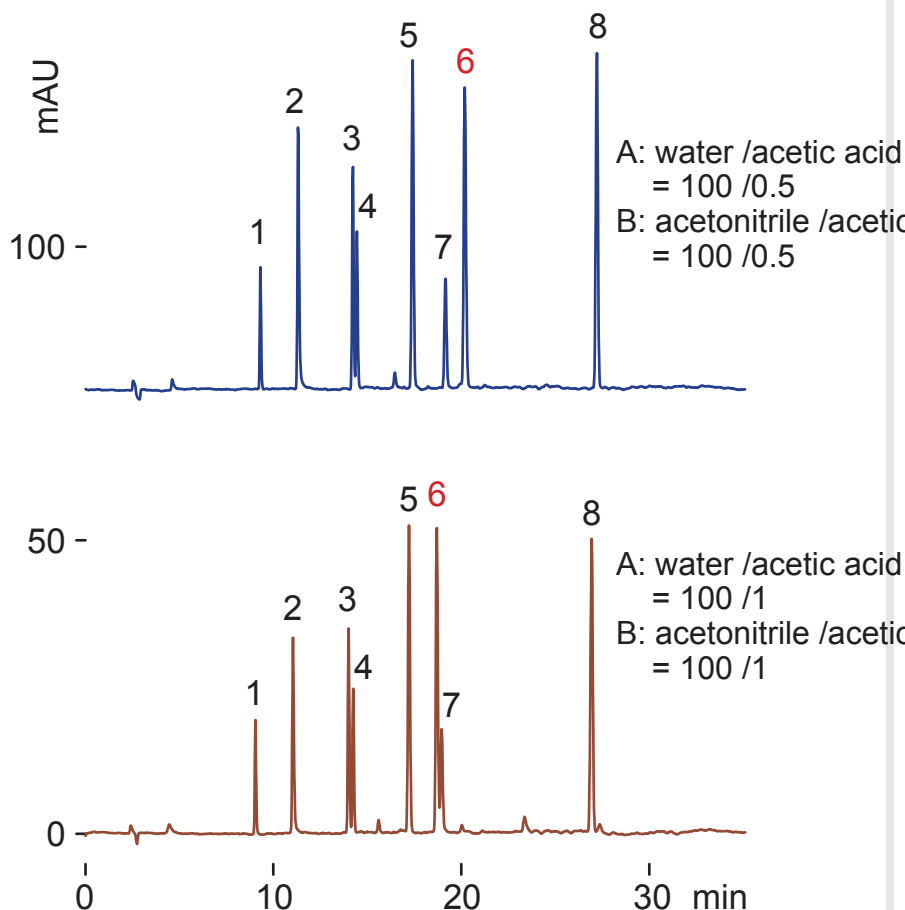
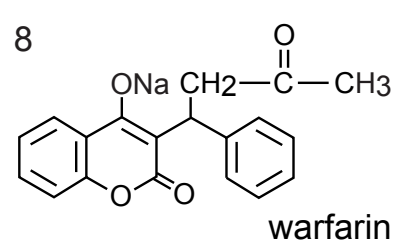
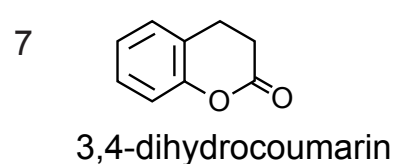
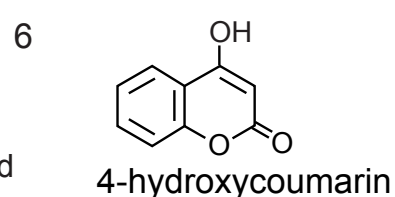
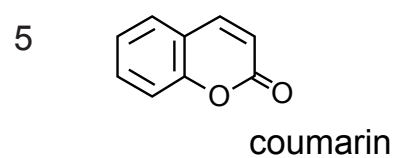
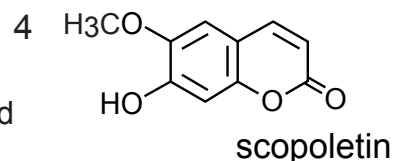
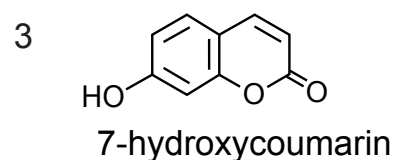
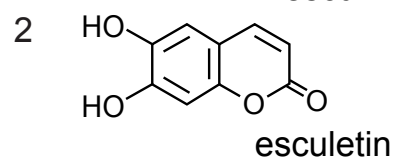
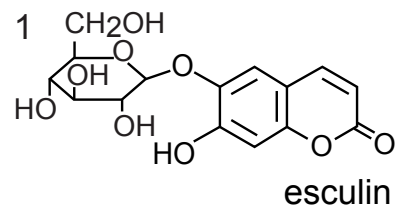
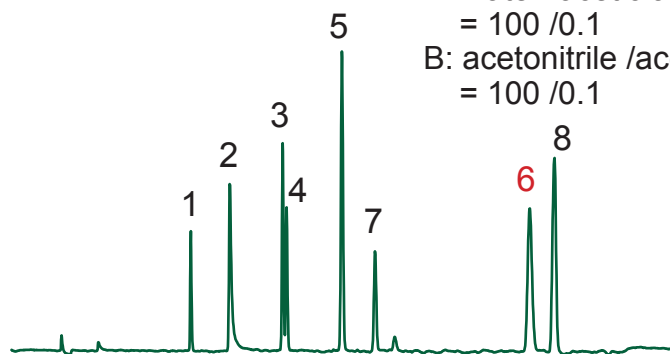
150 x 4.6 mm

Application

Coumarins

クマリン類

A: water /acetic acid
= 100 /0.1
B: acetonitrile /acetic acid
= 100 /0.1



A: water /acetic acid = 100 /1
B: acetonitrile /acetic acid = 100 /1

Scherzo SM-C18, 150 x 4.6 mm
0-60 %B (0-30min)
1 mL/min (9MPa), 37 deg.C, 270 nm
2 uL (0.2-1.2 ug)

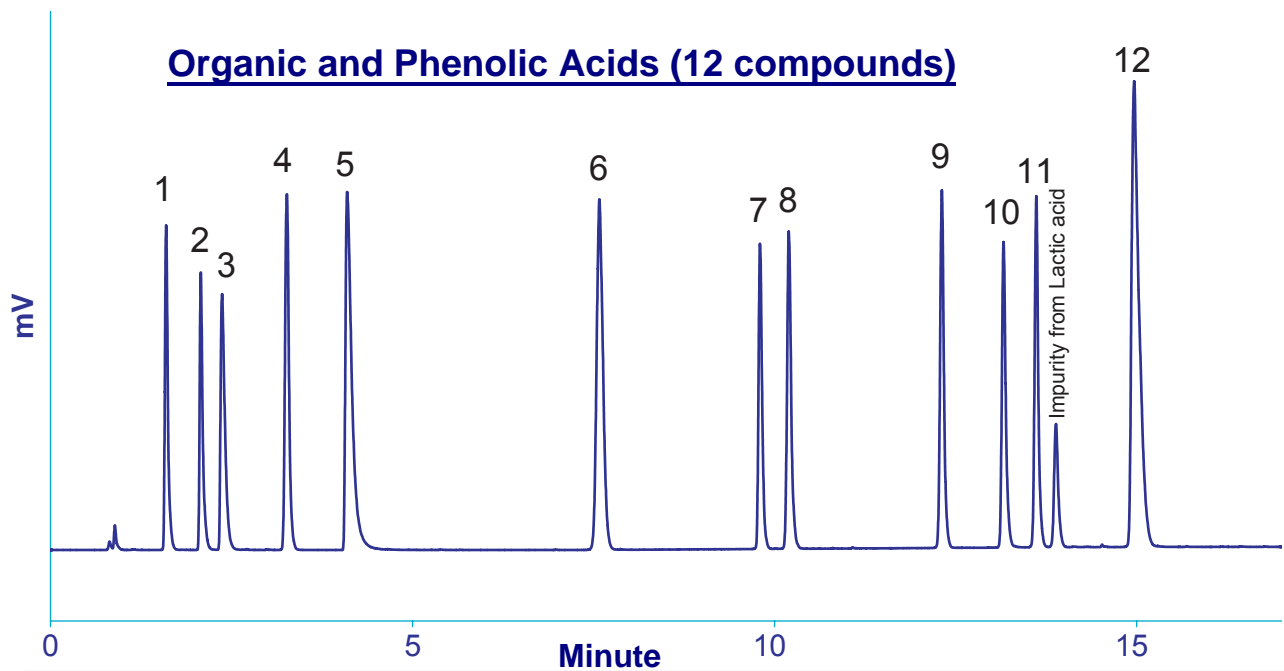
Scherzo SM-C18

150 x 2 mm

Application

Simultaneous HPLC/LT-ELSD Analysis of Organic and Phenolic Acids

LT-ELSDによる有機酸およびフェノール酸の一斉分析



	RT	%RSD (n=8)		LOD (S/N=3)
	Minutes	RT	Response	ng (o.c.)
1- Quinic acid	1.60	0.09	2.1	4.5
2- Malic acid	2.08	0.09	1.9	7.7
3- Tartaric acid	2.37	0.11	2.7	20.9
4- Succinic acid	3.27	0.20	2.2	9.0
5- Citric acid	4.11	0.25	1.3	25.3
6- Gallic acid	7.60	0.31	1.9	8.0
7- Lactic acid	9.81	0.18	2.4	55.9*
8- Protocatechuic acid	10.21	0.14	2.4	3.7
9- 4-HPAC	12.32	0.09	1.7	3.4
10- Chlorogenic acid	13.16	0.07	2.2	4.0
11- Syringic acid	13.62	0.07	3.0	2.3
12- Gentisic acid	14.97	0.06	1.9	6.2

* Semi-volatile compound

4-Hydroxyphenylacetic acid

Scherzo SM-C18, 150 x 2 mm

A: H₂O + 0.3% HCOOH,

B: acetonitrile + 1% HCOOH

0%B (0-2 min), 0 - 20%B (2-10 min), 20%B (10-15 min)

0.3 mL/min, 30°C, 2uL

ELSD (SEDERE, France), SEDEX 90LT, 30°C, 3.5Bar

Data provided by Dr. Eric VERETTE, SEDERE S.A.S., France

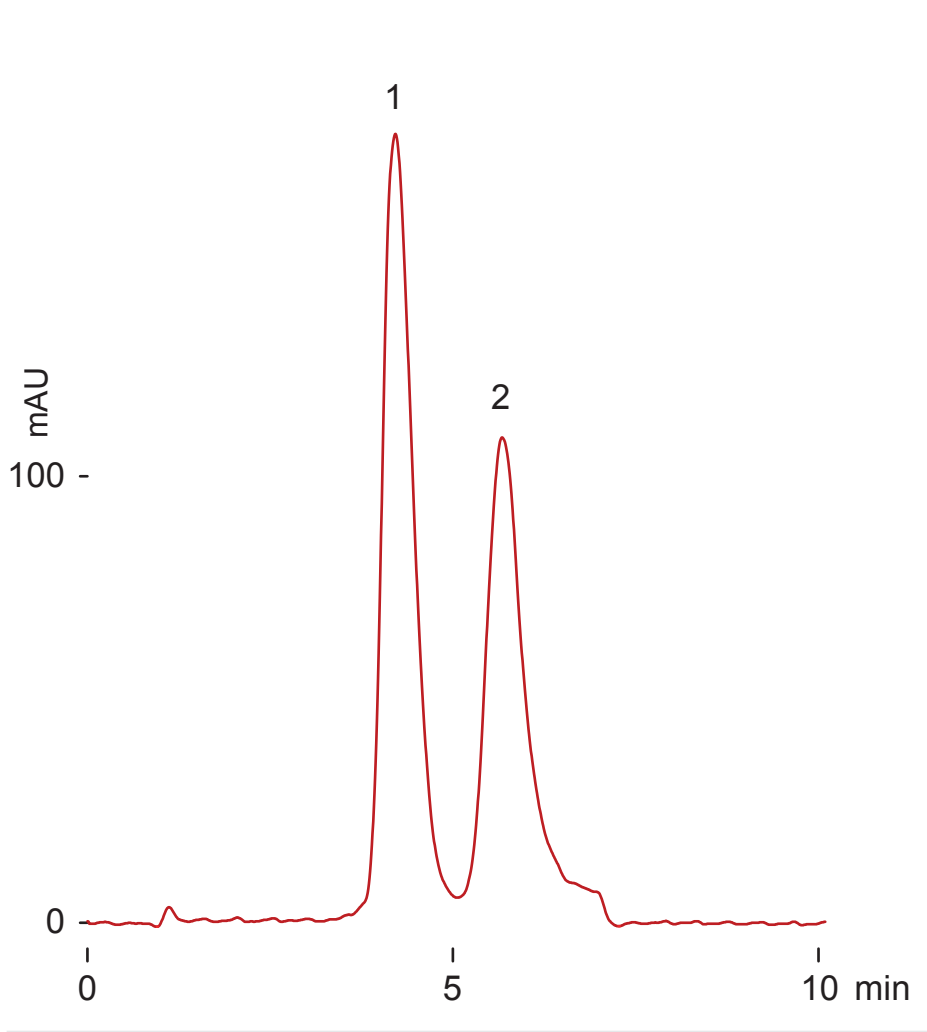
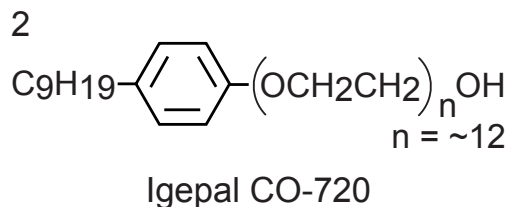
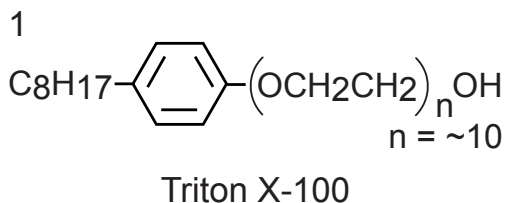
Cadenza CW-C18

50 x 3 mm

Application

Surfactants

界面活性剤



Cadenza CW-C18, 50 x 3 mm

A: water

B: Methanol

70-80 %B (0-6min)

0.35 mL/min (4MPa), 37 deg.C, 260 nm

2 uL (2% acetonitrile solution)

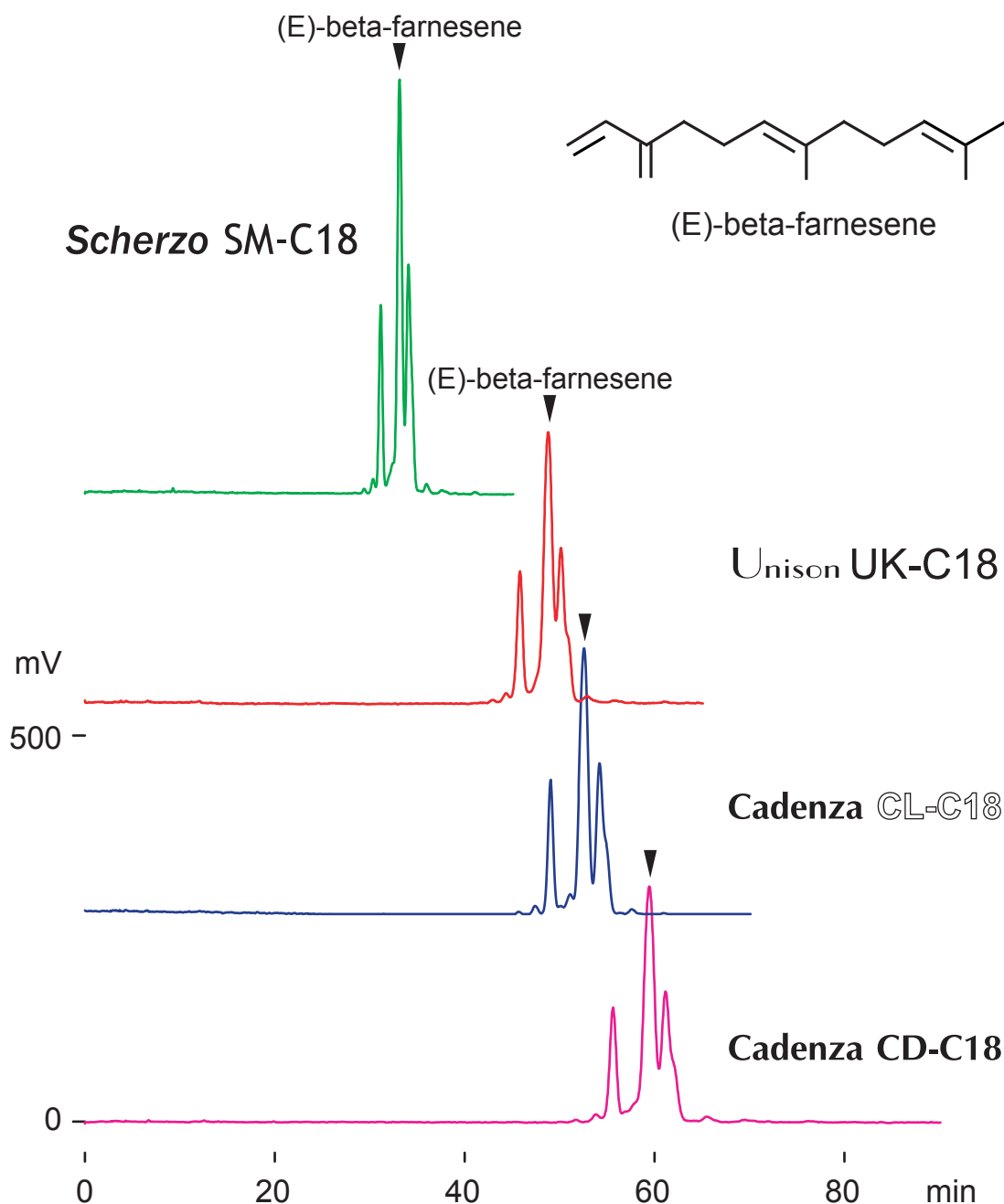
Scherzo SM-C18
 Unison UK-C18
 Cadenza CL-C18
 Cadenza CD-C18

250 x 4.6 mm

Application

Farnesene isomers

ファルネセン異性体



250 x 4.6 mm
 water / methanol = 20 / 80
 1 mL/min (14-16MPa), 37 deg.C, 225 nm
 0.6 uL (5% mixture of farnesene, THF)

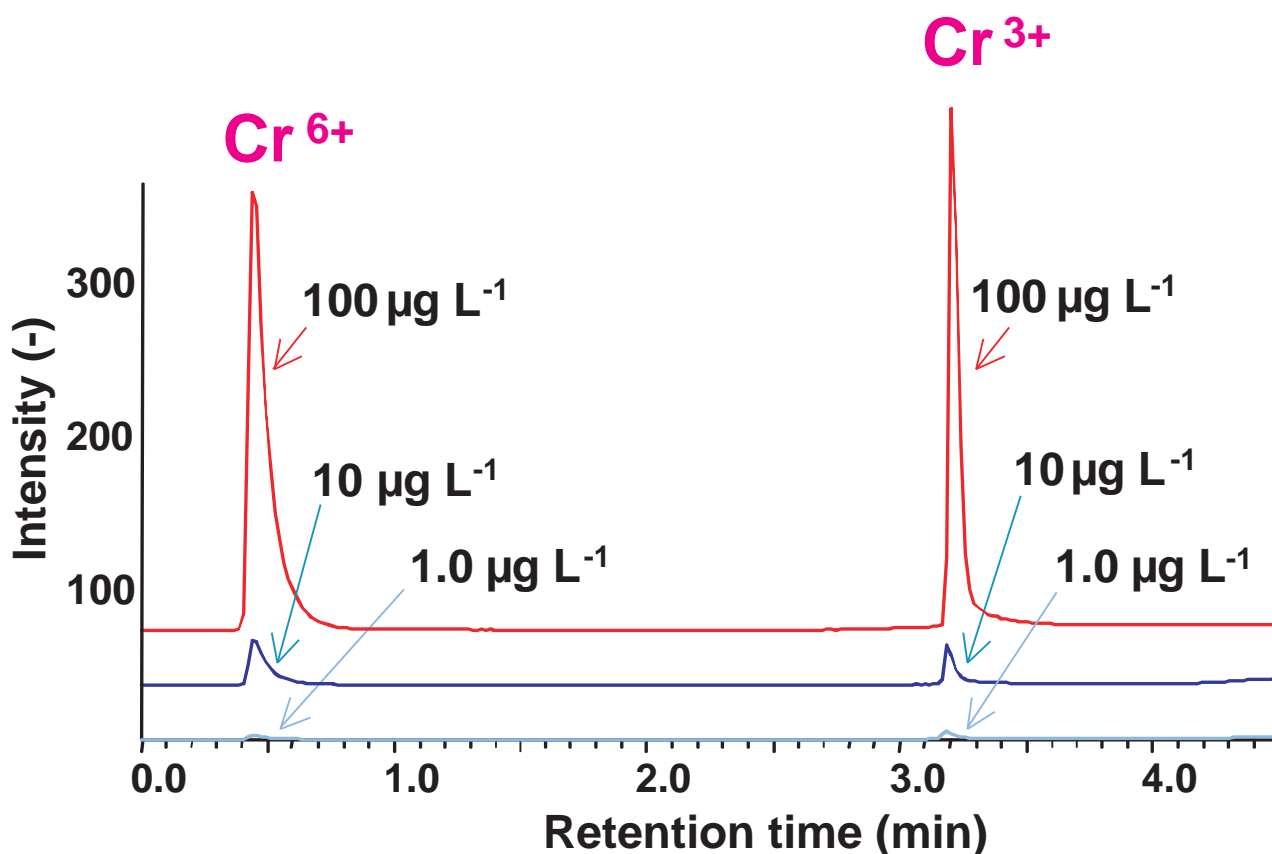
Scherzo SM-C18

50 x 3 mm

Application

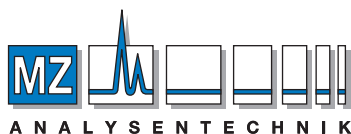
LC-ICP-MS analysis of Cr(III) and Cr(VI)

三価クロムと六価クロムのLC-ICP-MS同時分析



Scherzo SM-C18, 50 x 3 mm
 A: phosphoric acid / NaOH (25mM, pH 7)
 B: 100mM phosphoric acid
 0%B (0-1min), 0-100%B (1-4min), 100%B (4-7min)
 1.0 mL/min
 150uL

[ICP-MS]
 ELAN DRC-e (PerkinElmer)
 m/z 52



AUTHORIZED DISTRIBUTOR

MZ-Analysentechnik GmbH, Barcelona-Allee 17• D-55129 Mainz
 Tel +49 6131 880 96-0, Fax +49 6131 880 96-20
 e-mail: info@mz-at.de, www.mz-at.de