Applications and Index

HPLC Applications Index

Industry Index

Product Index

Bio-Bond™

Endeavorsil™

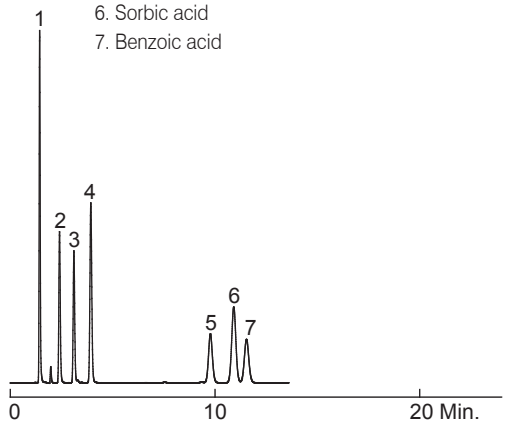
Inspire™

Leapsil™

Spursil™

Acidic Compounds

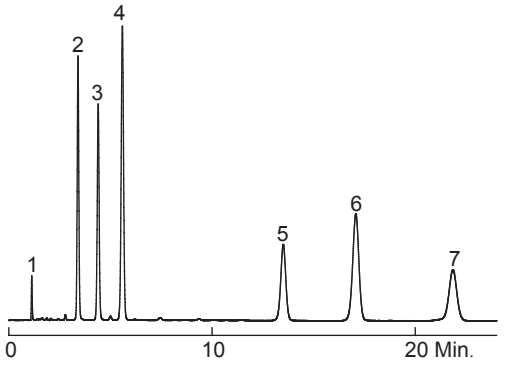
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 20:80
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. *L*-Ascorbic acid
2. Acetaminophen
3. *p*-Aminobenzoic acid
4. Homovanillic acid
5. Acetylsalicylic acid
6. Sorbic acid
7. Benzoic acid



AN: S1167

Acidic Compounds

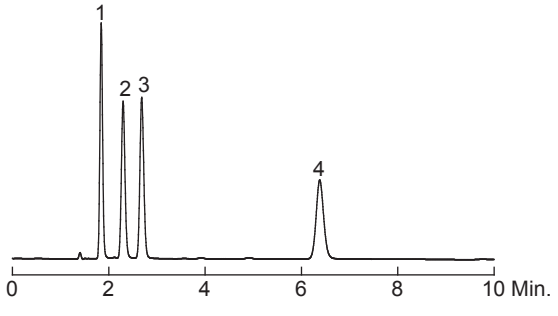
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 20:80
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. *L*-Ascorbic acid
2. Acetaminophen
3. *p*-Aminobenzoic acid
4. Homovanillic acid
5. Acetylsalicylic acid
6. Sorbic acid
7. Benzoic acid



AN: S1168

Alkaloids

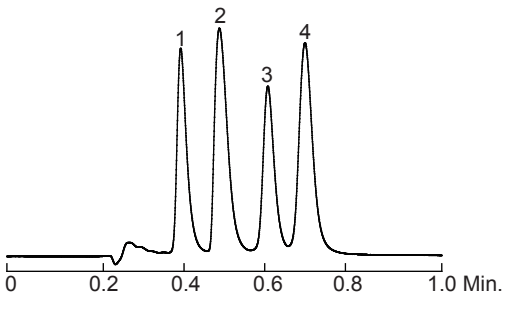
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeOH:20 mM KH_2PO_4 (pH 2.3) = 42:58
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Theobromine
2. Quinine
3. Hydrastine
4. Berberine



AN: I1101

Antiulcers

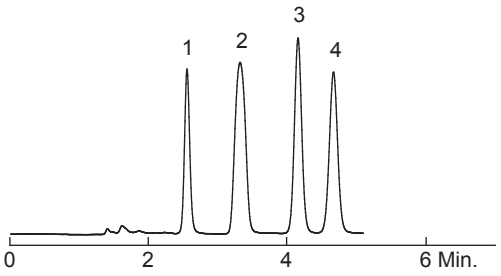
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: MeOH:10 mM CH_3COONH_4 (pH 7) = 35:65
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 220 nm
Sample:
1. Famotidine
2. Ranitidine
3. Cimetidine
4. Nizatidine



AN: E1101

Antiulcers

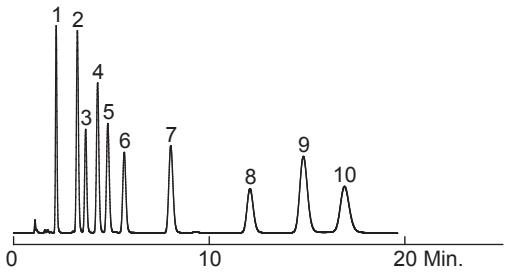
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeOH:10 mM CH_3COONH_4 (pH 7) = 35:65
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 220 nm
Sample:
1. Famotidine
2. Ranitidine
3. Cimetidine
4. Nizatidine



AN: I1102

Antibacterials

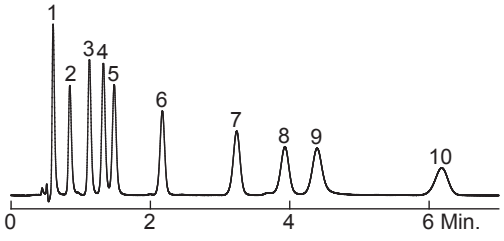
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 20:80
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Sulfanilamide
2. Carbadox
3. Sulfapyridine
4. Sulfamerazine
5. Thiamphenicol
6. Sulfamethoxypyridazine
7. Furazolidone
8. Sulfamethoxazole
9. Sulfisoxazole
10. Oxolinic acid



AN: I1103

Antibacterials

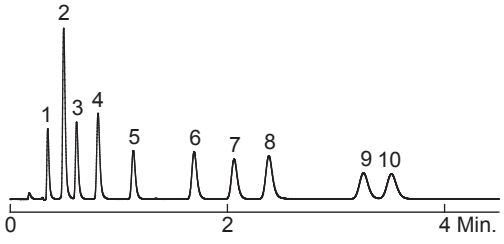
Column: Leapsil™ 2.7 µm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 20:80
Flow Rate: 0.3 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Sulfanilamide
2. Carbadox
3. Sulfamerazine
4. Sulfamethazine
5. Sulfamethoxypyridazine
6. Furazolidone
7. Sulfamethoxazole
8. Sulfisoxazole
9. Oxolinic acid
10. Sulfadimethoxine



AN: L1112

Antibacterials

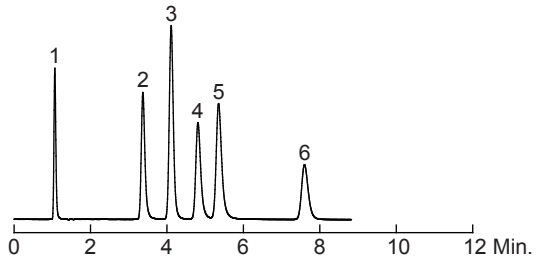
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 20:80
Flow Rate: 0.5 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Sulfanilamide
2. Carbadox
3. Sulfamerazine
4. Sulfamethoxypyridazine
5. Furazolidone
6. Sulfamethoxazole
7. Sulfisoxazole
8. Oxolinic acid
9. Sulfadimethoxine
10. Sulfaquinoxaline



AN: E1102

Antihistamines

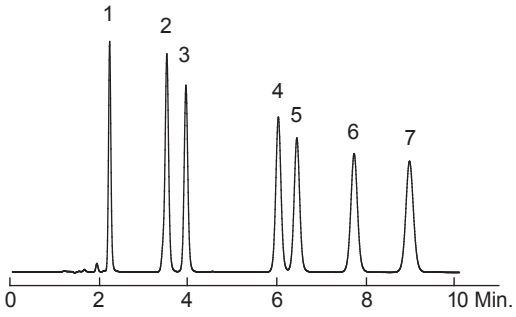
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeOH:5 mM NH_4HCO_3 (pH 10) = 75:25
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Maleic acid
2. Pheniramine
3. Doxylamine
4. Chlorpheniramine
5. Brompheniramine
6. Diphenhydramine



AN: I1104

Anti-inflammatories

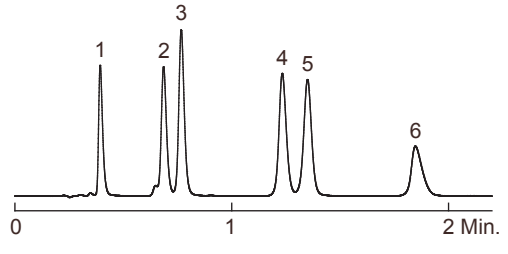
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 55:45
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Phenacetin
2. Tolmetin
3. Ketoprofen
4. Fenoprofen
5. Flurbiprofen
6. Diclofenac
7. Ibuprofen



AN: I1105

Anti-inflammatories

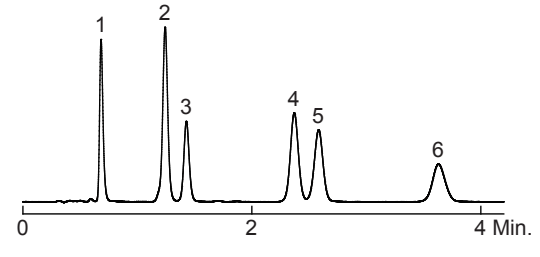
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 50:50
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 254 nm
Sample:
1. Phenacetin
2. Tolmetin
3. Ketoprofen
4. Fenoprofen
5. Flurbiprofen
6. Ibuprofen



AN: E1103

Anti-inflammatories

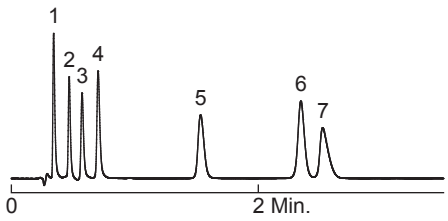
Column: Leapsil™ 2.7 µm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 50:50
Flow Rate: 0.3 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Phenacetin
2. Tolmetin
3. Ketoprofen
4. Fenoprofen
5. Flurbiprofen
6. Ibuprofen



AN: L1102

β-Blockers at Low pH

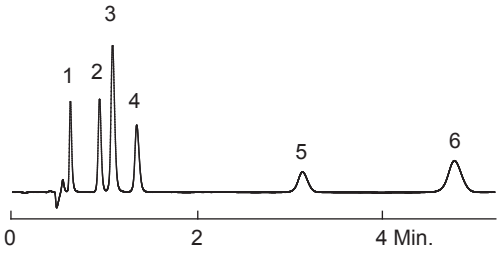
Column: Endeavorsil™ 1.8 μm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 25:75
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 220 nm
Sample:
1. Nadolol
2. Pindolol
3. Acebutolol
4. Metoprolol
5. Labetolol
6. Propranolol
7. Alprenolol



AN: E1104

β-Blockers at Low pH

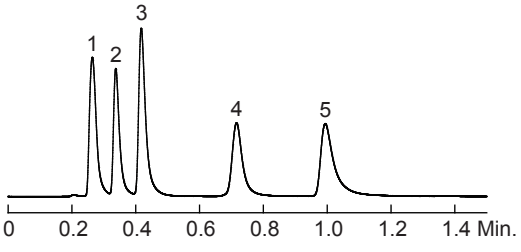
Column: Leapsil™ 2.7 μm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 25:75
Flow Rate: 0.3 mL/min
Temperature: 30 °C
Detection: UV 220 nm
Sample:
1. Nadolol
2. Pindolol
3. Acebutolol
4. Metoprolol
5. Labetolol
6. Propranolol



AN: L1103

β-Blockers at Neutral pH

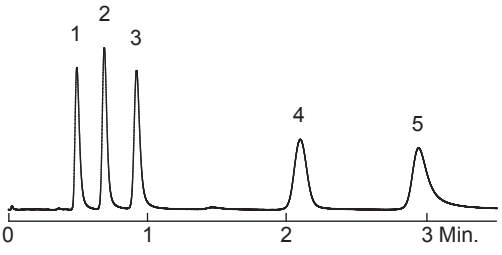
Column: Endeavorsil™ 1.8 μm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: MeCN:20 mM phosphate buffer (pH 7) = 30:70
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 220 nm
Sample:
1. Nadolol
2. Pindolol
3. Metoprolol
4. Labetolol
5. Propranolol



AN: E1105

β-Blockers at Neutral pH

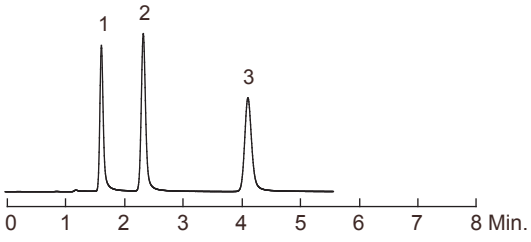
Column: Leapsil™ 2.7 μm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: MeCN:20 mM phosphate buffer (pH 7) = 25:75
Flow Rate: 0.3 mL/min
Temperature: Ambient
Detection: UV 220 nm
Sample:
1. Nadolol
2. Pindolol
3. Metoprolol
4. Labetolol
5. Propranolol



AN: L1104

Catecholamines

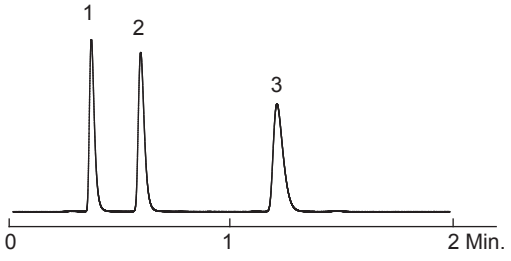
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 20 mM KH_2PO_4, pH 7
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 270 nm
Sample: 1. Norepinephrine
2. Epinephrine
3. Dopamine



AN: I1106

Catecholamines

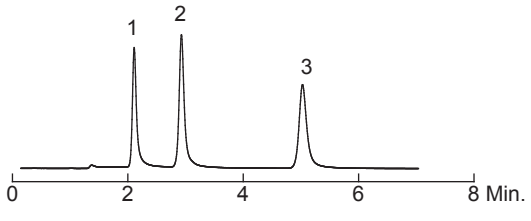
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% TFA in H_2O
Flow Rate: 0.5 mL/min
Temperature: Ambient
Detection: UV 270 nm
Sample: 1. Norepinephrine
2. Epinephrine
3. Dopamine



AN: E1106

Catecholamines

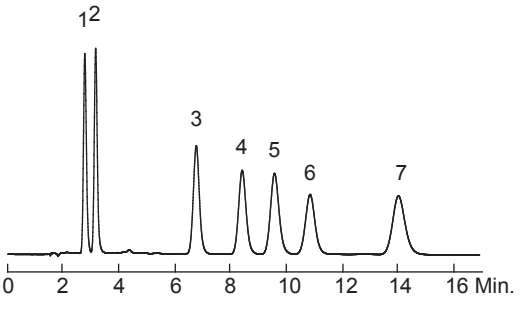
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: 20 mM KH_2PO_4, pH 7
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 270 nm
Sample: 1. Norepinephrine
2. Epinephrine
3. Dopamine



AN: S1152

Cephalosporin Antibiotics

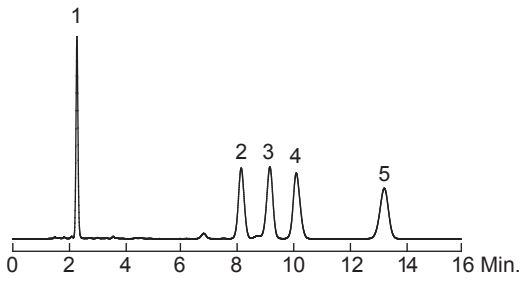
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeOH:0.1% TFA in H_2O = 30:70
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 230 nm
Sample: 1. Ceftazidime
2. Cefadroxil
3. Cefazoline
4. Cefaclor
5. Cephalexin
6. Cefoxitin
7. Cefradine



AN: I1123

Cephalosporin Antibiotics

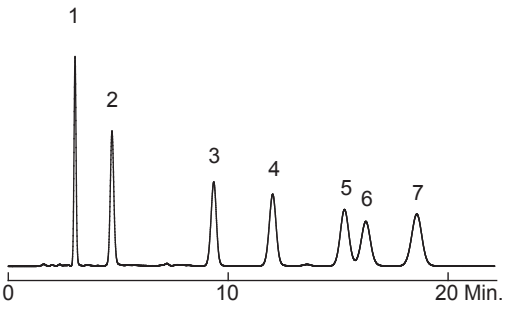
Column:	Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.:	**81001**
Mobile Phase:	MeOH:100 mM acetate buffer = 20:80
Flow Rate:	1.0 mL/min
Temperature:	Ambient
Detection:	UV 254 nm
Sample:	1. Cefadroxil
	2. Cefuroxime
	3. Cefaclor
	4. Cefoxitin
	5. Cefradine



AN: I1107

Cephalosporin Antibiotics

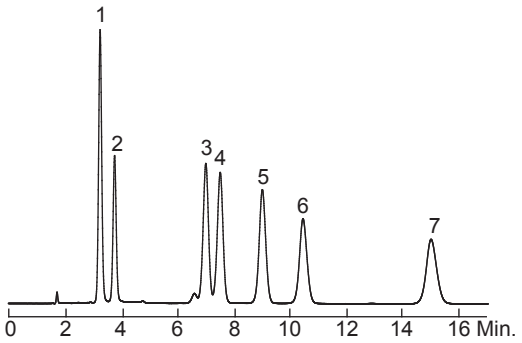
Column:	Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.:	**81001**
Mobile Phase:	MeOH:25 mM phosphate buffer (pH 3) = 20:80
Flow Rate:	1.0 mL/min
Temperature:	Ambient
Detection:	UV 230 nm
Sample:	1. Cefadroxil
	2. Ceftazidime
	3. Cefaclor
	4. Cephalexin
	5. Cefazoline
	6. Cefoxitin
	7. Cefradine



AN: I1108

Cephalosporin Antibiotics

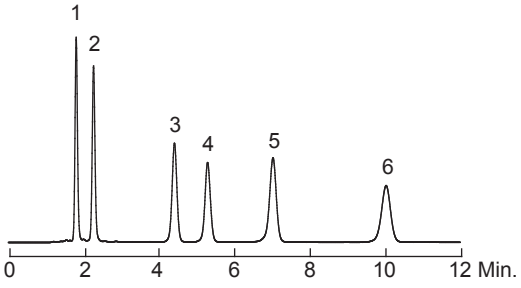
Column:	Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.:	**82001**
Mobile Phase:	MeOH:0.1% TFA in H_2O = 30:70
Flow Rate:	1.0 mL/min
Temperature:	Ambient
Detection:	UV 230 nm
Sample:	1. Ceftazidime
	2. Cefadroxil
	3. Cefuroxime
	4. Cefazoline
	5. Cefaclor
	6. Cephalexin
	7. Cefradine



AN: I1127

Cephalosporin Antibiotics

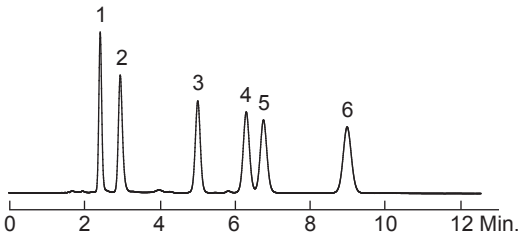
Column:	Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.:	**82001**
Mobile Phase:	MeOH:100 mM acetate buffer = 20:80
Flow Rate:	1.0 mL/min
Temperature:	Ambient
Detection:	UV 254 nm
Sample:	1. Ceftazidime
	2. Cefadroxil
	3. Cefuroxime
	4. Cefoxitin
	5. Cefaclor
	6. Cefradine



AN: E1113

Cephalosporin Antibiotics

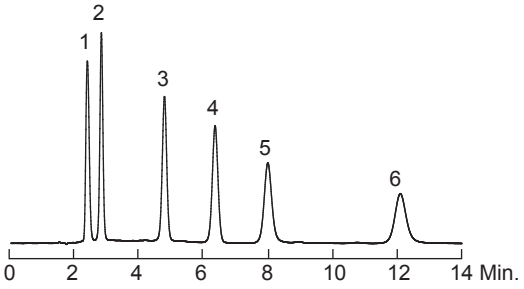
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: MeOH:25 mM phosphate buffer (pH 3) = 25:75
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 230 nm
Sample:
1. Cefadroxil
2. Ceftazidime
3. Cefaclor
4. Cephalexin
5. Cefazoline
6. Cefradine



AN: S1170

Cephalosporin Antibiotics

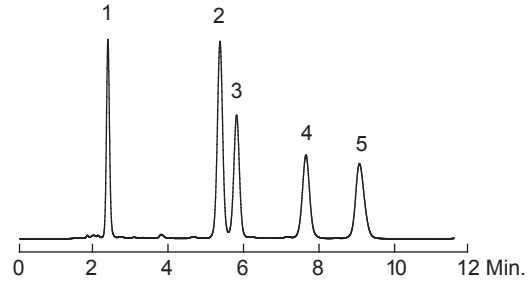
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: MeOH:0.1% TFA in H_2O = 30:70
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 230 nm
Sample:
1. Ceftazidime
2. Cefadroxil
3. Cephalexin
4. Cefradine
5. Cefazoline
6. Cefoxitin



AN: S1171

Cephalosporin Antibiotics

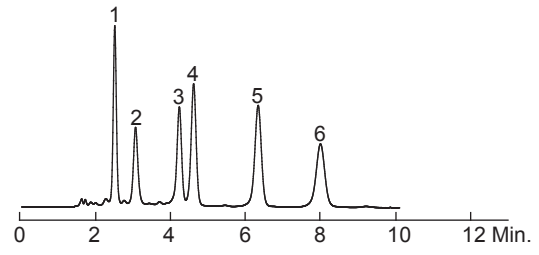
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: MeOH:100 mM acetate buffer = 20:80
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Ceftazidime
2. Cephalexin
3. Cefaclor
4. Cefradine
5. Cefoxitin



AN: S1172

Cephalosporin Antibiotics

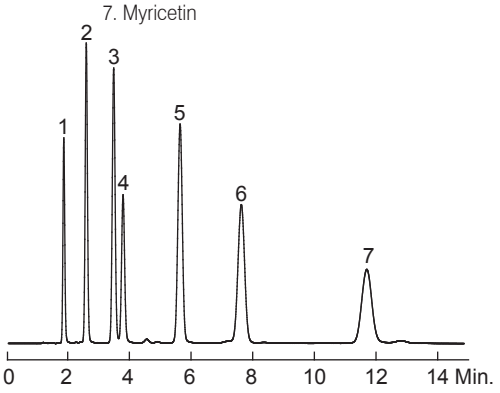
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: MeOH:25 mM phosphate buffer (pH 3) = 25:75
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 230 nm
Sample:
1. Cefadroxil
2. Ceftazidime
3. Cefaclor
4. Cephalexin
5. Cefradine
6. Cefazoline



AN: S1173

Flavonoids

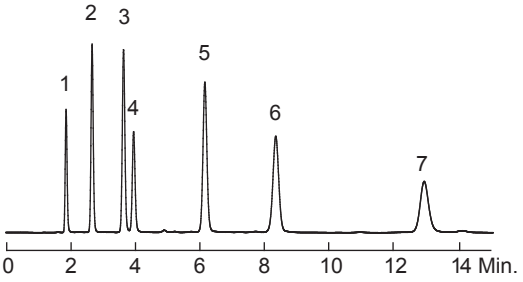
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeCN:0.085% H_3PO_4 = 20:80
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 280 nm
Sample: 1. Gallic acid
2. Catechin
3. Caffeic acid
4. Vanillic acid
5. *p*-Coumaric acid
6. Quercitrin
7. Myricetin



AN: I1109

Flavonoids

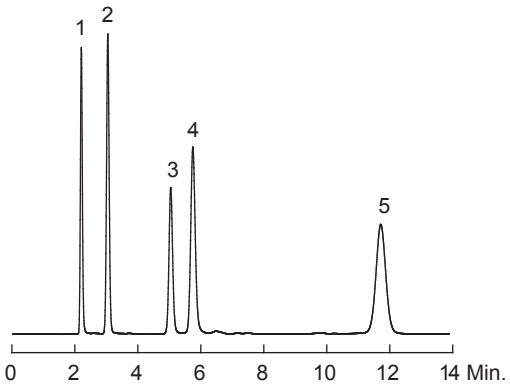
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: MeCN:0.085% H_3PO_4 = 20:80
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 280 nm
Sample: 1. Gallic acid
2. Catechin
3. Caffeic acid
4. Vanillic acid
5. *p*-Coumaric acid
6. Quercitrin
7. Myricetin



AN: S1154

Flavonoids

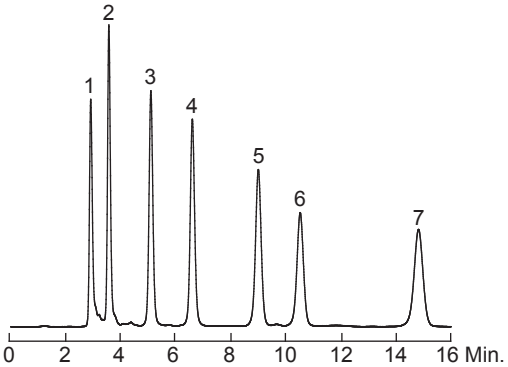
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: MeCN:0.085% H_3PO_4 = 25:75
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 280 nm
Sample: 1. Gallic acid
2. Catechin
3. Vanillic acid
4. Caffeic acid
5. *p*-Coumaric acid



AN: S1169

Penicillins

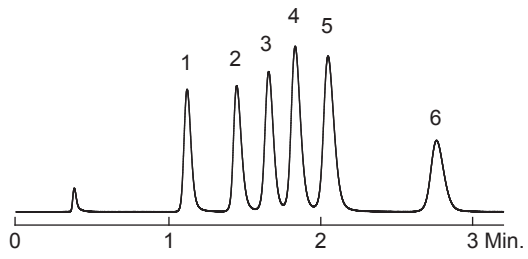
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeOH:25 mM KH_2PO_4 = 55:45
Flow Rate: 0.5 mL/min
Temperature: Ambient
Detection: UV 220 nm
Sample: 1. Amoxicillin
2. Ampicillin
3. Piperacilin
4. Penicillin G
5. Oxacillin
6. Cloxacillin
7. Dicloxacillin



AN: I1125

Polar Bases

Column: Leapsil™ 2.7 µm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 40:60
Flow Rate: 0.3 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Doxepin
2. Protriptyline
3. Nortriptyline
4. Amitriptyline
5. Trimipramine
6. Clomipramine



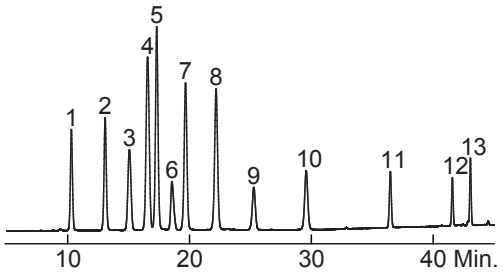
AN: L1105

Quinolones

Column: Inspire™ 5 µm C18, 250 x 4.6 mm
Cat. No.: **81006**
Mobile Phase A: MeOH
Mobile Phase B: 0.2% H_3PO_4 in H_2O
Flow Rate: 1.0 mL/min
Temperature: 35 °C
Detection: UV 254 nm

t / min.	0	25	40	42	50
A / %	22	33	65	22	22
B / %	78	67	35	78	78

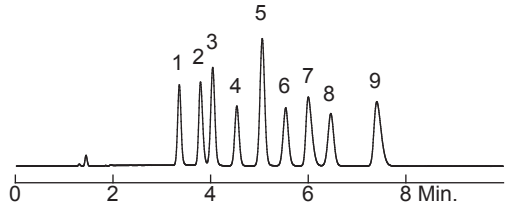
Sample:
1. Marbofloxacin
2. Ofloxacin
3. Norfloxacin
4. Enrofloxacin
5. Ciprofloxacin
6. Pazufloxacin
7. Difloxacin
8. Sarafloxacin
9. Gatifloxacin
10. Sparfloxacin
11. Oxolinic acid
12. Nalidixic acid
13. Flumequine



AN: I1124

TCAs and Benzos

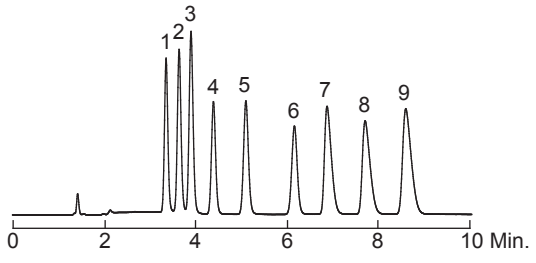
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 40:60
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Nitrozepam
2. Nordoxepin
3. Alprazolam
4. Diazepam
5. Oxazepam
6. Triazolam
7. Nortriptyline
8. Clonazepam
9. Trimipramine



AN: I1112

TCAs and Benzos

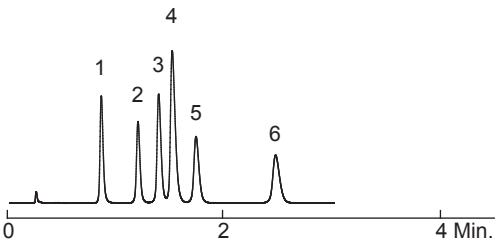
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 40:60
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Nitrozepam
2. Estazolam
3. Alprazolam
4. Diazepam
5. Triazolam
6. Clonazepam
7. Nortriptyline
8. Amitriptyline
9. Trimipramine



AN: S1155

TCAs at Low pH

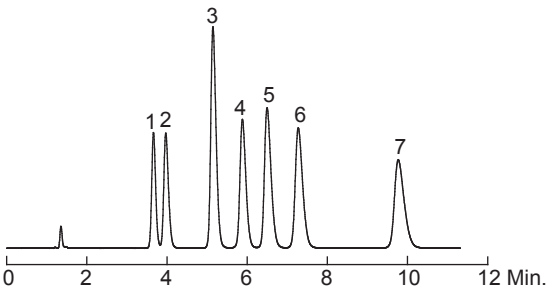
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 35:65
Flow Rate: 0.5 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Doxepin
2. Desipramine
3. Nortriptyline
4. Amitriptyline
5. Trimipramine
6. Clomipramine



AN: E1107

TCAs at Low pH

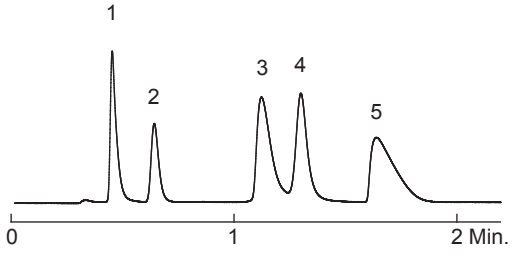
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 40:60
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Nordoxepin
2. Doxepin
3. Desipramine
4. Nortriptyline
5. Amitriptyline
6. Trimipramine
7. Clomipramine



AN: I1126

Water-Soluble Vitamins

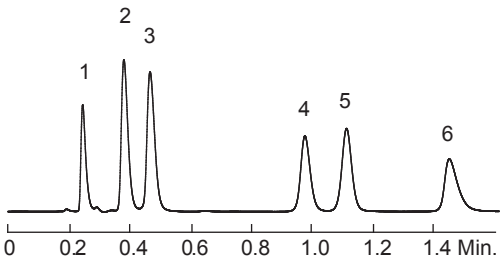
Column: Leapsil™ 2.7 µm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: 10 mM $HCOONH_4$, (pH 3)
Flow Rate: 0.3 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Pyridoxamine
2. *L*-Ascorbic acid
3. Pyridoxal
4. Nicotinamide
5. Pyridoxol



AN: L1106

Acidic Compounds

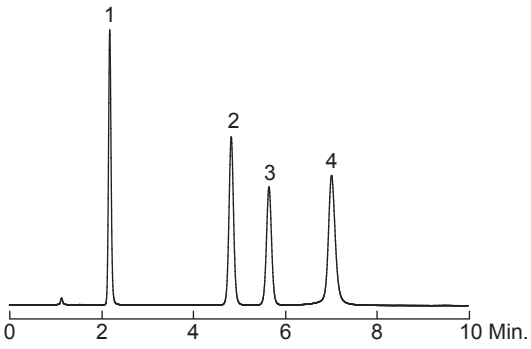
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 25:75
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 254 nm
Sample: 1. *L*-Ascorbic acid
2. *p*-Aminobenzoic acid
3. Homovanillic acid
4. Acetylsalicylic acid
5. Sorbic acid
6. Salicylic acid



AN: E1108

Antifungals

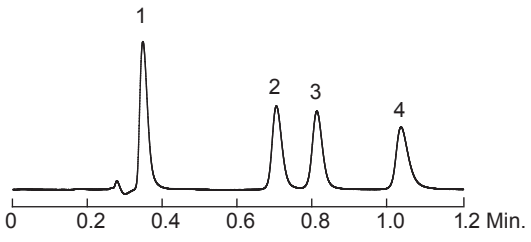
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 30:70
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample: 1. *p*-Aminobenzoic acid
2. Acetylsalicylic acid
3. Benzoic acid
4. Salicylic acid



AN: I1114

Antifungals

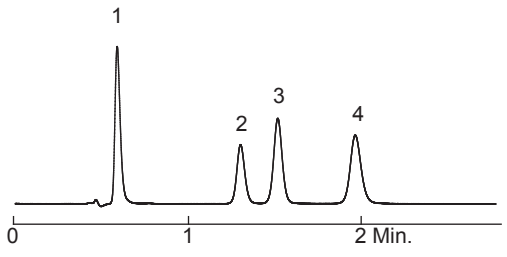
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 30:70
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 254 nm
Sample: 1. *p*-Aminobenzoic acid
2. Acetylsalicylic acid
3. Benzoic acid
4. Salicylic acid



AN: E1109

Antifungals

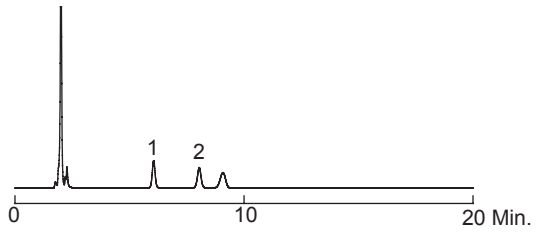
Column: Leapsil™ 2.7 µm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 30:70
Flow Rate: 0.3 mL/min
Temperature: 30 °C
Detection: UV 254 nm
Sample: 1. *p*-Aminobenzoic acid
2. Acetylsalicylic acid
3. Benzoic acid
4. Salicylic acid



AN: L1110

Benzoic Acid and Sorbic Acid in milk

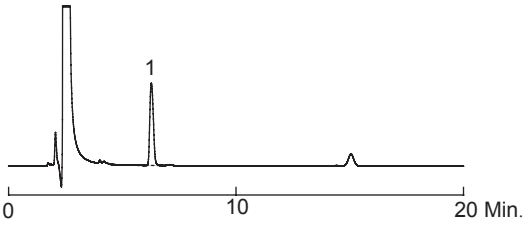
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: MeOH:phosphate buffer = 10:90
Flow Rate: 1.2 mL/min
Injection Volume: 10 µL
Temperature: 40 °C
Detection: UV 227 nm
Sample: 1. Benzoic acid
2. Sorbic acid



AN: S1156

Benzoyl Peroxide in Wheat Flour

Column: Spursil™ 5 µm C18, 250 x 4.6 mm
Cat. No.: **82006**
Mobile Phase: MeOH:20 mM acetate buffer = 10:90
Flow Rate: 1.0 mL/min
Injection Volume: 10 µL
Temperature: 30 °C
Detection: UV 230 nm
Sample: 1. Benzoyl peroxide

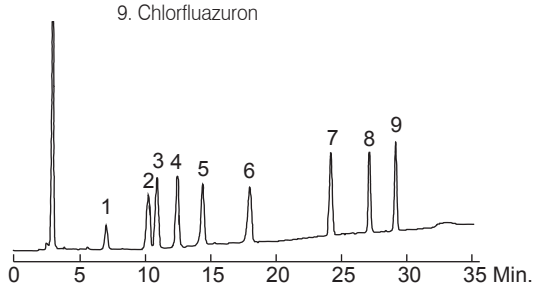


AN: S1157

Benzoylurea and Bishydrazide Mixture

Column: Inspire™ 5 µm C18, 250 x 4.6 mm
Cat. No.: **81006**
Mobile Phase A: MeOH
Mobile Phase B: H_2O
Flow Rate: 1.0 mL/min
Temperature: 30 °C
Detection: UV 248 nm
Sample: 1. Methoxyfenozide
2. Tebufenozide
3. Diflubenzuron
4. Chlorbenzuron
5. Triflumuron
6. Hexaflumuron
7. Teflubenzuron
8. Flufenoxuron
9. Chlorfluazuron

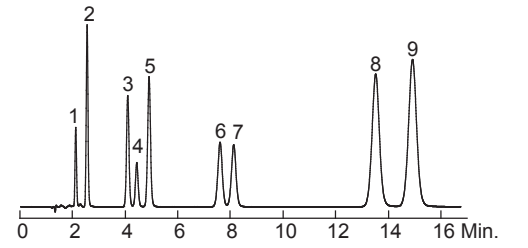
t / min.	0	5	15	30	32	40
A / %	75	75	80	95	75	75
B / %	25	25	20	5	25	25



AN: I1115

Caffeine Metabolites

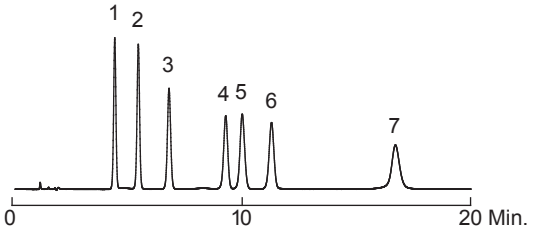
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeOH:1% CH_3COOH in H_2O = 10:90
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample: 1. Uric acid
2. Xanthine
3. 7-Methylxanthine
4. 1-Methyluric acid
5. 3-Methylxanthine
6. 1,3-Dimethyluric acid
7. Theobromine
8. 1,7-Dimethylxanthine
9. Theophylline



AN: I1123

Catechols and Resorcinols

Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: MeCN:0.1% HCOOH in H_2O = 25:75
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 270 nm
Sample:
1. Resorcinol
2. Catechol
3. 2-Methylresorcinol
4. 4-Methylcatechol
5. 2,5-Dimethylresorcinol
6. 3-Methylcatechol
7. 4-Nitrocatechol



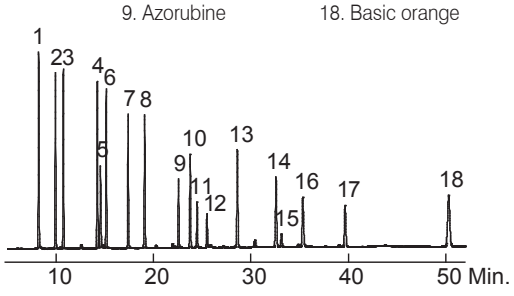
AN: S1158

Colorants

Column: Inspire™ 5 µm C18, 250 x 4.6 mm
Cat. No.: **81006**
Mobile Phase A: MeCN
Mobile Phase B: 0.05 M CH_3COONH_4
Flow Rate: 1.0 mL/min
Temperature: 35 °C
Detection: UV 254 nm

t / min.	0	20	50	52	60
A / %	5	30	50	5	5
B / %	95	70	50	95	95

Sample:
1. Tartrazine
2. Amaranth
3. Indigotin
4. Carmine
5. Brilliant black
6. Sunset yellow
7. Fancy red
8. Acid red 2G
9. Azorubine
10. Lissamine green B
11. Brilliant blue
12. Acid orange I
13. Erythrosine
14. Acid orange II
15. Patent blue V
16. Auramine
17. Acid yellow 36
18. Basic orange



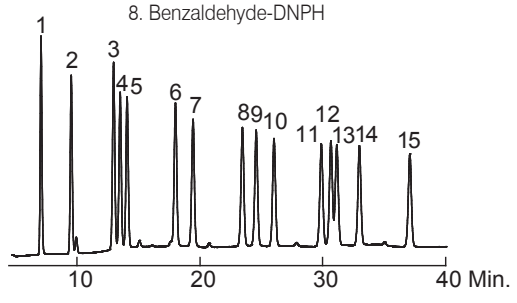
AN: I1117

Derivatized Carbonyl Compounds

Column: Inspire™ 5 µm C18, 250 x 4.6 mm
Cat. No.: **81006**
Mobile Phase A: MeOH
Mobile Phase B: H_2O
Flow Rate: 1.0 mL/min
Temperature: 35 °C
Detection: UV 360 nm
Injection Volume: 20 µL

t / min.	0	35	40	41	50
A / %	70	80	80	70	70
B / %	30	20	20	30	30

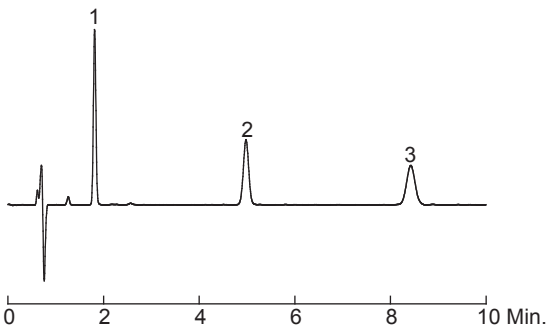
Sample:
1. Formaldehyde-DNPH
2. Acetaldehyde-DNPH
3. Acrolein-DNPH
4. Acetone-DNPH
5. Propionaldehyde-DNPH
6. Crotonaldehyde-DNPH
7. Butyraldehyde-DNPH
8. Benzaldehyde-DNPH
9. Isovaleraldehyde-DNPH
10. Valeraldehyde-DNPH
11. *o*-Tolualdehyde-DNPH
12. *m*-Tolualdehyde-DNPH
13. *p*-Tolualdehyde-DNPH
14. 2,5-Dimethylbenzaldehyde-DNPH
15. Hexaldehyde-DNPH



AN: I1118

Herbicides

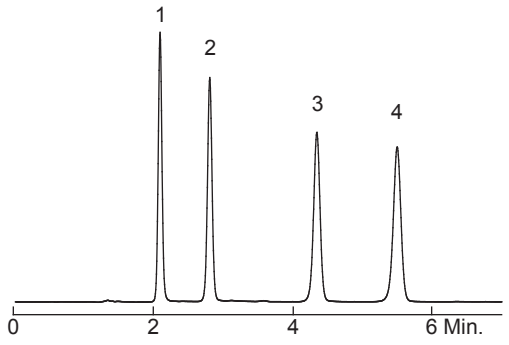
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 40:60
Flow Rate: 2.0 mL/min
Temperature: Ambient
Detection: UV 214 nm
Sample:
1. Dalapon
2. 2,4-D
3. 2,4,5-T



AN: I1119

Herbicides

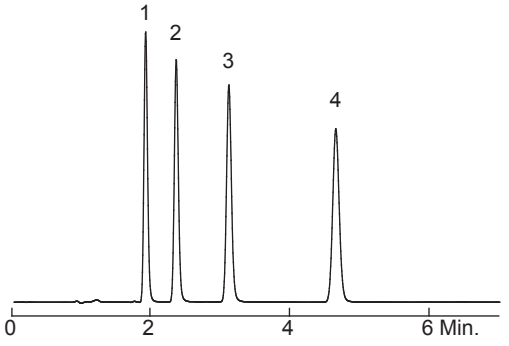
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: MeCN:H_2O = 60:40
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 214 nm
Sample: 1. Fenuron
2. Monuron
3. Diuron
4. Linuron



AN: S1159

Herbicides

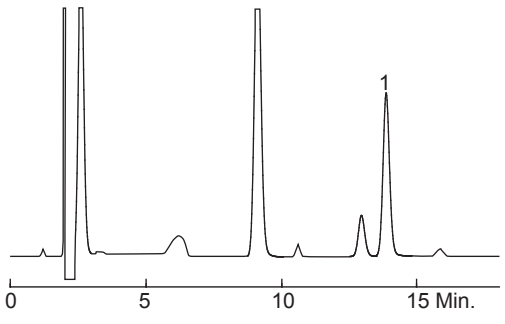
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: MeCN:H_2O = 60:40
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 214 nm
Sample: 1. Fenuron
2. Monuron
3. Diuron
4. Linuron



AN: S1160

Melamine

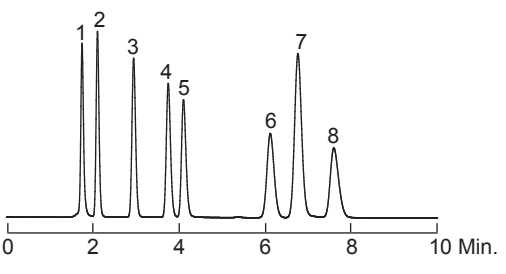
Column: Inspire™ 5 µm C18, 250 x 4.6 mm
Cat. No.: **81006**
Mobile Phase: MeCN:Buffer = 8:92
Flow Rate: 1.0 mL/min
Temperature: 30 °C
Detection: UV 214 nm
Sample: 1. Melamine



AN: I1110

Organic Acids

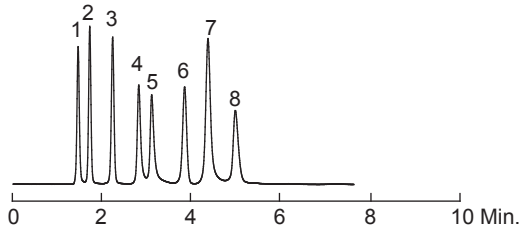
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 25 mM KH_2PO_4, (pH 2.5)
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 210 nm
Sample: 1. Oxalic acid
2. Tartaric acid
3. Malic acid
4. Lactic acid
5. Acetic acid
6. Citric acid
7. Fumaric acid
8. Succinic acid



AN: I1112

Organic Acids

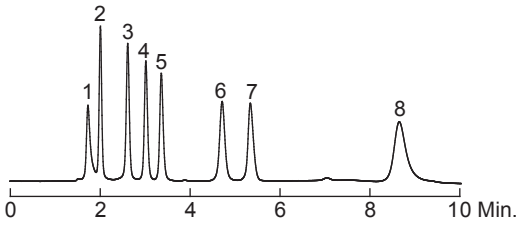
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: 25 mM KH_2PO_4, (pH 2.5)
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 210 nm
Sample:
1. Oxalic acid
2. Tartaric acid
3. Malic acid
4. Lactic acid
5. Acetic acid
6. Citric acid
7. Fumaric acid
8. Succinic acid



AN: S1161

Organic Acids

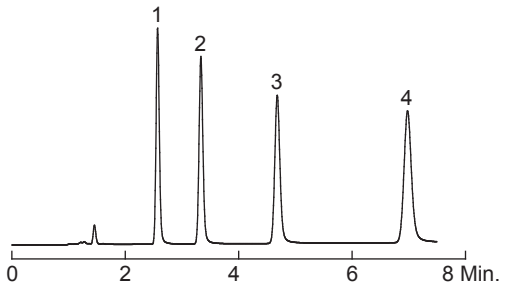
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: 25 mM KH_2PO_4, (pH 2.5)
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 210 nm
Sample:
1. Oxalic acid
2. Tartaric acid
3. Malic acid
4. Lactic acid
5. Acetic acid
6. Citric acid
7. Succinic acid
8. Fumaric acid



AN: S1162

Parabens

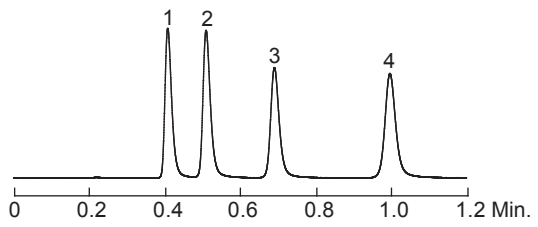
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeCN:20 mM K_2HPO_4 (pH 7) = 50:50
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 254 nm
Sample:
1. Methyl paraben
2. Ethyl paraben
3. Propyl paraben
4. Butyl paraben



AN: I1113

Parabens

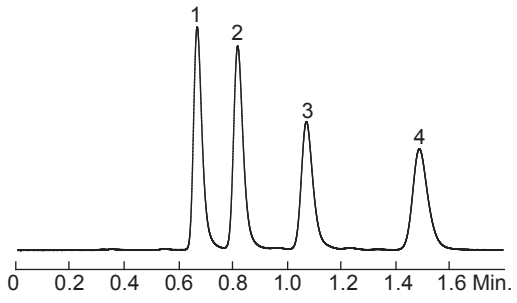
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: MeCN:20 mM K_2HPO_4 (pH 7) = 50:50
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 254 nm
Sample:
1. Methyl paraben
2. Ethyl paraben
3. Propyl paraben
4. Butyl paraben



AN: E1110

Parabens

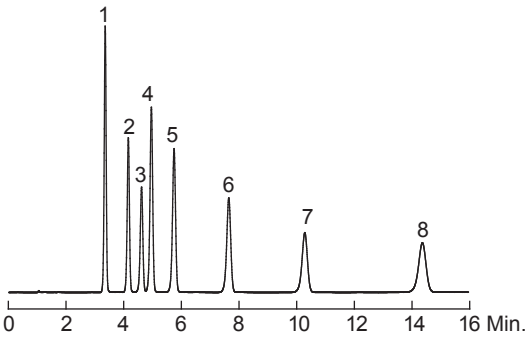
Column: Leapsil™ 2.7 µm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: MeCN:20 mM K_2HPO_4 (pH 7) = 55:45
Flow Rate: 0.3 mL/min
Temperature: 30 °C
Detection: UV 254 nm
Sample: 1. Methyl paraben
2. Ethyl paraben
3. Propyl paraben
4. Butyl paraben



AN: L1108

Phenols

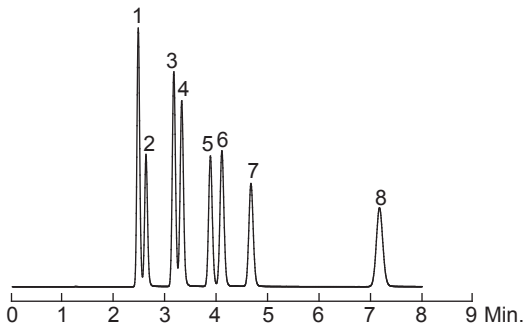
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 55:45
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 280 nm
Sample: 1. Phenol
2. 2-Nitrophenol
3. 4-Nitrophenol
4. 2-Chlorophenol
5. 4-Chlorophenol
6. 4-Chloro-3-methylphenol
7. 2,4-Dichlorophenol
8. 2,4,6-Trichlorophenol



AN: S1163

Phenols

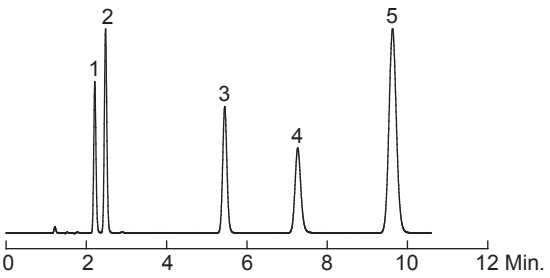
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 55:45
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 280 nm
Sample: 1. Phenol
2. 4-Nitrophenol
3. 2-Chlorophenol
4. 4-Chlorophenol
5. 2-Nitrophenol
6. 4-Chloro-3-methylphenol
7. 2,4-Dichlorophenol
8. 2,4,6-Trichlorophenol



AN: S1174

Polar Acids

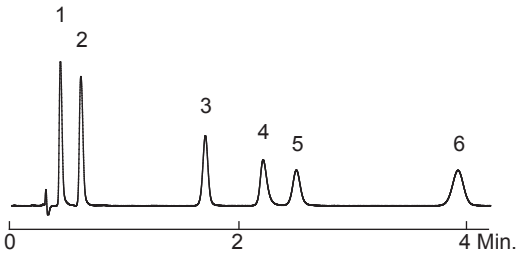
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 30:70
Flow Rate: 0.3 mL/min
Detection: UV 254 nm
Sample: 1. *p*-Aminobenzoic acid
2. Homovanillic acid
3. Sorbic acid
4. *p*-Nitrobenzoic acid
5. *p*-Toluic acid



AN: I1125

Polar Acids

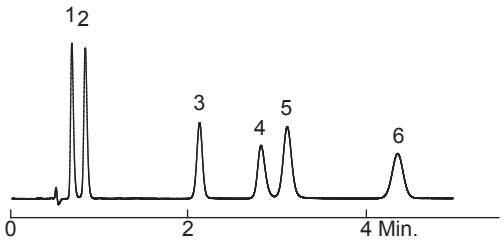
Column: Endeavorsil™ 1.8 µm C18, 50 x 2.1 mm
Cat. No.: **87002**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 20:80
Flow Rate: 0.5 mL/min
Temperature: 30 °C
Detection: UV 254 nm
Sample:
1. *p*-Aminobenzoic acid
2. Homovanillic acid
3. Sorbic acid
4. Salicylic acid
5. *p*-Chlorobenzoic acid
6. *p*-Nitrobenzoic acid



AN: E1111

Polar Acids

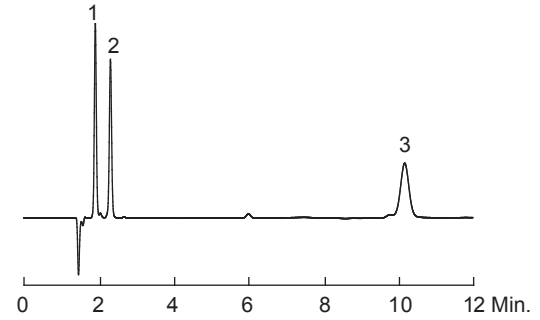
Column: Leapsil™ 2.7 µm C18, 50 x 2.1 mm
Cat. No.: **86004**
Mobile Phase: 0.1% HCOOH in MeCN:0.1% HCOOH in H_2O = 25:75
Flow Rate: 0.3 mL/min
Detection: UV 254 nm
Sample:
1. *p*-Aminobenzoic acid
2. Homovanillic acid
3. Sorbic acid
4. Salicylic acid
5. *p*-Nitrobenzoic acid
6. *p*-Toluic acid



AN: L1109

Sweeteners

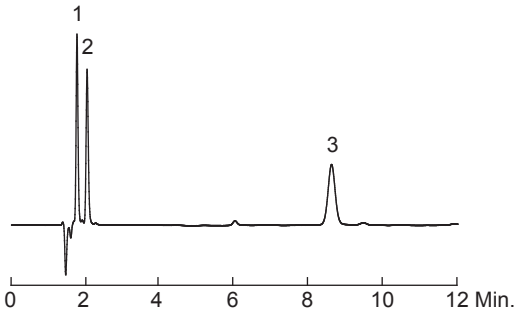
Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: MeOH:20 mM CH_3COONH_4 (pH 5) = 30:70
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 210 nm
Sample:
1. Acesulfame K
2. Sodium saccharin
3. Aspartame



AN: I1120

Sweeteners

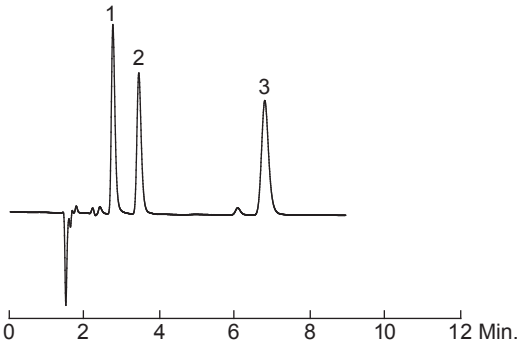
Column: Spursil™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **82001**
Mobile Phase: MeOH:20 mM CH_3COONH_4 (pH 5) = 30:70
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 210 nm
Sample:
1. Acesulfame K
2. Sodium saccharin
3. Aspartame



AN: S1164

Sweeteners

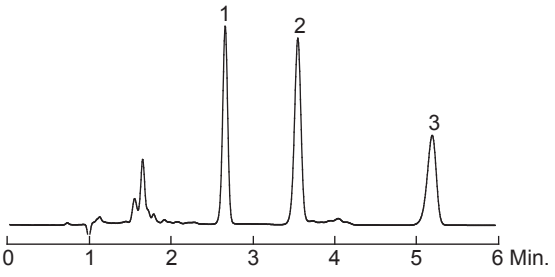
Column: Spursil™ 5 µm C18-EP, 150 x 4.6 mm
Cat. No.: **82101**
Mobile Phase: MeOH:20 mM CH_3COONH_4 (pH 5) = 30:70
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 210 nm
Sample: 1. Acesulfame K
2. Sodium saccharin
3. Aspartame



AN: S1165

Unsaturated Fatty Acids

Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase: 0.1% TFA in MeCN:0.1% TFA in H_2O = 95:5
Flow Rate: 1.5 mL/min
Temperature: Ambient
Detection: UV 214 nm
Sample: 1. Linolenic acid
2. Linoleic acid
3. Oleic acid

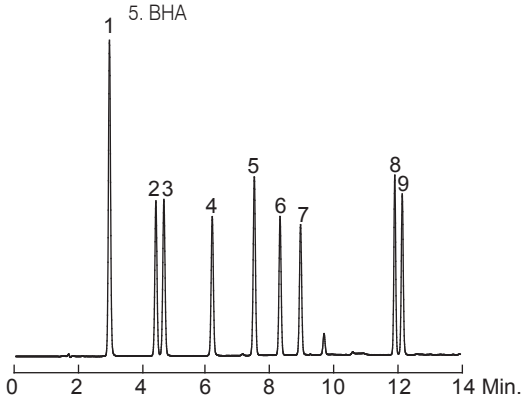


AN: I1121

Antioxidants

Column: Inspire™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **81001**
Mobile Phase A: 5% CH_3COOH in H_2O
Mobile Phase B: MeCN:MeOH = 50:50
Flow Rate: 1.0 mL/min
Temperature: Ambient
Detection: UV 280 nm
Sample: 1. Propyl gallate
2. TBHQ
3. THBP
4. NDGA
5. BHA
6. Ionox 100
7. Octyl gallate
8. BHT
9. Lauryl gallate

t / min.	0	10
A / %	50	0
B / %	50	100

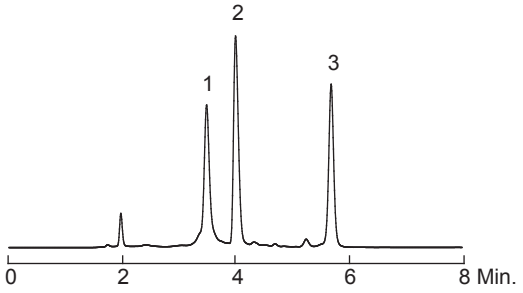


AN: I1122

Proteins

Column: Bio-Bond™ 5 µm C18, 150 x 4.6 mm
Cat. No.: **84001**
Mobile Phase A: 0.1% TFA in H_2O
Mobile Phase B: 0.1% TFA in MeCN
Flow Rate: 1.0 mL/min
Detection: UV 280 nm
Sample: 1. Cytochrome C
2. Insulin
3. Lysozymes

t / min.	0	10
A / %	70	50
B / %	30	50

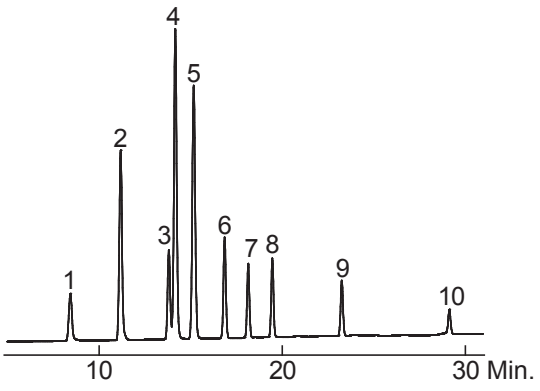


AN: B1101

Others

Phenols

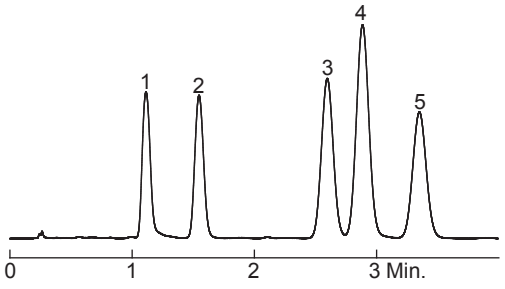
Column:	Spursil™ 5 μm C18-EP, 150 x 4.6 mm	
Cat. No.:	**82101**	
Mobile Phase:	MeCN:0.1% HCOOH in H_2O = 25:75	
Flow Rate:	1.0 mL/min	
Temperature:	Ambient	
Detection:	UV 270 nm	
Sample:	1. Phenol	6. 2,4-Dimethylphenol
	2. 4-Nitrophenol	7. 4-Chloro-3-methylphenol
	3. 2-Chlorophenol	8. 2,4-Dichlorophenol
	4. 2,4-Dinitrophenol	9. 2,4,6-Trichlorophenol
	5. 2-Nitrophenol	10. Pentachlorophenol



AN: S1166

Steroids

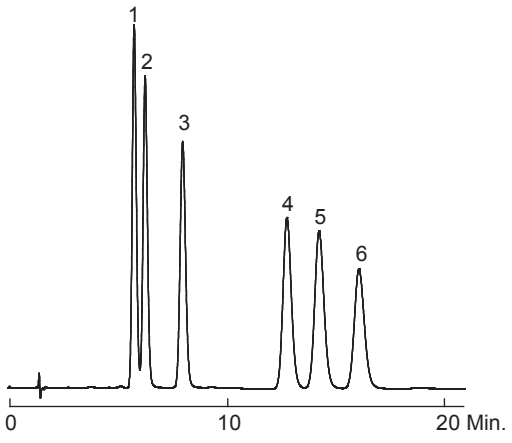
Column:	Endeavorsil™ 1.8 μm C18, 50 x 2.1 mm
Cat. No.:	**87002**
Mobile Phase:	MeOH:H_2O = 50:50
Flow Rate:	0.5 mL/min
Temperature:	30 °C
Detection:	UV 254 nm
Sample:	1. Prednisone
	2. Prednisolone
	3. Dexamethasone
	4. Hydrocortisone 21-acetate
	5. 11-α-Hydroprogesterone



AN: E1112

Steroids

Column:	Inspire™ 5 μm C18, 150 x 4.6 mm	
Cat. No.:	**81001**	
Mobile Phase:	MeOH:H_2O = 55:45	
Flow Rate:	1.0 mL/min	
Temperature:	Ambient	
Detection:	UV 254 nm	
Sample:	1. Prednisone	4. Dexamethasone
	2. Cortisone	5. Hydrocortisone 21-acetate
	3. Prednisolone	6. 11-α-Hydroxyprogesterone



AN: I1123

Industry Index

Product Index

DM-1 / DM-1MS

DM-5 / DM-5MS

DM-5 Amine

DM-5MS / LB

DM-17

GC Applications Index

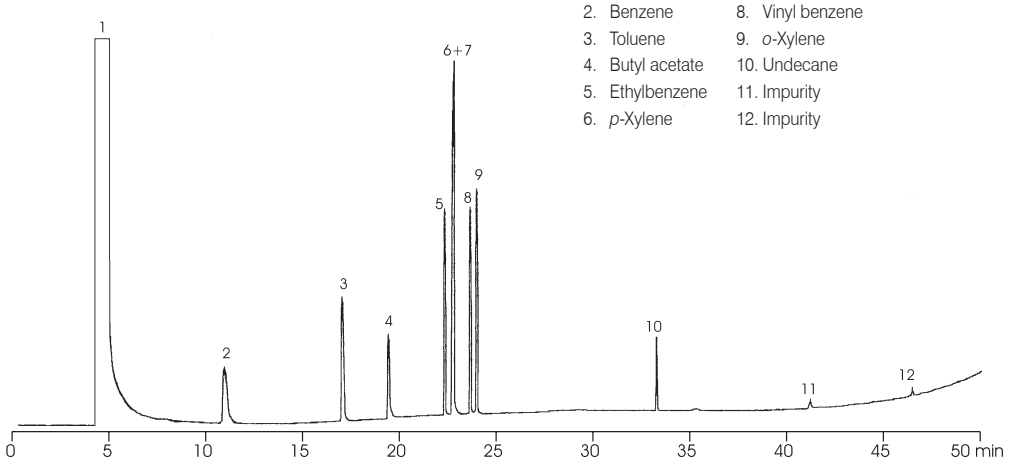
GC Applications Index

DM-Wax Amine

TVOCs

Column: DM-TVOC, 50 m x 0.32 mm x 1.00 µm
Cat. No.: **7831**
Index: CEO00010
Carrier Gas: N_2
Oven Temp.: 50 °C (hold 10 min) to 250 °C at 5 °C/min
Injection: Split, 10:1, 250 °C 1 µL
Detector: FID, 250 °C

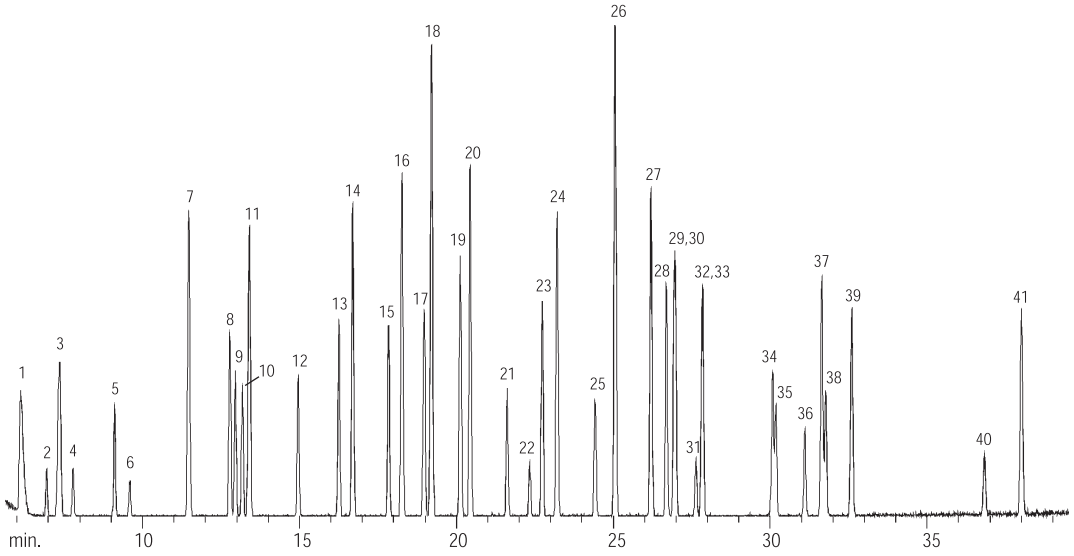
1. Methanol
2. Benzene
3. Toluene
4. Butyl acetate
5. Ethylbenzene
6. *p*-Xylene
7. *m*-Xylene
8. Vinyl benzene
9. *o*-Xylene
10. Undecane
11. Impurity
12. Impurity



Air Sample TO-14

Column: DM-1, 60 m x 0.32 mm x 3.00 µm
Cat. No.: **7142**
Index: CER00018
Oven Temp.: 30 °C (hold 4 min) to 250 °C (hold 15 min) at 7 °C/min
Carrier Gas: He, 21 cm/sec, 30 °C
Detector: MS, 250 °C
Ionization: EI
Scan Range: 34-280 AMU
Cryotrap Temp.: -160 °C
Cryotrap Desorb Temp.: 150 °C

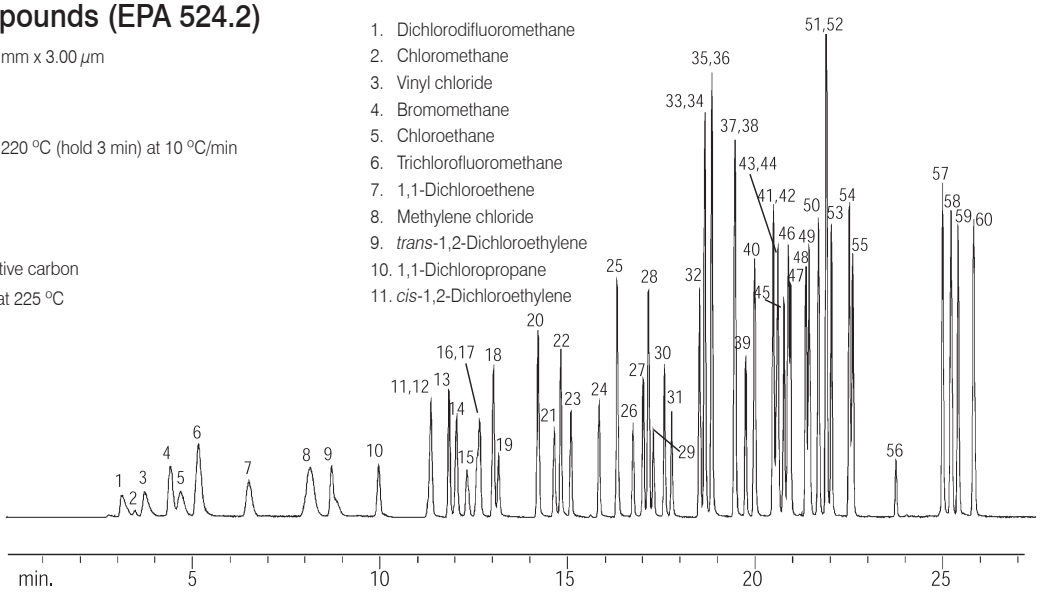
1. Dichlorodifluoromethane
2. Chloromethane
3. 1,2- Dichlorotetrafluoroethane
4. Vinyl chloride
5. Bromomethane
6. Chloroethane
7. Trichlorofluoromethane
8. 1,1-Dichloroethene
9. Methylene chloride
10. 3-Chloropropene
11. 1,1,2-Trichloro-1,2,2-trifluoroethane
12. 1,1-Dichloroethane
13. *cis*-1,2-Dichloroethene
14. Chloroform
15. 1,2-Dichloroethane
16. 1,1,1-Trichloroethane
17. Benzene
18. Carbon tetrachloride
19. 1,2-Dichloropropane
20. Trichloroethylene
21. *cis*-1,3-Dichloropropene
22. *trans*-1,3-Dichloropropene
23. 1,1,2-Trichloroethane
24. Toluene
25. 1,2-Dibromoethane
26. Tetrachloroethene
27. Chlorobenzene
28. Ethylbenzene
29. *m*-Xylene
30. *p*-Xylene
31. Styrene
32. *o*-Xylene
33. 1,1,2,2-Tetrachloroethane
34. 4-Methyltoluene
35. 1,3,5-Trimethylbenzene
36. 1,2,4-Trimethylbenzene
37. 1,3-Dichlorobenzene
38. 1,4-Dichlorobenzene
39. 1,2-Dichlorobenzene
40. 1,2,4-Trichlorobenzene
41. Hexachlorobutadiene



Volatile Organic Compounds (EPA 524.2)

Column:	DM-624, 75 m x 0.53 mm x 3.00 µm
Cat. No.:	**7752**
Index:	CER00011
Oven Temp.:	35 °C (hold 8 min) to 220 °C (hold 3 min) at 10 °C/min
Detector:	MS, 250 °C
Scan Range:	45 - 300 AMU
Purging Time:	11 min
Sorbent Tube:	Tenax / Silica gel / Active carbon
Desorb Temp.:	220 °C (hold 2 min), at 225 °C
Desorb Speed.:	10 mL/min

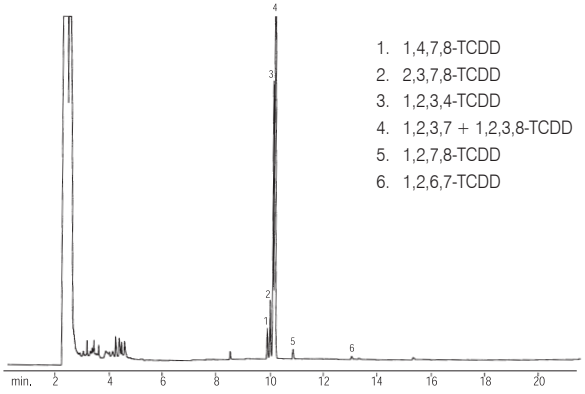
1. Dichlorodifluoromethane
2. Chloromethane
3. Vinyl chloride
4. Bromomethane
5. Chloroethane
6. Trichlorofluoromethane
7. 1,1-Dichloroethene
8. Methylene chloride
9. *trans*-1,2-Dichloroethylene
10. 1,1-Dichloropropane
11. *cis*-1,2-Dichloroethylene



12. 2,2-Dichloropropane
13. Chlorobromomethane
14. Chloroform
15. 1,1,1-Trichloroethane
16. Tetrachloromethane
17. 1,1-Dichloropropene
18. Benzene
19. 1,2-Dichloroethane
20. Trichloroethylene
21. 1,2-Dichloropropane
22. Dibromomethane
23. Bromodichloromethane
24. *cis*-1,3-Dichloropropene
25. Toluene
26. *trans*-1,3-Dichloropropene
27. 1,1,2-Trichloroethane
28. Tetrachloroethylene
29. 1,3-Dichloropropane
30. Dibromochloromethane
31. 1,2-Dibromoethane
32. Chlorobenzene
33. 1,1,1,2-Tetrachloroethane
34. Ethylbenzene
35. *m*-Xylene
36. *p*-Xylene
37. *o*-Xylene
38. Styrol
39. Bromoform
40. Anisoxide
41. Bromobenzene
42. 1,1,2,2-Tetrachloroethane
43. 1,2,3-Trichloropropane
44. Propylbenzene
45. 2-Chlorotoluene
46. 1,3,5-Trimethylbenzene
47. 4-Chlorotoluene
48. *tert*-Butylbenzene
49. 1,2,4-Trimethylbenzene
50. *sec*-Butylbenzene
51. 1,3-Dichlorobenzene
52. *p*-Isopropyl toluene
53. 1,4-Dichlorobenzene
54. *n*-Butylbenzene
55. 1,2-Dichlorobenzene
56. 1,2-Dibromo-3-chloropropane
57. 1,2,4-Trichlorobenzene
58. Hexachlorobutadiene
59. Naphthalene
60. 1,2,3-Trichlorobenzene

Dioxins

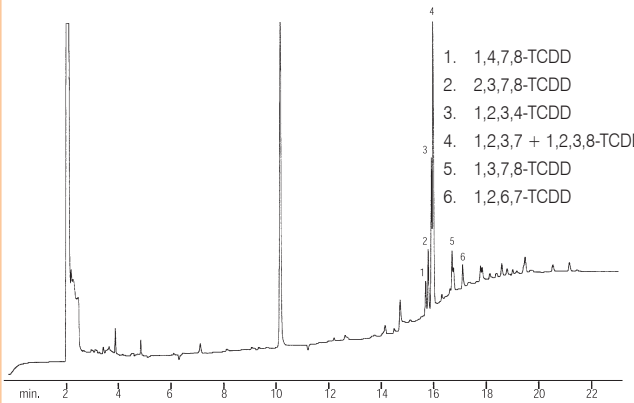
Column:	DM-2330, 60 m x 0.25 mm x 0.20 µm
Cat. No.:	**8624**
Index:	CER00108
Oven Temp.:	200 °C (hold 1 min) to 250 °C (hold 15 min) at 8 °C/min, to 275 °C (hold 5 min) at 15 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Splitless, 275 °C
Sample:	TCDD isomers, 2.0 µL
Detector:	ECD, 21 kHz full scale, 275 °C



1. 1,4,7,8-TCDD
2. 2,3,7,8-TCDD
3. 1,2,3,4-TCDD
4. 1,2,3,7 + 1,2,3,8-TCDD
5. 1,2,7,8-TCDD
6. 1,2,6,7-TCDD

Dioxins

Column:	DM-2330, 60 m x 0.32 mm x 0.20 µm
Cat. No.:	**8634**
Index:	CER00109
Oven Temp.:	200 °C (hold 1 min) to 240 °C (hold 6 min) at 3 °C/min, to 275 °C (hold 30 min) at 15 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Cold on-column, 275 °C
Sample:	TCDD isomers, 1.5 µL
Detector:	ECD, 5 kHz full scale, 275 °C

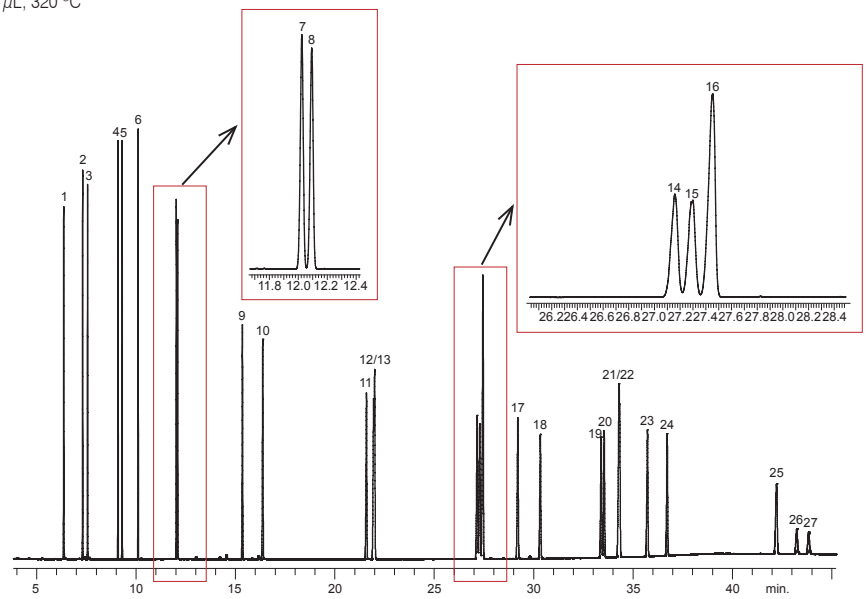


1. 1,4,7,8-TCDD
2. 2,3,7,8-TCDD
3. 1,2,3,4-TCDD
4. 1,2,3,7 + 1,2,3,8-TCDD
5. 1,3,7,8-TCDD
6. 1,2,6,7-TCDD

PAHs

Column:	DM-PAH, 30 m x 0.25 mm x 0.25 μm
Cat. No.:	**8862**
Index:	CER1160
Sample:	EPA 8310 PAHs in dichloromethane solution, 10 ppm
Oven Temp.:	65 °C (hold 0.5 min) to 220 °C at 15 °C/min, to 330 °C (hold 15 min) at 4 °C/min
Carrier Gas:	He, 2.0 mL/min
Injection:	Splitless (hold 1.75 min), 0.5 μL, 320 °C
Makeup Gas:	75 mL/min
Detector:	FID, 320 °C

1. Naphthalene
2. 2-Methylnaphthalene
3. 1-Methylnaphthalene
4. Acenaphthylene
5. Acenaphthene
6. Fluorene
7. Phenanthrene
8. Anthracene
9. Fluoranthene
10. Pyrene
11. Benzo[a]anthracene
12. Chrysene
13. Triphenylene
14. Benzo[b]fluoranthene
15. Benzo[k]fluoranthene
16. Benzo[j]fluoranthene
17. Benzo[a]pyrene
18. 3-Methylcholanthrene
19. Dibenzo[a,h]acridine
20. Dibenzo[a,j]acridine
21. Indeno[1,2,3-cd]pyrene
22. Dibenzo[a,h]anthracene
23. Benzo[ghi]perylene
24. 7H-Dibenzo[c,g]carbazole
25. Dibenzo[a,e]pyrene
26. Dibenzo[a,i]pyrene
27. Dibenzo[a,h]pyrene

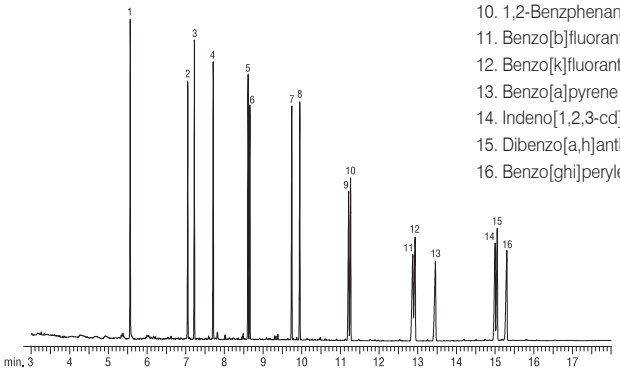


PAHs (EPA 610)

Column:	DM-5 MS / LB, 30 m x 0.25 mm x 0.25 μm
Cat. No.:	**8721**
Index:	CER00595
Oven Temp.:	40 °C (hold 2 min) to 250 °C at 25 °C/min to 265 °C at 5 °C/min , to 300 °C (hold 4 min) at 25 °C/min
Carrier Gas:	H_2, 4 mL/min constant flow
Injection:	Splitless hold 2 min, 330 °C 2 mm splitless inlet liner w / wool
Sample:	PAHs standard, 1.0 μL, 50 μg/mL
Detector:	FID, 350 °C

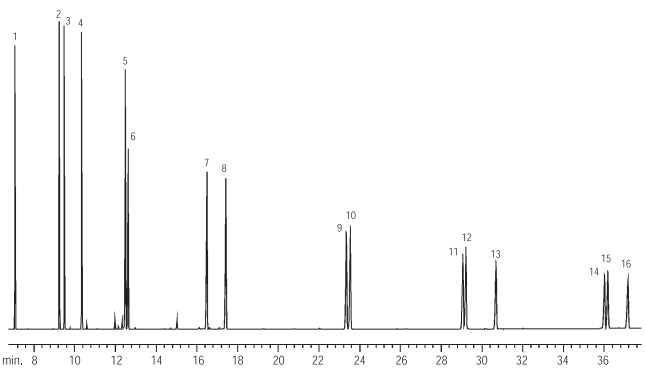
V.S.

1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo[a]anthracene
10. 1,2-Benzphenanthrene
11. Benzo[b]fluoranthene
12. Benzo[k]fluoranthene
13. Benzo[a]pyrene
14. Indeno[1,2,3-cd]pyrene
15. Dibenzo[a,h]anthracene
16. Benzo[ghi]perylene



PAHs (EPA 610)

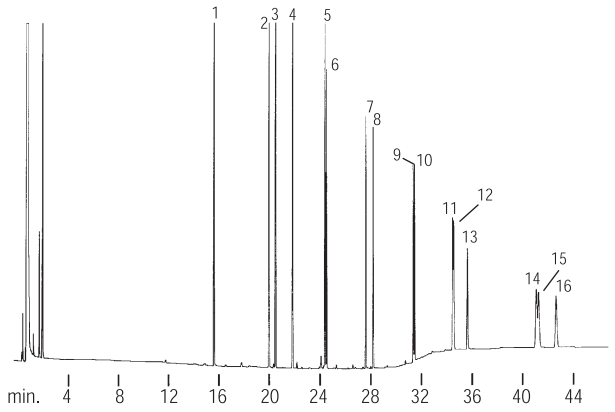
Column:	DM-5 MS / LB, 30 m x 0.25 mm x 0.50 μm
Cat. No.:	**8723**
Index:	CER00549
Oven Temp.:	40 °C (hold 1 min) to 200 °C at 20 °C/min to 310 °C (hold 5 min) at 4 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Splitless hold 1 min, 300 °C
Sample:	PAHs standard, 1.0 μL, 20 ng/μL
Detector:	FID, 310 °C



PAHs (EPA 610)

Column: DM-5, 30 m x 0.53 mm x 1.50 μm
Cat. No.: **7251**
Index: CER00043
Oven Temp.: 4 °C (hold 6 min) to 300 °C (hold 15 min) at 10 °C/min
Carrier Gas: H_2, 80 cm/sec
Injection: Direct, 300 °C
Sample: PAHs standard, 2.5 μL
Detector: FID, 8 x 10^{-11} AFS, 300 °C

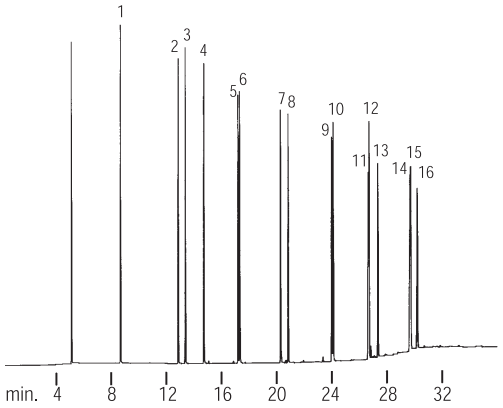
1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo[a]anthracene
10. 1,2-Benzphenanthrene
11. Benzo[b]fluoranthene
12. Benzo[k]fluoranthene
13. Benzo[a]pyrene
14. Indeno[1,2,3-cd]pyrene
15. Dibenzo[a,h]anthracene
16. Benzo[ghi]perylene



PAHs (EPA 610)

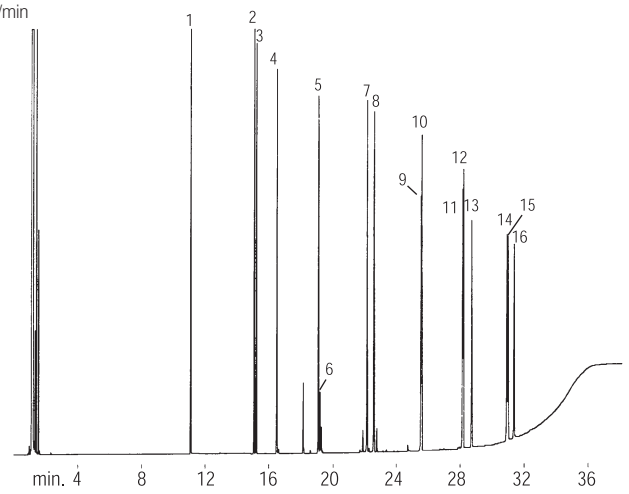
Column: DM-5, 30 m x 0.32 mm x 0.25 μm
Cat. No.: **7231**
Index: CER00376
Oven Temp.: 35 °C (hold 4 min) to 325 °C at 10 °C/min
Carrier Gas: H_2, 40 cm/sec
Injection: Direct, cold on-column
Sample: PAHs standard, 0.5 μL
Detector: FID, 8 x 10^{-11} AFS, 325 °C

1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo[a]anthracene
10. 1,2-Benzphenanthrene
11. Benzo[b]fluoranthene
12. Benzo[k]fluoranthene
13. Benzo[a]pyrene
14. Indeno[1,2,3-cd]pyrene
15. Dibenzo[a,h]anthracene
16. Benzo[ghi]perylene



PAHs (EPA 610)

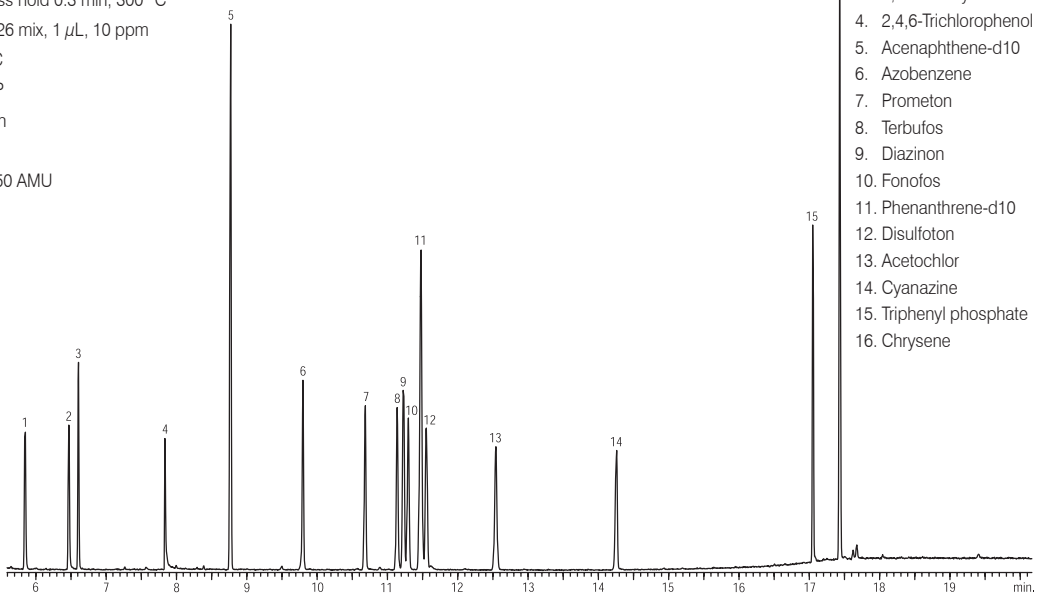
Column: DM-200, 30 m x 0.25 mm x 0.25 μm
Cat. No.: **8321**
Index: CER00044
Oven Temp.: 40 °C (hold 4 min) to 340 °C at 10 °C/min
Carrier Gas: H_2, 40 cm/sec
Injection: Split, 40:1, 340 °C
Sample: PAHs standard, 1.2 μL
Detector: FID, 16 x 10^{-11} AFS, 340 °C



1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo[a]anthracene
10. 1,2-Benzphenanthrene
11. Benzo[b]fluoranthene
12. Benzo[k]fluoranthene
13. Benzo[a]pyrene
14. Indeno[1,2,3-cd]pyrene
15. Dibenzo[a,h]anthracene
16. Benzo[ghi]perylene

Volatile Organic Compounds (EPA 526)

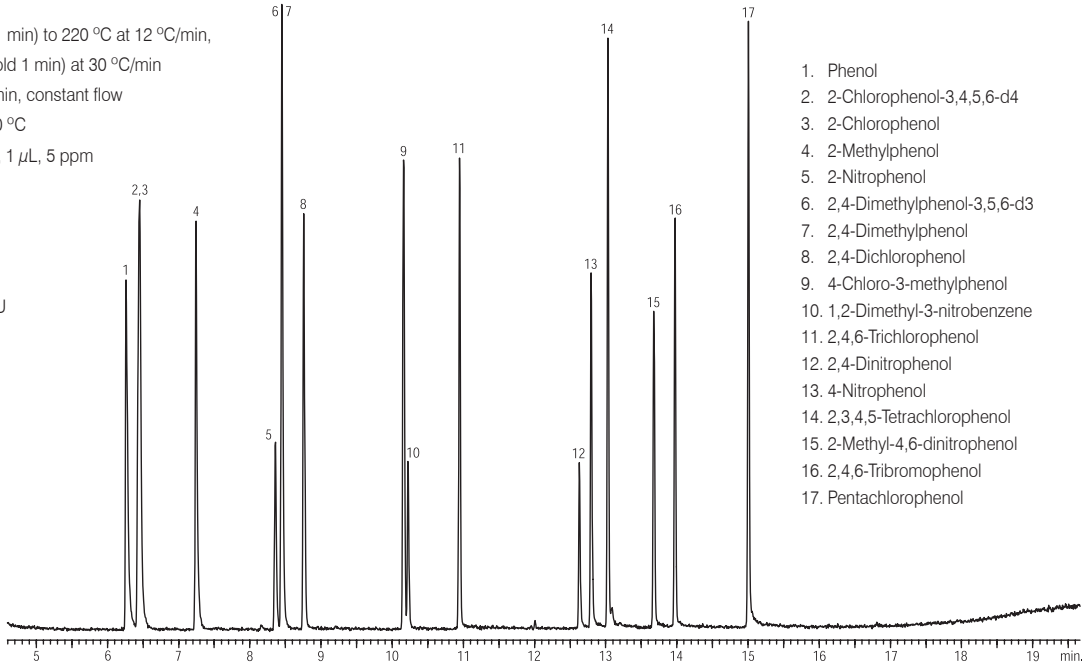
Column:	DM-5 MS / LB, 30 m x 0.25 mm x 0.25 μm
Cat. No.:	**8721**
Index:	CER00656
Oven Temp.:	50 °C (hold 1 min) to 200 °C (hold 5 min) at 20 °C/min, to 310 °C (hold 3 min) at 30 °C/min
Carrier Gas:	He, 0.8 mL/min
Injection:	Splitless hold 0.3 min, 300 °C
Sample:	EPA 526 mix, 1 μL, 10 ppm
Transfer line Temp.:	280 °C
Tune:	DFTPP
Solvent Delay:	5.5 min
Ionization:	EI
Scan Range:	35 - 550 AMU
Detector:	MS



1. Nitrobenzene
2. 2,4-Dichlorophenol
3. 1,3-Dimethyl-2-nitrobenzene
4. 2,4,6-Trichlorophenol
5. Acenaphthene-d10
6. Azobenzene
7. Prometon
8. Terbufos
9. Diazinon
10. Fonofos
11. Phenanthrene-d10
12. Disulfoton
13. Acetochlor
14. Cyanazine
15. Triphenyl phosphate
16. Chrysene

Phenols (EPA 528)

Column:	DM-5 MS / LB, 30 m x 0.25 mm x 0.25 μm
Cat. No.:	**8721**
Index:	CER00664
Oven Temp.:	40 °C (hold 1 min) to 220 °C at 12 °C/min, to 300 °C (hold 1 min) at 30 °C/min
Carrier Gas:	He, 1.3 mL/min, constant flow
Injection:	Splitless, 220 °C
Sample:	EPA 528 mix, 1 μL, 5 ppm
Transfer line Temp.:	280 °C
Tune:	DFTPP
Solvent Delay:	5.5 min
Ionization:	EI
Scan Range:	35 - 550 AMU
Detector:	MS

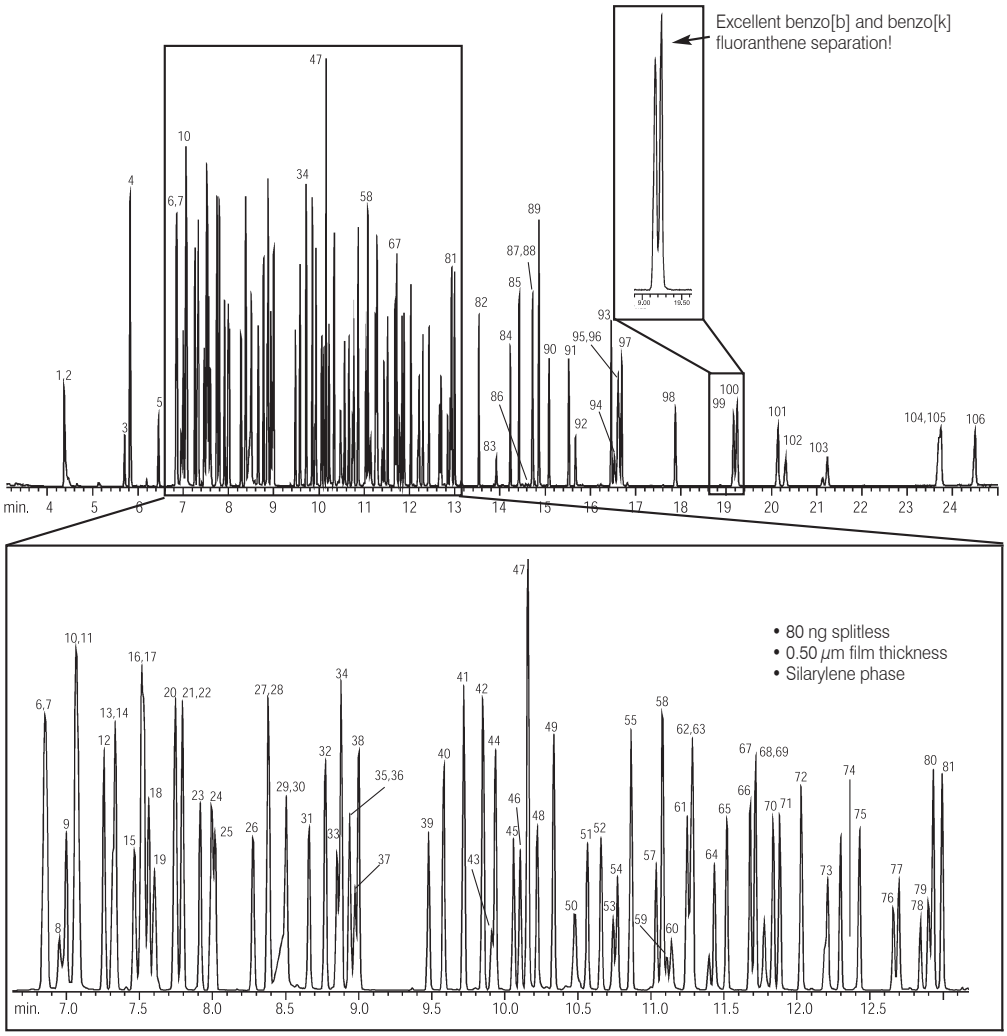


1. Phenol
2. 2-Chlorophenol-3,4,5,6-d4
3. 2-Chlorophenol
4. 2-Methylphenol
5. 2-Nitrophenol
6. 2,4-Dimethylphenol-3,5,6-d3
7. 2,4-Dimethylphenol
8. 2,4-Dichlorophenol
9. 4-Chloro-3-methylphenol
10. 1,2-Dimethyl-3-nitrobenzene
11. 2,4,6-Trichlorophenol
12. 2,4-Dinitrophenol
13. 4-Nitrophenol
14. 2,3,4,5-Tetrachlorophenol
15. 2-Methyl-4,6-dinitrophenol
16. 2,4,6-Tribromophenol
17. Pentachlorophenol

Semi-volatile Organic Compounds

Column:	DM-5MS / LB, 30 m x 0.25 mm x 0.50 μm
Cat. No.:	**8723**
Index:	CER00532
Oven Temp.:	40 °C (hold 2 min) to 290 °C at 20 °C/min, to 303 °C at 2 °C/min, to 330 °C (hold 1 min) at 6 °C/min
Carrier Gas:	He, 1.0 mL/min, constant flow
Injection:	Splitless, 300 °C
Sample:	EPA 8270 standard, 80 ng
Scan Range:	35 - 550 AMU
Detector:	MS, 280 °C

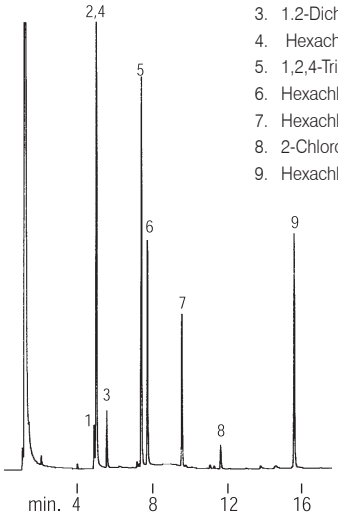
1. *N*-Nitrosodimethylamine
2. Pyridine
3. Methyl methanesulfonate
4. 2-Fluorophenol
5. Ethyl methanesulfonate
6. Phenol-d6
7. Phenol
8. Aniline
9. *bis*(2-Chloroethyl)ether
10. 2-Chlorophenol-d4
11. 2-Chlorophenol
12. 1,3-Dichlorobenzene
13. 1,4-Dichlorobenzene-d4
14. 1,4-Dichlorobenzene
15. Benzyl alcohol
16. 1,2-Dichlorobenzene-d4
17. 1,2-Dichlorobenzene
18. 2-Methylphenol
19. *bis*(2-Chloroisopropyl)ether
20. 4-Methylphenol / 3-Methylphenol
21. *N*-Nitroso-*di*-*n*-propylamine
22. Acetophenone
23. Hexachloroethane
24. Nitrobenzene-d5
25. Nitrobenzene
26. Isophorone
27. 2,4-Dimethylphenol
28. 2-Nitrophenol
29. Benzoic acid
30. *bis*(2-Chloroethoxy)methane
31. 2,4-Dichlorophenol
32. 1,2,4-Trichlorobenzene
33. Naphthalene-d8
34. Naphthalene
35. 2,6-Dichlorophenol
36. 4-Chloroaniline
37. Hexachloropropene
38. Hexachlorobutadiene
39. 4-Chloro-3-methylphenol
40. Isosafrole
41. 2-Methylnaphthalene
42. 1-Methylnaphthalene
43. Hexachlorocyclopentadiene
44. 1,2,4,5-Tetrachlorobenzene
45. 2,4,6-Trichlorophenol
46. 2,4,5-Trichlorophenol
47. 2-Fluorobiphenyl
48. Safrole
49. 2-Chloronaphthalene
50. 2-Nitroaniline
51. 1,4-Naphthoquinone
52. Dimethylphthalate
53. 1,3-Dinitrobenzene
54. 2,6-Dinitrotoluene
55. Acenaphthylene
56. 3-Nitroaniline
57. Acenaphthene-d10
58. Acenaphthene
59. 2,4-Dinitrophenol
60. 4-Nitrophenol
61. Pentachlorobenzene
62. 2,4-Dinitrotoluene
63. Dibenzofuran
64. 2,3,4,6-Tetrachlorophenol
65. Diethyl phthalate
66. 4-Chlorophenyl phenyl ether
67. Fluorene
68. 4-Nitroaniline
69. 4,6-Dinitro-2-methylphenol
70. Diphenylamine
71. Azobenzene
72. 2,4,6-Tribromophenol
73. Phenacetin
74. 4-Bromophenyl phenyl ether
75. Hexachlorobenzene
76. Pentachlorophenol
77. Pentachloronitrobenzene
78. Dinoseb
79. Phenanthrene-d10
80. Phenanthrene
81. Anthracene
82. *di*-*n*-Butylphthalate
83. 4-Nitroquinoline-1-oxide
84. Isodrin
85. Fluoranthene
86. Benzidine
87. Pyrene
88. Aramite
89. *p*-Terphenyl-d14
90. Chlorbenzilate
91. Benzyl butyl phthalate
92. Kepone
93. *bis*(2-Ethylhexyl)phthalate
94. 3,3'-Dichlorobenzidine
95. Benzo[a]anthracene
96. Chrysene-d12
97. Chrysene
98. *di*-*n*-Octyl phthalate
99. Benzo[b]fluoranthene
100. Benzo[k]fluoranthene
101. Benzo[a]pyrene
102. Perylene-d12
103. 3-Methylcholanthrene
104. Indeno[1,2,3-cd]pyrene
105. Dibenzo[a,h]anthracene
106. Benzo[ghi]perylene



Chlorinated Hydrocarbons (EPA 612)

Column:	DM-200, 30 m x 0.53 mm x 0.50 μm
Cat. No.:	**8347**
Index:	CER00051
Oven Temp.:	40 °C to 280 °C (hold 5 min) at 8 °C/min
Carrier Gas:	He, 40 cm/sec, 40 °C
Injection:	Direct, 275 °C
Sample:	Chlorinated hydrocarbons mix, 0.5 μL
Detector:	220 °C

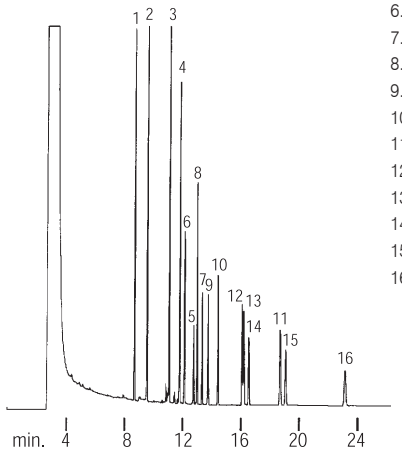
1. 1,3-Dichlorobenzene
2. 1,4-Dichlorobenzene
3. 1.2-Dichlorobenzene
4. Hexachloroethane
5. 1,2,4-Trichlorobenzene
6. Hexachlorobutadiene
7. Hexachlorocyclopentadiene
8. 2-Chloronaphthalene
9. Hexachlorobenzene



PAEs (EPA 8060)

Column:	DM-17, 30 m x 0.32 mm x 1.00 μm
Cat. No.:	**7451**
Index:	CER00037
Oven Temp.:	100 °C to 275 °C (hold 10 min) at 15 °C/min
Carrier Gas:	He, 20 cm/sec
Injection:	Direct, 275 °C
Sample:	PAEs, 1.5 μL, 60 μg/mL
Detector:	FID, 64 x 10^{-11} AFS, 275 °C

1. DMP
2. DEP
3. DIBP
4. DBP
5. DMEP
6. BMPP
7. BEEP
8. DPP
9. DOP
10. DNHP
11. BBP
12. DBEP
13. DCHP
14. DEHP
15. DNOP
16. DNNP



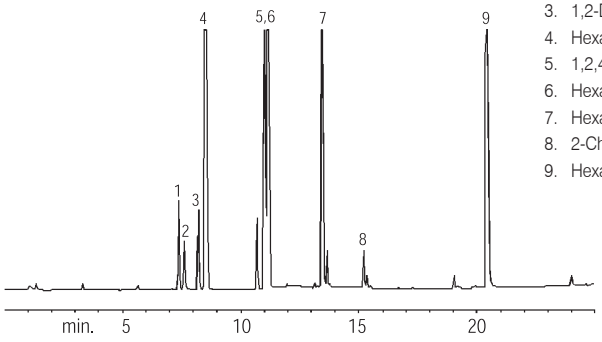
Chlorinated Hydrocarbons (EPA 612)

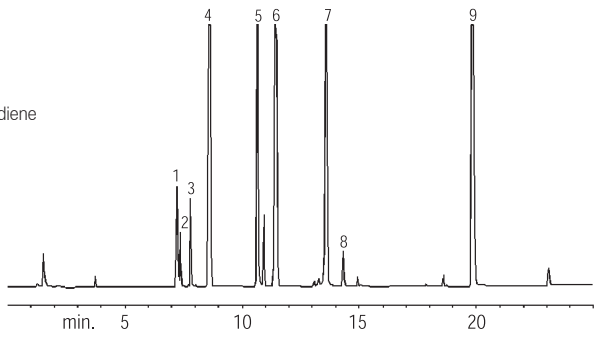
Column:	DM-35, 30 m x 0.53 mm x 1.00 μm
Cat. No.:	**7951**
Index:	CER00052
Oven Temp.:	40 °C to 250 °C (hold 5 min) at 8 °C/min
Carrier Gas:	He, 35 cm/sec, 40 °C
Injection:	Direct , 250 °C
Sample:	Chlorinated hydrocarbons, 0.1 μL
Detector:	300 °C

V.S.

Column:	DM-5, 30 m x 0.53 mm x 0.50 μm
Cat. No.:	**7247**
Index:	CER00053
Oven Temp.:	40 °C to 250 °C (hold 5 min) at 8 °C/min
Carrier Gas:	He, 35 cm/sec, 40 °C
Injection:	Direct, 250 °C
Sample:	Chlorinated hydrocarbons, 0.1 μL
Detector:	300 °C

1. 1,3-Dichlorobenzene
2. 1,4-Dichlorobenzene
3. 1,2-Dichlorobenzene
4. Hexachloroethane
5. 1,2,4-Trichlorobenzene
6. Hexachlorobutadiene
7. Hexachlorocyclopentadiene
8. 2-Chloronaphthalene
9. Hexachlorobenzene

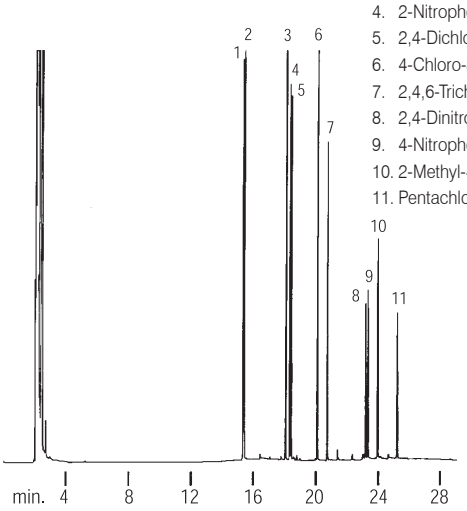




Phenols (EPA 604)

Column: DM-17, 30 m x 0.25 mm x 0.25 μm
Cat. No.: **7421**
Index: CER00029
Oven Temp.: 50 °C (hold 10 min) to 250 °C (hold 15 min) at 15 °C/min
Carrier Gas: He, 20 cm/sec
Injection: Split, 40 cc/min, 280 °C
Sample: Phenols mix, 1.0 μL, 3 - 5 ng/μL
Detector: FID, 32 x 10^{-11} AFS, 280 °C

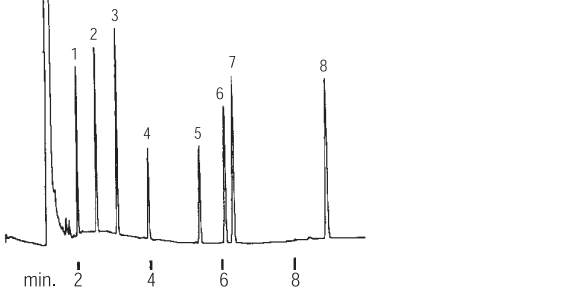
1. Phenol
2. 2-Chlorophenol
3. 2,4-Dimethylphenol
4. 2-Nitrophenol
5. 2,4-Dichlorophenol
6. 4-Chloro-3-methylphenol
7. 2,4,6-Trichlorophenol
8. 2,4-Dinitrophenol
9. 4-Nitrophenol
10. 2-Methyl-4,6-dinitrophenol
11. Pentachlorophenol



Nitrosamines

Column: DM-200, 30 m x 0.53 mm x 0.50 μm
Cat. No.: **8347**
Index: CER00040
Oven Temp.: 100 °C (hold 1 min) to 200 °C at 5 °C/min
Carrier Gas: H_2, 40 cm/sec
Injection: Split, 40 cc/min, 250 °C
Sample: Nitrosamines mix, 1.0 μL, 10 μg/mL
Detector: FID, 16 x 10^{-12} AFS, 250 °C

1. *N*-Nitrosodimethylamine
2. *N*-Nitrosomethylethylamine
3. *N*-Nitrosodiethylamine
4. *N*-Nitrosoazetidine
5. *N*-Nitrosopiperidine
6. *N*-Nitrosomorpholine
7. *N*-Nitrosopyrrolidine
8. *N*-Nitrosohexamethyleneimine



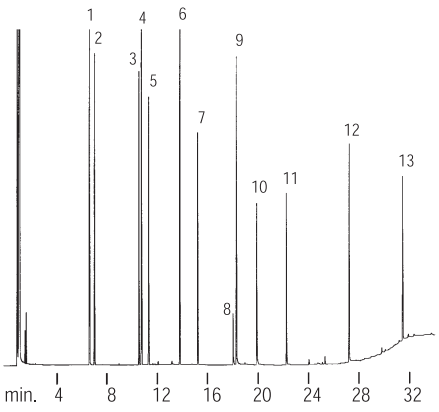
Benzidines / Phenols (EPA 604 / 605)

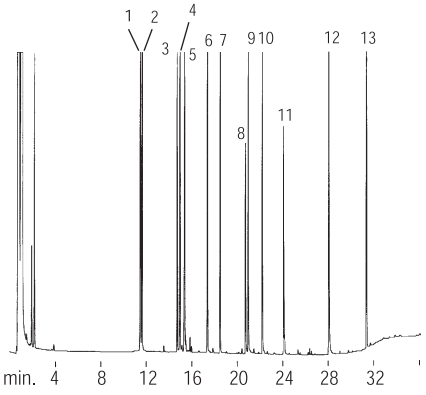
Column: DM-5, 30 m x 0.32 mm x 1.00 μm
Cat. No.: **7235**
Index: CER00032
Oven Temp.: 110 °C to 290 °C at 8 °C/min
Carrier Gas: H_2, 40 cm/sec
Injection: Split, 100:1, 310 °C
Sample: Phenols / Benzidines mix, 1.5 μL
Detector: FID, 2 x 10^{-11} AFS, 310 °C

V.S.

Column: DM-5, 30 m x 0.53 mm x 1.50 μm
Cat. No.: **7251**
Index: CER00033
Oven Temp.: 40 °C (hold 6 min) to 300 °C (hold 15 min) at 10 °C/min
Carrier Gas: H_2, 80 cm/sec
Injection: Direct, 300 °C
Sample: Phenols / Benzidines mix, 2.5 μL
Detector: FID, 8 x 10^{-11} AFS, 300 °C

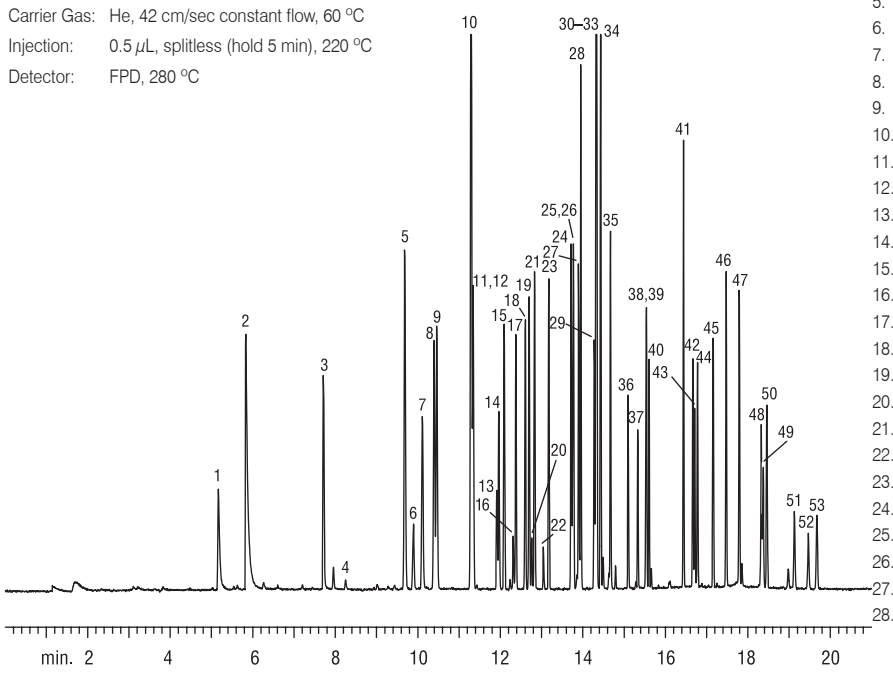
1. Phenol
2. 2-Chlorophenol
3. 2-Nitrophenol
4. 2,4-Dimethylphenol
5. 2,4-Dichlorophenol
6. 4-Chloro-3-methylphenol
7. 2,4,6-Trichlorophenol
8. 2,4-Dinitrophenol
9. 4-Nitrophenol
10. 2-Methyl-4,6-dinitrophenol
11. Pentachlorophenol
12. Benzidine
13. 3,3'-Dichlorobenzidine





Organophosphorus Pesticides (EPA 8140 / 8141 / 8141A)

Column: DM-35, 30 m x 0.32 mm x 0.25 μm
Cat. No.: **7931**
Index: CER00696
Oven Temp.: 100 °C to 180 °C (hold 2 min) at 10 °C/min to 300 °C at 18 °C/min
Carrier Gas: He, 42 cm/sec constant flow, 60 °C
Injection: 0.5 μL, splitless (hold 5 min), 220 °C
Detector: FPD, 280 °C

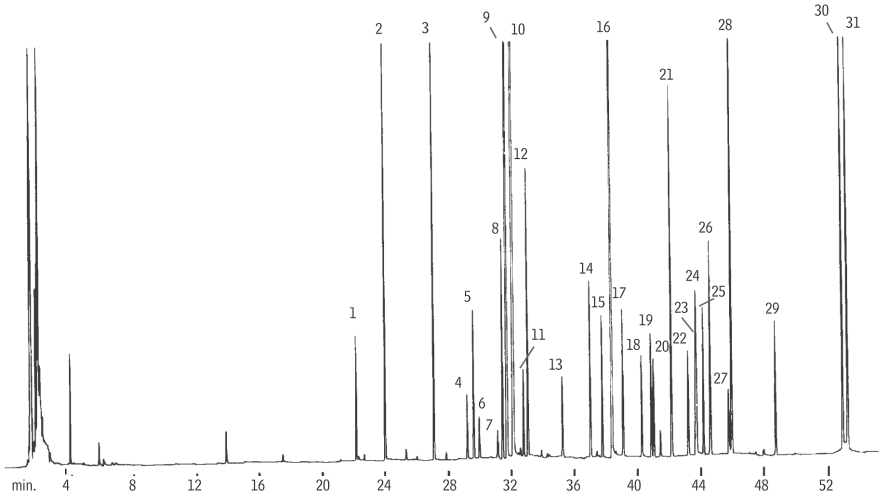


1. Dichlorvos
2. Hexamethylphosphoramide
3. Mevinphos
4. Trichlorfon
5. Tributyl phosphate
6. Demeton-O
7. TEPP
8. Thionazin
9. Ethoprop
10. Sulfotepp
11. Naled
12. Phorate
13. Dicrotophos
14. Demeton-S
15. Terbufos
16. Monocrotophos
17. Diazinon
18. Fonophos
19. Disulfoton
20. Dioxathion
21. Dimethoate
22. Phosphamidon isomer
23. Dichlorofenthion
24. Chlorpyrifos methyl
25. Phosphamidon
26. Ronnel
27. Parathion-methyl
28. Aspon
29. Trichloronate
30. Chlorpyrifos
31. Fenitrothion
32. Merphos
33. Malathion
34. Parathion-ethyl
35. Fenthion
36. Chlorfenvinphos
37. Crotoxyphos
38. Merphos oxone
39. Tokuthion
40. Stirofos
41. Ethion
42. Bolstar
43. Fensulfothion
44. Carbofenothion
45. Famphur
46. Triphenyl phosphate
47. EPN
48. Phosmet
49. Leptophos
50. *tri-o*-Cresyl phosphate
51. Azinphos-methyl
52. Azinphos-ethyl
53. Coumaphos

Organochlorine Pesticides

Column: DM-5, 30 m x 0.25 mm x 0.25 μm
Cat. No.: **7221**
Index: CER00083
Oven Temp.: 60 °C to 300 °C (hold 10 min) at 4 °C/min
Carrier Gas: He, 30 cm/sec
Injection: Splitless, 250 °C
Sample: Pesticides mix, 2.0 μL
Detector: 320 °C

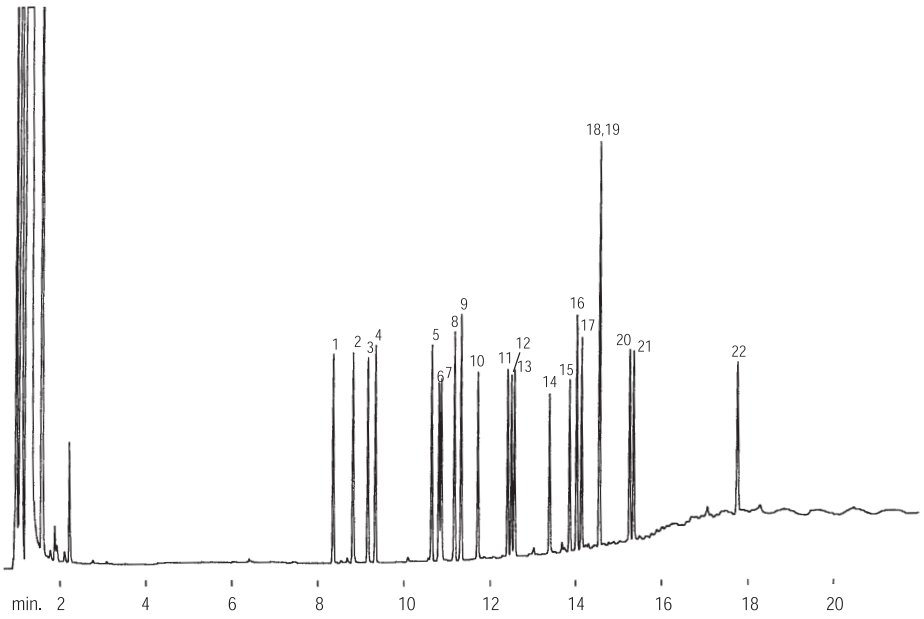
1. Etridiazole 50 pg/μL
2. Chlorneb 1000 pg/μL
3. Propachlor 1000 pg/μL
4. Trifluralin 50 pg/μL
5. *α*-BHC 20 pg/μL
6. Hexachlorobenzene 10 pg/μL
7. *γ*-BHC 30 pg/μL
8. *β*-BHC 20 pg/μL
9. PCNB 100 pg/μL
10. PCNB (IS) 100 pg/μL
11. *δ*-BHC 20 pg/μL
12. Chlorothalonil 50 pg/μL
13. Heptachlor 20 pg/μL
14. Aldrin 30 pg/μL
15. DCPA 50 pg/μL
16. DCB 5000 pg/μL
17. Heptachlor epoxide 30 pg/μL
18. *γ*-Chlordane 30 pg/μL
19. Endosulfan I 30 pg/μL
20. *α*-Chlordane 30 pg/μL
21. Dieldrin 40 pg/μL
22. Endrin 30 pg/μL
23. Endosulfan II 30 pg/μL
24. Chlorobenzilate 1000 pg/μL
25. 4,4'-DDD 50 pg/μL
26. Endrin aldehyde 50 pg/μL
27. Endosulfan sulfate 30 pg/μL
28. 4,4'-DDT 120 pg/μL
29. Methoxychlor 100 pg/μL
30. *cis*-Permethrin 1000 pg/μL
31. *trans*-Permethrin 1000 pg/μL



Nitrogen-Containing Herbicides

Column: DM-35, 30 m x 0.53 mm x 1.00 μm
Cat. No.: **7951**
Index: CER00088
Oven Temp.: 60 °C (hold 1 min) to 290 °C (hold 5 min) at 15 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Direct, 290 °C
Sample: Nitrogen-containing herbicides, 0.2 μL
Detector: FID, 16 x 10^{-11} AFS, 290 °C

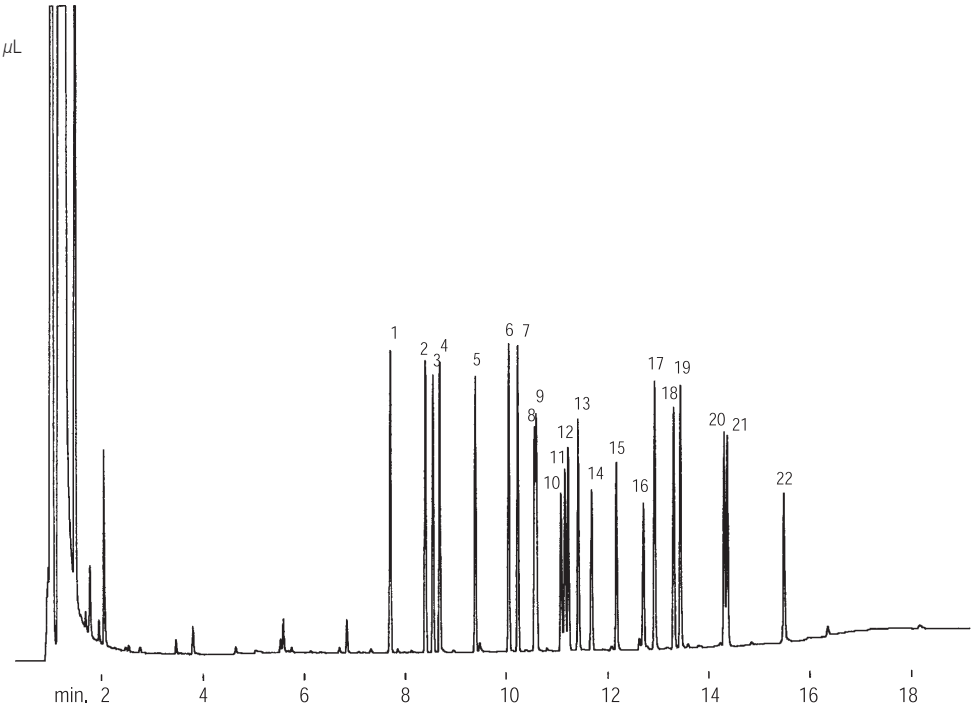
1. Eptam
2. Sutan
3. Vernam
4. Tillam
5. Ordram
6. Treflan
7. Balan
8. Ro-Neet
9. Propachlor
10. Tolban
11. Propazine
12. Atrazine
13. Simazine
14. Terbacil
15. Sencor
16. Dual
17. Paarlan
18. Prowl
19. Bromacil
20. Oxadiazon
21. GOAL
22. Hexazinone



Nitrogen-Containing Herbicides

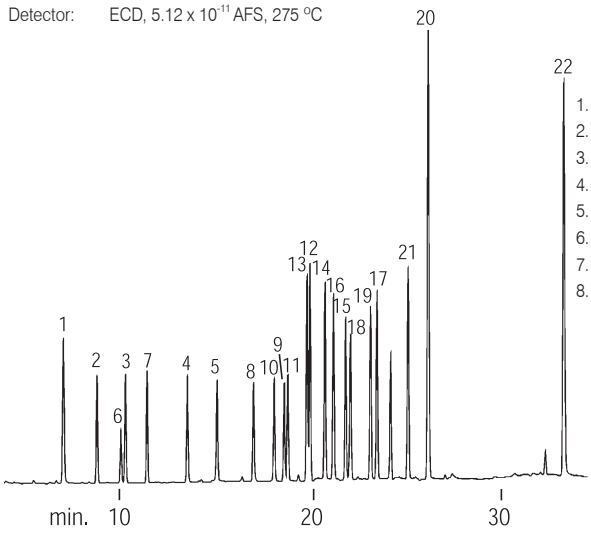
Column: DM-5, 30 m x 0.53 mm x 0.50 μm
Cat. No.: **7247**
Index: CER00087
Oven Temp.: 60 °C (hold 1 min) to 290 °C (hold 5 min) at 15 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Direct, 290 °C
Sample: Nitrogen-containing herbicides, 0.2 μL
Detector: FID, 16 x 10^{-11} AFS, 290 °C

1. Eptam
2. Sutan
3. Vernam
4. Tillam
5. Ordram
6. Propachlor
7. Ro-Neet
8. Treflan
9. Balan
10. Simazine
11. Atrazine
12. Propazine
13. Tolban
14. Terbacil
15. Sencor
16. Bromacil
17. Dual
18. Paarlan
19. Prowl
20. Oxadiazon
21. GOAL
22. Hexazinone



Organochlorine Pesticides (EPA 8081)

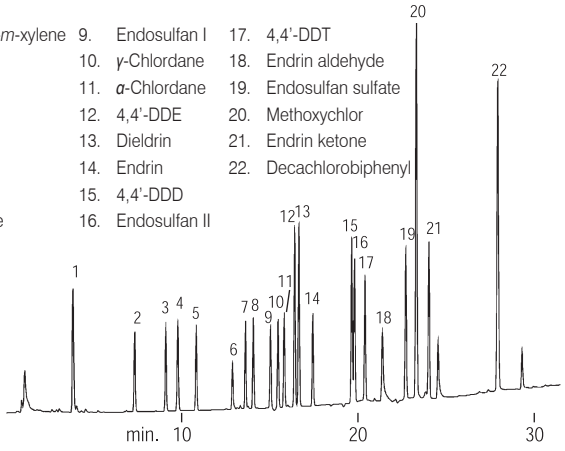
Column:	DM-5, 30 m x 0.53 mm x 0.50 μm
Cat. No.:	**7247**
Index:	CER00408
Oven Temp.:	150 °C (hold 5 min) to 275 °C (hold 5 min) at 4 °C/min
Carrier Gas:	He, 40 cm/sec
Injection:	Direct, 200 °C
Sample:	Pesticides mix, 1.0 μL, 80 - 800 ng/mL
Detector:	ECD, 5.12 x 10^{-11} AFS, 275 °C



1. 2,4,5,6-Tetrachloro-*m*-xylene
2. *α*-BHC
3. *γ*-BHC
4. Heptachlor
5. Aldrin
6. *β*-BHC
7. *δ*-BHC
8. Heptachlor epoxide
9. Endosulfan I
10. *γ*-Chlordane
11. *α*-Chlordane
12. 4,4'-DDE
13. Dieldrin
14. Endrin
15. 4,4'-DDD
16. Endosulfan II
17. 4,4'-DDT
18. Endrin aldehyde
19. Endosulfan sulfate
20. Methoxychlor
21. Endrin ketone
22. Decachlorobiphenyl

Organochlorine Pesticides (EPA 8081)

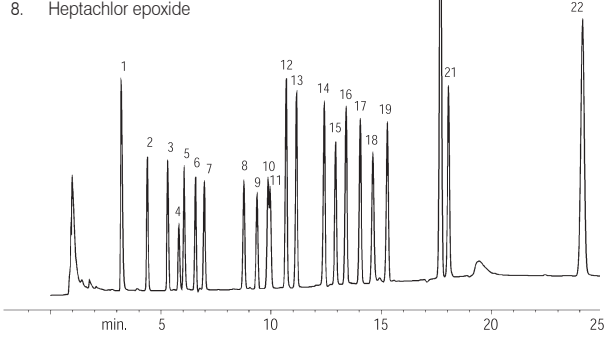
Column:	DM-1701, 30 m x 0.53 mm x 0.50 μm
Cat. No.:	**7347**
Index:	CER00409
Oven Temp.:	150 °C (hold 5 min) to 275 °C (hold 5 min) at 4 °C/min
Carrier Gas:	He, 40 cm/sec, 150 °C
Injection:	Direct, 200 °C
Sample:	Organochlorine pesticides, 1.0 μL, 80 - 800 ng/mL
Detector:	ECD, 5.12 x 10^{-10} AFS, 275 °C



Organochlorine Pesticides (EPA 8081)

Column:	DM-17, 30 m x 0.53 mm x 1.00 μm
Cat. No.:	**7451**
Index:	CER00410
Oven Temp.:	150 °C (hold 5 min) to 275 °C (hold 5 min) at 8 °C/min
Carrier Gas:	He, 40 cm/sec, 150 °C
Injection:	Direct, 200 °C
Sample:	Pesticides, 1.0 μL
Detector:	ECD, 5.12 X 10^{-10} AFS, 275 °C

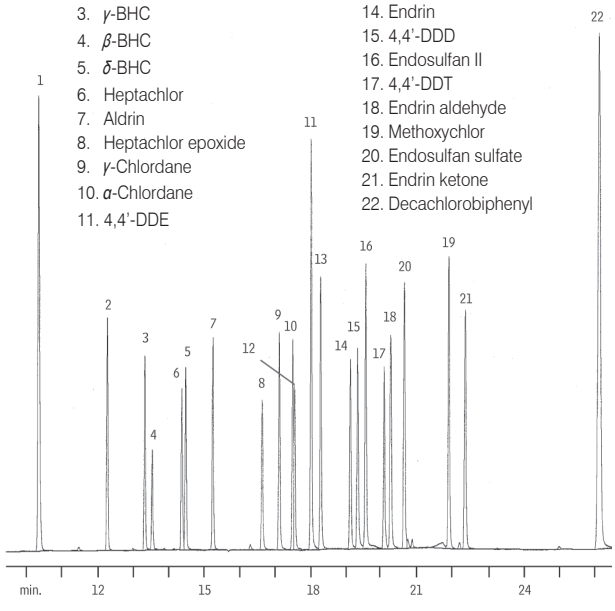
1. 2,4,5,6-Tetrachloro-*m*-xylene
2. *α*-BHC
3. *γ*-BHC
4. *β*-BHC
5. Heptachlor
6. *δ*-BHC
7. Aldrin
8. Heptachlor epoxide
9. *γ*-Chlordane
10. *α*-Chlordane
11. Endosulfan I
12. 4,4'-DDE
13. Dieldrin
14. Endrin
15. 4,4'-DDD
16. Endosulfan II
17. 4,4'-DDT
18. Endrin aldehyde
19. Endosulfan sulfate
20. Methoxychlor
21. Endrin ketone
22. Decachlorobiphenyl



Organochlorine Pesticides (EPA 8081)

Column:	DM-35, 30 m x 0.32 mm x 0.50 μm
Cat. No.:	**7933**
Index:	CER00079
Oven Temp.:	120 °C (hold 1 min) to 285 °C (hold 6 min) at 8.5 °C/min
Carrier Gas:	He, 2.1 mL/min, 120 °C
Injection:	Direct, 200 °C
Detector:	ECD 300 °C with anode purge

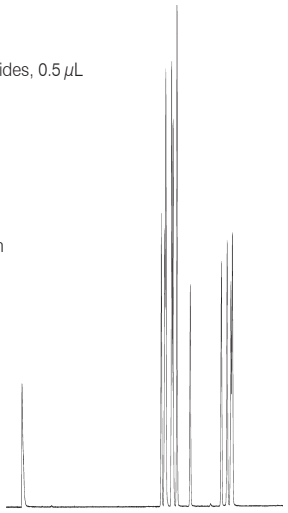
1. 2,4,5,6-Tetrachloro-m-xylene
2. *α*-BHC
3. *γ*-BHC
4. *β*-BHC
5. *δ*-BHC
6. Heptachlor
7. Aldrin
8. Heptachlor epoxide
9. *γ*-Chlordane
10. *α*-Chlordane
11. 4,4'-DDE
12. Endosulfan I
13. Dieldrin
14. Endrin
15. 4,4'-DDD
16. Endosulfan II
17. 4,4'-DDT
18. Endrin aldehyde
19. Methoxychlor
20. Endosulfan sulfate
21. Endrin ketone
22. Decachlorobiphenyl



Triazine Herbicides (EPA 619)

Column:	DM-17, 30 m x 0.53 mm x 0.50 µm
Cat. No.:	**7451**
Index:	CER00058
Oven Temp.:	150 °C to 250 °C (hold 5 min) at 4 °C/min
Carrier Gas:	He, 40 cm/sec, 150 °C
Injection:	Direct, 250 °C
Sample:	EPA Method 619 triazine herbicides, 0.5 µL
Detector:	TSD, 275 °C

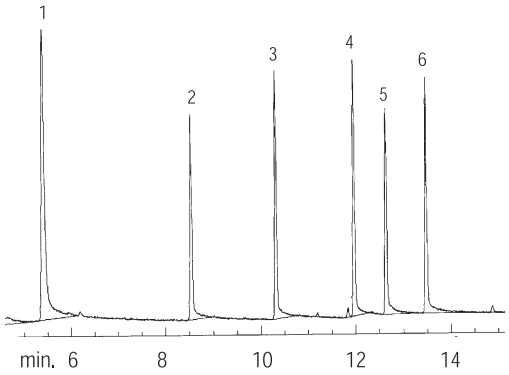
1. Atraton
2. Prometon
3. Terbutylazine
4. Atrazine
5. Simazine
6. Propazine
7. Secbumeton
8. Terbutryne
9. Ametryne
10. Simetryne
11. Prometryne



Butyl Tins

Column:	DM-5, 30 m x 0.32 mm x 0.50 µm
Cat. No.:	**7233**
Index:	CER00047
Oven Temp.:	100 °C (hold 1 min) to 285 °C at 10 °C/min
Carrier Gas:	He, 45 cm/sec
Injection:	500 pg on-clumn direct, 250 °C
Detector:	FPD with 610 nm filter, 250 °C

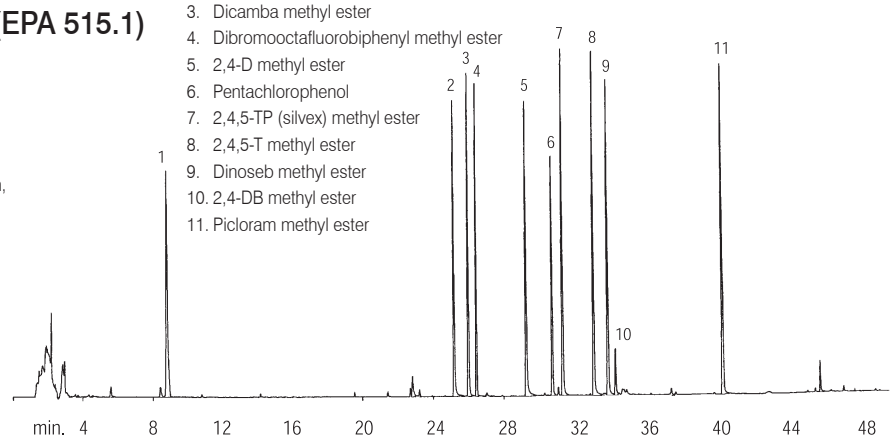
1. Tetrapropyltin
2. Tetrabutyltin
3. Tributyltin
4. Dibutyltin
5. Tripentyltin
6. Monobutyltin



Chlorophenoxyacid Herbicides (EPA 515.1)

Column:	DM-17, 30 m x 0.25 mm x 0.50 µm
Cat. No.:	**7423**
Index:	CER00093
Oven Temp.:	50 °C (hold 0.75 min) to 84 °C at 4 °C/min, to 165 °C at 10 °C/min to 270 °C at 4 °C/min, to 300 °C (hold 6 min) at 20 °C/min
Carrier Gas:	He, 30 cm/sec constant flow, 50 °C
Injection:	Splitless, 0.75 min, 220 °C
Sample:	Chlorophenoxyacid herbicides, 2.0 µL
Detector:	ECD, 320 °C

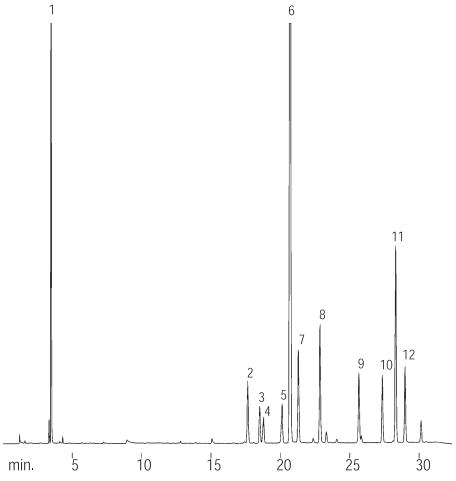
1. Dalapon methyl ester
2. 2,4-Dichlorophenylacetic acid methyl ester
3. Dicamba methyl ester
4. Dibromooctafluorobiphenyl methyl ester
5. 2,4-D methyl ester
6. Pentachlorophenol
7. 2,4,5-TP (silvex) methyl ester
8. 2,4,5-T methyl ester
9. Dinoseb methyl ester
10. 2,4-DB methyl ester
11. Picloram methyl ester



Chlorophenoxyacid Herbicides (EPA 615)

Column:	DM-35, 30 m x 0.53 mm x 1.00 µm
Cat. No.:	**7951**
Index:	CER00094
Oven Temp.:	60 °C to 150 °C (hold 5 min) at 8 °C/min, to 210 °C at 4 °C/min
Carrier Gas:	He, 35 cm/sec, 60 °C
Injection:	Direct, 250 °C
Sample:	Chlorophenoxyacid herbicides, 0.5 µL
Detector:	ECD w / anode purge, 275 °C

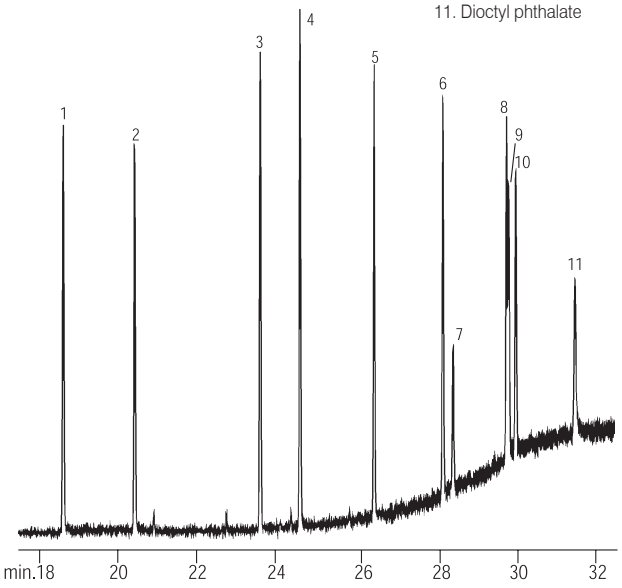
1. Dalapon
2. DCAA (SS)
3. Dicamba
4. MCPP
5. MCPA
6. DBOB (IS)
7. Dichlorprop
8. 2,4-D
9. 2,4,5-TP
10. 2,4,5-T
11. Dinoseb
12. 2,4-DB



PAEs

Column:	DM-5MS, 30 m x 0.25 mm x 0.50 μm
Cat. No.:	**8223**
Index:	CER00049
Oven Temp.:	35 °C (hold 1 min) to 285 °C at 10 °C/min
Pressure:	7.5 psi
Injection:	100 pg on-column
Detector:	MS-SIM

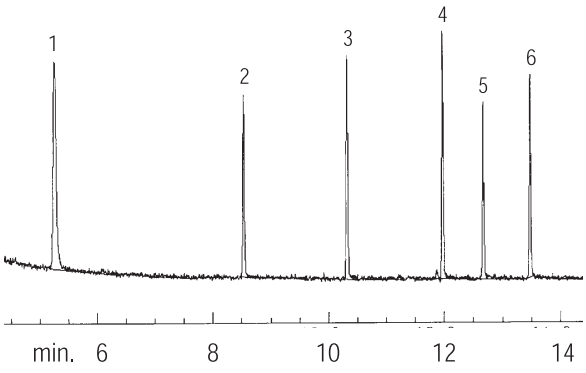
1. Dimethyl phthalate
2. Diethyl phthalate
3. Isobutyl phthalate
4. Dibutyl phthalate
5. Dipentyl phthalate
6. Dihexyl phthalate
7. Benzyl ethyl phthalate
8. Diheptyl phthalate
9. 2-Ethylhexyl phthalate
10. Cyclohexyl phthalate
11. Dioctyl phthalate



Endocrine Disruptors Butyl Tins (Hexyl Derivatives)

Column:	DM-35, 30 m x 0.32 mm x 0.50 μm
Cat. No.:	**7933**
Index:	CER00048
Oven Temp.:	100 °C (hold 1 min) to 285 °C at 10 °C/min
Carrier Gas:	He, 45 cm/sec
Injection:	500 pg on-column, 250 °C
Detector:	FPD with 610 nm filter, 250 °C

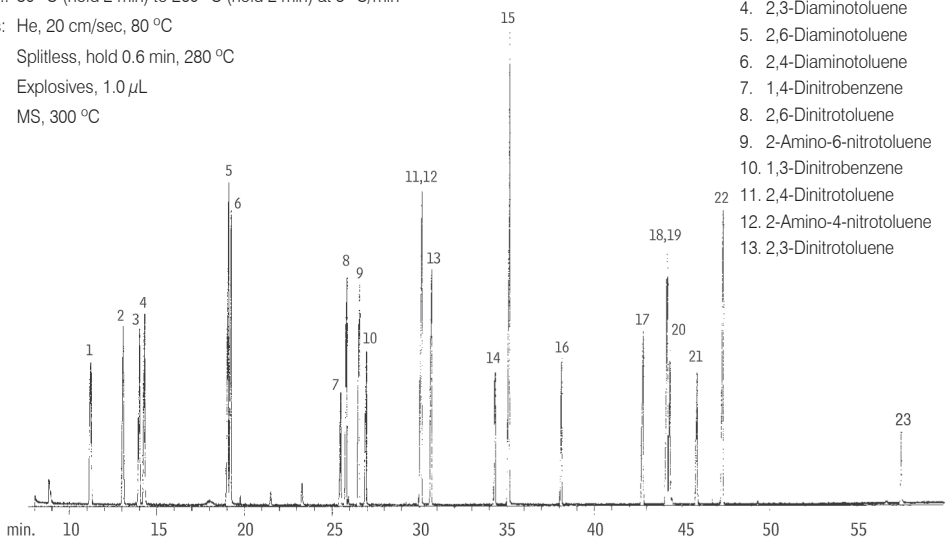
1. Tetrapropyltin
2. Tetrabutyltin
3. Tributyltin
4. Dibutyltin
5. Tripentyltin
6. Monobutyltin



Explosives

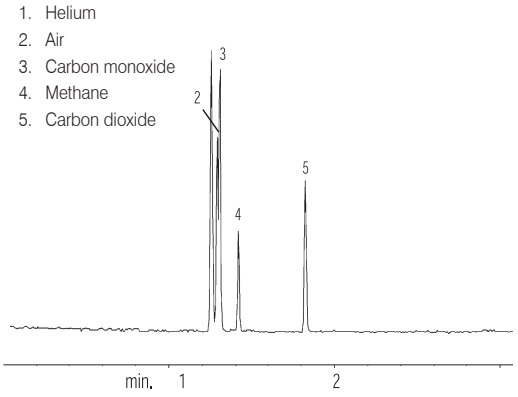
Column:	DM-200, 30 m x 0.25 mm x 0.25 μm
Cat. No.:	**8321**
Index:	CER00060
Oven Temp.:	80 °C (hold 2 min) to 260 °C (hold 2 min) at 3 °C/min
Carrier Gas:	He, 20 cm/sec, 80 °C
Injection:	Splitless, hold 0.6 min, 280 °C
Sample:	Explosives, 1.0 μL
Detector:	MS, 300 °C

1. 2-Nitrotoluene
2. 3-Nitrotoluene
3. 4-Nitrotoluene
4. 2,3-Diaminotoluene
5. 2,6-Diaminotoluene
6. 2,4-Diaminotoluene
7. 1,4-Dinitrobenzene
8. 2,6-Dinitrotoluene
9. 2-Amino-6-nitrotoluene
10. 1,3-Dinitrobenzene
11. 2,4-Dinitrotoluene
12. 2-Amino-4-nitrotoluene
13. 2,3-Dinitrotoluene
14. 3,4-Dinitrotoluene
15. 3-Nitrobiphenyl
16. 2,4,6-Trinitrotoluene
17. 2,4,5-Trinitrotoluene
18. 4-Amino-2,6-dinitrotoluene
19. 2,3,4-Trinitrotoluene
20. 1,3-Dinitronaphthalene
21. 2,6-Diamino-4-nitrotoluene
22. 2-Amino-4,6-dinitrotoluene
23. 2,2'-Dinitrobiphenyl



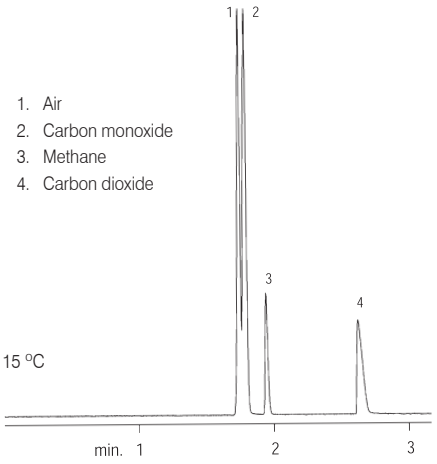
Permanent Gases

Column:	DM-PLOT Q
	30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818**
Index:	CSR00169
Oven Temp.:	30 °C
Carrier Gas:	H_2, 38 cm/sec
Injection:	Split, 40:1, 30 °C
Sample Concentration:	2 - 5 mol %, 30 µL
Detector:	TCD, 200 °C



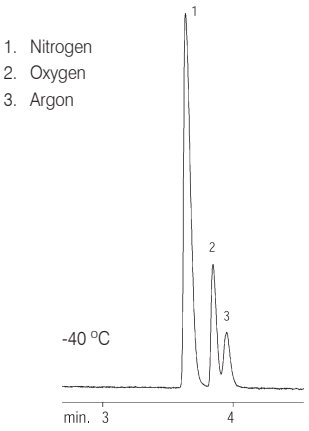
Permanent Gases

Column:	DM-PLOT Q
	30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818**
Index:	CSR00174L
Carrier Gas:	H_2, 34 cm/sec
Injection Temp.:	15 °C
Split Ratio:	40:1
Sample Concentration:	2 - 5 mol %
Detector:	TCD, 15 °C



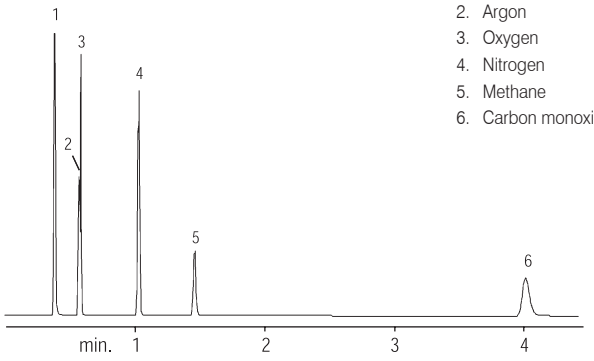
Permanent Gases

Column:	DM-PLOT Q
	30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818**
Index:	CSR00174R
Carrier Gas:	H_2, 20 cm/sec
Injection Temp.:	-40 °C
Split Ratio:	40:1
Sample Concentration:	2 - 5 mol %
Detector:	TCD, -40 °C



Permanent Gases

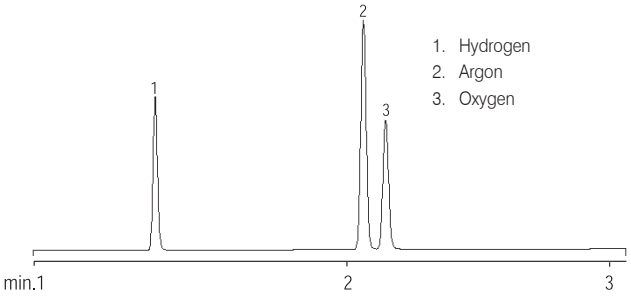
Column:	DM-PLOT MS 5A, 30 m x 0.32 mm x 30.00 µm
Cat. No.:	**8822**
Index:	CSR00165
Oven Temp.:	70 °C
Carrier Gas:	H_2, 64 cm/sec
Injection Temp.:	Split, 70 °C
Sample Concentration:	2 - 5 mol%, 20 µL
Detector:	TCD, high senstivity, 200 °C



1. Helium
2. Argon
3. Oxygen
4. Nitrogen
5. Methane
6. Carbon monoxide

Permanent Gases

Column:	DM-PLOT MS 5A, 30 m x 0.53 mm x 20.00 µm
Cat. No.:	**8823**
Index:	CSR00170
Oven Temp.:	27 °C
Carrier Gas:	He, 34 cm/sec
Injection:	Sample loop, 0.5 mL
Detector:	Valco HID



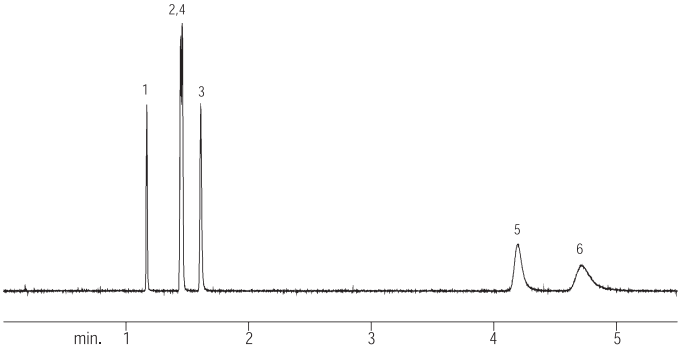
1. Hydrogen
2. Argon
3. Oxygen

Permanent Gases

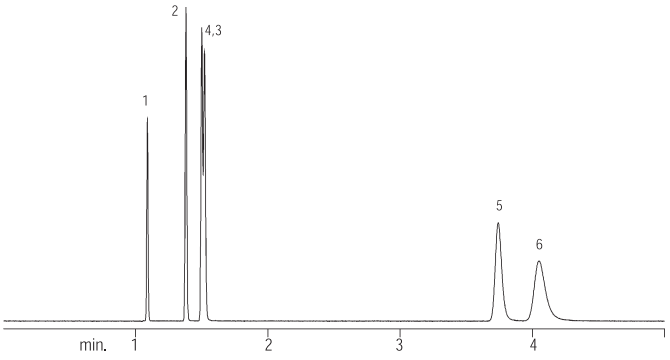
Column:	DM-PLOT Q / DM-PLOT S / DM-PLOT U, 30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818** / **8810** / **8824**
Index:	CSR00180
Oven Temp.:	50 °C
Carrier Gas:	H_2
Injection:	Split, 20:1, 200 °C
Sample:	1000 ppm (v / v) in He, 100 µL
Detector:	FID, 200 °C

1. Methane
2. Ethylene
3. Ethane
4. Acetylene
5. Propylene
6. Propane

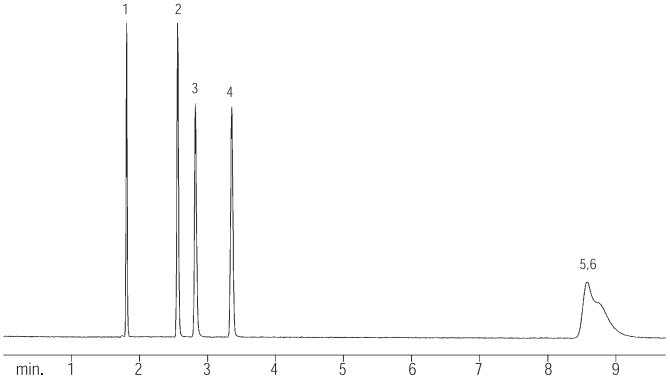
DM-PLOT Q has least selective for functional groups



DM-PLOT S has selective for polar, unsaturated compounds



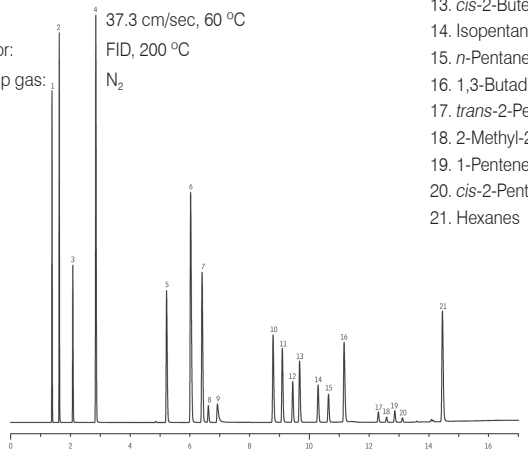
DM-PLOT U has most selective for unsaturated compounds



Refinery Gas

Column: DM-PLOT Alumina / Na_2SO_4, 30 m ×0.53 mm ×10.00 µm
Sample: Refinery gas
Cat. No.: **8806**
Index: CSR01139
Injection: Split, 10 µL, 200 °C
Split Vent Flow Rate: 40 mL/min
Oven Temp.: 60 °C (hold 2 min) to 200 °C (hold 1 min) at 10 °C/min
Carrier Gas: He, constant pressure (5.0 psi, 34.5 kPa), 37.3 cm/sec, 60 °C
Detector: FID, 200 °C
Make up gas: N_2

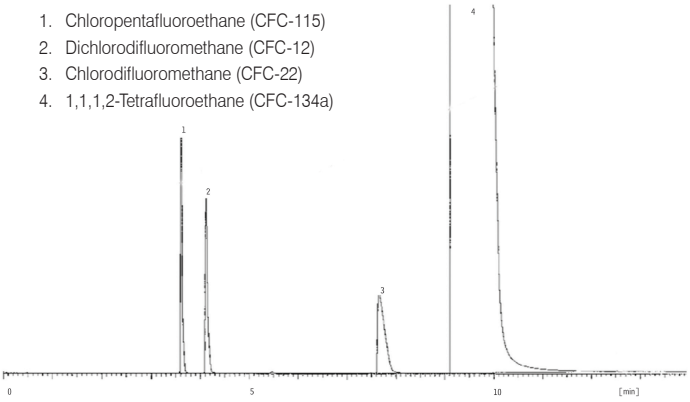
1. Methane
2. Ethane
3. Ethylene
4. Propane
5. Propylene
6. Isobutane
7. *n*-Butane
8. Propadiene
9. Acetylene
10. *trans*-2-Butene
11. 1-Butene
12. Isobutylene
13. *cis*-2-Butene
14. Isopentane
15. *n*-Pentane
16. 1,3-Butadiene
17. *trans*-2-Pentene
18. 2-Methyl-2-butene
19. 1-Pentene
20. *cis*-2-Pentene
21. Hexanes



Impurity Analysis of 1,1,1,2-Tetrafluoroethane

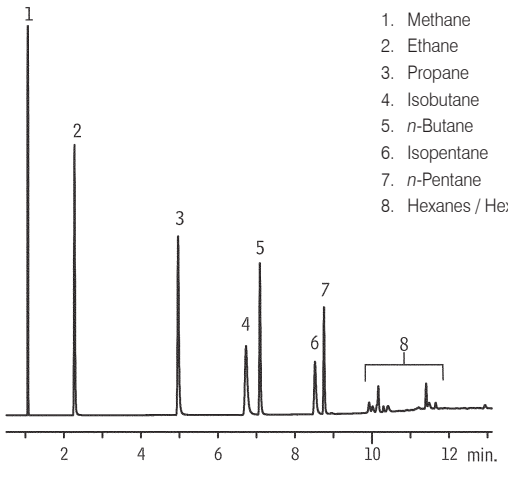
Column: DM-PLOT CFC, 30 m x 0.53 mm x 10.00 µm
Cat. No.: **8859**
Index: CGR1155
Sample: 1,1,1,2-Tetrafluoroethane
Injection: Split, 500 µL
Oven Temp.: 80 °C (hold 6 min) to 140 °C (hold 2 min) at 10 °C/min
Carrier Gas: He
Detector: FID

1. Chloropentafluoroethane (CFC-115)
2. Dichlorodifluoromethane (CFC-12)
3. Chlorodifluoromethane (CFC-22)
4. 1,1,1,2-Tetrafluoroethane (CFC-134a)



Natural Gas #2

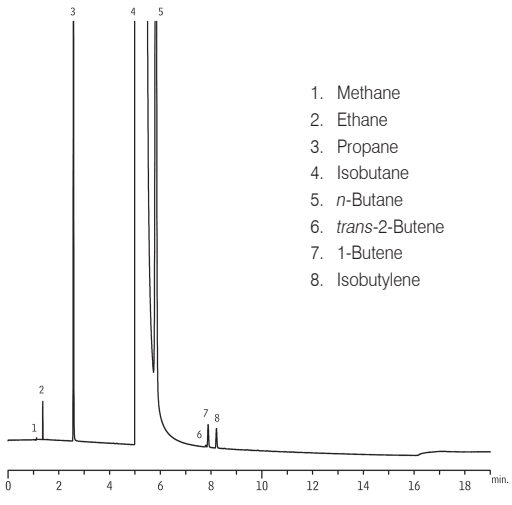
Column: DM-PLOT QS, 30 m x 0.53 mm x 20.00 µm
Cat. No.: **8830**
Index: CSR01013
Oven Temp.: 40 °C (hold 2 min) to 225 °C (hold 5 min) at 20 °C/min
Carrier Gas: He, 5.7 mL/min
Injection: 20 µL split (split ratio 10:1), 240 °C
Sample: Natural gas mix (mol%)
Detector: FID, 240 °C



1. Methane
2. Ethane
3. Propane
4. Isobutane
5. *n*-Butane
6. Isopentane
7. *n*-Pentane
8. Hexanes / Hexenes

Butane Lighter Fluid

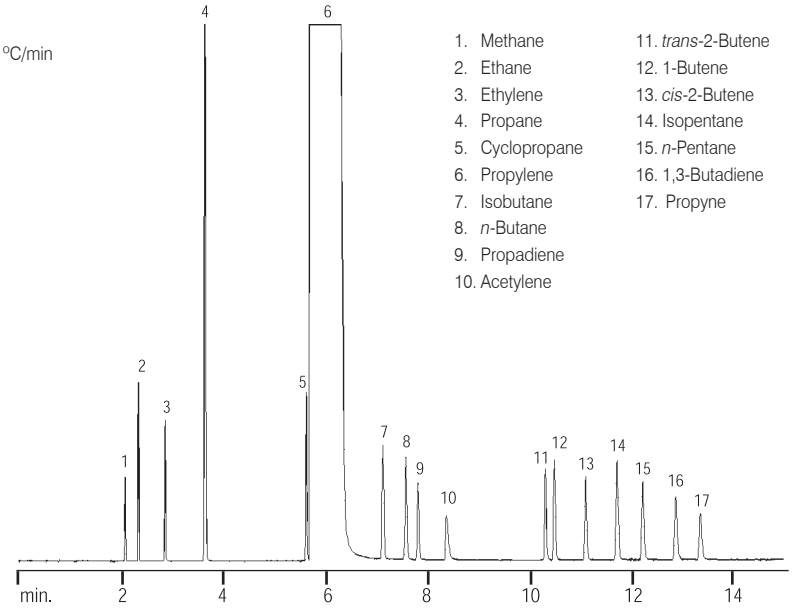
Column: DM-PLOT Alumina / KCl, 50 m×0.53 mm×10.00 µm
Cat. No.: **8813**
Index: CSR01086
Sample: Butane lighter fluid
Injection: Valve, 100 µL, 200 °C
Oven Temp.: 45 °C (hold 1 min) to 200 °C (hold 3.5 min) at 10 °C/min
Carrier Gas: H_2, constant pressure (8.0 psi, 55.2 kPa) 74 cm/sec 45 °C
Detector: FID, 200 °C



1. Methane
2. Ethane
3. Propane
4. Isobutane
5. *n*-Butane
6. *trans*-2-Butene
7. 1-Butene
8. Isobutylene

Propylene Purity

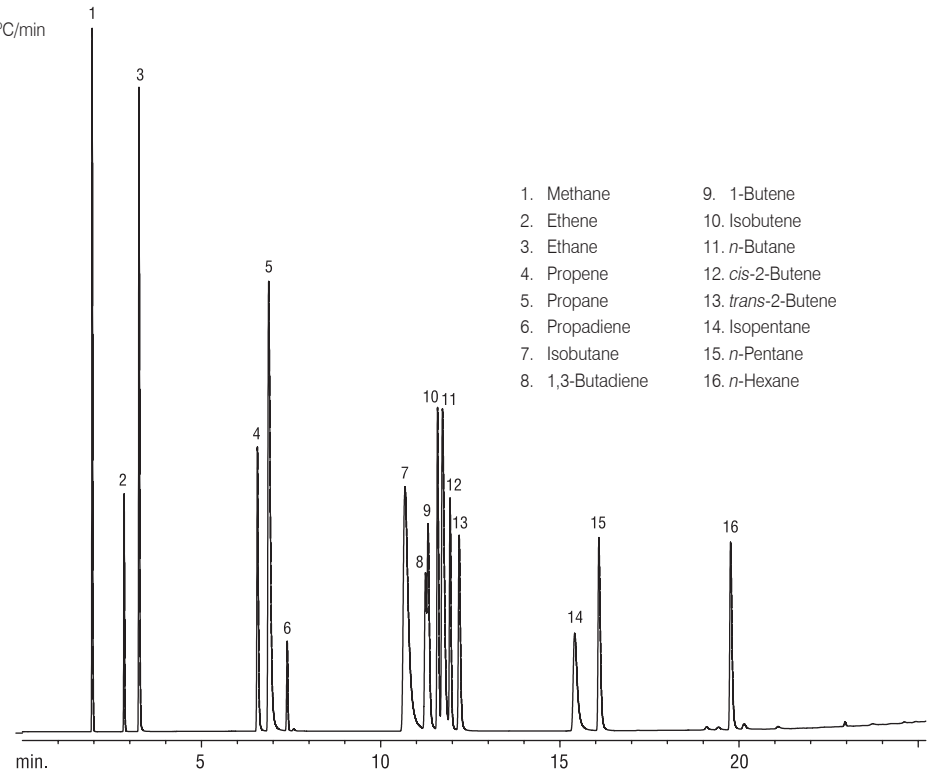
Column:	DM-PLOT Alumina, 50 m x 0.53 mm x 6.00 μm
Cat. No.:	**8801**
Index:	CSR00185
Oven Temp.:	40 °C (hold 3 min) to 120 °C (hold 5 min) at 10 °C/min
Carrier Gas:	He, 37.5 cm/sec, 80 °C
Injection:	Gas-tight syringe, 60 mL/min, 200 °C
Sample:	Hydrocarbons mix, 100 μL
Detector:	FID, 1.28 x 10^{-10} AFS, 200 °C



1. Methane
2. Ethane
3. Ethylene
4. Propane
5. Cyclopropane
6. Propylene
7. Isobutane
8. *n*-Butane
9. Propadiene
10. Acetylene
11. *trans*-2-Butene
12. 1-Butene
13. *cis*-2-Butene
14. Isopentane
15. *n*-Pentane
16. 1,3-Butadiene
17. Propyne

Hydrocarbon Gases

Column:	DM-PLOT Q, 30 m x 0.32 mm x 10.00 μm
Cat. No.:	**8818**
Index:	CSR00521
Oven Temp.:	40 °C to 240 °C (hold 10 min) at 8 °C/min
Carrier Gas:	He, 35 cm/sec, 40 °C
Injection:	Split, 20:1, 250 °C
Head Pressure:	18.0 psi
Column flow rate:	1.5 mL/min, 40 °C
Sample:	Hydrocarbon gases mix, 30 μL
Detector:	FID, 240 °C

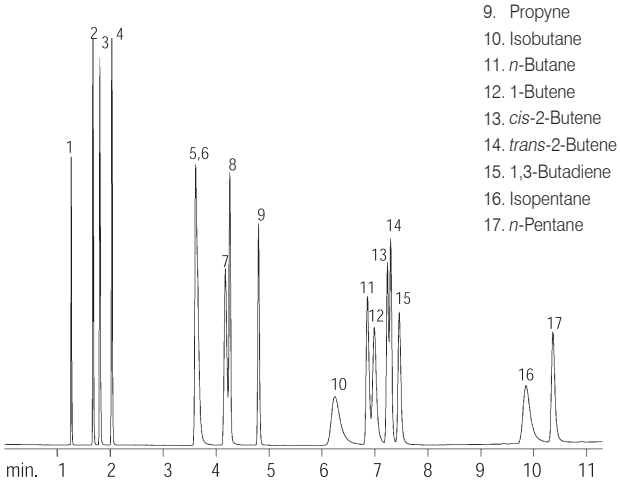


1. Methane
2. Ethene
3. Ethane
4. Propene
5. Propane
6. Propadiene
7. Isobutane
8. 1,3-Butadiene
9. 1-Butene
10. Isobutene
11. *n*-Butane
12. *cis*-2-Butene
13. *trans*-2-Butene
14. Isopentane
15. *n*-Pentane
16. *n*-Hexane

Hydrocarbon Gases

Column:	DM-PLOT U, 30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8824**
Index:	CSR00177
Oven Temp.:	50 °C to 190 °C at 10 °C/min
Carrier Gas:	He, 42 cm/sec, 80 °C
Injection:	Split, 300 µL, 40 mL/min, 40:1, 250 °C
Detector:	FID, 1.28 x 10^{-10} AFS, 250 °C

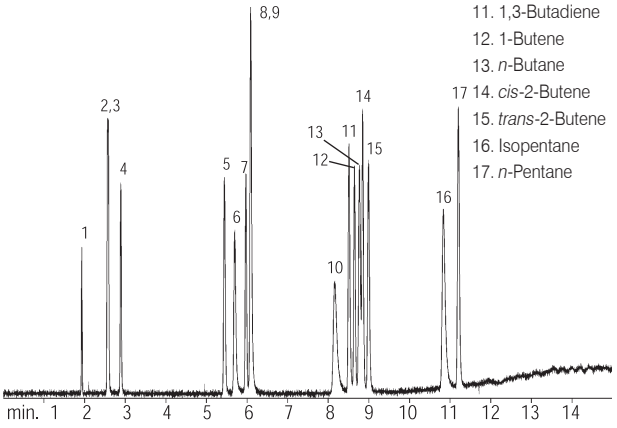
1. Methane
2. Ethylene
3. Ethane
4. Acetylene
5. Propane
6. Propylene
7. Cyclopropane
8. Propadiene
9. Propyne
10. Isobutane
11. *n*-Butane
12. 1-Butene
13. *cis*-2-Butene
14. *trans*-2-Butene
15. 1,3-Butadiene
16. Isopentane
17. *n*-Pentane



Hydrocarbon Gases

Column:	DM-PLOT Q, 30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818**
Index:	CSR00176
Oven Temp.:	50 °C (hold 2 min) to 220 °C at 15 °C/min
Carrier Gas:	He, 42 cm/sec, 80 °C
Injection:	Split, 300 µL, 40 mL/min, 40:1, 250 °C
Detector:	FID, 1.28 x 10^{-10} AFS, 250 °C

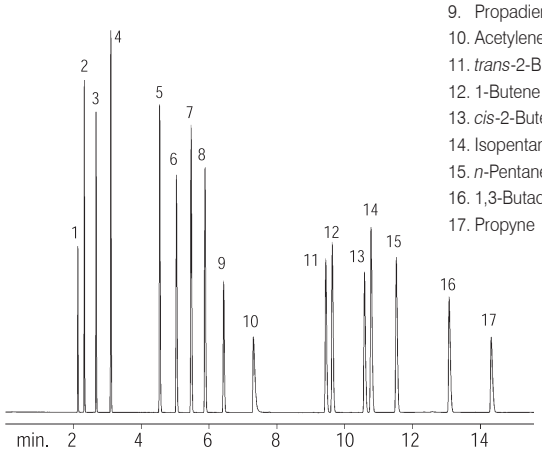
1. Methane
2. Ethylene
3. Acetylene
4. Ethane
5. Propylene
6. Propane
7. Cyclopropane
8. Propadiene
9. Propyne
10. Isobutane
11. 1,3-Butadiene
12. 1-Butene
13. *n*-Butane
14. *cis*-2-Butene
15. *trans*-2-Butene
16. Isopentane
17. *n*-Pentane



Refinery Gas

Column:	DM-PLOT Alumina, 50 m x 0.53 mm x 6.00 µm
Cat. No.:	**8801**
Index:	CSR00183
Oven Temp.:	40 °C to 120 °C (hold 5 min) at 5 °C/min
Carrier Gas:	He, 37.5 cm/sec, 80 °C
Injection:	Split (gastight syringe) 60 mL/min, 200 °C
Sample:	Hydrocarbons mix, 100 µL, 1,000 ppm
Detector:	FID, 1.28 x 10^{-10} AFS, 200 °C

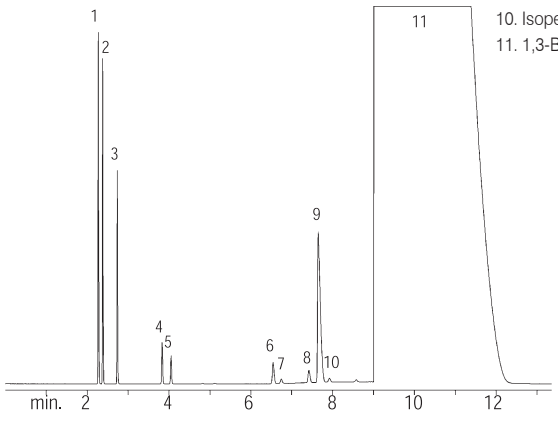
1. Methane
2. Ethane
3. Ethylene
4. Propane
5. Cyclopropane
6. Propylene
7. Isobutane
8. *n*-Butane
9. Propadiene
10. Acetylene
11. *trans*-2-Butene
12. 1-Butene
13. *cis*-2-Butene
14. Isopentane
15. *n*-Pentane
16. 1,3-Butadiene
17. Propyne



1,3-Butadiene Purity

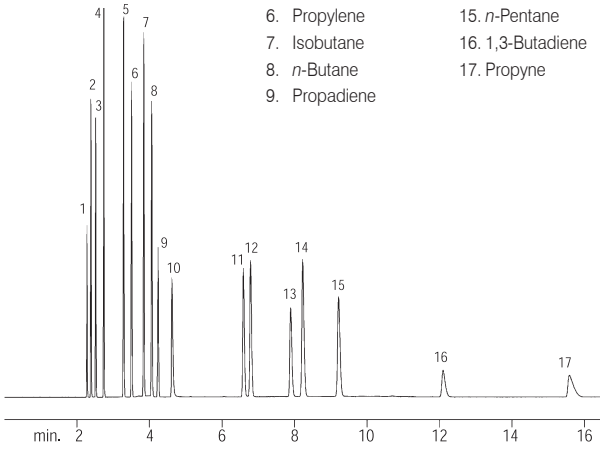
Column:	DM-PLOT Alumina, 50 m x 0.53 mm x 6.00 µm
Cat. No.:	**8801**
Index:	CSR00186
Oven Temp.:	80 °C
Carrier Gas:	He, 42 cm/sec, 80 °C
Injection:	Gastight syringe, 40 mL/min, 200 °C
Sample:	99+% 1,3-Butadiene , 500 µL
Detector:	FID, 1.28 x 10^{-10} AFS, 200 °C

1. Methane
2. Ethane
3. Propane
4. Isobutane
5. *n*-Butane
6. *trans*-2-Butene
7. 1-Butene
8. Isobutylene
9. *cis*-2-Butene
10. Isopentane
11. 1,3-Butadiene



Hydrocarbons

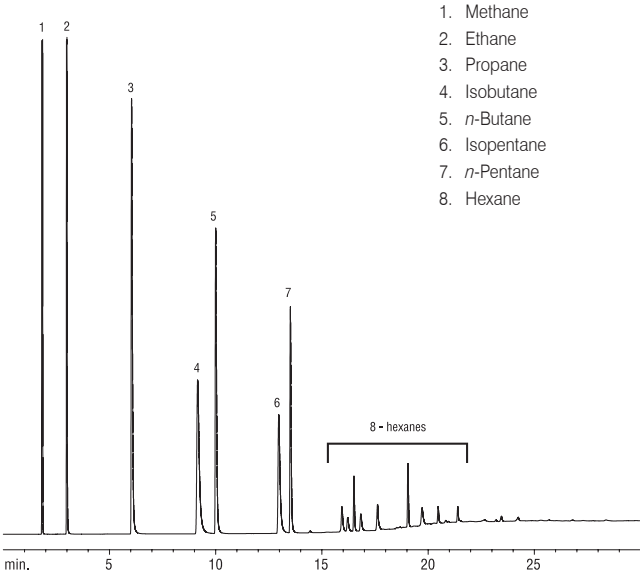
Column:	DM-PLOT Alumina, 50 m x 0.53 mm x 6.00 µm
Cat. No.:	**8801**
Index:	CSR00551
Oven Temp.:	80 °C
Carrier Gas:	He, 42 cm/sec, 80 °C
Injection:	Gastight syringe, 40 mL/min, 200 °C
Sample:	200 µL, 1,000 ppm
Detector:	FID, 1.28 x 10^{-10} AFS, 200 °C



1. Methane
2. Ethane
3. Ethylene
4. Propane
5. Cyclopropane
6. Propylene
7. Isobutane
8. *n*-Butane
9. Propadiene
10. Acetylene
11. *trans*-2-Butene
12. 1-Butene
13. *cis*-2-Butene
14. Isopentane
15. *n*-Pentane
16. 1,3-Butadiene
17. Propyne

Hydrocarbon Gases

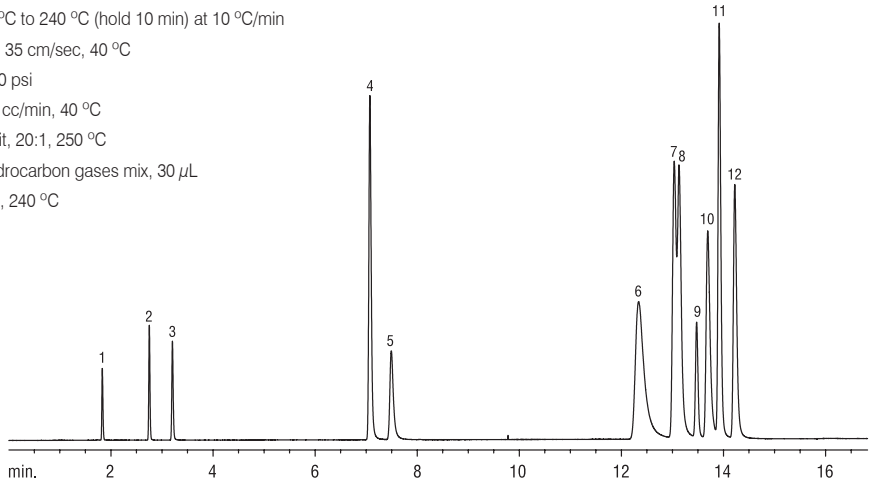
Column:	DM-PLOT Q, 30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818**
Index:	CSR00523
Oven Temp.:	40 °C to 240 °C (hold 10 min) at 10 °C/min
Carrier Gas:	He, 35 cm/sec, 40 °C
Head Pressure:	18.0 psi
Column flow rate:	1.5 mL/min, 40 °C
Injection:	Split, 20:1, 250 °C
Sample:	Hydrocarbon gases mix, 30 µL
Detector:	FID, 240 °C



1. Methane
2. Ethane
3. Propane
4. Isobutane
5. *n*-Butane
6. Isopentane
7. *n*-Pentane
8. Hexane

Hydrocarbon Gases

Column:	DM-PLOT Q, 30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818**
Index:	CSR00522
Oven Temp.:	35 °C to 240 °C (hold 10 min) at 10 °C/min
Carrier Gas:	He, 35 cm/sec, 40 °C
Head Pressure:	18.0 psi
Column flow rate:	1.5 cc/min, 40 °C
Injection:	Split, 20:1, 250 °C
Sample:	Hydrocarbon gases mix, 30 µL
Detector:	FID, 240 °C

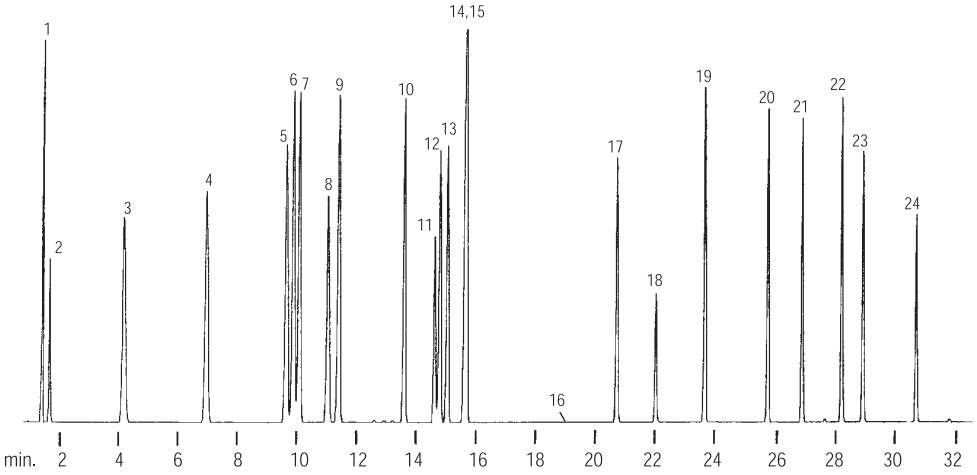


1. Methane
2. Ethylene
3. Ethane
4. Propylene
5. Propane
6. Isobutane
7. 1,3-Butadiene
8. 1-Butene
9. Isobutene
10. *n*-Butane
11. *cis*-2-Butene
12. *trans*-2-Butene

Petroleum Oxygenates

Column:	DM-Wax, 30 m x 0.53 mm x 1.00 μm
Cat. No.:	**7551**
Index:	CSR00196
Oven Temp.:	45 °C (hold 4 min) to 220 °C at 6 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Direct, 220 °C
Sample:	Synthetic blend, 0.2 μL, 15 - 30 ng/μL
Detector:	FID, 16 x 10^{-11} AFS, 220 °C

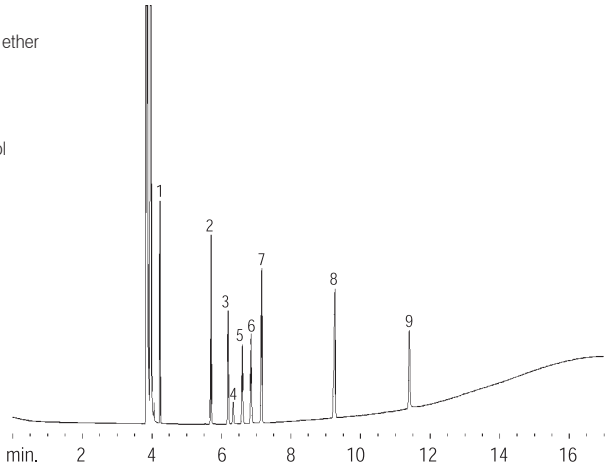
1. Heptane
2. C3 oxide
3. Benzene
4. Toluene
5. Ethylbenzene
6. *p*-Xylene
7. *m*-Xylene
8. Cumene
9. *o*-Xylene
10. Styrene
11. 2-Methylpentanol
12. *p*-Diethylbenzene
13. *m*-Diethylbenzene
14. *α*-Methylstyrene
15. *o*-Diethylbenzene
16. Phenylacetylene
17. Benzaldehyde
18. Monopropylene glycol
19. Acetophenone
20. 2-Phenyl-2-propanol
21. *α*-Methylbenzyl alcohol
22. Benzyl alcohol
23. Phenylethyl alcohol
24. Phenol



Petroleum Oxygenates

Column:	DM-TCEP, 60 m x 0.25 mm x 0.40 μm
Cat. No.:	**7809**
Index:	CSR00195
Oven Temp.:	60 °C (hold 5 min) to 100 °C (hold 10 min) at 5 °C/min
Carrier Gas:	He, 30 cm/sec, 80 °C
Injection:	Split, 46 mL/min, 200 °C
Sample:	1.0 μL, 500 ppm
Detector:	FID, 6.4 x 10^{-11} AFS, 200 °C

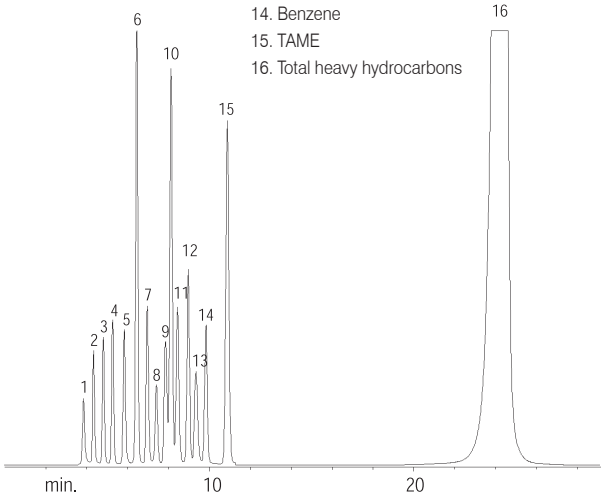
1. Methyl *tert*-butyl ether
2. *n*-Undecane
3. *tert*-Butanol
4. Methanol
5. Isopropyl alcohol
6. Ethanol
7. *n*-Dodecane
8. *n*-Tridecane
9. *n*-Butanol



Petroleum Oxygenates

Column:	DM-1, 30 m x 0.53 mm x 3.00 μm
Cat. No.:	**7155**
Index:	CSR00194
Oven Temp.:	60 °C
Carrier Gas:	He, 5 mL/min, 60 °C
Injection:	Split, 15:1, 200 °C
Sample:	Oxygenates blend 1 - 10 % wt in surrogate gasoline, 0.5 μL
Detector:	FID, 250 °C

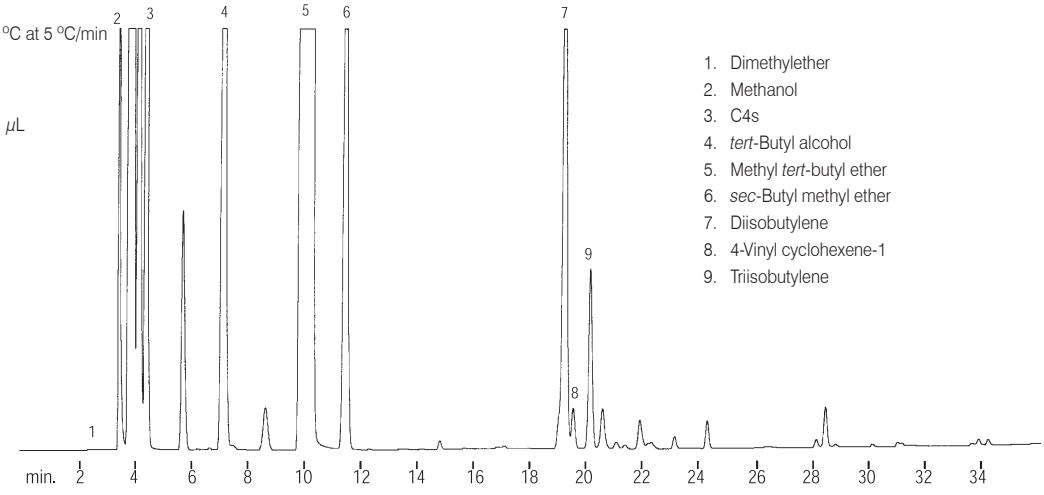
1. Methanol
2. Ethanol
3. Isopropanol
4. *tert*-butanol
5. *n*-Propanol
6. Methyl *tert*-butyl ether
7. *sec*-Butanol
8. DIPE
9. Isobutanol
10. Ethyl *tert*-butyl ether
11. *tert*-Amyl ether
12. Dimethoxyethane
13. *n*-Butanol
14. Benzene
15. TAME
16. Total heavy hydrocarbons



Oxygenates MTBE

Column:	DM-1, 30 m x 0.53 mm x 5.00 μm
Cat. No.:	**7157**
Index:	CSR00197
Oven Temp.:	40 °C (hold 8 min) to 200 °C at 5 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Direct, 200 °C
Sample:	Methyl *tert*-butyl ether, 0.1 μL
Detector:	FID, 8 x 10^{-11} AFS, 200 °C

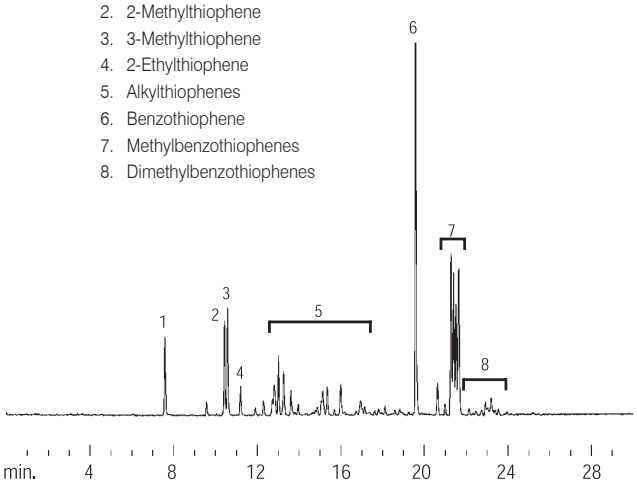
1. Dimethylether
2. Methanol
3. C4s
4. *tert*-Butyl alcohol
5. Methyl *tert*-butyl ether
6. *sec*-Butyl methyl ether
7. Diisobutylene
8. 4-Vinyl cyclohexene-1
9. Triisobutylene



Sulfur in Gasoline

Column:	DM-1, 30 m x 0.32 mm x 4.00 µm
Cat. No.:	**7143**
Index:	CSR00198
Oven Temp.:	40 °C (hold 3 min) to 275 °C (hold 5 min) at 10 °C/min
Carrier Gas:	He, 70 cm/sec
Injection:	Split, 10:1, 275 °C
Sample:	Sulfur in gasoline, 1.0 µL, 300 ppm
Detector:	SCD, 275 °C

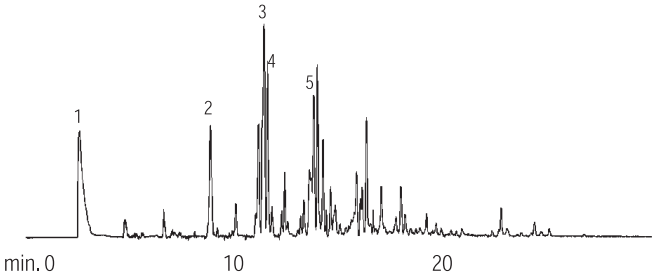
1. Thiophene
2. 2-Methylthiophene
3. 3-Methylthiophene
4. 2-Ethylthiophene
5. Alkylthiophenes
6. Benzothiophene
7. Methylbenzothiophenes
8. Dimethylbenzothiophenes



Sulfur in Naphtha

Column:	DM-1, 30 m x 0.32 mm x 4.00 µm
Cat. No.:	**7143**
Index:	CSR00199
Oven Temp.:	35 °C to 275 °C (hold 5 min) at 10 °C/min
Carrier Gas:	He, 24 cm/sec
Injection:	Split, 10:1, 275 °C
Sample:	Sulfur in naphtha, 1.0 µL, 500 ppm
Detector:	AED, 181 nm, 275 °C

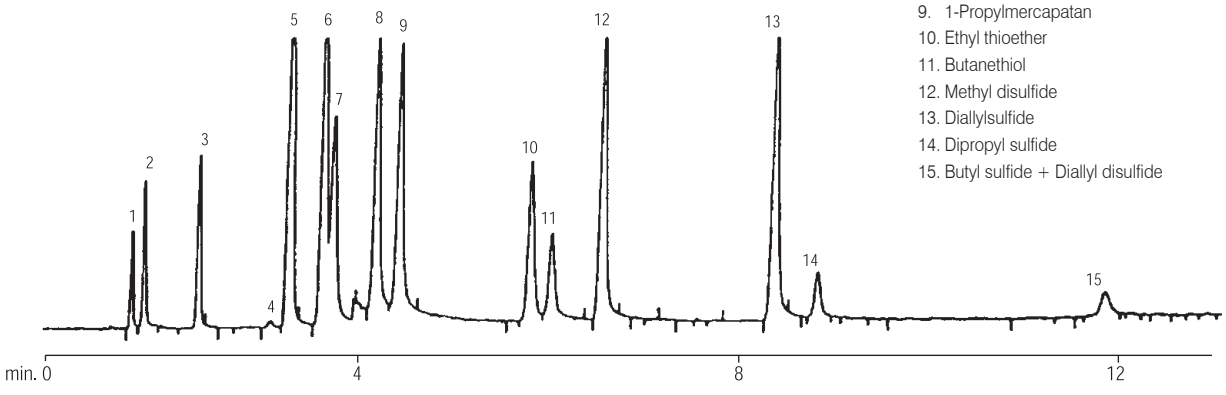
1. Hydrogen sulfide
2. Thiophene
3. 2-Methylthiophene
4. 3-Methylthiophene
5. 2-Ethylthiophene



Sulfide

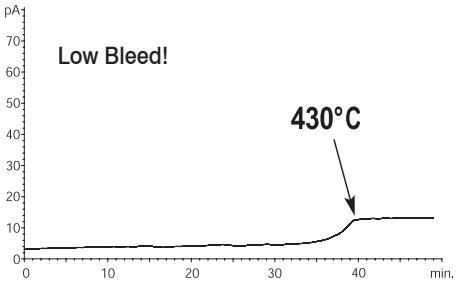
Column:	DM-1, 60 m x 0.53 mm x 5.00 µm
Cat. No.:	**7158**
Index:	CSR00200
Oven Temp.:	50 °C to 200 °C at 15 °C/ min
Carrier Gas:	He, 30 cm/sec, 50 °C
Injection:	Direct, 50 °C
Sample:	Sulfide mix, 100 µL
Detector:	FPD, 230 °C

1. Hydrogen sulfide
2. Sulfur dioxide + Carbonyl sulfide
3. Methanthiol
4. Ethanethiol
5. Carbon disulfide
6. Methyl sulfide
7. 2-Propylmercapatan
8. Allylmercaptan
9. 1-Propylmercapatan
10. Ethyl thioether
11. Butanethiol
12. Methyl disulfide
13. Diallylsulfide
14. Dipropyl sulfide
15. Butyl sulfide + Diallyl disulfide



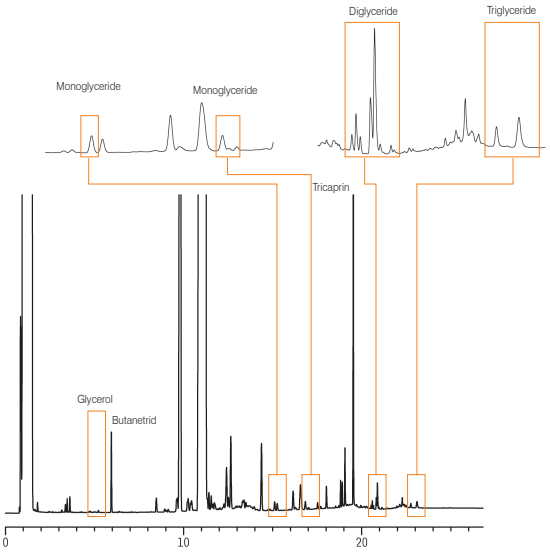
Bleed Profile

Column:	DM-1HT SimDist Metal, 5 m x 0.53 mm x 0.10 µm
Cat.No.:	**8870**
Index:	CSR00527
Oven Temp.:	40 °C to 430 °C (hold 30 min) at 10 °C/min
Carrier Gas:	He, 60 cm/sec
Injection:	On-column
Flow Rate:	7.8 mL/min
Head Pressure:	1.0 psi
Detector:	FID, 430 °C



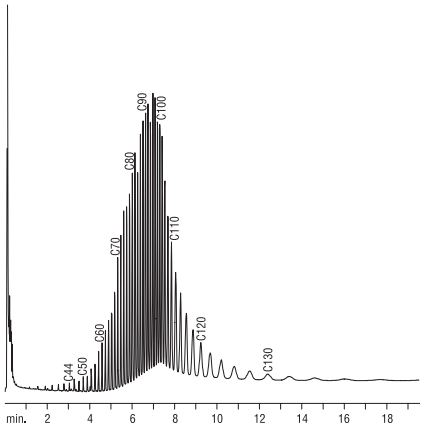
Glycerin in Biodiesel (ASTM D6584)

Column:	DM-BDTG Metal, 14 m x 0.53 mm x 0.16 µm (with 2 m Integra-Gap,total length 16 m)
Cat. No.:	**8864**
Index:	CSR00969
Sample:	Biodiesel (B100) in *n*-hexane
Injection:	1 µL cold on-column
Oven Temp.:	50 °C (hold 1 min) to 180 °C at 15 °C/min to 230 °C at 7 °C/min, to 380 °C (hold 5 min) at 30 °C/min
Carrier Gas:	H_2, 4 mL/min
Detector:	FID, 380 °C



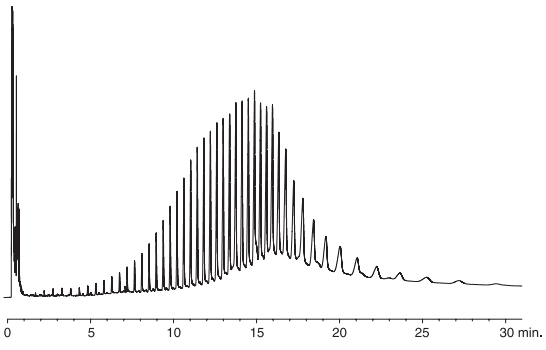
Hydrocarbons, C44 - C100

Column:	DM-1HT SimDist Metal, 5 m x 0.53 mm x 0.10 µm
Cat. No.:	**8870**
Index:	CSR00543
Solvent:	Carbon disulfide
Injection:	On-column
Oven Temp.:	40 °C to 430 °C (hold 30 min) at 60 °C/ min
Carrier Gas:	H_2, 1.0 psi
Sample:	Polywax 1000, 0.2 µL
Detector:	FID, 430 °C



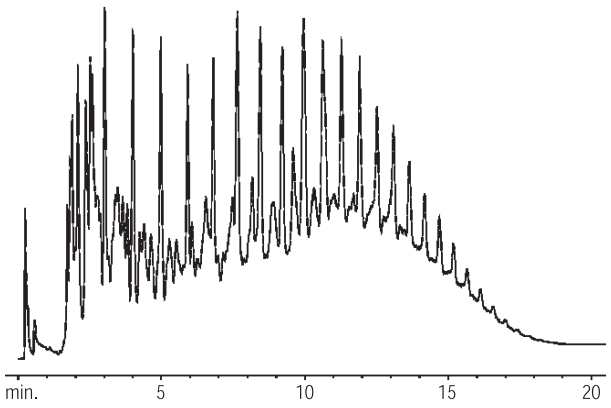
Hydrocarbons, C44 - C100

Column:	DM-1HT SimDist Metal, 5 m x 0.53 mm x 0.10 µm
Cat. No.:	**8870**
Index:	CSR00531
Injection:	On-column, 0.2 µL
Oven Temp.:	40 °C to 430 °C (hold 25 min) at 60 °C/min
Carrier Gas:	He, 60 cm/sec, 1.0 psi
Sample:	Polywax 1000, 0.2 µL
Flow Rate:	7.8 mL/min
Detector:	FID, 430 °C



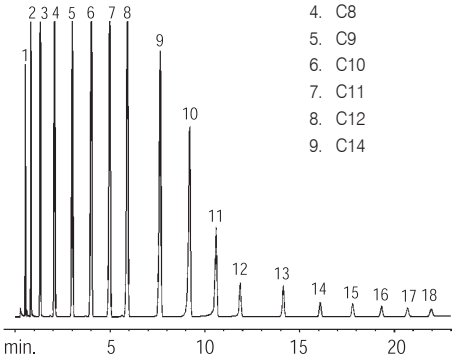
Simulated Distillation

Column:	DM-2887, 10 m x 0.53 mm x 2.65 µm
Cat. No.:	**7808**
Index:	CSR00227
Oven Temp.:	35 °C to 360 °C (hold 5 min) at 15 °C/min
Carrier Gas:	N_2, 112 cm/sec
Injection:	Direct, 360 °C
Sample:	0.1 - 0.01 wt% Hydrocarbon in CS_2 solvent, 1.0 µL



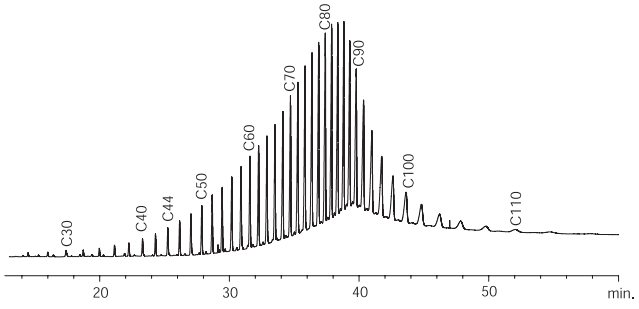
Simulated Distillation

Column:	DM-2887, 10 m x 0.53 mm x 2.65 µm
Cat. No.:	**7808**
Index:	CSR00226
Oven Temp.:	35 °C to 360 °C (hold 5 min) at 15 °C/min
Carrier Gas:	N_2, 112 cm/sec
Injection:	Direct, 360 °C
Sample:	0.1 - 0.01 wt% Hydrocarbon in CS_2 solvent, 1.0 µL



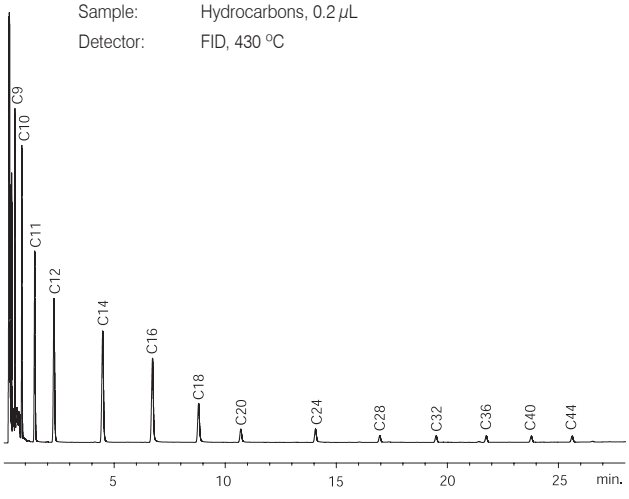
Hydrocarbons, C30 - C110

Column:	DM-1HT SimDist Metal, 5 m x 0.53 mm x 0.10 µm
Cat. No.:	**8870**
Index:	CSR00530
Oven Temp.:	40 °C to 430 °C (hold 30 min) at 10 °C/min
Carrier Gas:	He, 60 cm/sec
Injection:	On-column
Flow Rate:	7.8 mL/min
Head Pressure:	1.0 psi
Solvent:	CS_2
Sample:	Polywax 1000, 0.2 µL
Detector:	FID, 430 °C



Hydrocarbons, C10 - C44

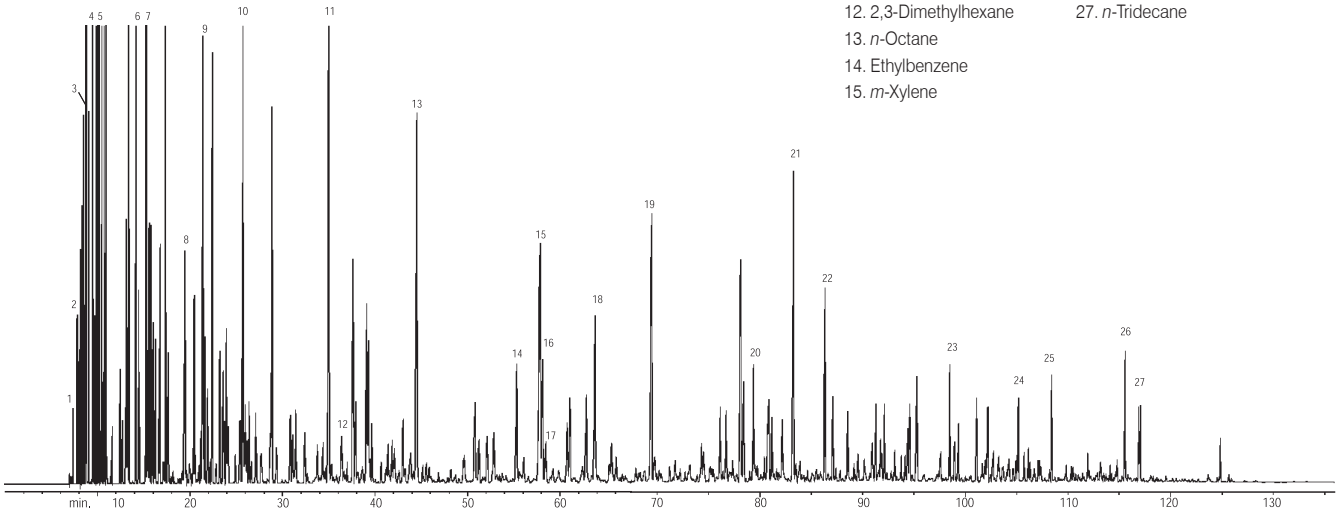
Column:	DM-1HT SimDist Metal, 5 m x 0.53 mm x 0.10 µm
Cat. No.:	**8870**
Index:	CSR00529
Oven Temp.:	40° C to 430 °C (hold 30 min) at 10 °C/min
Carrier Gas:	He, 60 cm/sec
Injection:	On-column
Flow Rate:	7.8 mL/min
Head Pressure:	1.0 psi
Solvent:	CS_2
Sample:	Hydrocarbons, 0.2 µL
Detector:	FID, 430 °C



Detailed Hydrocarbons Analysis

Column:	DM-PONA, 100 m x 0.25 mm x 0.50 μm
Cat. No.:	**7805**
Index:	CSR00209
Oven Temp.:	35 °C (hold 13 min) to 45 °C (hold 15 min) at 10 °C/min to 60 °C (hold 15 min) at 1 °C/min to 200 °C (hold 5 min) at 1.9 °C/min
Carrier Gas:	He, 24 cm/sec, 35 °C
Injection:	Split, 100:1, 250 °C
Sample:	Reformulated gasoline, 0.5 μL
Detector:	FID, 4 x 10^{-12} AFS, 250 °C

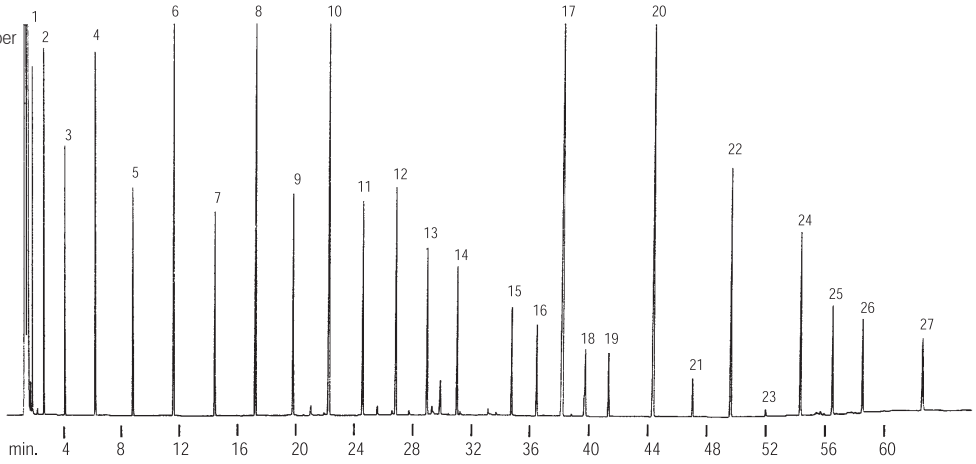
1. Propane
2. *iso*-Butane / Methanol
3. *n*-Butane
4. *iso*-Pentane
5. *n*-Pentane
6. 3-Methylpentane
7. *n*-Hexane
8. Benzene
9. 2-Methylhexane
10. *n*-Heptane
11. Toluene
12. 2,3-Dimethylhexane
13. *n*-Octane
14. Ethylbenzene
15. *m*-Xylene
16. *p*-Xylene
17. 2,3-Dimethylheptane
18. *o*-Xylene
19. *n*-Nonane
20. 1,3,5-Trimethylbenzene
21. 1,2,4-Trimethylbenzene
22. *n*-Decane
23. *n*-Undecane
24. Naphthalene
25. *n*-Dodecane
26. 2-Methylnaphthalene
27. *n*-Tridecane



Hydrocarbons, C7 - C42

Column:	DM-1, 30 m x 0.25 mm x 0.10 μm
Cat. No.:	**7119**
Index:	CSR00216
Oven Temp.:	40 °C to 340 °C at 5 °C/min
Carrier Gas:	H_2, 40 cm/sec, 40 °C
Injection:	Direct, 340 °C
Sample:	0.2 μL Injection of a synthetic hydrocarbons mix, 0.1 mg/mL per component
Detector:	FID, 64 x 10^{-11} AFS, 340 °C

1. C7
2. C8
3. C9
4. C10
5. C11
6. C12
7. C13
8. C14
9. C15
10. C16
11. C17
12. C18
13. C19
14. C20
15. C22
16. C23
17. C24
18. C25
19. C26
20. C28
21. C30
22. C32
23. C34
24. C36
25. C38
26. C40
27. C42

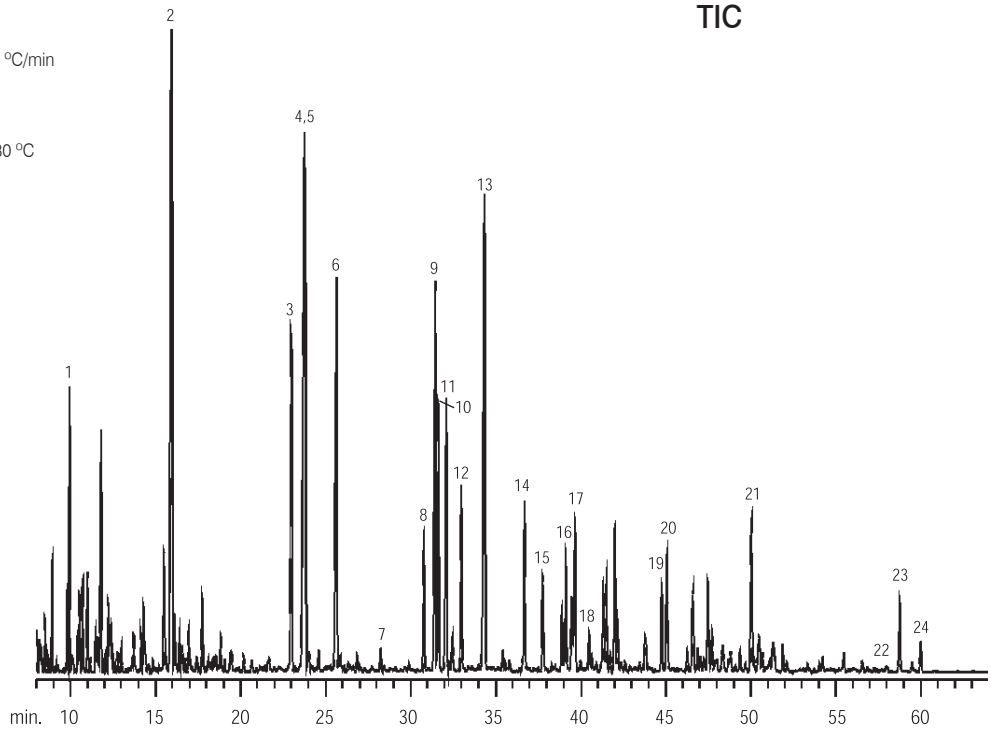


Gasoline Aromatics

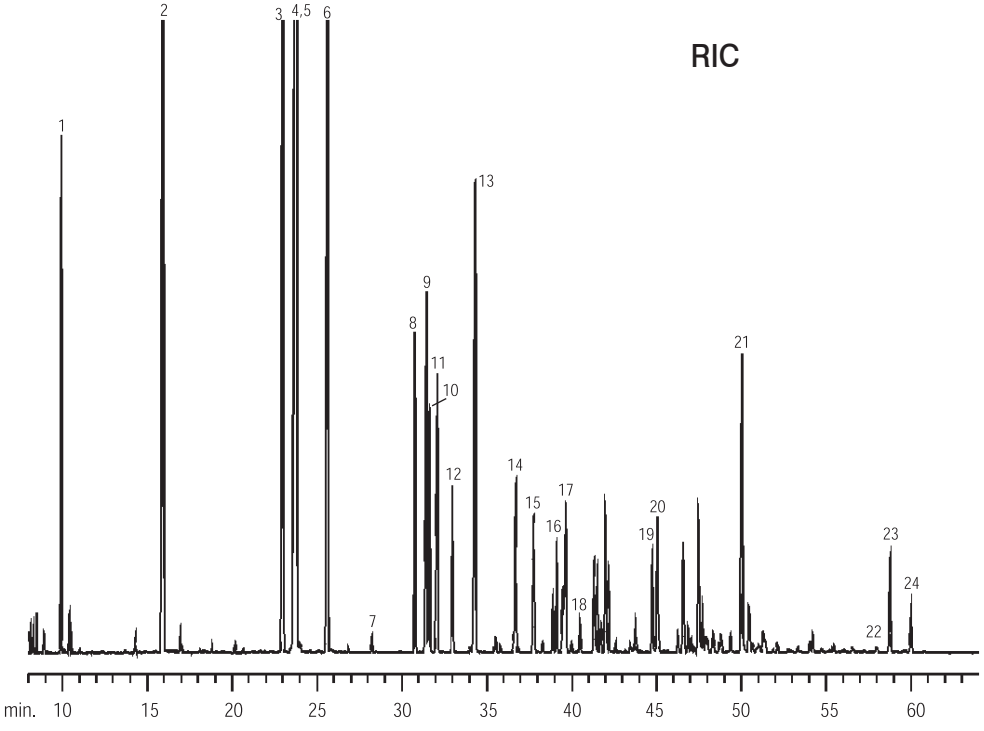
Column:	DM-1, 60 m x 0.25 mm x 1.00 μm
Cat. No.:	**7126**
Index:	CSR00215
Oven Temp.:	50 °C (hold 1 min) to 190 °C at 2 °C/min
Injection:	Split, 200:1, 250 °C
Sample:	Neat gasoline, 1.0 μL
Detector:	MS, 45 - 300 m/e, 1 scan/sec, 280 °C

1. Benzene
2. Toluene
3. Ethylbenzene
4. *m*-Xylene
5. *p*-Xylene
6. *o*-Xylene
7. Isopropyl benzene
8. *n*-Propylbenzene
9. 1-Methyl-3-ethylbenzene
10. 1-Methyl-4-ethylbenzene
11. 1,3,5-Trimethylbenzene
12. 1-Methyl-2-ethylbenzene
13. 1,2,4-Trimethylbenzene
14. 1,2,3-Trimethylbenzene
15. Indane
16. 1,4-Diethylbenzene
17. Butylbenzene
18. 1,2-Diethylbenzene
19. 1,2,4,5-Tetramethylbenzene
20. 1,2,3,5-Tetramethylbenzene
21. Pentamethylbenzene
22. Naphthalene
23. 2-Methylnaphthalene
24. 1-Methylnaphthalene

TIC

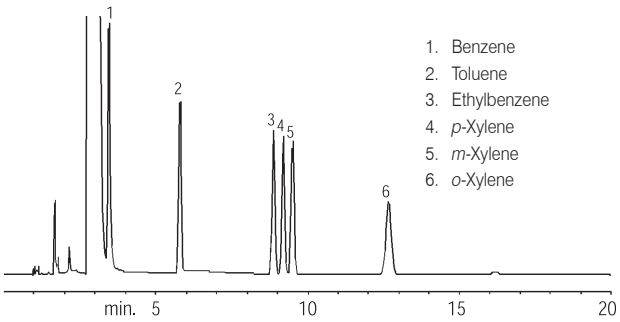


RIC



Aromatics (Benzene / Toluene / Xylene)

Column: DM-Wax, 30 m x 0.53 mm x 1.00 μm
Cat. No.: **7551**
Index: CSR00191
Oven Temp.: 50 °C
Carrier Gas: H_2, 40 cm/sec
Injection: Direct, 250 °C
Sample: Benzene, toluene, xylene, 0.1 μL
Detector: FID, 16 x 10^{-11} AFS, 250 °C

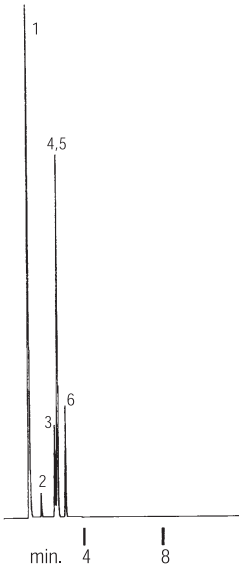


1. Benzene
2. Toluene
3. Ethylbenzene
4. *p*-Xylene
5. *m*-Xylene
6. *o*-Xylene

Aromatics (Benzene / Toluene / Xylene)

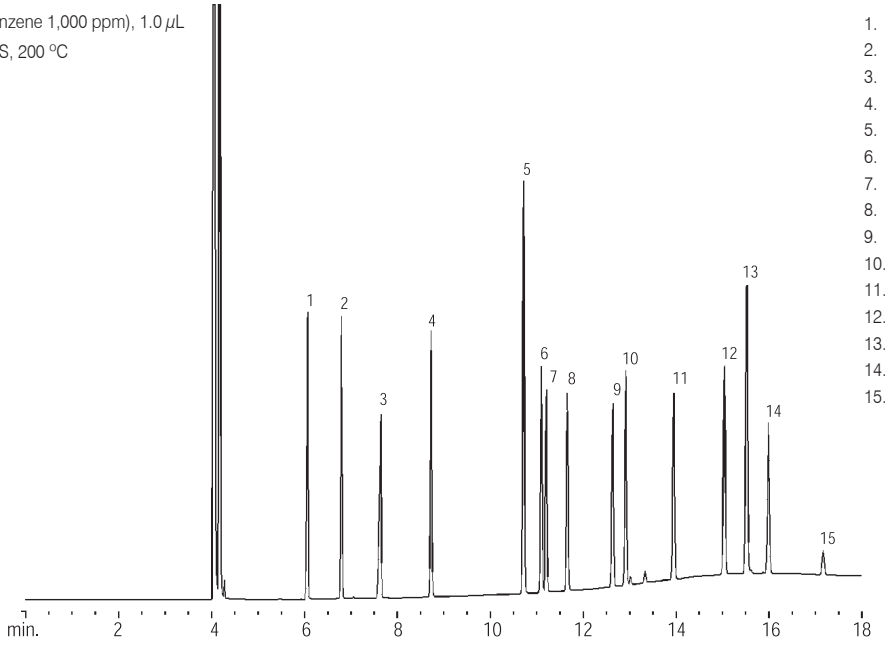
Column: DM-200, 30 m x 0.53 mm x 0.50 μm
Cat. No.: **8347**
Index: CSR00189
Oven Temp.: 60 °C
Carrier Gas: He, 40 cm/sec
Injection: Direct, 250 °C
Sample: Benzene, toluene, xylene standard, 0.1 μL
Detector: FID, 4 X 10^{-11} AFS, 250 °C

1. Benzene
2. Toluene
3. Ethylbenzene
4. *m*-Xylene
5. *p*-Xylene
6. *o*-Xylene



Aromatics

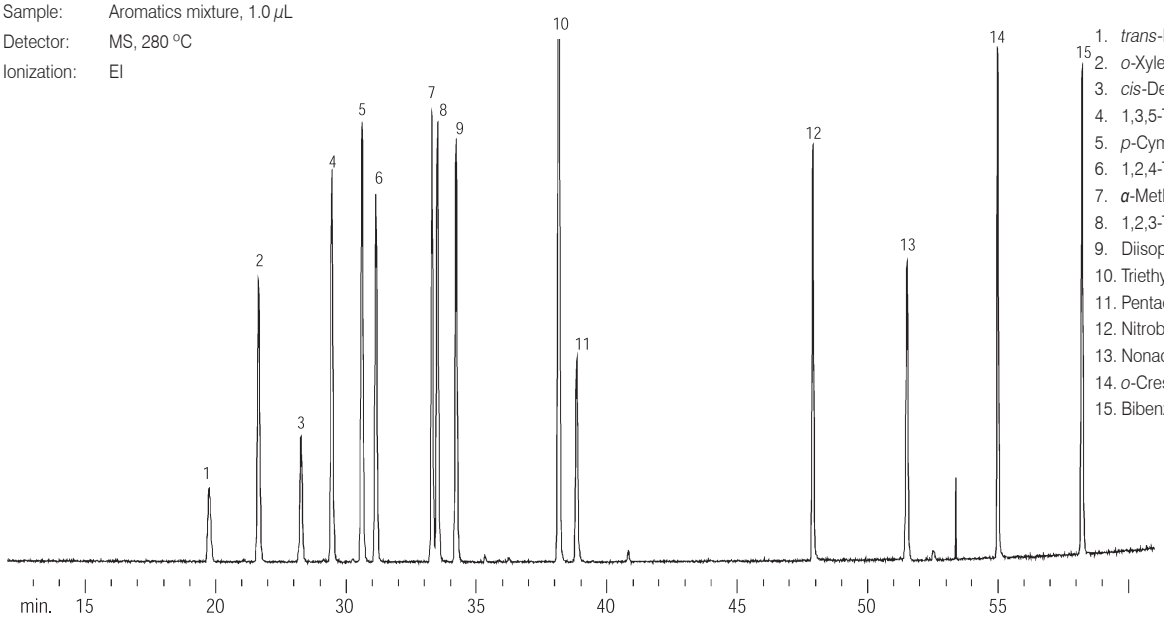
Column: DM-TCEP, 60 m x 0.25 mm x 0.40 μm
Cat. No.: **7809**
Index: CSR00211
Oven Temp.: 60 °C (hold 5 min) to 100 °C (hold 10 min) at 5 °C/min
Carrier Gas: He, 30 cm/sec, 80 °C
Injection: Split, 46 mL/min, 200 °C
Sample: 500 ppm (Ethylbenzene 1,000 ppm), 1.0 μL
Detector: FID, 6.4 x 10^{-11} AFS, 200 °C



1. *n*-Undecane
2. Benzene
3. *n*-Dodecane
4. Toluene
5. Ethylbenzene
6. *p*-Xylene
7. *m*-Xylene
8. Cumene
9. *n*-Propylbenzene
10. *o*-Xylene
11. Mesitylene
12. 1-Ethyl-2-methylbenzene
13. *m*-Diethylbenzene
14. *p*-Diethylbenzene
15. *o*-Diethylbenzene

Aromatics

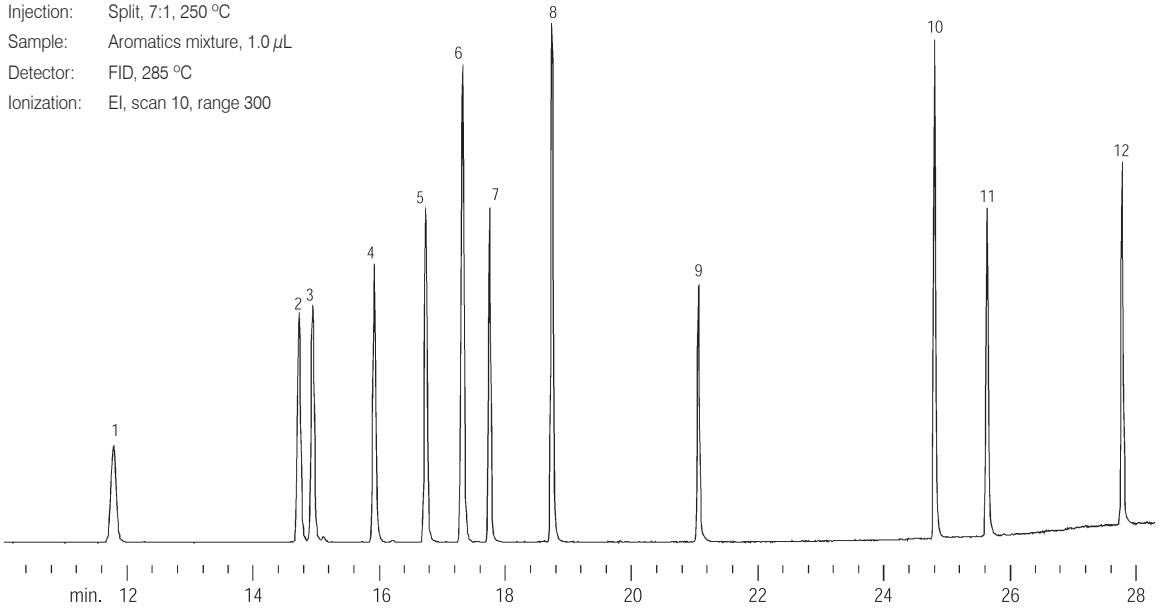
Column: DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.: **7552**
Index: CCR00309
Oven Temp.: 40 °C (hold 10 min) to 245 °C (hold 20 min) at 4 °C/min
Carrier Gas: He, 50 cm/sec, 50 °C
Injection: Split, 7:1, 250 °C
Sample: Aromatics mixture, 1.0 µL
Detector: MS, 280 °C
Ionization: EI



1. *trans*-Decahydronaphthalene
2. *o*-Xylene
3. *cis*-Decahydronaphthalene
4. 1,3,5-Trimethylbenzene
5. *p*-Cymene
6. 1,2,4-Trimethylbenzene
7. α-Methylbenzene
8. 1,2,3-Trimethylbenzene
9. Diisopropylbenzene
10. Triethylbenzene
11. Pentadecane
12. Nitrobenzene
13. Nonadecane
14. *o*-Cresol
15. Bibenzyl

Aromatics

Column: DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.: **7552**
Index: CCR00311
Oven Temp.: 45 °C (hold 10 min) to 250 °C (hold 20 min) at 12 °C/min
Carrier Gas: He, 50 cm/sec, 50 °C
Injection: Split, 7:1, 250 °C
Sample: Aromatics mixture, 1.0 µL
Detector: FID, 285 °C
Ionization: EI, scan 10, range 300

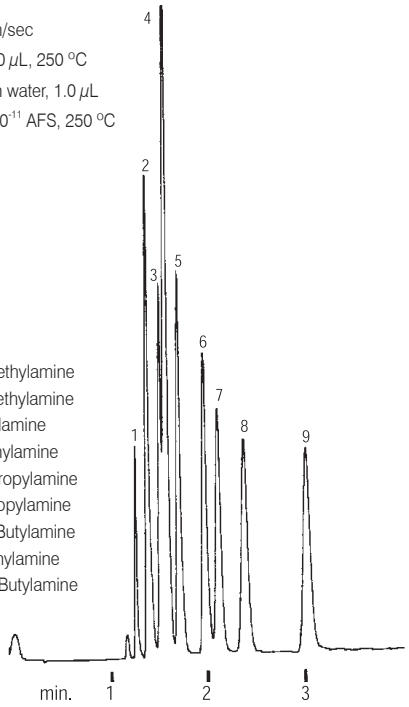


1. Toluene
2. Ethylbenzene
3. *p*-Xylene
4. Isopropyl benzene
5. Propylbenzene
6. *tert*-Butylbenzene
7. Styrene
8. Butylbenzene
9. Pentadecane
10. Naphthalene
11. Nonadecane
12. *p*-Cresol

Primary Amines (Low MW)

Column: DM-Wax Amine, 30 m x 0.53 mm x 1.00 µm
Cat. No.: **7833**
Index: CCR00304
Oven Temp.: 45 °C
Carrier Gas: H_2, 40 cm/sec
Injection: Direct, 1.0 µL, 250 °C
Sample: Amines in water, 1.0 µL
Detector: FID, 1 x 10^{-11} AFS, 250 °C

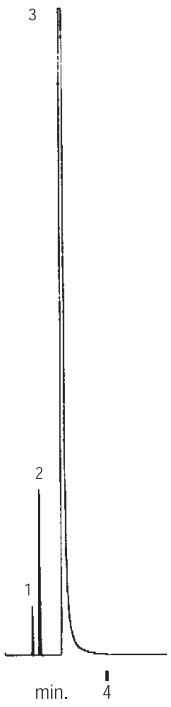
1. Trimethylamine
2. Dimethylamine
3. Ethylamine
4. Methylamine
5. Isopropylamine
6. *n*-Propylamine
7. *tert*-Butylamine
8. Diethylamine
9. *sec*-Butylamine



Amines (Low MW)

Column: DM-Wax Amine, 30 m x 0.53 mm x 1.00 µm
Cat. No.: **7833**
Index: CCR00305
Oven Temp.: 50 °C
Carrier Gas: H_2, 47 cm/sec
Injection: Split, 40:1, 200 °C
Sample: Methanol in water, 0.6 µL, 500 ng/µL
Detector: FID, 4 x 10^{-11} AFS, 200 °C

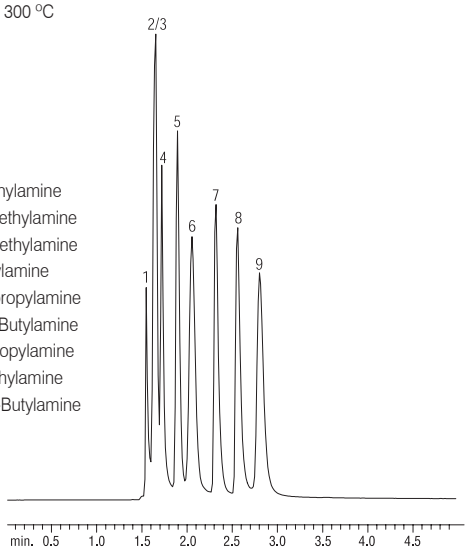
1. Trimethylamine
2. Diethylamine
3. Methanol



Primary Amines

Column: DM-35 Amine, 30 m x 0.53 mm x 1.00 µm
Cat. No.: **7825**
Index: CCR00578
Oven Temp.: 35 °C (hold 5 min)
Carrier Gas: He, 35.7 cm/sec constant pressure
Injection: Split, 10:1
Sample: Primary amines in water, 50 ppm, 1.0 µL
Detector: FID, 300 °C

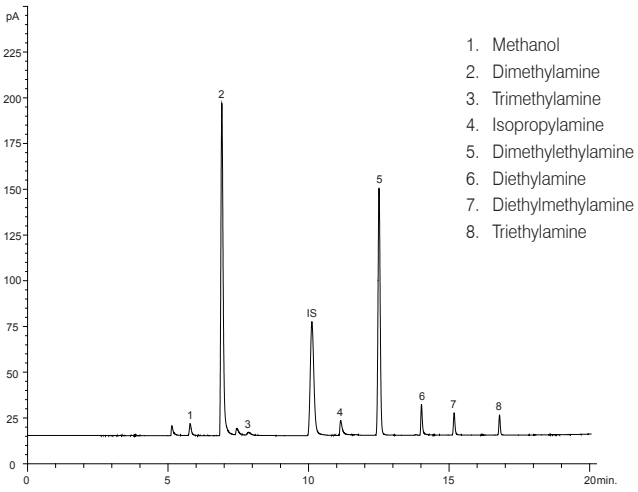
1. Methylamine
2. Dimethylamine
3. Trimethylamine
4. Ethylamine
5. Isopropylamine
6. *tert*-Butylamine
7. *n*-Propylamine
8. Diethylamine
9. *sec*-Butylamine



Short Chain Amines in Water

Column: DM-Volatile Amine, 60 m x 0.32 mm
Cat. No.: **8857**
Index: CGN1154
Sample: 200 - 1,000 ppm Short chain amines in water
Injection: Split, 15:1, 1.0 µL, 220 °C
Oven Temp.: 40 °C (hold 10 min) to 250 °C (hold 10 min) at 20 °C/min
Carrier Gas: H_2, 2.0 mL/min, 35 cm/sec, 40 °C
Detector: FID, 250 °C

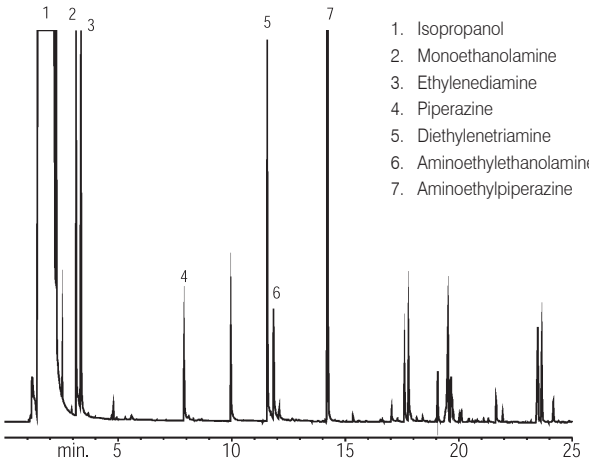
1. Methanol
2. Dimethylamine
3. Trimethylamine
4. Isopropylamine
5. Dimethylethylamine
6. Diethylamine
7. Diethylmethylamine
8. Triethylamine



Amines

Ethylenediamines

Column:	DM-5 Amine, 30 m x 0.25 mm x 0.50 μm
Cat. No.:	**7815**
Index:	CCR00298
Oven Temp.:	40 °C (hold 4 min) to 315 °C (hold 5 min) at 10 °C/min
Carrier Gas:	H_2, 43 cm/sec, 40 °C
Injection:	Split, 20:1, 315 °C
Sample:	Ethylenediamines, 3.0 μL, 5 - 80 ng
Detector:	FID, 6.4 x 10^{-11} AFS, 315 °C

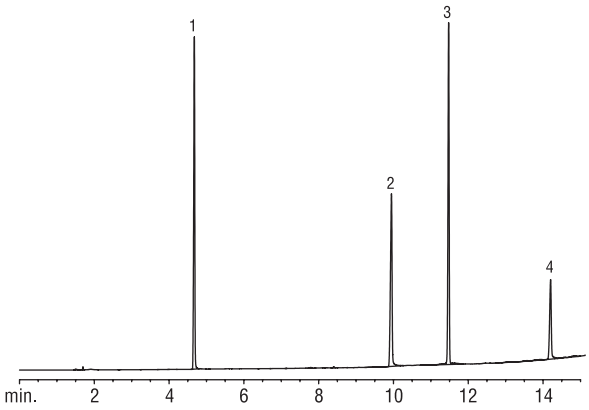


1. Isopropanol
2. Monoethanolamine
3. Ethylenediamine
4. Piperazine
5. Diethylenetriamine
6. Aminoethylethanolamine
7. Aminoethylpiperazine

Ethanolamines

Column:	DM-35 Amine, 30 m x 0.32 mm x 1.00 μm
Cat. No.:	**7823**
Index:	CCR00585
Oven Temp.:	50 °C (hold 0.5 min) to 280 °C at 15 °C/min
Carrier Gas:	He, 40 cm/sec constant pressure, 50 °C
Injection:	Split, 10:1, 300 °C
Sample:	500 μg/mL Ethanolamines standard in water, 1.0 μL
Detector:	FID, 300 °C

1. Monoethanolamine
2. Diethanolamine
3. Triethylene glycol monomethylether
4. Triethanolamine

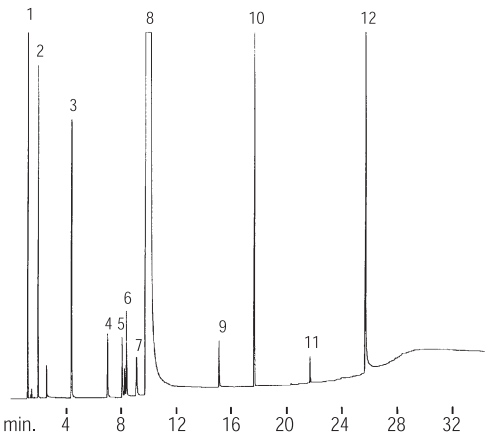


Hexamethylenediamine

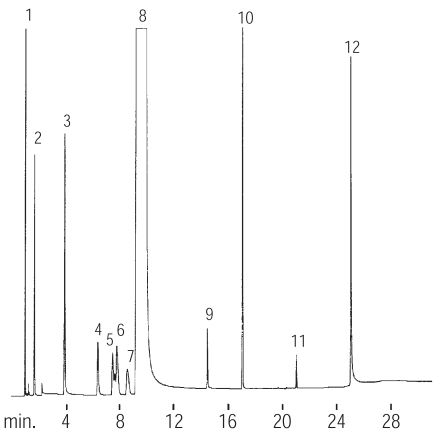
Column:	DM-Wax Amine, 30 m x 0.32 mm x 0.25 μm
Cat. No.:	**7829**
Index:	CCR00302
Oven Temp.:	95 °C (hold 6 min) to 235 °C (hold 4 min) at 7 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Direct, 250 °C
Sample:	Hexamethylenediamine, 0.4 μL, 10 - 100 ng
Detector:	FID, 2 x 10^{-11} AFS, 250 °C

V.S.

Column:	DM-Wax Amine, 30 m x 0.53 mm x 0.50 μm
Cat. No.:	**7837**
Index:	CCR00303
Oven Temp.:	95 °C (hold 6 min) to 235 °C (hold 2 min) at 7 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Direct, 255 °C
Sample:	Hexamethylenediamine, 0.2 μL
Detector:	FID, 64 x 10^{-11}, 255 °C



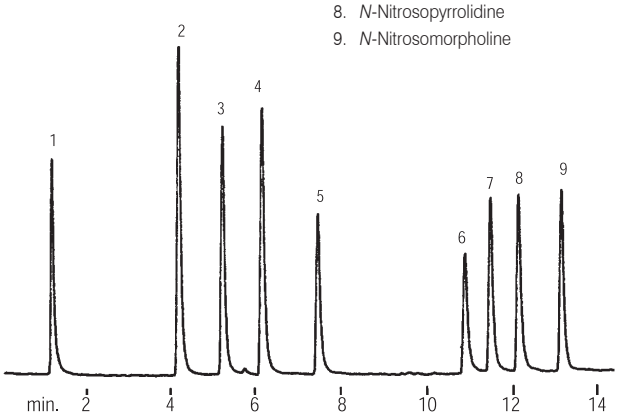
1. Cyclohexane
2. Hexamethyleneimine
3. 1,4-Diaminobutane
4. Pentamethylenediamine
5. 1,2-Diaminocyclohexane
6. 1,5-Diamino-2-Methylpentane
7. Aminomethylcyclopentylamine
8. Hexamethylenediamine
9. 6-Aminocapronitrile
10. *n*-Valeramide
11. Adiponitrile
12. *bis*-Hexamethylenetriamine



Nitrosamines

Column:	DM-Wax Amine, 60 m x 0.53 mm x 1.00 μm
Cat. No.:	**7836**
Index:	CCR00306
Oven Temp.:	100 °C (hold 1 min) to 170 °C at 5 °C/min
Carrier Gas:	He, 100 cm/sec
Injection:	Direct, 200 °C
Sample:	Nitrosamines, 1.0 μg/mL
Detector:	TSD, 200 °C

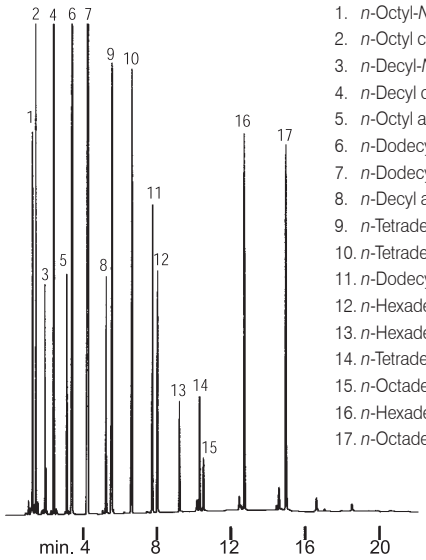
1. Solvent
2. *N*-Nitrosodimethylamine
3. *N*-Nitrosodiethylamine
4. *N*-Nitrosodiisopropylamine
5. *N*-Nitrosodipropylamine
6. *N*-Nitrosodibutylamine
7. *N*-Nitrosopiperidine
8. *N*-Nitrosopyrrolidine
9. *N*-Nitrosomorpholine



Amines / Alcohols / Chlorides

Column:	DM-Wax, 30 m x 0.53 mm x 0.50 μm
Cat. No.:	**7547**
Index:	CCR00307
Oven Temp.:	100 °C to 250 °C (hold 5 min) at 8 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Split, 40:1, 250 °C
Sample:	Mix, 0.5 μL
Detector:	FID, 128 x 10^{-11} AFS, 250 °C

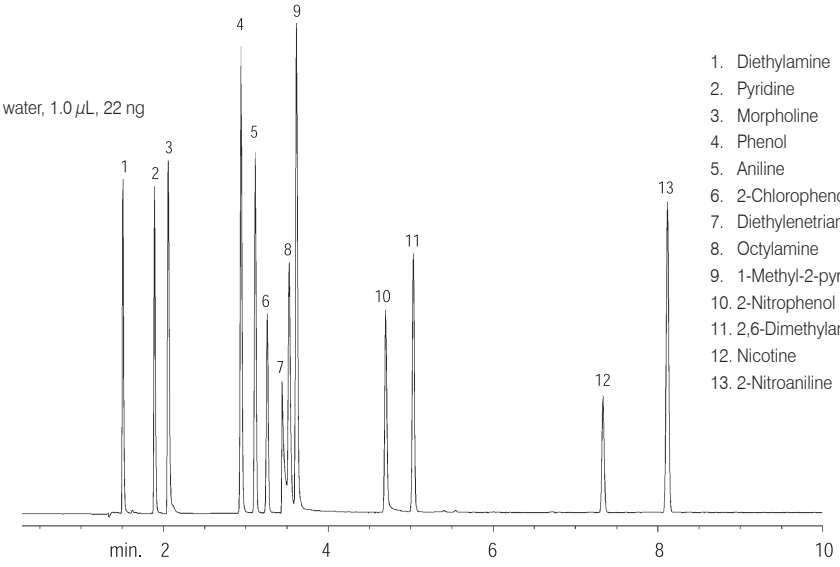
1. *n*-Octyl-*N*,*N*-dimethylamine
2. *n*-Octyl chloride
3. *n*-Decyl-*N*,*N*-dimethylamine
4. *n*-Decyl chloride
5. *n*-Octyl alcohol
6. *n*-Dodecyl-*N*,*N*-dimethylamine
7. *n*-Dodecyl chloride
8. *n*-Decyl alcohol
9. *n*-Tetradecyl-*N*,*N*-dimethylamine
10. *n*-Tetradecyl chloride
11. *n*-Dodecyl alcohol
12. *n*-Hexadecyl-*N*,*N*-dimethylamine
13. *n*-Hexadecyl chloride
14. *n*-Tetradecyl alcohol
15. *n*-Octadecyl-*N*,*N*-dimethylamine
16. *n*-Hexadecyl alcohol
17. *n*-Octadecyl alcohol



Amines / Phenols

Column:	DM-5 Amine, 30 m x 0.32 mm x 1.00 μm
Cat. No.:	**7817**
Index:	CCR00301
Oven Temp.:	120 °C to 220 °C at 10 °C/min
Carrier Gas:	H_2, 38 cm/sec, 120 °C
Injection:	Split, 25:1, 305 °C
Sample:	Miscellaneous amines and phenols in water, 1.0 μL, 22 ng
Detector:	FID, 6.4 x 10^{-11} AFS, 305 °C

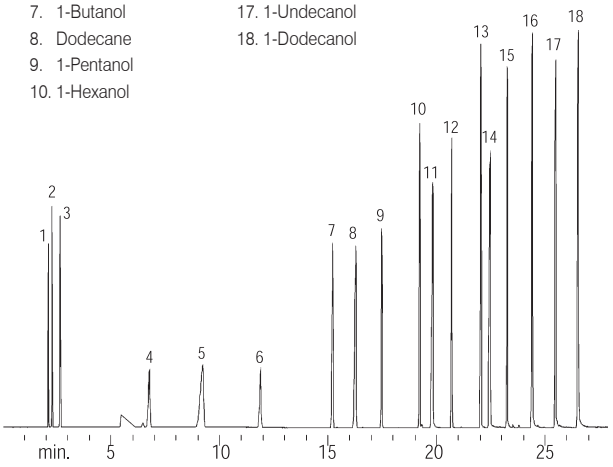
1. Diethylamine
2. Pyridine
3. Morpholine
4. Phenol
5. Aniline
6. 2-Chlorophenol
7. Diethylenetriamine
8. Octylamine
9. 1-Methyl-2-pyrrolidinone
10. 2-Nitrophenol
11. 2,6-Dimethylaniline
12. Nicotine
13. 2-Nitroaniline



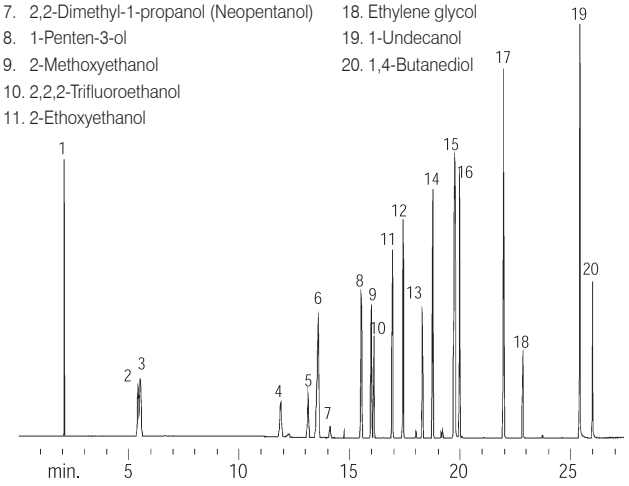
Alcohols

Column: DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.: **7552**
Index: CCR00288
Oven Temp.: 45 °C (hold 10 min) to 250 °C (hold 20 min) at 12 °C/min
Carrier Gas: He, 51 cm/sec, 50 °C
Injection: Split, 8:1, 250 °C
Sample: Alcohols, 1.0 µL
Detector: MS, 250 °C
Ionization EI

1. Pentane
2. Hexane
3. Heptane
4. Ethanol
5. Decane
6. 1-Propanol
7. 1-Butanol
8. Dodecane
9. 1-Pentanol
10. 1-Hexanol
11. Tetradecane
12. 1-Heptanol
13. 1-Octanol
14. Hexadecane
15. 1-Nonanol
16. 1-Decanol
17. 1-Undecanol
18. 1-Dodecanol

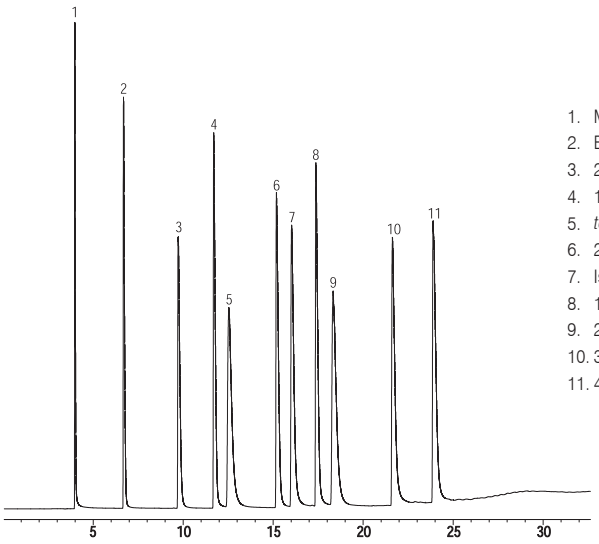


1. Pentane
2. Methanol
3. 2-Methyl-2-propanol (*tert*-Butylalcohol)
4. 2-Methyl-3-buten-2-ol
5. 3-Buten-2-ol
6. Undecane
7. 2,2-Dimethyl-1-propanol (Neopentanol)
8. 1-Penten-3-ol
9. 2-Methoxyethanol
10. 2,2,2-Trifluoroethanol
11. 2-Ethoxyethanol
12. 1-Pentanol
13. 2-Methyl-1-pentanol
14. 2,2-Dimethyl-1-pentanol
15. Tetradecane
16. *trans*-2-Hexen-1-ol
17. 1-Octanol
18. Ethylene glycol
19. 1-Undecanol
20. 1,4-Butanediol



Alcohols

Column: DM-PLOT Q, 30 m x 0.32 mm x 10.00 µm
Cat. No.: **8818**
Index: CCR00495
Oven Temp.: 100 °C to 240 °C (hold 10 min) at 5 °C/min
Carrier Gas: He, 31 cm/sec, 100 °C
Head Pressure: 18.0 psi
Column Flow Rate: 1.1 cc/min, 100 °C
Injection: Split, 70:1, 250 °C
Sample: Alcohols, 1.0 µL
Detector: FID, 270 °C

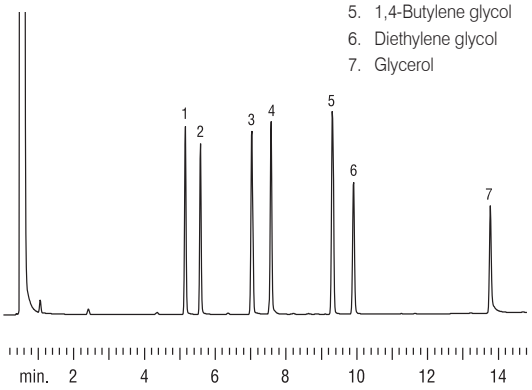


1. Methanol
2. Ethanol
3. 2-Propanol
4. 1-Propanol
5. *tert*-Butanol
6. 2-Butanol
7. Isobutyl alcohol
8. 1-Butanol
9. 2-Methyl-2-butanol
10. 3-Methyl-1-butanol
11. 4-Methyl-2-pentanol

Glycols

Column:	DM-Wax, 30 m x 0.53 mm x 1.00 μm
Cat. No.:	**7551**
Index:	CER00476
Oven Temp.:	80 °C to 200 °C (hold 10 min) at 8 °C/min
Solvent:	H_2O:MeOH = 50:50
septa purge	5.0 cc/min
Carrier Gas:	He, 50 cm/sec
Injection:	Direct
Flow Rate:	6.9 mL/min
Sample:	Glycol mix, 1.0 μL, 150 ppm
Detector:	FID, 270 °C

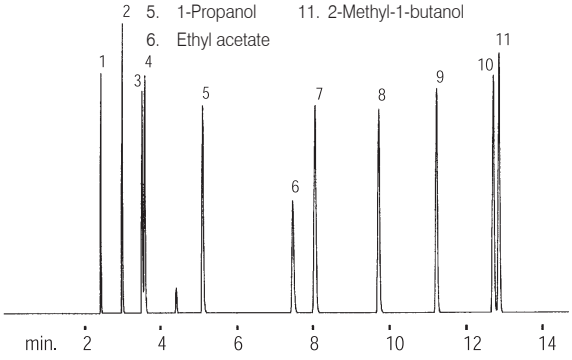
1. 1,2-Propylene glycol
2. Ethylene glycol
3. 1,3-Butylene glycol
4. 1,3-Propylene glycol
5. 1,4-Butylene glycol
6. Diethylene glycol
7. Glycerol



Alcohols

Column:	DM-5, 60 m x 0.32 mm x 1.00 μm
Cat. No.:	**7236**
Index:	CCR00292
Oven Temp.:	25 °C (hold 4 min) to 80 °C (hold 5 min) at 8 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Split, 40:1, 200 °C
Sample:	Alcohol mix , 0.03 μL
Detector:	FID, 128 x 10^{-11} AFS, 200 °C

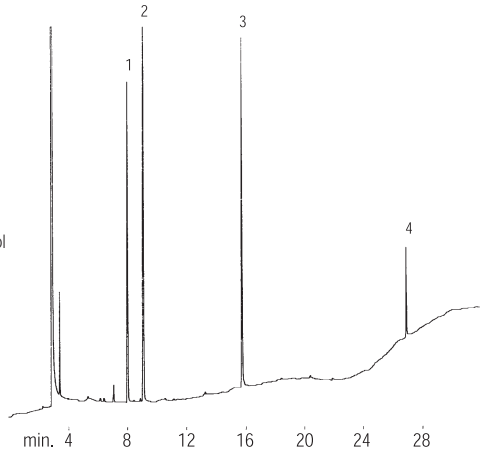
1. Methanol
2. Ethanol
3. Acetone
4. Isopropanol
5. 1-Propanol
6. Ethyl acetate
7. 2-Methyl-1-propanol
8. 1-Butanol
9. 3-Pentanol
10. 3-Methyl-1-butanol
11. 2-Methyl-1-butanol



Glycols

Column:	DM-200, 60 m x 0.53 mm x 3.00 μm
Cat. No.:	**8356**
Index:	CCR00326
Oven Temp.:	40 °C to 250 °C (hold 15 min) at 8 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Split, 19:1, 200 °C
Sample:	Glycols, 1.0 μL, 50 ng on-column
Detector:	FID, 6.4 x 10^{-11} AFS, 250 °C

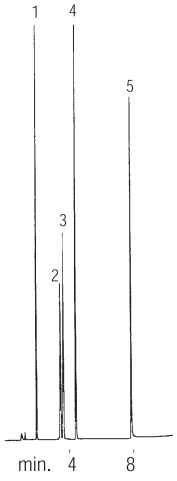
1. Ethylene glycol
2. Propylene glycol
3. Diethylene glycol
4. Tetraethylene glycol



Glycols / Alcohols

Column:	DM-5, 30 m x 0.53 mm x 1.00 μm
Cat. No.:	**7249**
Index:	CCR00327
Oven Temp.:	40 °C to 185 °C (hold 5 min) at 15 °C/min
Carrier Gas:	He, 40 cm/sec
Injection:	Direct, 150 °C
Sample:	Glycols and alcohols, 1.0 μL, 100 ppm
Detector:	FID, 8 x 10^{-11} AFS, 200 °C

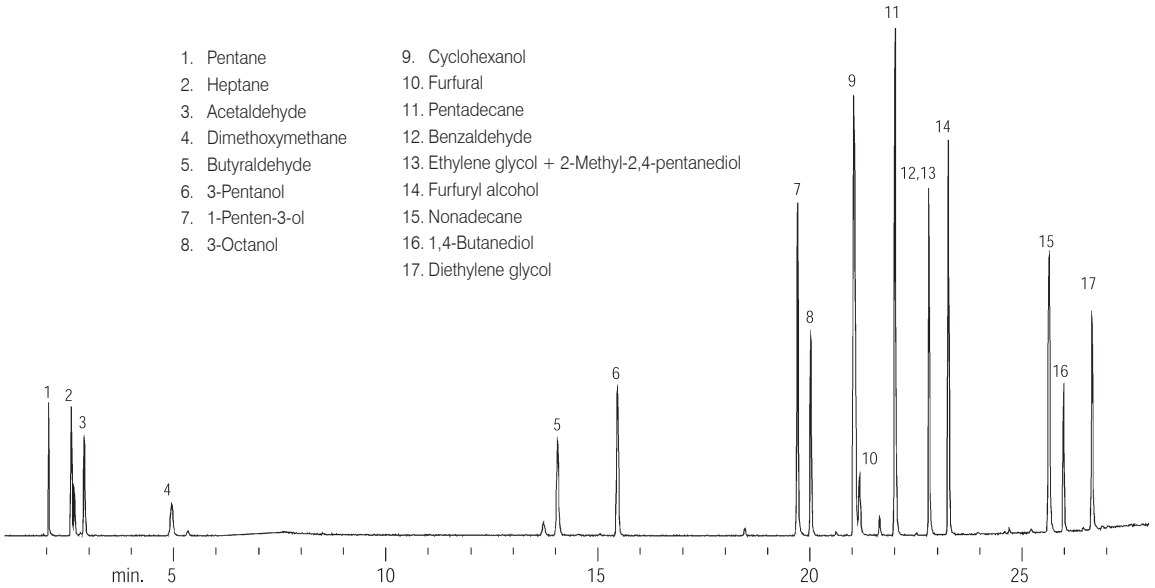
1. *n*-Butyl alcohol
2. Ethylene glycol
3. Propylene glycol
4. Butyl cellosolve
5. Butyl carbitol



Alcohols / Aldehydes

Column: DM-Wax, 60 m x 0.53 mm x 1.00 μm
Cat. No.: **7552**
Index: CCR00295
Oven Temp.: 45 °C (hold 10 min) to 250 °C (hold 20 min) at 12 °C/min
Carrier Gas: He, 50 cm/sec, 50 °C
Injection: Split, 7:1, 250 °C
Sample: Alcohols and aldehydes, 1.0 μL
Detector: FID, 285 °C
Ionization: EI, scan 10, range 300

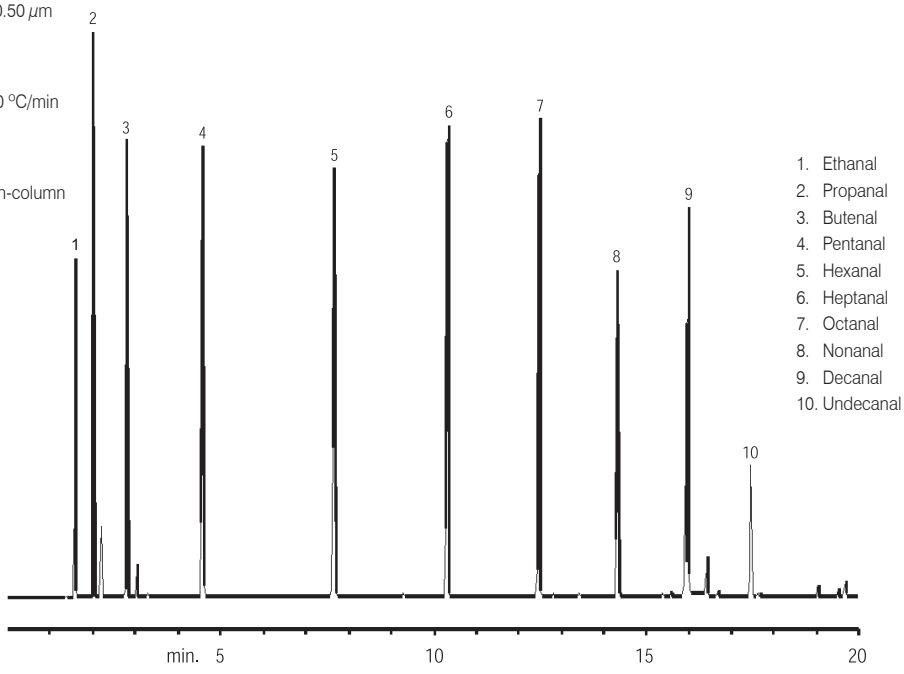
1. Pentane
2. Heptane
3. Acetaldehyde
4. Dimethoxymethane
5. Butyraldehyde
6. 3-Pentanol
7. 1-Penten-3-ol
8. 3-Octanol
9. Cyclohexanol
10. Furfural
11. Pentadecane
12. Benzaldehyde
13. Ethylene glycol + 2-Methyl-2,4-pentanediol
14. Furfuryl alcohol
15. Nonadecane
16. 1,4-Butanediol
17. Diethylene glycol



Aldehydes

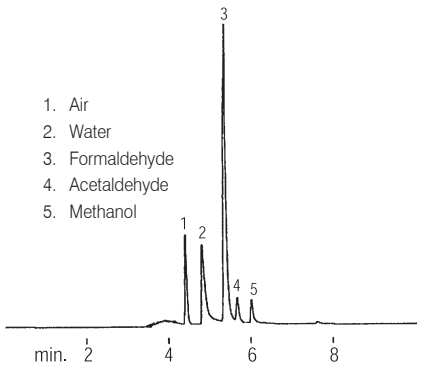
Column: DM-InertWax, 30 m x 0.25 mm x 0.50 μm
Cat. No.: **8523**
Index: CCR00300
Oven Temp.: 40 °C (hold 5 min) to 200 °C at 10 °C/min
Carrier Gas: H_2, 35 cm/sec, 40 °C
Injection: Split, 100:1, 200 °C
Sample: C2-C11 Aldehydes mix, 250 ng on-column
Detector: FID, 82 x 10^{-11} AFS, 200 °C

1. Ethanal
2. Propanal
3. Butenal
4. Pentanal
5. Hexanal
6. Heptanal
7. Octanal
8. Nonanal
9. Decanal
10. Undecanal



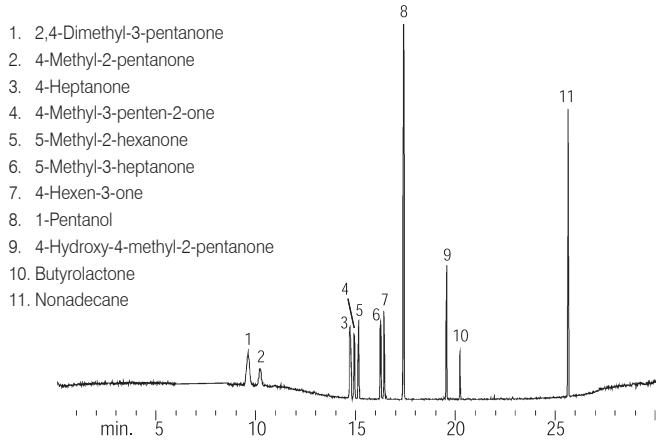
Formaldehyde

Column:	DM-1701, 60 m x 0.25 mm x 1.00 µm
Cat. No.:	**7324**
Index:	CCR00313
Oven Temp.:	40 °C constant
Carrier Gas:	He, 20 cm/sec
Injection:	Split, 30 mL/min, 150 °C
Sample:	Formaldehyde, 0.5 µL
Detector:	TCD, 8 mV, 175 °C



Ketones

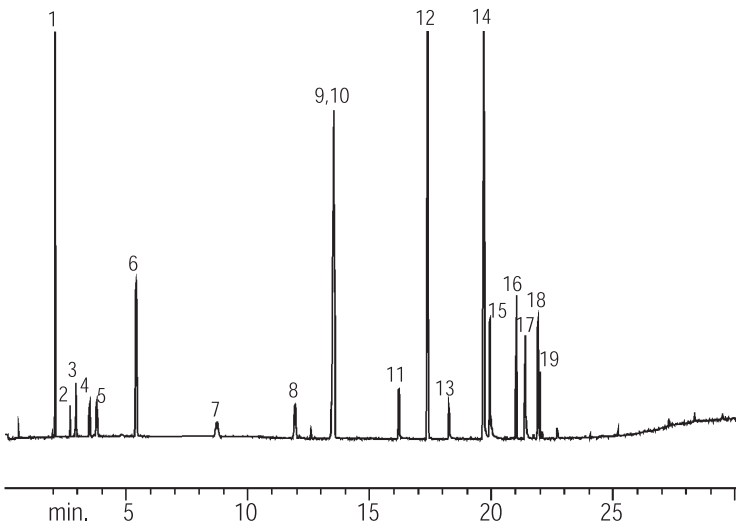
Column:	DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.:	**7552**
Index:	CCR00316
Oven Temp.:	45 °C (hold 10 min) to 250 °C (hold 20 min) at 12 °C/min
Carrier Gas:	He, 51 cm/sec, 50 °C
Injection:	Split, 8:1, 250 °C
Sample:	Ketones, 1.0 µL
Detector:	MSD, 250 °C
Ionization:	EI



Aldehydes

Column:	DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.:	**7552**
Index:	CCR00315
Oven Temp.:	45 °C (hold 10 min) to 250 °C (hold 20 min) at 12 °C/min
Carrier Gas:	He, 51 cm/sec, 50 °C
Injection:	Split, 8:1, 250 °C
Sample:	Aldehydes, 1.0 µL
Detector:	MSD, 250 °C
Ionization:	EI

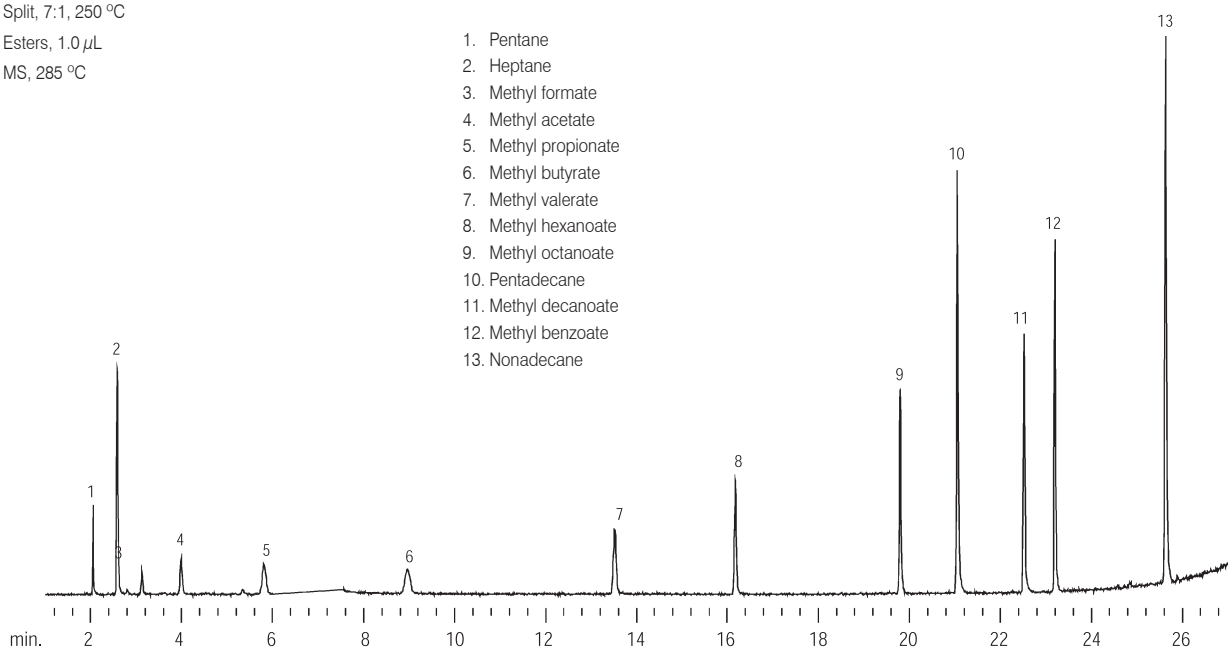
1. Pentane
2. Acetaldehyde
3. Dimethoxymethane
4. Propanal
5. 2-Methyl propanal
6. Methanol
7. Pentanal
8. 2-Butenal
9. Hexanal
10. Undecane
11. Heptanal
12. 1-Pentanol
13. Octanal
14. Tetradecane
15. Nonanal
16. 2-Furancarboxaldehyde
17. Decanal
18. Benzaldehyde
19. 1-Octanol



Esters

Column: DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.: **7552**
Index: CCR00314
Oven Temp.: 45 °C (hold 10 min) to 250 °C (hold 20 min) at 12 °C/min
Carrier Gas: He, 50 cm/sec, 50 °C
Injection: Split, 7:1, 250 °C
Sample: Esters, 1.0 µL
Detector: MS, 285 °C

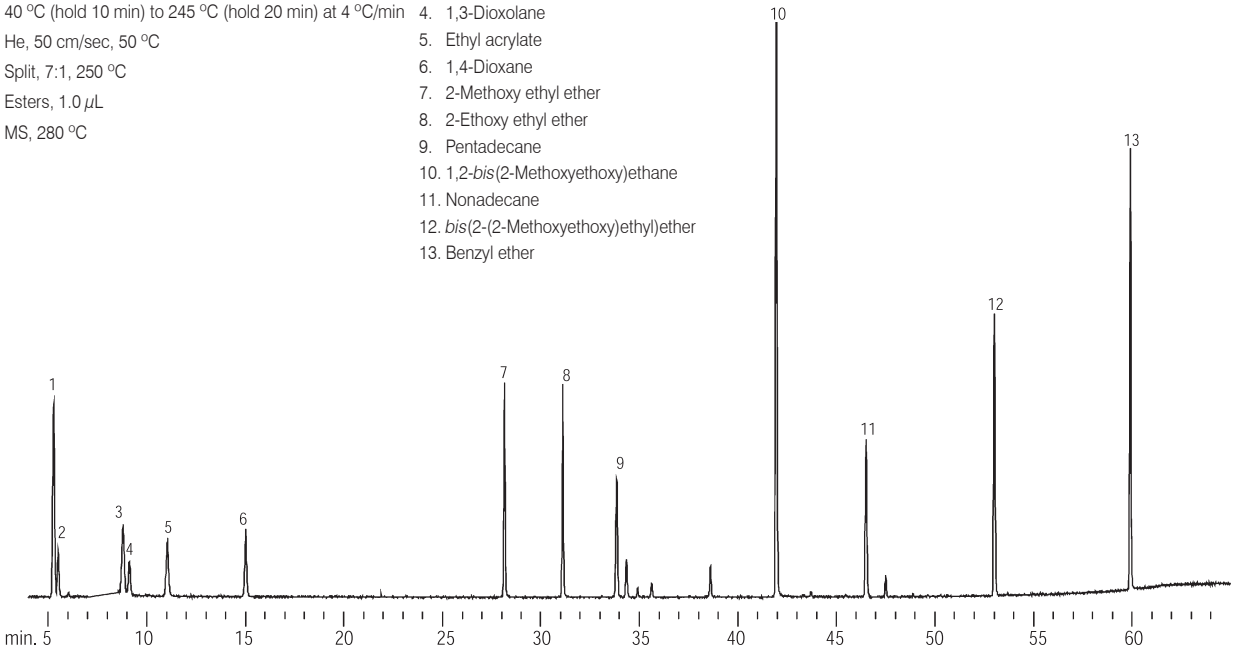
1. Pentane
2. Heptane
3. Methyl formate
4. Methyl acetate
5. Methyl propionate
6. Methyl butyrate
7. Methyl valerate
8. Methyl hexanoate
9. Methyl octanoate
10. Pentadecane
11. Methyl decanoate
12. Methyl benzoate
13. Nonadecane



Esters

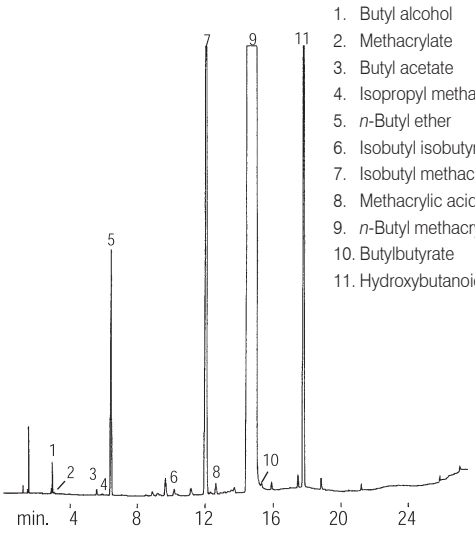
Column: DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.: **7552**
Index: CCR00318
Oven Temp.: 40 °C (hold 10 min) to 245 °C (hold 20 min) at 4 °C/min
Carrier Gas: He, 50 cm/sec, 50 °C
Injection: Split, 7:1, 250 °C
Sample: Esters, 1.0 µL
Detector: MS, 280 °C

1. Tetrahydro-2-methyl furan
2. Butyraldehyde
3. Butyl ether
4. 1,3-Dioxolane
5. Ethyl acrylate
6. 1,4-Dioxane
7. 2-Methoxy ethyl ether
8. 2-Ethoxy ethyl ether
9. Pentadecane
10. 1,2-*bis*(2-Methoxyethoxy)ethane
11. Nonadecane
12. *bis*(2-(2-Methoxyethoxy)ethyl)ether
13. Benzyl ether



Acrylic Esters

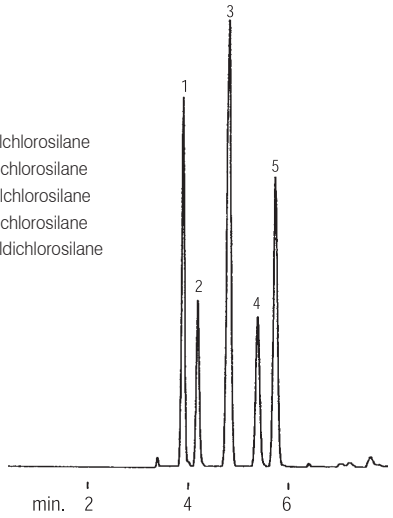
Column:	DM-1701, 30 m x 0.32 mm x 1.00 μm
Cat. No.:	**7333**
Index:	CCR00312
Oven Temp.:	70 °C (hold 10 min) to 120 °C at 5 °C/min to 250 °C at 15 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Split, 56:1, 250 °C
Sample:	Acrylic esters, 0.5 μL
Detector:	FID, 4 x 10^{-11} AFS, 250 °C



1. Butyl alcohol
2. Methacrylate
3. Butyl acetate
4. Isopropyl methacrylate
5. *n*-Butyl ether
6. Isobutyl isobutyrate
7. Isobutyl methacrylate
8. Methacrylic acid *n*-butyl ester
9. *n*-Butyl methacrylate
10. Butylbutyrate
11. Hydroxybutanoic acid *n*-butyl ester

Silanes

Column:	DM-200, 60 m x 0.53 mm x 3.00 μm
Cat. No.:	**8356**
Index:	CCR00362
Oven Temp.:	40 °C to 250 °C (hold 5 min) at 8 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Split, 40 mL/min, 200 °C
Sample:	Silanes, 0.5 μL
Detector:	FID, 1.02 x 10^{-9} AFS, 270 °C

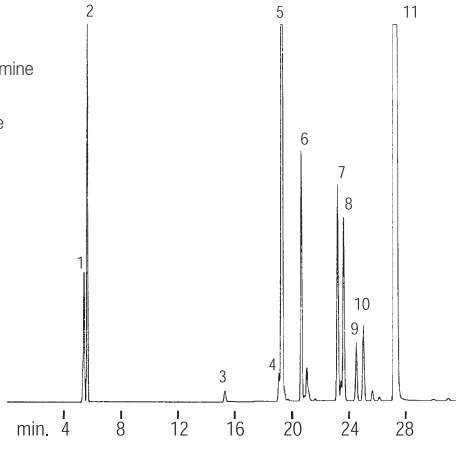


1. Dimethylchlorosilane
2. Methyldichlorosilane
3. Trimethylchlorosilane
4. Methyltrichlorosilane
5. Dimethyldichlorosilane

Styrene Impurities

Column:	DM-Wax, 30 m x 0.53 mm x 0.50 μm
Cat. No.:	**7547**
Index:	CCR00356
Oven Temp.:	40 °C (hold 10 min) to 150 °C (hold 15 min) at 10 °C/min
Carrier Gas:	He, 20 cm/sec, 40 °C
Injection:	Split, 40 cc/min, 150 °C
Sample:	95% Styrene, 0.5 mL
Detector:	FID, 16 x 10^{-11} AFS, 150 °C

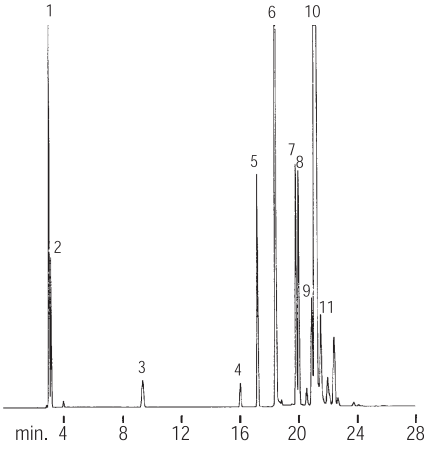
1. Butene
2. 1,3-Butadiene
3. Diethylhydroxylamine
4. Acrylonitrile
5. Vinylcyclohexene
6. Toluene
7. Ethylbenzene
8. *m*-Xylene
9. Cumene
10. *o*-Xylene
11. Styrene



Styrene Impurities

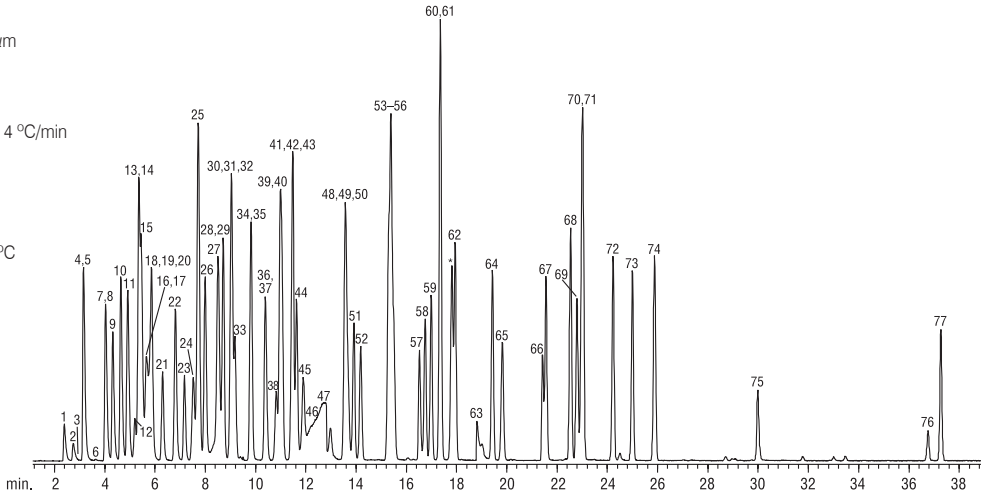
Column:	DM-1701, 30 m x 0.53 mm x 3.00 μm
Cat. No.:	**7355**
Index:	CCR00357
Oven Temp.:	40 °C (hold 10 min) to 150 °C (hold 15 min) at 12 °C/min
Carrier Gas:	He, 20 cm/sec, 40 °C
Injection:	Split, 40 cc/min, 150 °C
Sample:	95% Styrene, 0.5 mL
Detector:	FID, 16 x 10^{-11} AFS, 150 °C

1. 1,3-Butadiene
2. Butene
3. Acrylonitrile
4. Diethylhydroxylamine
5. Toluene
6. Vinylcyclohexene
7. Ethylbenzene
8. *m*-Xylene
9. *o*-Xylene
10. Styrene
11. Cumene



USP Solvents

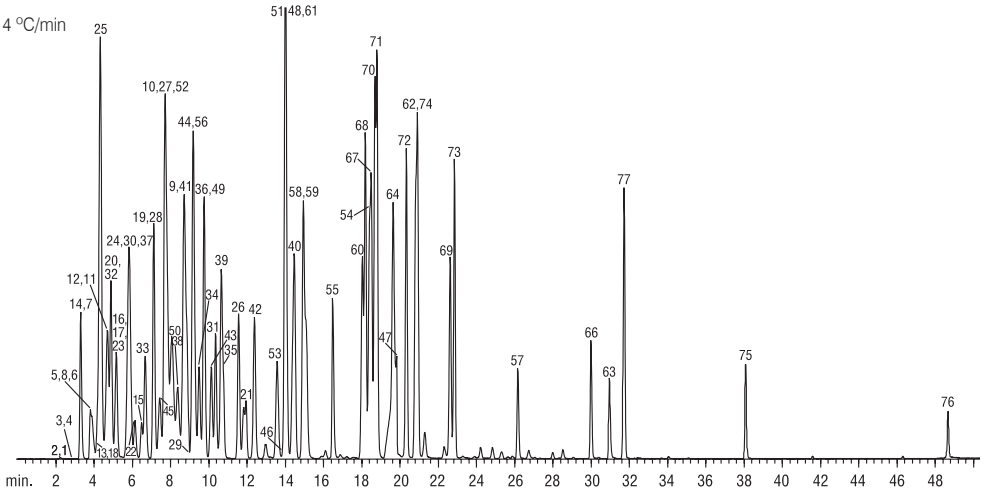
Column:	DM-1, 60 m x 0.53 mm x 3.00 µm
Cat. No.:	**7156**
Index:	CER00463
Oven Temp.:	35 °C (hold 4 min) to 250 °C at 4 °C/min
septa purge	5 mL/min
Carrier Gas:	He, 45.6 cm/sec, 35 °C
Head Pressure:	11.0 psi constant pressune
Injection:	Split, 100 mL/min, ~1:13, 250 °C
Sample:	Solvents, ~1.3% each
Detector:	MS
Scan Range:	10 AMU - 260 AMU



1. Formaldehyde
2. Water
3. Chloromethane
4. Methanol
5. Acetaldehyde
6. Ethylene oxide
7. Chloroethane
8. Ethanol
9. Acetonitrile
10. Acetone
11. 2-Propanol
12. 2-Chloropropane
13. Diethyl ether
14. Pentane
15. Ethyl formate
16. Formic acid
17. Methylal
18. 1,1-Dichloroethene
19. Methyl acetate
20. Methylene chloride
21. Nitromethane
22. 1-Propanol
23. *trans*-1,2-Dichloroethene
24. Methyl *tert*-butyl ether
25. 2-Methylpentane (spiked at 9%)
26. 2-Butanone
27. 2-Butanol
28. *cis*-1,2-Dichloroethene
29. Acetic acid
30. Isopropyl ether
31. Ethyl acetate
32. Hexane
33. Chloroform
34. Tetrahydrofuran
35. 2-Methoxyethanol
36. 1,2-Dichloroethane
37. Methyl cyclopentane
38. 1,1,1-Trichloroethane
39. 1,2-Dimethoxyethane
40. Methyl isopropyl ketone
41. 2,2-Dimethoxypropane
42. Isopropyl acetate
43. 1-Butanol
44. Benzene
45. Carbon tetrachloride
46. Ethylene glycol
47. Formamide
48. 1,4-Dioxane
49. Trichloroethylene
50. Isooctane
51. 2-Ethoxyethanol
52. *n*-Heptane
53. Isoamyl alcohol
54. Hexanone
55. Pyridine
56. Methyl cyclohexane
57. Dimethyl formamide
58. 1,1,2-Trichloroethane
59. 1-Pentanol
60. Isobutyl acetate
61. Toluene
62. 2-Hexanone
63. Dimethyl sulfoxide
64. Butyl acetate
65. 1,1-Diethoxypropane
66. *N,N*-Dimethylacetamide
67. Chlorobenzene
68. Ethylbenzene
69. Isoamyl acetate
70. *p*-Xylene
71. *m*-Xylene
72. *o*-Xylene
73. Anisole
74. Isopropyl benzene (Cumene)
75. 1-Methyl-2-pyrrolidinone
76. Sulfolane
77. 1,2,3,4-Tetrahydronaphthalene

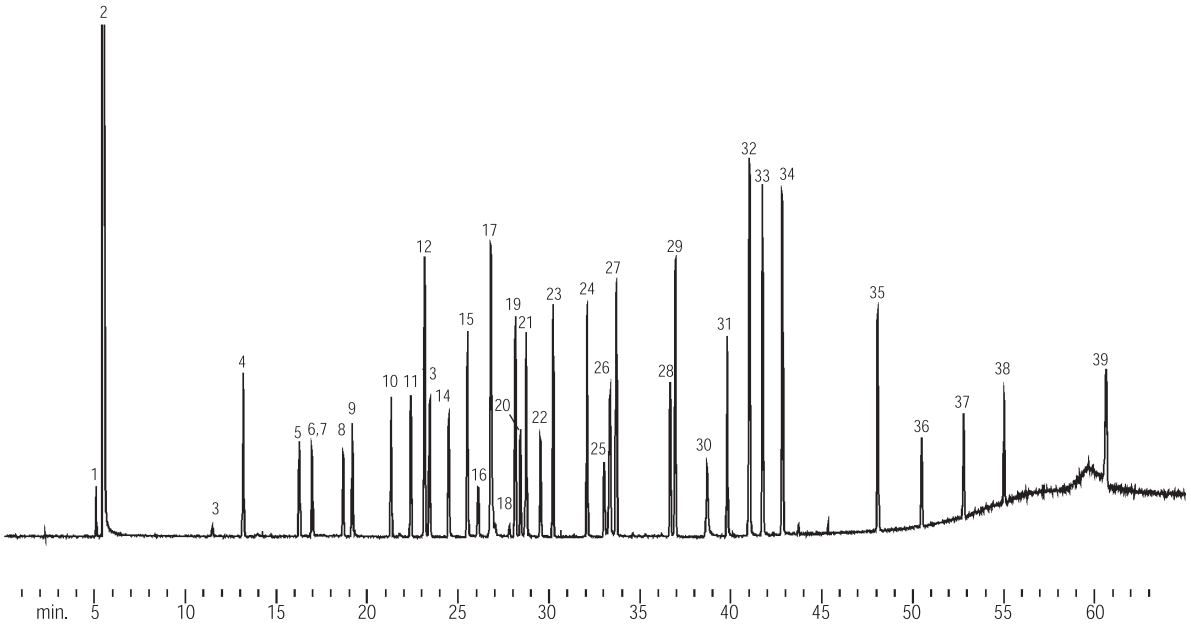
USP Solvents

Column:	DM-200, 60 m x 0.53 mm x 3.00 µm
Cat. No.:	**8356**
Index:	CER00464
Oven Temp.:	35 °C (hold 4 min) to 250 °C at 4 °C/min
Head Pressure:	11.0 psi constant pressure
Carrier Gas:	He, 45.6 cm/sec, 35 °C
Injection:	Split, 100 mL/min, 1:13, 250 °C
Sample:	Solvents, ~1.3% each
Detector:	MS
Scan Range:	10 AMU - 260 AMU



Solvents Mixture #1

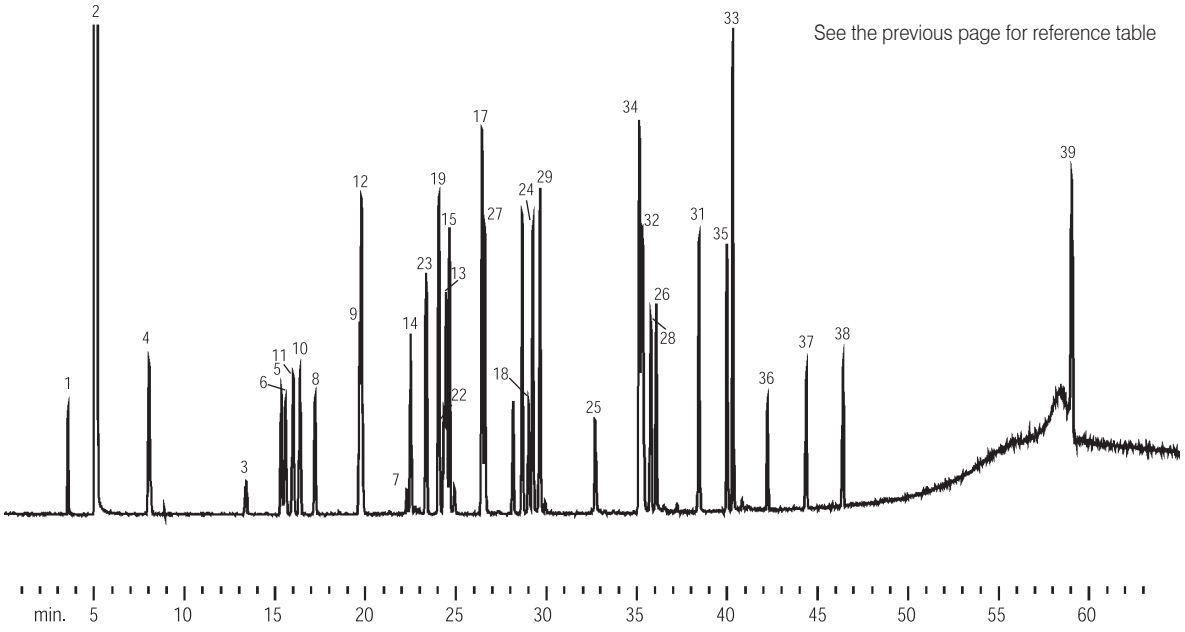
Column:	DM-1, 60 m x 0.53 mm x 3.00 μm
Cat. No.:	**7156**
Index:	CCR00335
Oven Temp.:	40 °C (hold 5 min) to 285 °C at 5 °C/min
Carrier Gas:	He, 40 cm/sec
Injection:	Split, 50 mL/min, 275 °C
Sample:	Solvents mixture #1, 1.0 μL
Detector:	MS full scan, 285 °C



1. Pentane
2. Methylene chloride
3. Ethylene glycol
4. Heptane
5. Cyclopentanol
6. 3-Hexanol
7. Acetamide
8. 2-Methyl-1-pentanol
9. Furfuryl alcohol
10. Butyl ether
11. Nonane
12. Cume ne
13. Ethyl amyl ketone
14. Heptanol
15. Butyl butanoate
16. -
17. Benzyl alcohol
18. Dipropylene glycol
19. Diethylbenzene
20. -
21. -
22. Hexachloroethane
23. Undecane
24. 1-Nonanol
25. *p*-Methoxyphenol
26. Triethylene glycol
27. Dodecane
28. Undecanal
29. Tridecane
30. -
31. Dodecanal
32. Dicyclohexylamine
33. *bis*(2,2-Methoxy)ethyl ether
34. Pentadecane
35. Heptadecane
36. Octadecane
37. Nonadecane
38. Eicosane
39. Acetyl tributyl citrate
40. 2-Buten-1-ol
41. Formamide
42. 3-Pentanol
43. 1-Nitropropane
44. Dimethyl formamide
45. 2-Methyl-3-pentanol
46. Toluene
47. Ethyl chloroacetate
48. Dimethylacetamide
49. *p*-Xylene
50. *sec*-Tetrachloroethane
51. Benzaldehyde
52. *o*-Chlorotoluene
53. 2,6-Dimethyl-4-heptanone
54. 2-Octanone
55. *o*-Cresol
56. **α**-Methylbenzyl alcohol
57. 5-Nonanone
58. Nonanal
59. Decanal
60. -
61. 1-Decanol
62. 1-Undecanol
63. 2-Dodecanone
64. 1-Dodecanol
65. Tetraethylene glycol
66. Dibenzyl
67. Diethyl phthalate
68. Tributyl phosphate
69. Diphenyl sulfone
70. Allyl alcohol
71. -
72. Isopropyl acetate
73. Benzene
74. 2-Nitropropane
75. Nitroethane
76. Pentanal
77. 2-Bromobutane
78. 1-Chloropentane
79. Cyclopentanone
80. 2-Hexanol
81. Butyl acetate
82. 2-Ethyl-1-butanol
83. 3-Ethyl-3-pentanol
84. 1,4-Dichlorobutane
85. 2-Methyl-2,4-pentanediol
86. Butoxyethanol
87. 1,2,3-Trichloropropane
88. 1,4-Butanediol
89. Methyl hexanoate
90. 1,2,4-Trimethylbenzene
91. 2-Ethyl-1-hexanol
92. Dipentene
93. Tetrahydrofurfuryl acetate
94. -
95. Decahydronaphthalene
96. -
97. -
98. 2-Decanol
99. 1,2-*bis*(2-Methoxyethoxy)ethane
100.2-Phenoxyethanol
101.-
102.Benzyl ether

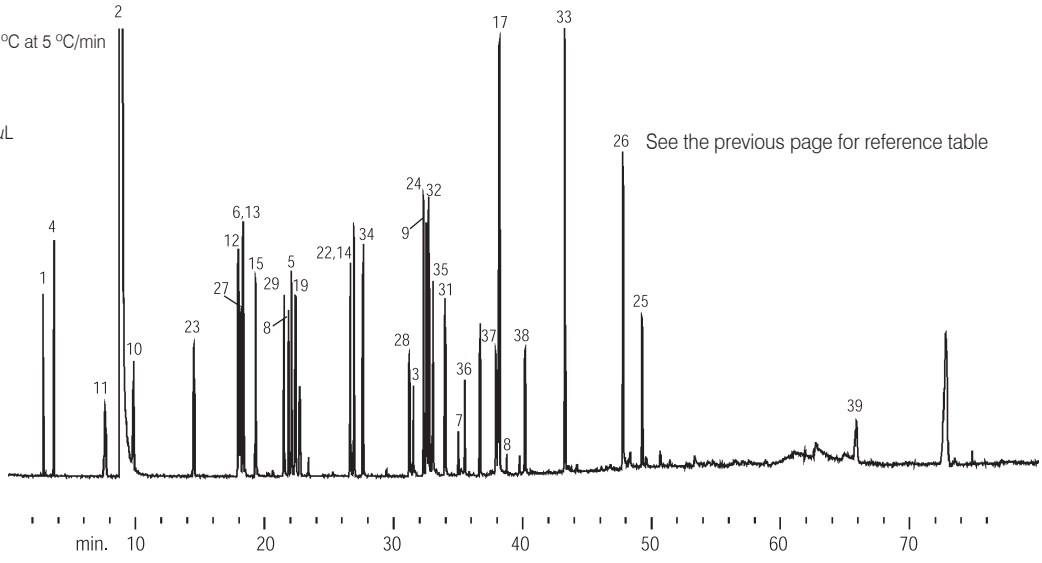
Solvents Mixture #1

Column: DM-200, 60 m x 0.53 mm x 3.00 μm
Cat. No.: **8356**
Index: CCR00336
Oven Temp.: 40 °C (hold 5 min) to 285 °C at 5 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Split, 50 mL/min, 275 °C
Sample: Solvents mixture #1, 1.0 μL
Detector: MS, TIC mode, 285 °C



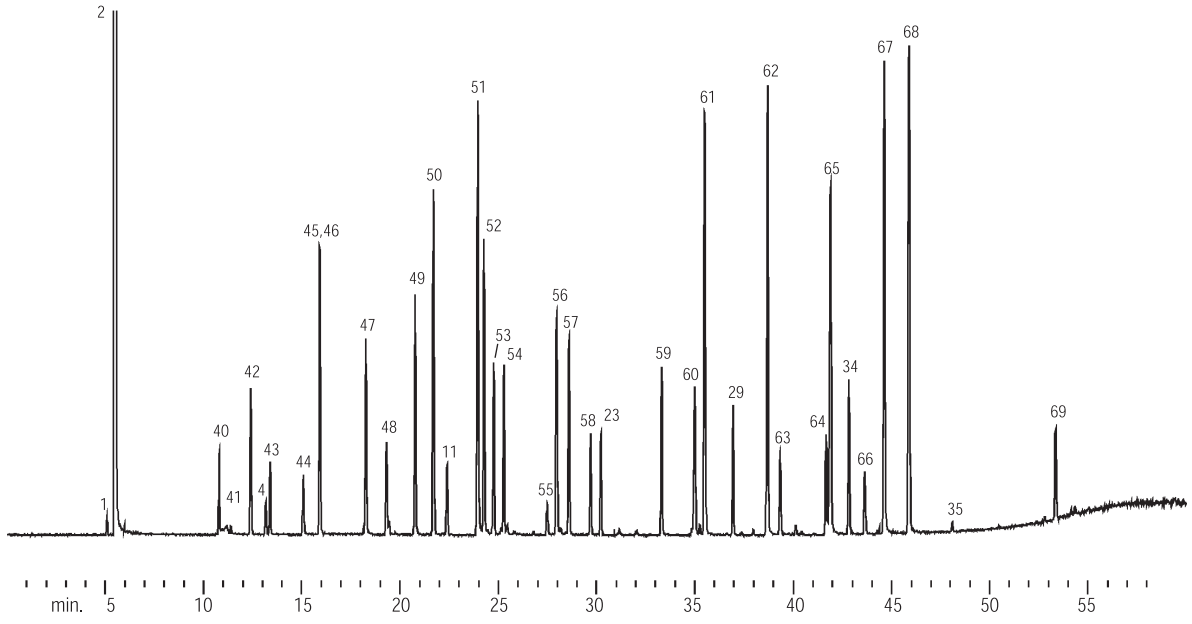
Solvents Mixture #1

Column: DM-Wax, 60 m x 0.53 mm x 1.00 μm
Cat. No.: **7552**
Index: CCR00337
Oven Temp.: 40 °C (hold 5 min) to 250 °C at 5 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Split, 50 mL/min, 275 °C
Sample: Solvents mixture #1, 1.0 μL
Detector: MS full scan, 285 °C



Solvents Mixture #2

Column:	DM-1, 60 m x 0.53 mm x 3.00 μm
Cat. No.:	**7156**
Index:	CCR00338
Oven Temp.:	40 °C (hold 5 min) to 250 °C at 5 °C/min
Carrier Gas:	He, 40 cm/sec
Injection:	Split, 50 mL/min, 275 °C
Sample:	Solvents mixture #2, 1.0 μL
Detector:	MS full scan, 285 °C

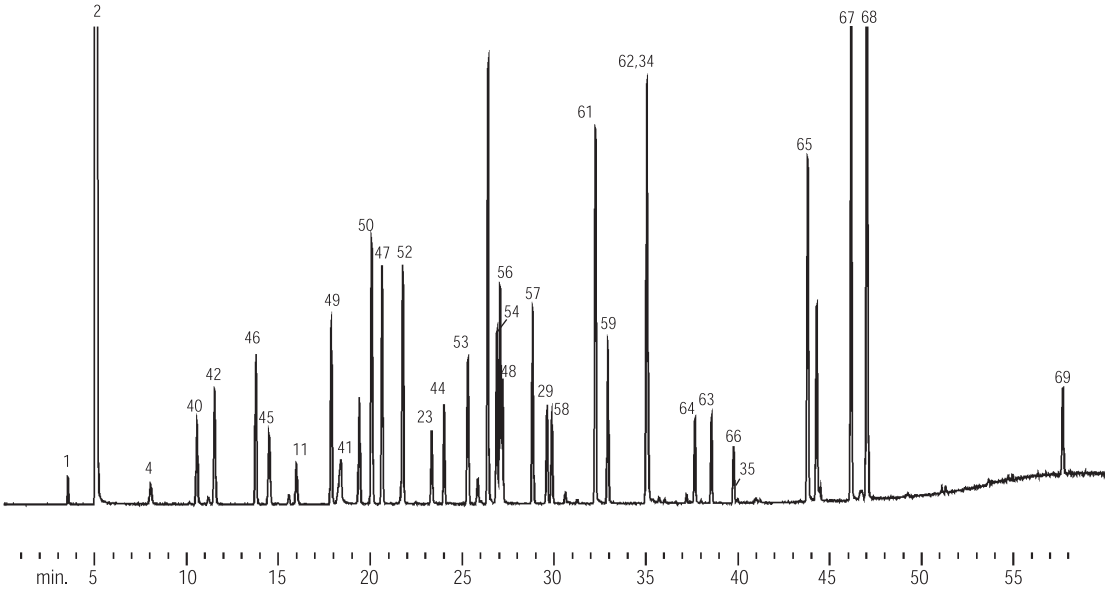


1. Pentane
2. Methylene chloride
3. Ethylene glycol
4. Heptane
5. Cyclopentanol
6. 3-Hexanol
7. Acetamide
8. 2-Methyl-1-pentanol
9. Furfuryl alcohol
10. Butyl ether
11. Nonane
12. Cume ne
13. Ethyl amyl ketone
14. Heptanol
15. Butyl butanoate
16. -
17. Benzyl alcohol
18. Dipropylene glycol
19. Diethylbenzene
20. -
21. -
22. Hexachloroethane
23. Undecane
24. 1-Nonanol
25. *p*-Methoxyphenol
26. Triethylene glycol
27. Dodecane
28. Undecanal
29. Tridecane
30. -
31. Dodecanal
32. Dicyclohexylamine
33. *bis*(2,2-Methoxy)ethyl ether
34. Pentadecane
35. Heptadecane
36. Octadecane
37. Nonadecane
38. Eicosane
39. Acetyl tributyl citrate
40. 2-Buten-1-ol
41. Formamide
42. 3-Pentanol
43. 1-Nitropropane
44. Dimethyl formamide
45. 2-Methyl-3-pentanol
46. Toluene
47. Ethyl chloroacetate
48. Dimethylacetamide
49. *p*-Xylene
50. *sec*-Tetrachloroethane
51. Benzaldehyde
52. *o*-Chlorotoluene
53. 2,6-Dimethyl-4-heptanone
54. 2-Octanone
55. *o*-Cresol
56. **α**-Methylbenzyl alcohol
57. 5-Nonanone
58. Nonanal
59. Decanal
60. -
61. 1-Decanol
62. 1-Undecanol
63. 2-Dodecanone
64. 1-Dodecanol
65. Tetraethylene glycol
66. Dibenzyl
67. Diethyl phthalate
68. Tributyl phosphate
69. Diphenyl sulfone
70. Allyl alcohol
71. -
72. Isopropyl acetate
73. Benzene
74. 2-Nitropropane
75. Nitroethane
76. Pentanal
77. 2-Bromobutane
78. 1-Chloropentane
79. Cyclopentanone
80. 2-Hexanol
81. Butyl acetate
82. 2-Ethyl-1-butanol
83. 3-Ethyl-3-pentanol
84. 1,4-Dichlorobutane
85. 2-Methyl-2,4-pentanediol
86. Butoxyethanol
87. 1,2,3-Trichloropropane
88. 1,4-Butanediol
89. Methyl hexanoate
90. 1,2,4-Trimethylbenzene
91. 2-Ethyl-1-hexanol
92. Dipentene
93. Tetrahydrofurfuryl acetate
94. -
95. Decahydronaphthalene
96. -
97. -
98. 2-Decanol
99. 1,2-*bis*(2-Methoxyethoxy)ethane
100.2-Phenoxyethanol
101.-
102.Benzyl ether

Solvents Mixture #2

Column: DM-200, 60 m x 0.53 mm x 3.00 µm
Cat. No.: **8356**
Index: CCR00339
Oven Temp.: 40 °C (hold 5 min) to 285 °C at 5 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Split, 50 mL/min, 275 °C
Sample: Solvents mixture #2, 1.0 µL
Detector: MS full scan, 285 °C

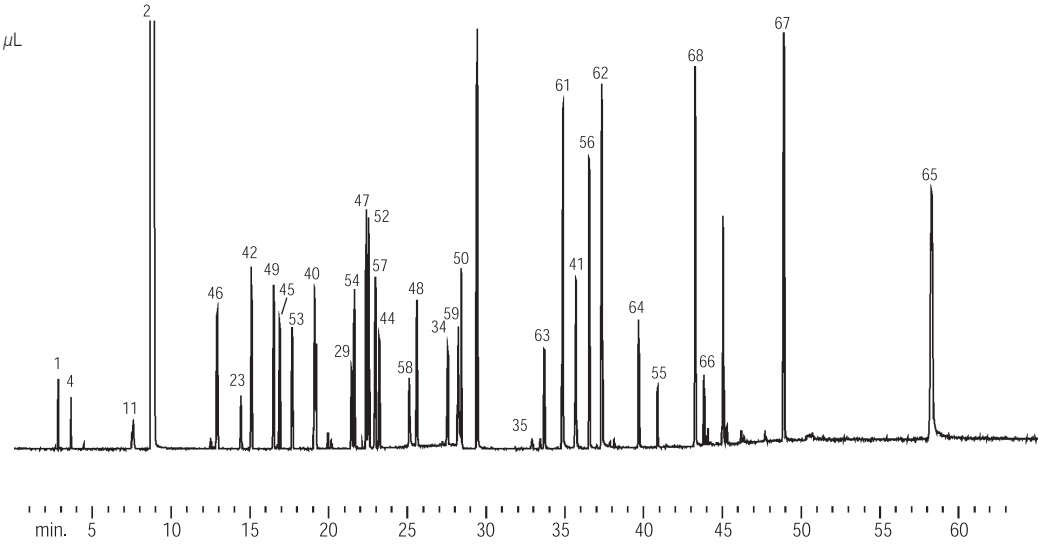
See the previous page for reference table



Solvents Mixture #2

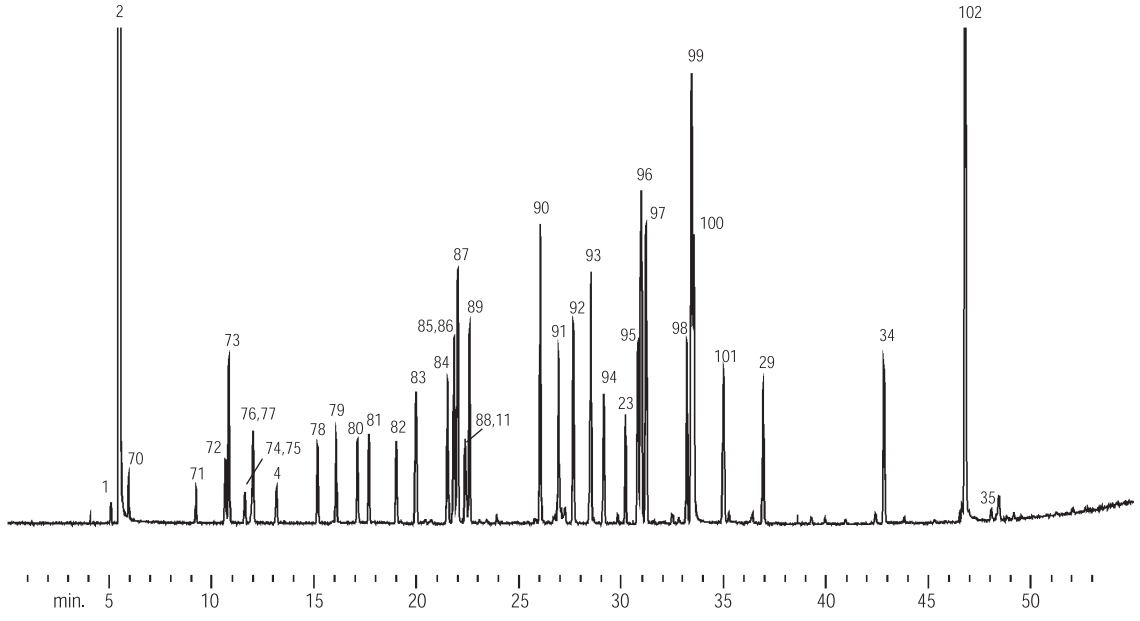
Column: DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.: **7552**
Index: CCR00340
Oven Temp.: 40 °C (hold 5 min) to 250 °C at 5 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Split, 50 mL/min, 275 °C
Sample: Solvents mixture #2, 1.0 µL
Detector: MS full scan, 285 °C

See the previous page for reference table



Solvents Mixture #3

Column:	DM-1, 60 m x 0.53 mm x 3.00 μm
Cat. No.:	**7156**
Index:	CCR00341
Oven Temp.:	40 °C (hold 5 min) to 285 °C at 5 °C/min
Carrier Gas:	He, 40 cm/sec
Injection:	Split, 50 mL/min, 275 °C
Sample:	Solvents mixture #3, 1.0 μL
Detector:	MS full scan, 285 °C

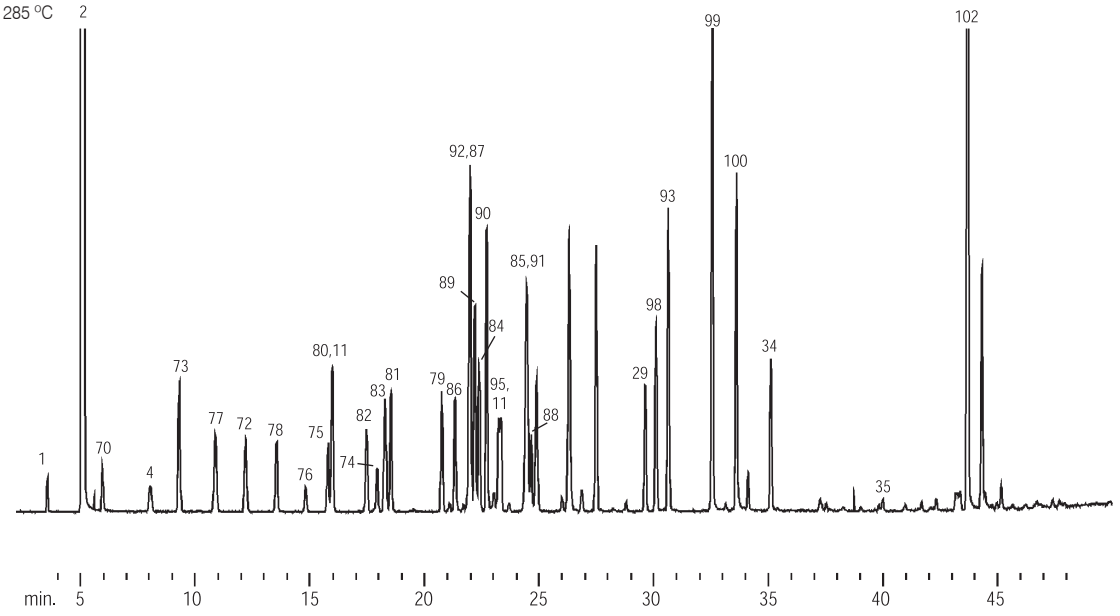


1. Pentane
2. Methylene chloride
3. Ethylene glycol
4. Heptane
5. Cyclopentanol
6. 3-Hexanol
7. Acetamide
8. 2-Methyl-1-pentanol
9. Furfuryl alcohol
10. Butyl ether
11. Nonane
12. Cume ne
13. Ethyl amyl ketone
14. Heptanol
15. Butyl butanoate
16. -
17. Benzyl alcohol
18. Dipropylene glycol
19. Diethylbenzene
20. -
21. -
22. Hexachloroethane
23. Undecane
24. 1-Nonanol
25. *p*-Methoxyphenol
26. Triethylene glycol
27. Dodecane
28. Undecanal
29. Tridecane
30. -
31. Dodecanal
32. Dicyclohexylamine
33. *bis*(2,2-Methoxy)ethyl ether
34. Pentadecane
35. Heptadecane
36. Octadecane
37. Nonadecane
38. Eicosane
39. Acetyl tributyl citrate
40. 2-Buten-1-ol
41. Formamide
42. 3-Pentanol
43. 1-Nitropropane
44. Dimethyl formamide
45. 2-Methyl-3-pentanol
46. Toluene
47. Ethyl chloroacetate
48. Dimethylacetamide
49. *p*-Xylene
50. *sec*-Tetrachloroethane
51. Benzaldehyde
52. *o*-Chlorotoluene
53. 2,6-Dimethyl-4-heptanone
54. 2-Octanone
55. *o*-Cresol
56. **α**-Methylbenzyl alcohol
57. 5-Nonanone
58. Nonanal
59. Decanal
60. -
61. 1-Decanol
62. 1-Undecanol
63. 2-Dodecanone
64. 1-Dodecanol
65. Tetraethylene glycol
66. Dibenzyl
67. Diethyl phthalate
68. Tributyl phosphate
69. Diphenyl sulfone
70. Allyl alcohol
71. -
72. Isopropyl acetate
73. Benzene
74. 2-Nitropropane
75. Nitroethane
76. Pentanal
77. 2-Bromobutane
78. 1-Chloropentane
79. Cyclopentanone
80. 2-Hexanol
81. Butyl acetate
82. 2-Ethyl-1-butanol
83. 3-Ethyl-3-pentanol
84. 1,4-Dichlorobutane
85. 2-Methyl-2,4-pentanediol
86. Butoxyethanol
87. 1,2,3-Trichloropropane
88. 1,4-Butanediol
89. Methyl hexanoate
90. 1,2,4-Trimethylbenzene
91. 2-Ethyl-1-hexanol
92. Dipentene
93. Tetrahydrofurfuryl acetate
94. -
95. Decahydronaphthalene
96. -
97. -
98. 2-Decanol
99. 1,2-*bis*(2-Methoxyethoxy)ethane
100.2-Phenoxyethanol
101.-
102.Benzyl ether

Solvents Mixture #3

Column: DM-200, 60 m x 0.53 mm x 3.00 µm
Cat. No.: **8356**
Index: CCR00342
Oven Temp.: 40 °C (hold 5 min) to 285 °C at 5 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Split, 50 mL/min, 275 °C
Sample: Solvents mixture #3, 1.0 µL
Detector: MS full scan, 285 °C

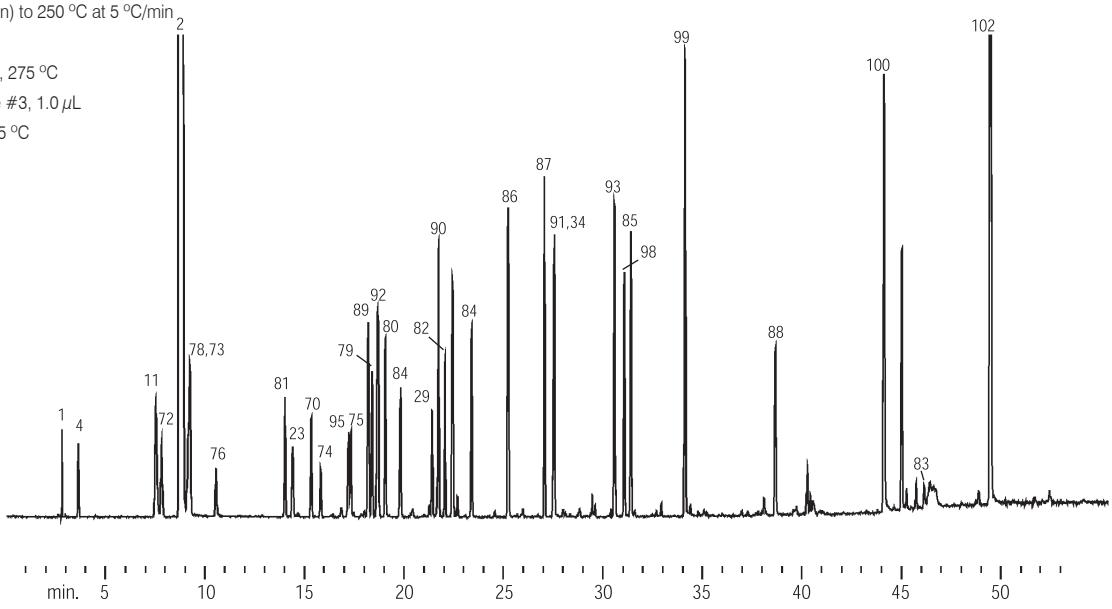
See the previous page for reference table



Solvents Mixture #3

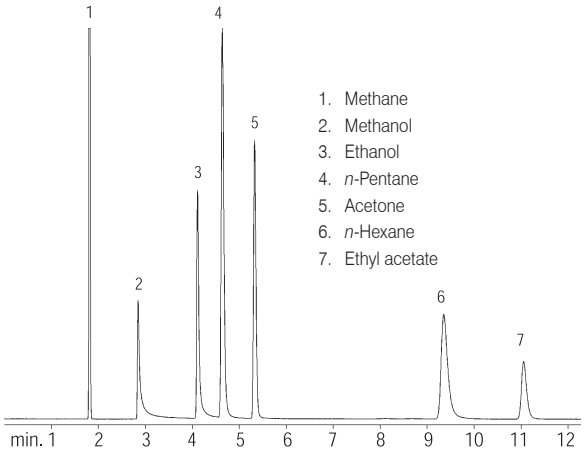
Column: DM-Wax, 60 m x 0.53 mm x 1.00 µm
Cat. No.: **7552**
Index: CCR00343
Oven Temp.: 40 °C (hold 5 min) to 250 °C at 5 °C/min
Carrier Gas: He, 40 cm/sec
Injection: Split, 50 mL/min, 275 °C
Sample: Solvents mixture #3, 1.0 µL
Detector: MS full scan, 285 °C

See the previous page for reference table



Polar Solvents

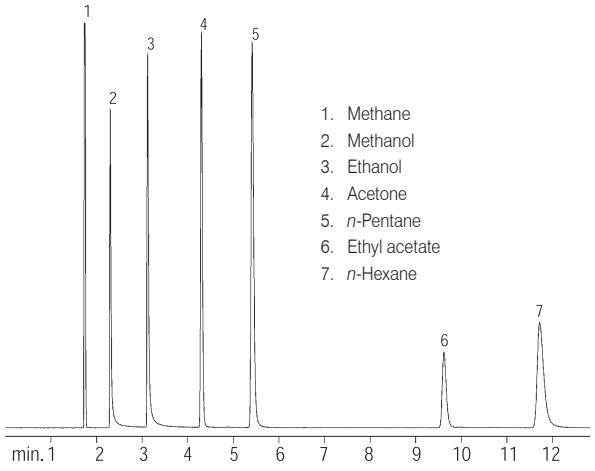
Column:	DM-PLOT U, 30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8824**
Index:	CSR00182
Oven Temp.:	150 °C constant
Carrier Gas:	H_2
Injection:	Split, 20:1, 200 °C
Sample:	50 ppm (w / v) each in He, 20 µL
Detector:	FID, 200 °C



1. Methane
2. Methanol
3. Ethanol
4. *n*-Pentane
5. Acetone
6. *n*-Hexane
7. Ethyl acetate

Polar Solvents

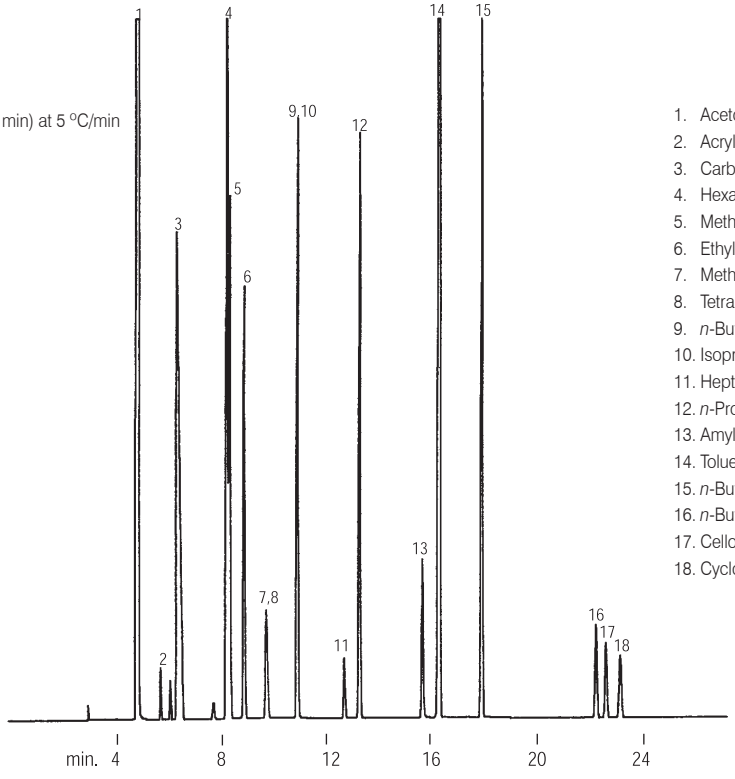
Column:	DM-PLOT Q, 30 m x 0.32 mm x 10.00 µm
Cat. No.:	**8818**
Index:	CSR00181
Oven Temp.:	150 °C constant
Carrier Gas:	H_2
Injection:	Split, 20:1, 200 °C
Sample:	50 ppm (w / v) each in He, 20 µL
Detector:	FID, 200 °C



1. Methane
2. Methanol
3. Ethanol
4. Acetone
5. *n*-Pentane
6. Ethyl acetate
7. *n*-Hexane

Solvents

Column:	DM-5, 60 m x 0.32 mm x 3.00 µm
Cat. No.:	**7242**
Index:	CCR00346
Oven Temp.:	50 °C (hold 4 min) to 120 °C (hold 20 min) at 5 °C/min
Carrier Gas:	H_2, 40 cm/sec, 50 °C
Injection:	Split, 300 °C
Sample:	in CS_2 solvent, 1.0 µL
Detector:	FID, 128 x 10^{-12} AFS, 300 °C

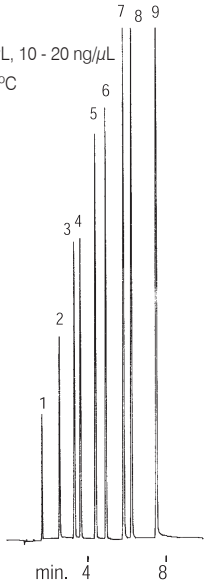


1. Acetone
2. Acrylonitrile
3. Carbon disulfide impurity
4. Hexane
5. Methyl ethyl ketone
6. Ethyl acetate
7. Methyl cellosolve
8. Tetrahydrofuran
9. *n*-Butyl alcohol
10. Isopropyl acetate
11. Heptane
12. *n*-Propyl acetate
13. Amyl alcohol
14. Toluene
15. *n*-Butyl acetate
16. *n*-Butyl acrylate
17. Cellosolve acetate
18. Cyclohexanone

Fatty Acids (Free)

Column: DM-1, 30 m x 0.53 mm x 5.00 µm
Cat. No.: **7157**
Index: CCR00281
Oven Temp.: 60 °C to 180 °C at 15 °C/min
Carrier Gas: H_2, 50 cm/sec
Injection: Direct, 250 °C
Sample: Fatty acids (free), 0.2 µL, 10 - 20 ng/µL
Detector: FID, 4 x 10^{-11} AFS, 250 °C

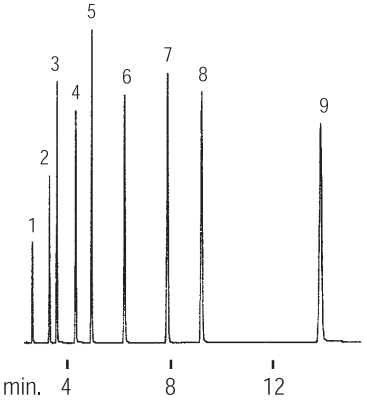
1. Acetic acid
2. Propionic acid
3. Isobutyric acid
4. *n*-Butyric acid
5. Isovaleric acid
6. *n*-Valeric acid
7. Isocaproic acid
8. Caproic acid
9. Heptanoic acid



Fatty Acids (Free)

Column: DM-FFAP, 30 m x 0.25 mm x 0.25 µm
Cat. No.: **7621**
Index: CCR00280
Oven Temp.: 145 °C, constant
Carrier Gas: H_2, 40 cm/sec
Injection: Split, 50:1, 250 °C
Sample: Fatty acids (free), 1.0 µL, 10 - 20 ng/µL
Detector: FID, 2 x 10^{-11} AFS, 250 °C

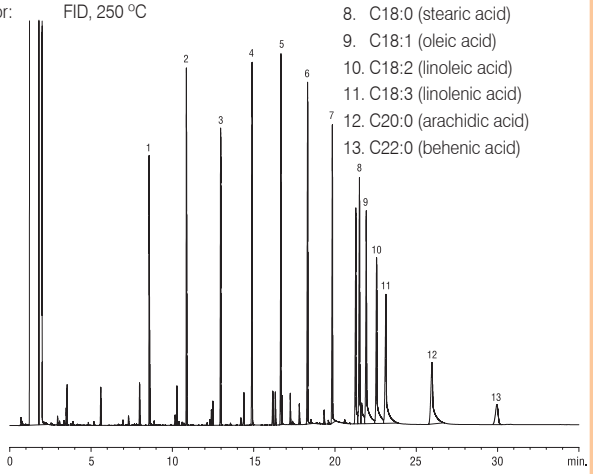
1. Acetic acid
2. Propionic acid
3. Isobutyric acid
4. *n*-Butyric acid
5. Isovaleric acid
6. *n*-Valeric acid
7. Isocaproic acid
8. Caproic acid
9. Heptanoic acid



Fatty Acids (Free)

Column: DM-FFAP, 30 m x 0.32 mm x 0.25 µm
Cat. No.: **7631**
Index: CFR00653
Oven Temp.: 40°C to 250°C (hold 15 min) at 10°C/min
Carrier Gas: H_2
Injection: Splitless, 0.25 min, 250 °C
Sample: Free fatty acid mix, 1.0 µL
Flow Rate: 6.0 mL/min
Make up gas: 75 mL/min
Solvent: H_2O
Concentration: 5 mg/mL in MeOH
Detector: FID, 250 °C

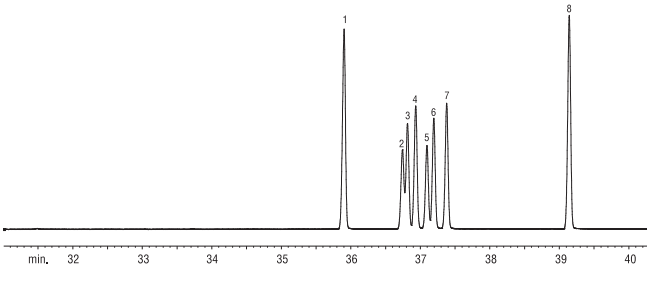
1. C4:0 (butyric acid)
2. C6:0 (caproic acid)
3. C8:0 (caprylic acid)
4. C10:0 (capric acid)
5. C12:0 (lauric acid)
6. C14:0 (myristic acid)
7. C16:0 (palmitic acid)
8. C18:0 (stearic acid)
9. C18:1 (oleic acid)
10. C18:2 (linoleic acid)
11. C18:3 (linolenic acid)
12. C20:0 (arachidic acid)
13. C22:0 (behenic acid)



FAMEs (*cis* / *trans* Isomers)

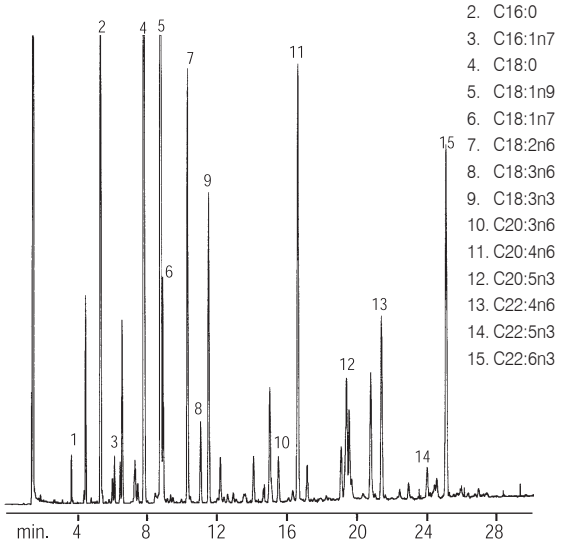
Column: DM-2560, 100 m x 0.25 mm x 0.20 µm
Cat. No.: **8858**
Index: CFR00652
Sample: 10 mg/mL *cis* / *trans* FAMEs mix in methylene chloride
Injection: Split, 20:1, 1 µL, 225 °C
Oven Temp.: 100 °C (hold 4 min) to 240 °C (hold 10 min) at 3 °C/min
Carrier Gas: H_2, 1.2 mL/min
Detector: FID, 250 °C

1. C18:0 (methyl stearate)
2. C18:1 (methyl petroselaidate (*trans*-6))
3. C18:1 (methyl elaidate (*trans*-9))
4. C18:1 (methyl transvaccenate (*trans*-11))
5. C18:1 (methyl petroselinate (*cis*-6))
6. C18:1 (methyl oleate (*cis*-9))
7. C18:1 (methyl vaccenate (*cis*-11))
8. C18:2 (methyl linoleate (*cis*-9,12))



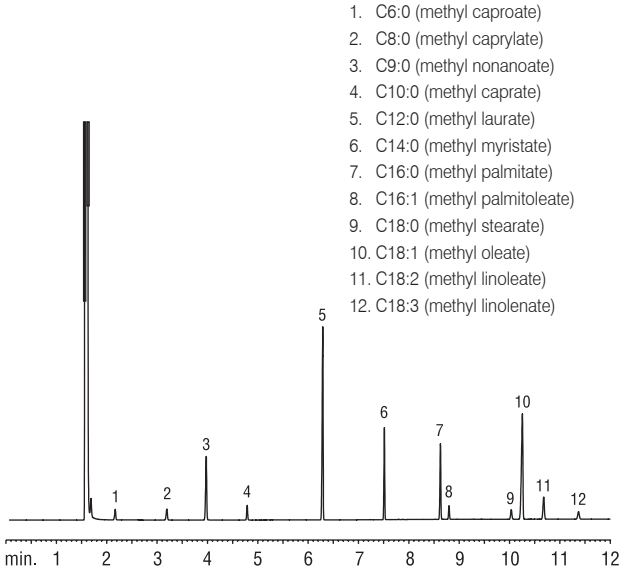
PUFA (Animal Source)

Column:	DM-2330, 30 m x 0.32 mm x 0.20 µm
Cat. No.:	**8633**
Index:	CFR00119
Oven Temp.:	160 °C to 250 °C (hold 10 min) at 2 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Split, 260 °C
Sample:	PUFA (animal source) mix, 0.1 µL
Detector:	FID, 8 x 10^{-11} AFS, 260 °C



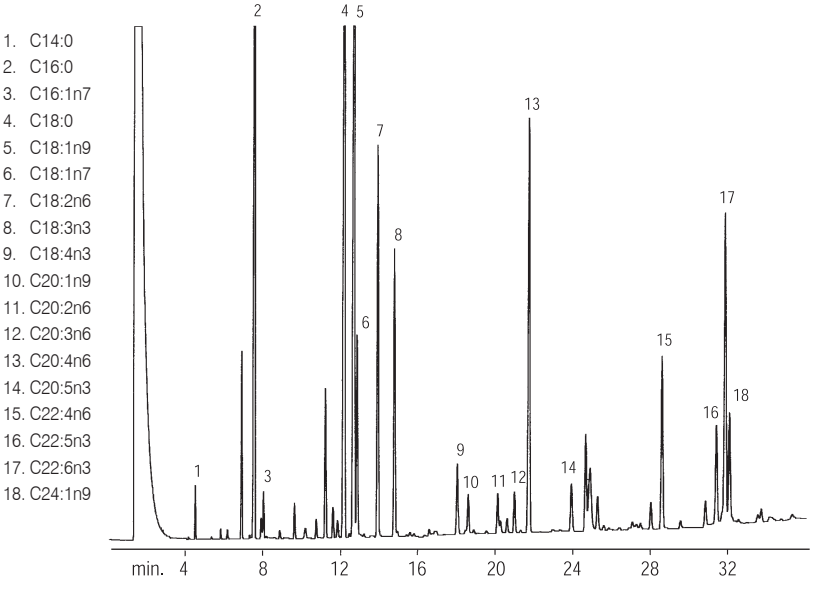
FAMEs

Column:	DM-InertWax, 30 m x 0.25 mm x 0.25 µm
Cat. No.:	**8521**
Index:	CFR00538
Oven Temp.:	120 °C (hold 3 min) to 220 °C (hold 12 min) at 20 °C/min
Carrier Gas:	He, 34 cm/sec, 1 mL/min
Injection:	Split, 100:1, 250 °C
Sample:	Saw palmetto, 1.0 µL
Detector:	FID, 300 °C



PUFA (Animal Source)

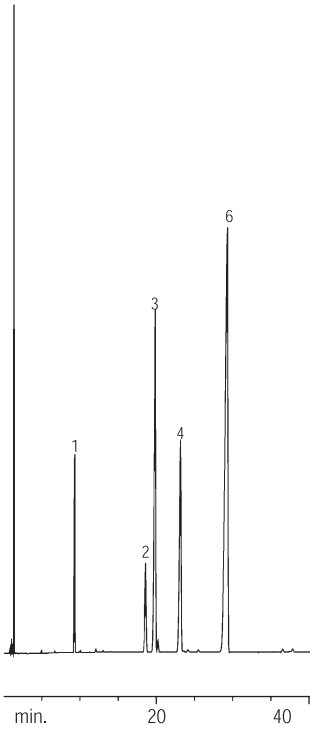
Column:	DM-Wax, 30 m x 0.25 mm x 0.25 µm
Cat. No.:	**7521**
Index:	CFR00117
Oven Temp.:	160 °C to 250 °C (hold 10 min) at 2 °C/min
Carrier Gas:	H_2, 40 cm/sec
Injection:	Split, 20:1, 260 °C
Sample:	PUFA mix, 0.1 µL
Detector:	FID, 8 x 10^{-11} AFS, 260 °C



FAMEs (Flax Seed Oil)

Column:	DM-FAMEWAX, 30 m x 0.25 mm x 0.25 µm
Cat. No.:	**7811**
Index:	CFR00364
Oven Temp.:	165 °C (hold 30 min) to 220 °C (hold 15 min) at 1.5 °C/min
Carrier Gas:	He, 40 cm/sec
Injection Temp.:	225 °C
Detector:	FID, 230 °C

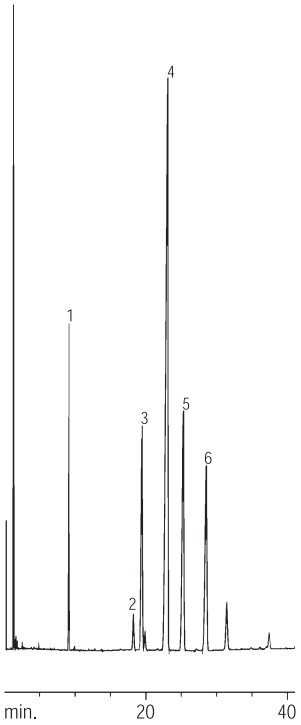
1. C16:0
2. C18:0
3. C18:1n9
4. C18:2n6
5. C18:3n6
6. C18:3n3



FAMEs (Black Currant Seed Oil)

Column:	DM-FAMEWAX, 30 m x 0.25 mm x 0.25 µm
Cat. No.:	**7811**
Index:	CFR00365
Oven Temp.:	165 °C (hold 30 min) to 220 °C (hold 15 min) at 1.5 °C/min
Carrier Gas:	He, 40 cm/sec
Injection Temp.:	225 °C
Detector:	FID, 230 °C

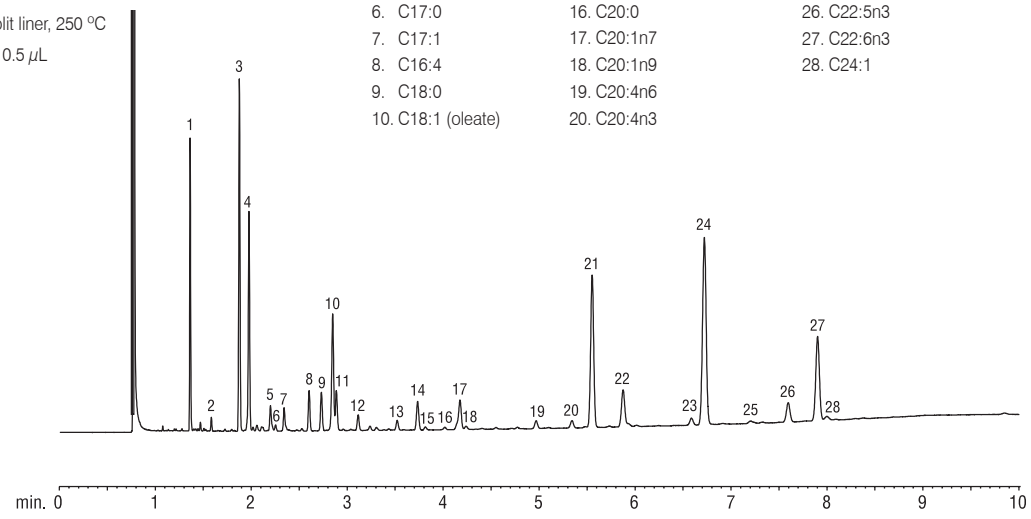
1. C16:0
2. C18:0
3. C18:1n9
4. C18:2n6
5. C18:3n6
6. C18:3n3



FAMEs (Marine Oil Standard)

Column:	DM-FAMEWAX, 30 m x 0.32 mm x 0.25 µm
Cat. No.:	**7813**
Index:	CFR00568
Oven Temp.:	195 °C to 240 °C (hold 1 min) at 5 °C/min
Carrier Gas:	H_2, 62 cm/sec
Injection:	Split, 150:1, 3 mm ID split liner, 250 °C
Sample:	12 mg/mL total FAMEs, 0.5 µL
Detector:	FID, 250 °C

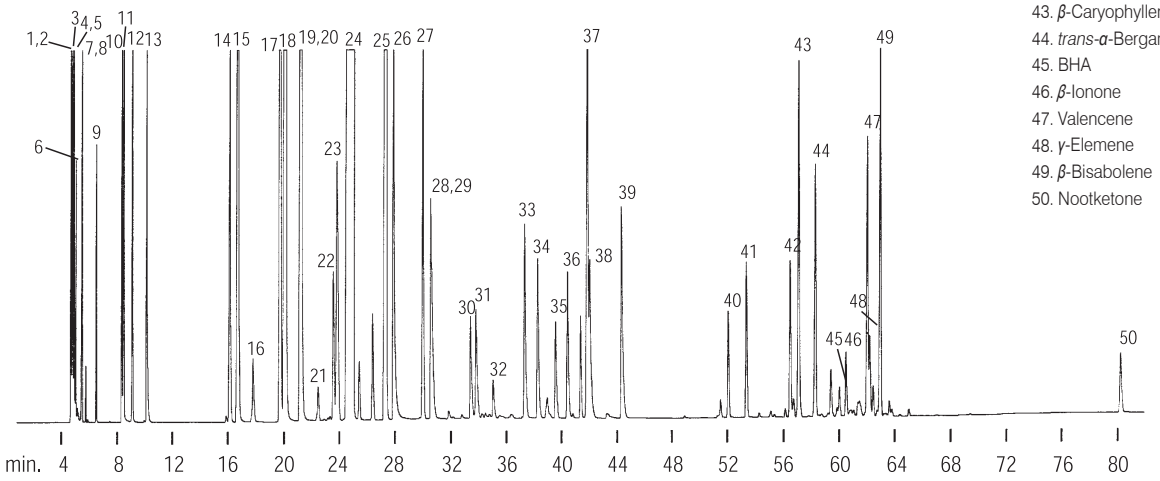
1. C14:0
2. C15:0
3. C16:0
4. C16:1
5. C16:2
6. C17:0
7. C17:1
8. C16:4
9. C18:0
10. C18:1 (oleate)
11. C18:1 (vaccenate)
12. C18:2n6*cis*
13. C18:3n3
14. C18:4n6
15. C18:4n3
16. C20:0
17. C20:1n7
18. C20:1n9
19. C20:4n6
20. C20:4n3
21. C20:5n3
22. C22:1n7
23. C21:5n3
24. C23:0 (IS)
25. C22:5n6
26. C22:5n3
27. C22:6n3
28. C24:1



Flavor Volatiles

Column:	DM-1, 60 m x 0.32 mm x 0.50 μm
Cat. No.:	**7148**
Index:	CFR00536
Oven Temp.:	70 °C (hold 15 min) to 190 °C (hold 5 min) at 2 °C/min
Carrier Gas:	He, 20 cm/sec, 70 °C
Injection:	Split, 20:1, 220 °C
Sample:	Flavor volatiles mix, 0.8 μL
Detector:	FID, 64 x 10^{-11} AFS, 260 °C

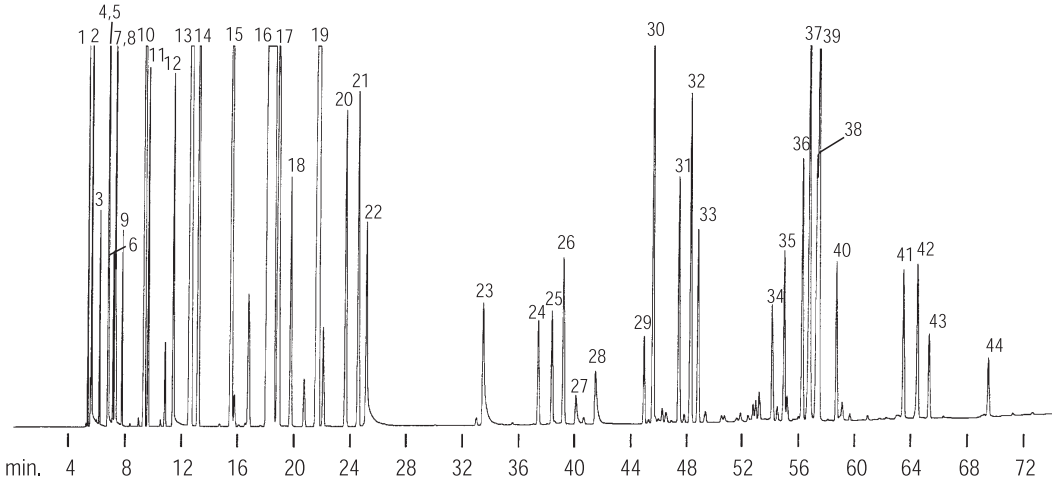
1. Methanol
2. Acetaldehyde
3. Ethanol
4. Acetone
5. Isopropyl alcohol
6. Methylene chloride
7. Hexane
8. Ethyl acetate
9. Ethyl propionate
10. *n*-Hexanal
11. Ethyl butyrate
12. Furfural
13. *trans*-2-Hexenal
14. α-Thujene
15. α-Pinene
16. Camphene
17. Sabinene
18. β-Pinene
19. Octanal
20. Myrcene
21. α-Phellandrene
22. α-Terpinene
23. *p*-Cymene
24. δ-Limonene
25. γ-Terpinene
26. Octanol
27. Terpinolene
28. Nonanal
29. Linalool
30. *cis*-Limonene monoxide
31. *trans*-Limonene monoxide
32. Citronellal
33. Terpinene-4-ol
34. α-Terpineol
35. Decanal
36. *d* / *l* Carveol
37. Neral
38. Carvone
39. Geranial
40. Neryl acetate
41. Geranyl acetate
42. α-Ionone
43. β-Caryophyllene
44. *trans*-α-Bergamotene
45. BHA
46. β-Ionone
47. Valencene
48. γ-Elemene
49. β-Bisabolene
50. Nootketone



Flavor Volatiles

Column:	DM-Wax, 60 m x 0.53 mm x 1.00 μm
Cat. No.:	**7552**
Index:	CFR00537
Oven Temp.:	70 °C (hold 15 min) to 190 °C (hold 5 min) at 2 °C/min
Carrier Gas:	He, 20 cm/sec, 70 °C
Injection:	Split, 20:1, 220 °C
Sample:	Flavor volatiles mix, 0.8 μL
Detector:	FID, 64 X 10^{-11} AFS, 260 °C

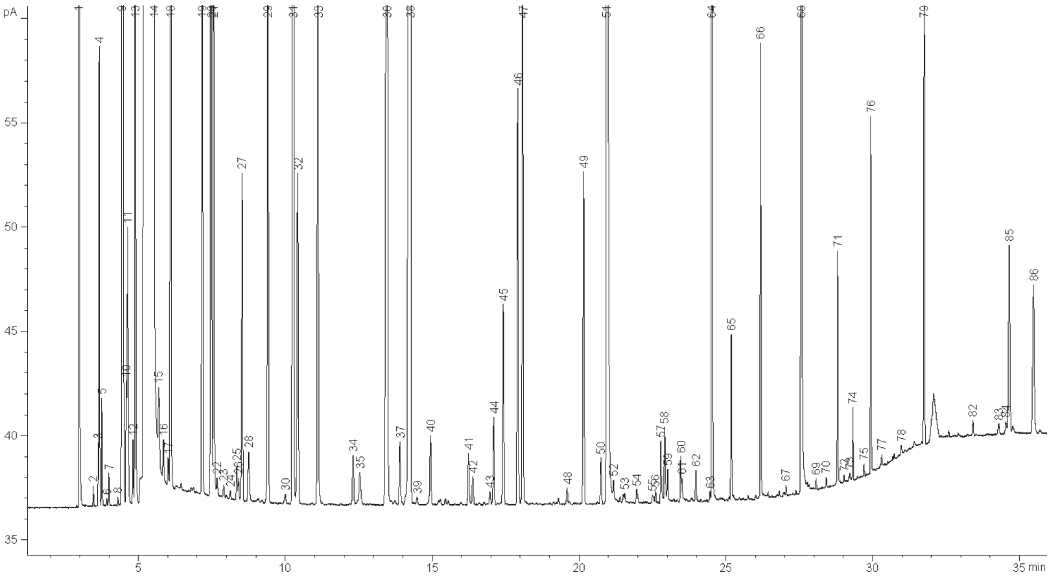
1. Hexane
2. Acetaldehyde
3. Acetone
4. Methanol
5. Ethyl acetate
6. Isopropyl alcohol
7. Ethanol
8. Methylene chloride
9. Ethyl propionate
10. α-Pinene
11. Ethyl butyrate
12. *n*-Hexanal
13. β-Pinene
14. Sabinene
15. Myrcene
16. δ-Limonene
17. 1,8-Cineole
18. *trans*-2-Hexenal
19. γ-Terpinene
20. *p*-Cymene
21. Terpinolene
22. Octanal
23. Nonanal
24. *cis*-Limonene monoxide
25. *trans*-Limonene
26. Furfural
27. Citronellal
28. Decanal
29. Linalool
30. Octanol
31. *trans*-α-Bergamotene
32. β-Caryophyllene
33. Terpinene-4-ol
34. Neral
35. α-Terpineol
36. Neryl acetate
37. Valencene
38. Geranial
39. Carvone
40. Geranyl acetate
41. *d* / *l* Carveol
42. α-Ionone
43. *d* / *l* Carveol
44. β-Ionone



Concentrated Liquors

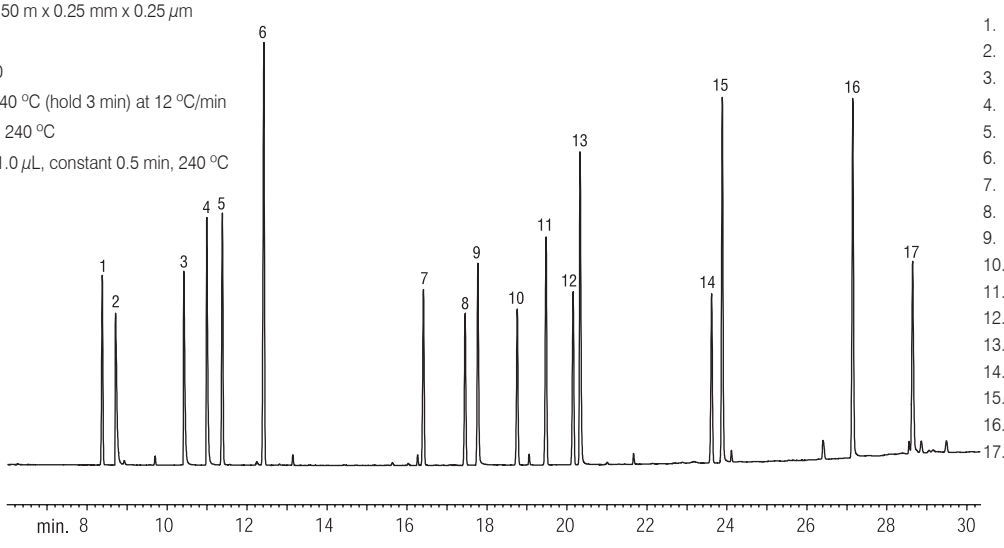
Column:	DM-Wax, 30 m×0.25 mm×0.25 μm
Cat. No.:	**7521**
Index:	CFO00011
Oven Temp.:	37 °C (hold 2 min) to 70 °C at 3 °C/min 70 °C (hold 1 min) to 130 °C at 6 °C/min 130 °C to 220 °C at 10 °C/min to 220 °C (hold 10 min)
Carrier Gas:	High purity nitrogen, 1 mL/min
Injection:	260 °C, Split ratio 30:1
Detector:	FID, 260 °C

1. Acetaldehyde
2. Propanal
3. Isobutanal
4. Acetone
5. Ethyl formate
6. -
7. -
8. -
9. Ethyl acetate + Acetal
10. Methanol
11. 2-Butanone
12. 2-Methyl butyraldehyde
13. 3-Methyl butyraldehyde
14. Ethanol
15. Ethyl propionate
16. Ethyl isobutyrate
17. 2-Ethoxy butane
18. 2-Pentanone
19. *sec*-Butyl alcohol
20. Ethyl butyrate
21. *n*-Propanol
22. -
23. -
24. -
25. Ethyl isovalerate
26. Diethoxy isopentane
27. Diethoxy-3-methylbutane
28. -
29. Isobutyl alcohol
30. Isoamyl acetate
31. *sec*-Pentanol
32. Ethyl valerate
33. *n*-Butanol
34. -
35. -
36. Isoamyl alcohol
37. -
38. Ethyl caproate
39. -
40. *n*-Pentanol
41. Acetoin
42. -
43. Propyl hexanoate
44. 2-Heptanol
45. Ethyl heptanoate
46. Ethyl lactate
47. *n*-Hexanol
48. Butyl hexanoate
49. Ethyl octanoate
50. -
51. Acetic acid
52. Furfural
53. -
54. -
55. Benzaldehyde
56. Ethyl nonanoate
57. Propionic acid
58. *L*-2,3-Butanediol
59. Capryl alcohol
60. Isobutyric acid
61. *meso*-2,3-Butanediol
62. Hexyl hexanoate
63. Ethyl caprate
64. *n*-Butanoic acid
65. Isovaleric acid
66. Valeric acid
67. -
68. *n*-Hexanoic acid
69. Benzenepropanoic acid ethyl ester
70. β -Phenethyl alcohol
71. Heptanoic acid
72. -
73. -
74. Ethyl myristate
75. -
76. Octylic acid
77. -
78. -
79. Ethyl palmitate
80. -
81. -
82. -
83. -
84. -
85. Ethyl oleate
86. Ethyl linoleate



Alcoholic Standard: Acids and Esters

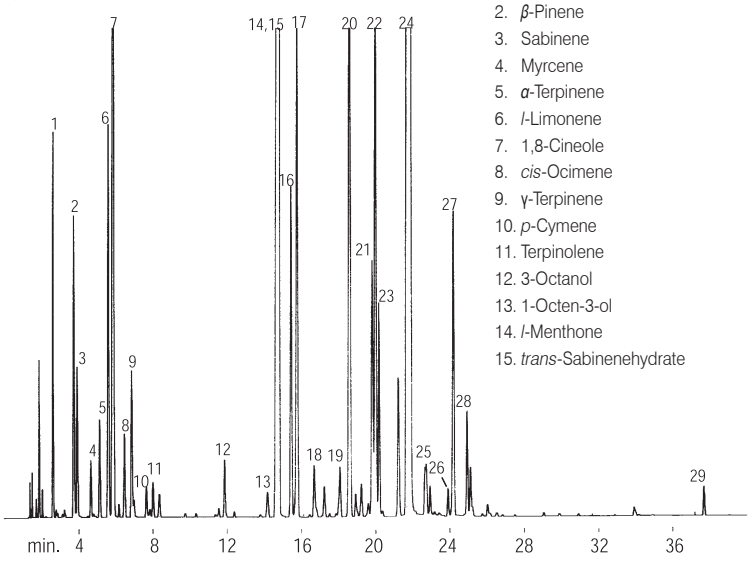
Column:	DM-FFAP, 50 m x 0.25 mm x 0.25 μm
Cat. No.:	**7672**
Index:	CFR00500
Oven Temp.:	70 °C to 240 °C (hold 3 min) at 12 °C/min
Carrier Gas:	H_2, 28 psi, 240 °C
Injection:	Splitless, 1.0 μL, constant 0.5 min, 240 °C
Detector:	FID



1. Ethyl octanoate
2. Acetic acid
3. Propionic acid
4. Isobutyric acid
5. 3-Decanol
6. Ethyl decanoate
7. Ethyl laurate
8. *cis*-Lactone
9. 2-Phenylethanol
10. *trans*-Lactone
11. Methyl myristate
12. Ethyl myristate
13. Octanoic acid
14. Ethyl palmitate
15. Decanoic acid
16. Dodecanoic acid
17. Vanillin

Peppermint Oil

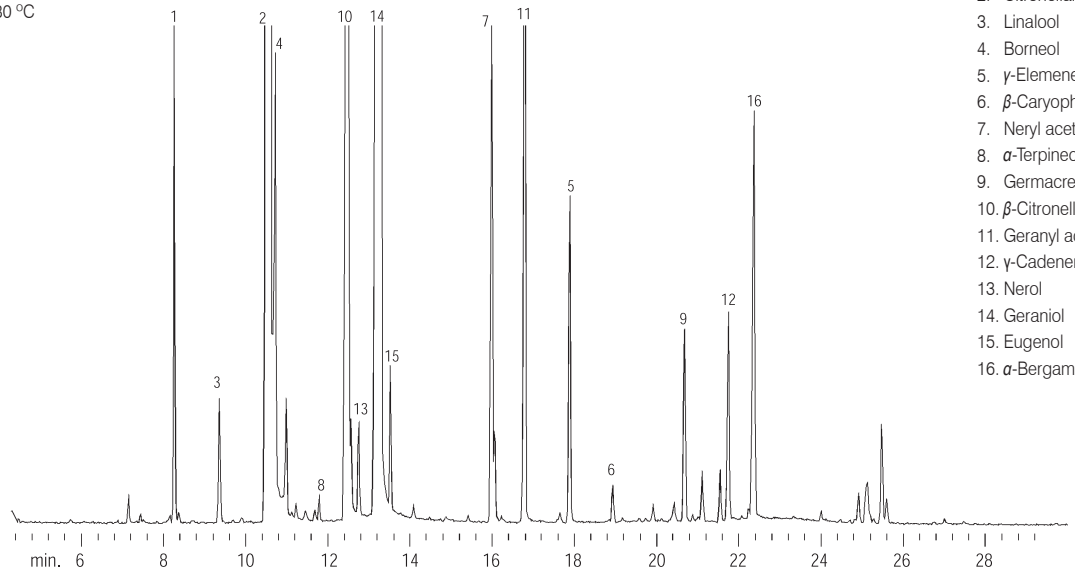
Column:	DM-Wax, 30 m x 0.25 mm x 0.50 µm
Cat. No.:	**7521**
Index:	CFR00141
Oven Temp.:	75 °C (hold 4 min) to 240 °C at 4 °C/min
Carrier Gas:	H_2, 40 cm/sec, 75 °C
Injection:	Split, 1.0 µL, 50:1, 250 °C
Sample:	Peppermint oil, 1.0 µL
Detector:	FID, 16 x 10^{-11} AFS, 250 °C



1. α-Pinene
2. β-Pinene
3. Sabinene
4. Myrcene
5. α-Terpinene
6. *l*-Limonene
7. 1,8-Cineole
8. *cis*-Ocimene
9. γ-Terpinene
10. *p*-Cymene
11. Terpinolene
12. 3-Octanol
13. 1-Octen-3-ol
14. *l*-Menthone
15. *trans*-Sabinenehydrate
16. Menthofuran
17. *d*-Isomenthone
18. β-Bourbonene
19. Linalool
20. Menthyl acetate
21. neo-Menthol
22. β-Caryophyllene
23. Terpinene-4-ol
24. *l*-Menthol
25. Pulegone
26. α-Terpineol
27. Germacrene-Δ
28. Piperitone
29. Viridiflorol

Citronella Java Oil

Column:	DM-1, 60 m x 0.25 mm x 0.25 µm
Cat. No.:	**7122**
Index:	CFR00144
Oven Temp.:	100 °C to 260 °C (hold 1 min) at 4 °C/min
Carrier Gas:	He, 30 cm/sec, 50 °C
Injection:	Split, 100 cc/min, 250 °C
Sample:	Citronella java oil, 1.0 µL
Detector:	MS, 280 °C

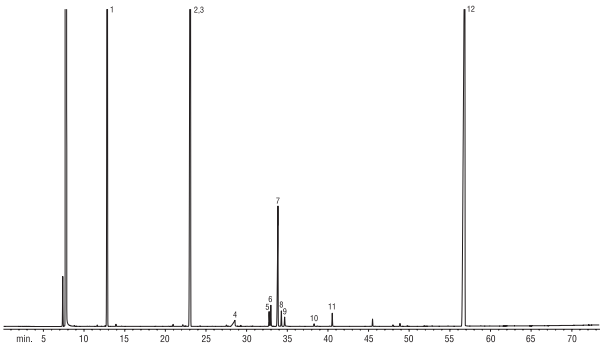


1. Limonene
2. Citronellal
3. Linalool
4. Borneol
5. γ-Elemene
6. β-Caryophyllene
7. Neryl acetate
8. α-Terpineol
9. Germacrene-Δ
10. β-Citronellol
11. Geranyl acetate
12. γ-Cadenene
13. Nerol
14. Geraniol
15. Eugenol
16. α-Bergamotene

Fragrance

Column:	DM-1, 60 m x 0.25 mm x 0.25 µm
Cat. No.:	**7122**
Index:	CFR00657
Oven Temp.:	50 °C to 270 °C at 3 °C/min
Carrier Gas:	He
Injection:	Split, 40:1, 285 °C
Flow rate:	0.6 mL/min
Sample:	5% FMA mix in acetone, 1.0 µL
Detector:	FID, 300 °C

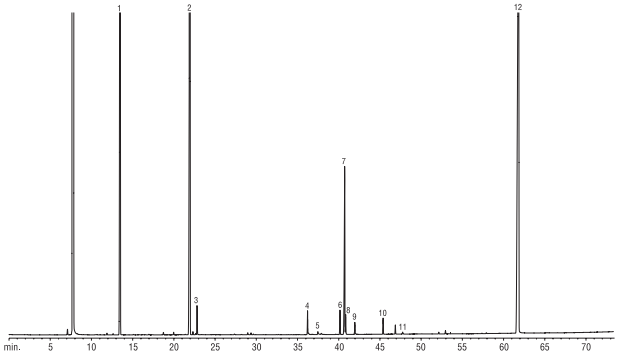
1. Ethyl butyrate
2. Limonene
3. Eucalyptol
4. Benzoic acid
5. Cinnamic aldehyde
6. Geraniol
7. Hydroxycitronellal
8. Thymol
9. Cinnamyl alcohol
10. Vanillin
11. Cinnamyl acetate
12. Benzyl salicylate



Fragrance

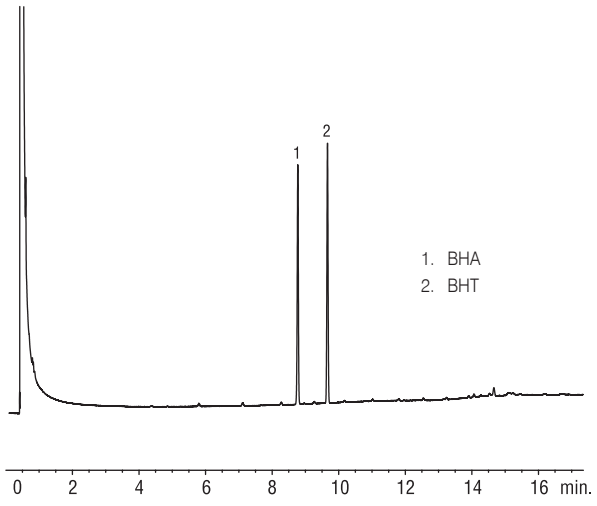
Column:	DM-1701, 60 m x 0.25 mm x 0.25 µm
Cat. No.:	**7322**
Index:	CFR00658
Oven Temp.:	50 °C to 270 °C at 3 °C/min
Carrier Gas:	He
Injection:	Split, 40:1, 285 °C
Sample:	5% FMA mix in acetone, 1.0 µL
Detector:	FID, 300 °C

1. Ethyl butyrate
2. Limonene
3. Eucalyptol
4. Geraniol
5. Benzoic acid
6. Cinnamic aldehyde
7. Hydroxycitronellal
8. Thymol
9. Cinnamyl alcohol
10. Cinnamyl acetate
11. Vanillin
12. Benzyl salicylate



BHA / BHT

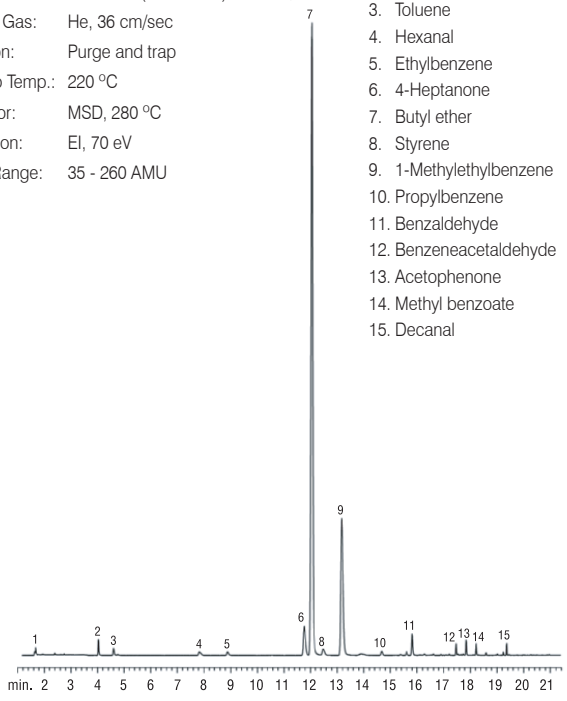
Column:	DM-17, 30 m x 0.53 mm x 1.00 µm
Cat. No.:	**7451**
Index:	CFR00630
Oven Temp.:	50 °C to 240 °C (hold 3 min) at 15 °C/min
Carrier Gas:	He, 60 cm/sec, 50 °C
Injection:	Direct, 280 °C
Sample:	50 ppm BHA / BHT each in MeOH, 1.0 µL
Detector:	FID, 280 °C



Food Packaging Volatiles

Column:	DM-5MS, 30 m x 0.25 mm x 0.50 µm
Cat. No.:	**8223**
Index:	CFR00459
Oven Temp.:	50 °C to 92 °C at 3 °C/min to 220 °C (hold 1 min) at 20 °C/min
Carrier Gas:	He, 36 cm/sec
Injection:	Purge and trap
Desorb Temp.:	220 °C
Detector:	MSD, 280 °C
Ionization:	EI, 70 eV
Scan Range:	35 - 260 AMU

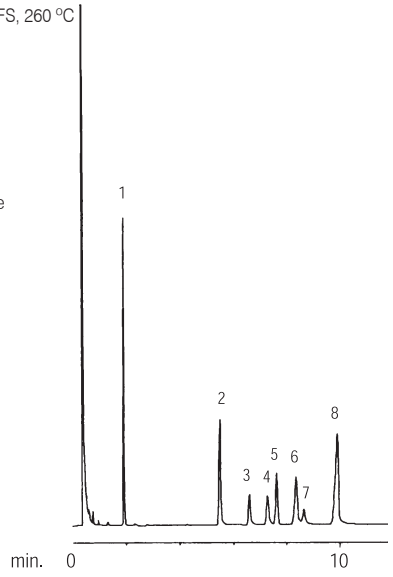
1. Tetrahydrofuran
2. 1-Butanol
3. Toluene
4. Hexanal
5. Ethylbenzene
6. 4-Heptanone
7. Butyl ether
8. Styrene
9. 1-Methylethylbenzene
10. Propylbenzene
11. Benzaldehyde
12. Benzeneacetaldehyde
13. Acetophenone
14. Methyl benzoate
15. Decanal



Neutral Sterols

Column: DM-225, 30 m x 0.25 mm x 0.25 μm
Cat. No.: **8421**
Index: CFR00431
Oven Temp.: 260 °C constant
Carrier Gas: He, 45 cm/sec, 240 °C
Injection: Split, 30:1, 260 °C
Sample: Neutral sterols and phytosterols, 1.5 μL, 200 ng on-column
Detector: FID, 8 x 10^{-11} AFS, 260 °C

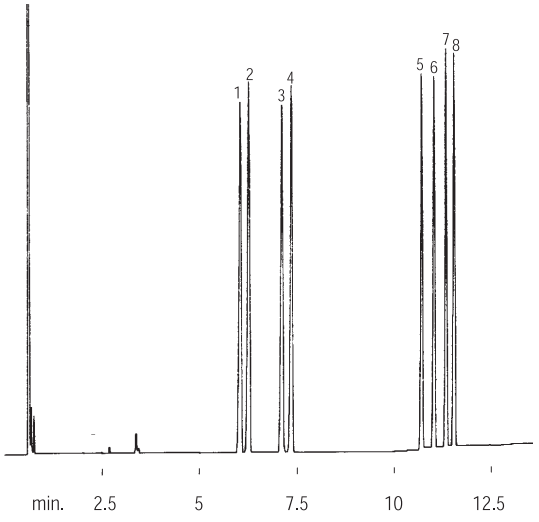
1. 5-*α*-Cholestane
2. Coprosterol
3. Cholesterol
4. Brassicasterol
5. Coprostanone
6. Campesterol
7. Stigmasterol
8. *β*-Sitosterol



Sugars (Alditol Acetates)

Column: DM-225, 30 m x 0.25 mm x 0.25 μm
Cat. No.: **8421**
Index: CFR00128
Oven Temp.: 190 °C (hold 5 min) to 250 °C (hold 5 min) at 8 °C/min
Carrier Gas: H_2, 42 cm/sec, 40 °C
Injection: Split, 50:1, 260 °C
Sample: Alditol acetates derivative, 0.5 μL
Detector: FID, 16 x 10^{-11} AFS, 260 °C

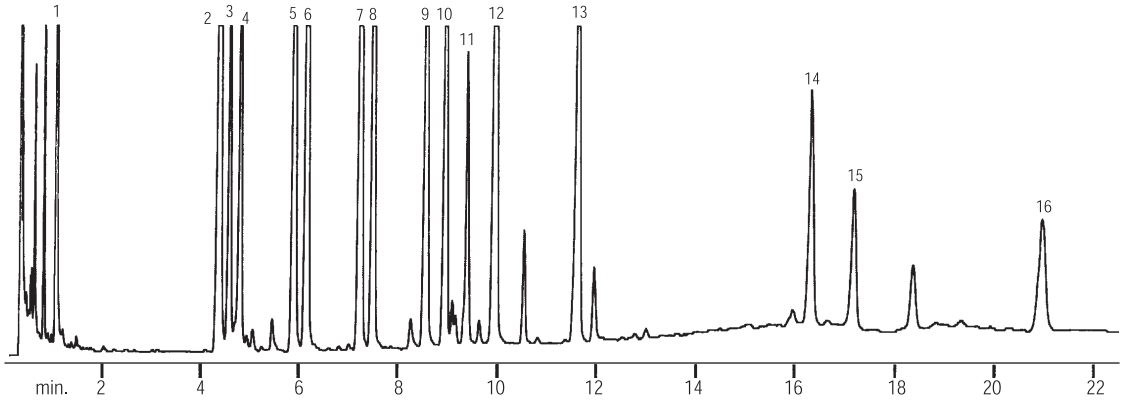
1. Rhamnitol
2. Fucitol
3. Ribitol
4. Arabinitol
5. Mannitol
6. Galactitol
7. Glucitol
8. Inositol



Sugars (Alditol Acetates)

Column: DM-2330, 30 m x 0.32 mm x 0.20 μm
Cat. No.: **8633**
Index: CFR00127
Oven Temp.: 175 °C (hold 2 min) to 240 °C (hold 1 min) at 8 °C/min to 265 (hold 12 min) at 8 °C/min
Carrier Gas: He, 80 cm/sec
Injection: Split, 20:1, 275 °C
Sample: Sugars, 0.6 μL
Detector: FID, 2 x 10^{-11} AFS, 275 °C

1. Glyceraldehyde
2. Deoxyribitol
3. Rhamnitol
4. Fucitol
5. Ribitol
6. Arabinitol
7. Xylitol
8. Deoxyglucitol
9. Mannitol
10. Galactitol
11. Glucitol
12. Inositol
13. Glucoheptitol
14. *n*-Acetyl galactose amine
15. *n*-Acetyl glucose amine
16. 2-Keto-3-deoxyoctanate



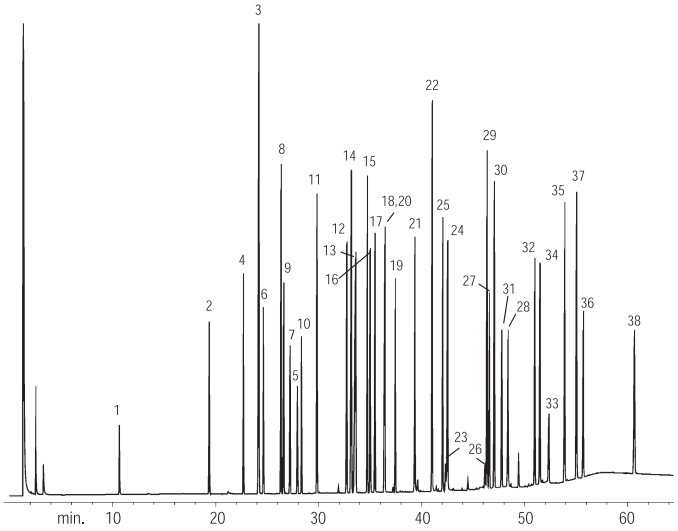
Basic Drugs (Underivatized)

Column:	30 m x 0.25 mm x 0.25 µm
Cat. No.:	DM-35, #7921
	DM-5, #7221
	DM-200, #8321
Oven Temp.:	100 °C to 325 °C (hold 10 min) at 4 °C/min
Carrier Gas:	He, 30 cm/sec, 100 °C
Injection:	Split, 50:1, 250 °C
Sample:	Basic drugs, 1.0 µL, 1000 ng/µL
Detector:	FID, 1.28 x 10^{-10} AFS, 320 °C

1. Nicotine
2. Benzocaine
3. Cotinine
4. Meperidine
5. Caffeine
6. Benzphetamine
7. Ketamine
8. Diphenhydramine
9. Lidocaine
10. Phenyltoloxamine
11. Tripelennamine
12. Phenothiazine
13. Dextromethorphan
14. Methadone
15. Amitriptyline
16. Trimipramine
17. Tetracaine
18. Pyrilamine
19. Medazepam
20. Bupivacaine
21. Scopolamine
22. Codeine
23. Morphine
24. Diazepam
25. Chlorpromazine
26. Temazepam
27. Flunitrazepam
28. Bromazepam
29. Prazepam
30. Acetopromazine
31. Flurazepam
32. Papaverine
33. Clonazepam
34. Haloperidol
35. Alprazolam
36. Triazolam
37. Thioridazine
38. Trazodone

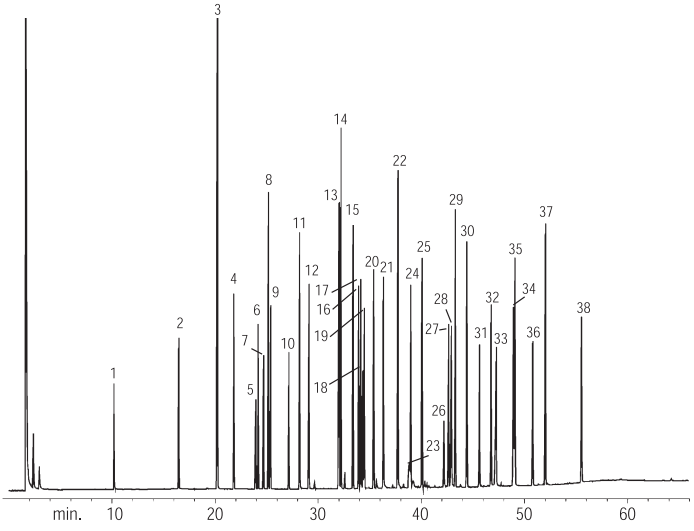
DM-35

Index: CPR00236



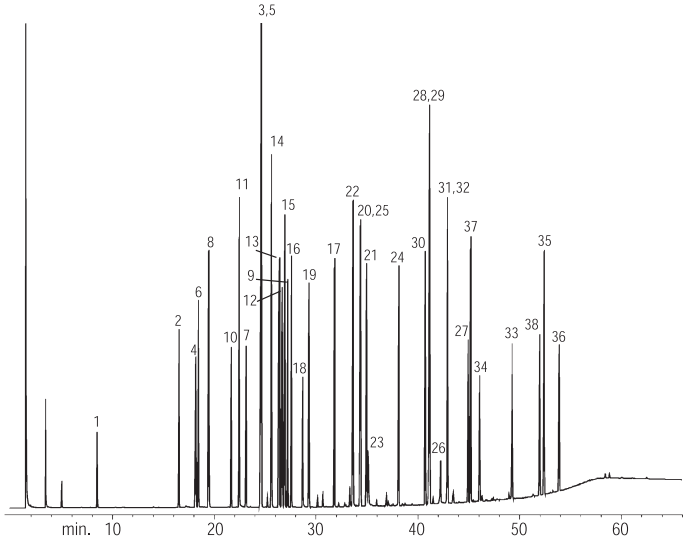
DM-5

Index: CPR00235



DM-200

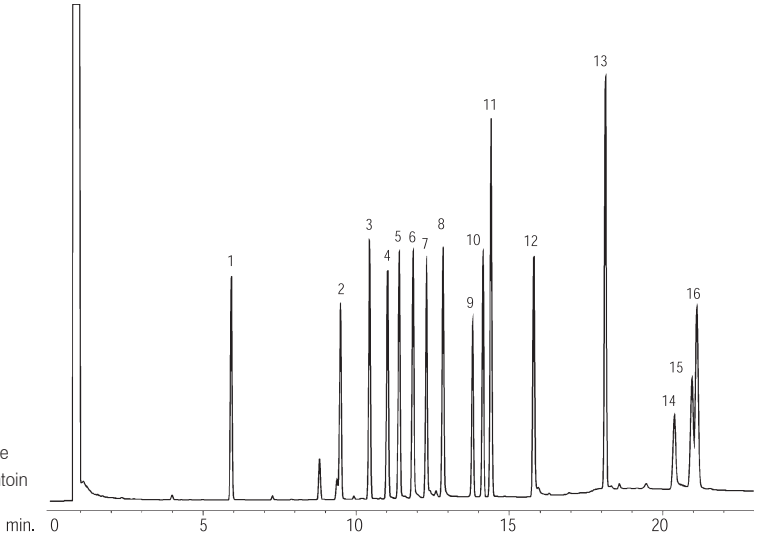
Index: CPR00237



Acidic / Neutral Drugs (Underivatized)

Column:	DM-35, 30 m x 0.53 mm x 1.00 μm
Cat. No.:	**7951**
Index:	CPR00262
Oven Temp.:	100 °C to 280 °C (hold 5 min) at 10 °C/min
Carrier Gas:	He, 40 cm/sec, 100 °C
Injection:	Splitless, 0.5 min, 250 °C
Sample:	Acidic / Neutral drugs, 1.0 μL, 50 μg/mL
Detector:	FID, 5.12 x 10^{-10} AFS, 250 °C

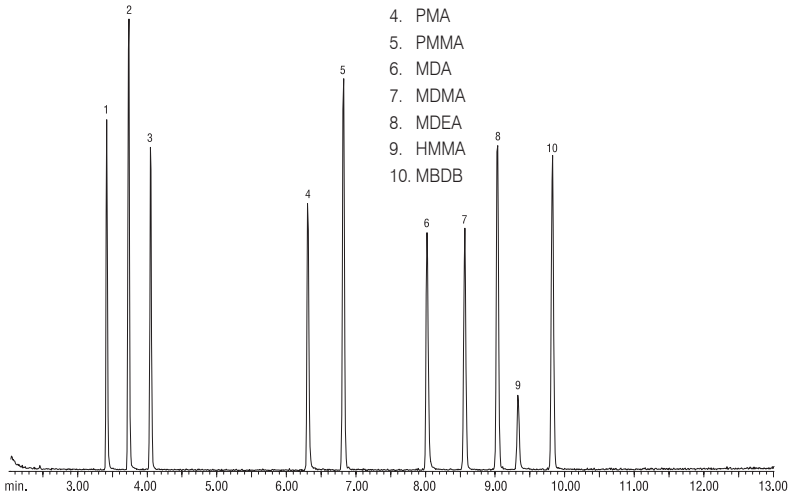
1. Ethosuximide
2. Barbital
3. Methyprylon
4. Aprobarbital
5. Butalbital
6. Amobarbital
7. Pentobarbital
8. Secobarbital
9. Meprobamate
10. Carisoprodal
11. Glutethimide
12. Phenobarbital
13. Methaqualone
14. Primidone
15. Carbamazepine
16. Diphenylhydantoin



Sympathomimetic Amines Drugs

Column:	DM-35 Amine, 30 m x 0.25 mm x 0.50 μm
Cat. No.:	**7821**
Index:	CPR00574
Oven Temp.:	150 °C to 240 °C at 7 °C/min
Carrier Gas:	He, 30 cm/sec
Injection:	Split, 250 °C
Sample:	Sympathomimetic amines drugs, 1.0 μL, 1,000 ng/μL
Detector:	MS
Scan Range:	40 - 450 AMU
Ionization:	EI, scan

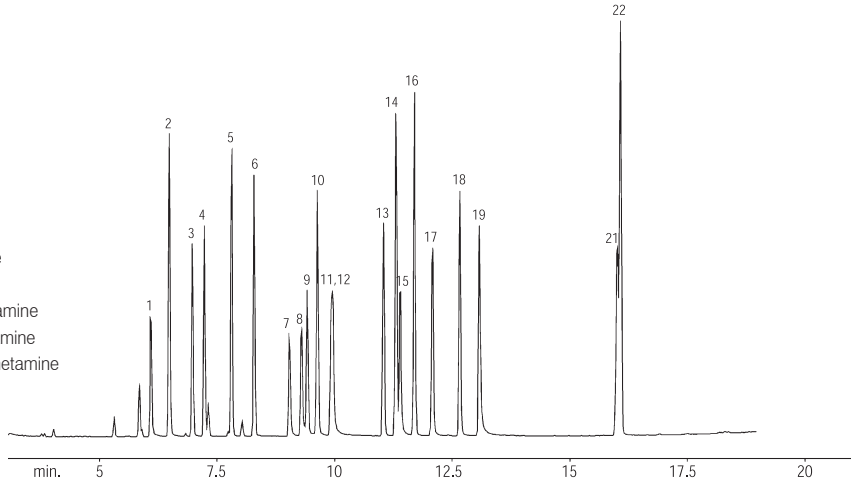
1. Amphetamine
2. Methamphetamine
3. *N*-Ethylamphetamine
4. PMA
5. PMMA
6. MDA
7. MDMA
8. MDEA
9. HMMA
10. MBDB



Sympathomimetic Amines Drugs

Column:	DM-5 Amine, 30 m x 0.25 mm x 0.50 μm
Cat. No.:	**7815**
Index:	CPR00438
Oven Temp.:	100 °C to 310 °C at 10 °C/min
Injection:	Split, 45 mL/min
Detector:	MS

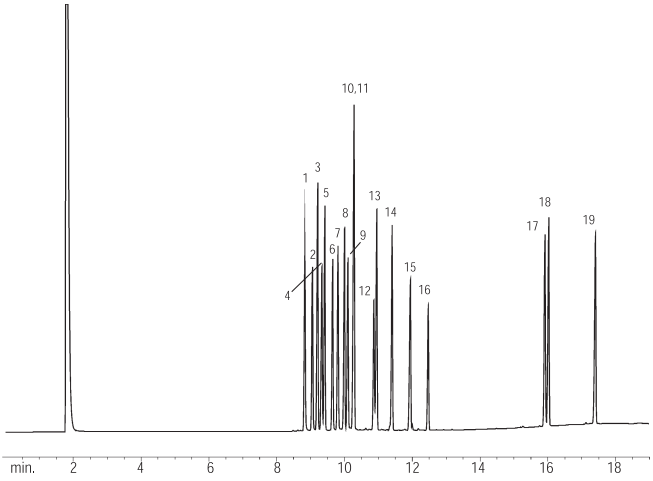
1. Phenylethylamine
2. Amphetamine
3. Phentermine
4. Methamphetamine
5. Fenfluramine
6. Mephentermine
7. Cathinone
8. Phenylpropanolamine
9. Methcathinone
10. Nicotine
11. Ephedrine
12. Pseudoephedrine
13. Phenmetrazine
14. Phendimetrazine
15. Methylenedioxyamphetamine
16. Diethylpropion
17. Methylenedioxymethamphetamine
18. Methylenedioxyethylamphetamine
19. 4-Methyl-2,5-dimethoxyamphetamine
20. Phenylephrine
21. Caffeine
22. Benzphetamine



Steroids, Anabolic

Column:	DM-5, 30 m x 0.25 mm x 0.10 μm
Cat. No.:	**7219**
Index:	CPR00255
Oven Temp.:	180 °C to 340 °C (hold 3 min) at 10 °C/min
Carrier Gas:	He, 35 cm/sec, 180 °C
Injection:	Split, 50:1, 280 °C
Sample:	Anabolic steroids, 0.5 μL, 1,000 ng/μL
Detector:	FID, 1.28 x 10^{-10} AFS, 340 °C

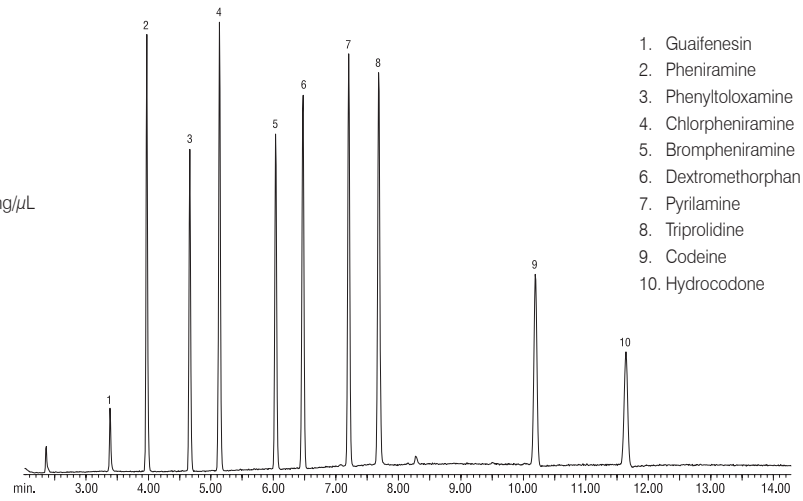
1. 5-Androstene-3 β ,17 β -diol
2. 17 α -Methyl-5-androstene-3 β ,17 β -diol
3. 5 α -Androstan-17 β -ol-3-one
4. 19-Nortestosterone
5. 17 α -Methylandrostan-17 β -ol-3-one
6. Mesterolone
7. Testosterone
8. 17 α -Methyltestosterone
9. 1-Dehydrotestosterone
10. 1-Dehydro-17 α -methyltestosterone
11. Bolasterone
12. Oxymethalone
13. 19-Nortestosterone-17-propionate
14. Testosterone propionate
15. Fluoxymesterone
16. 4-Chlorotestosterone-17-acetate
17. Testosterone-17 β -cypionate
18. 1-Dehydrotestosterone benzoate
19. 1-Dehydrotestosterone undecylenate



Cold Medicine

Column:	DM-35 Amine, 30 m x 0.25 mm x 0.50 μm
Cat. No.:	**7821**
Index:	CPR00575
Oven Temp.:	250 °C to 300 °C (hold 7 min) at 7 °C/min
Carrier Gas:	He, 30 cm/sec
Injection:	Split, 250 °C
Sample:	Underivatized cold medicine, 1.0 μL, 1,000 ng/μL
Detector:	MS
Scan Range	40 - 450 AMU
Ionization	EI, scan

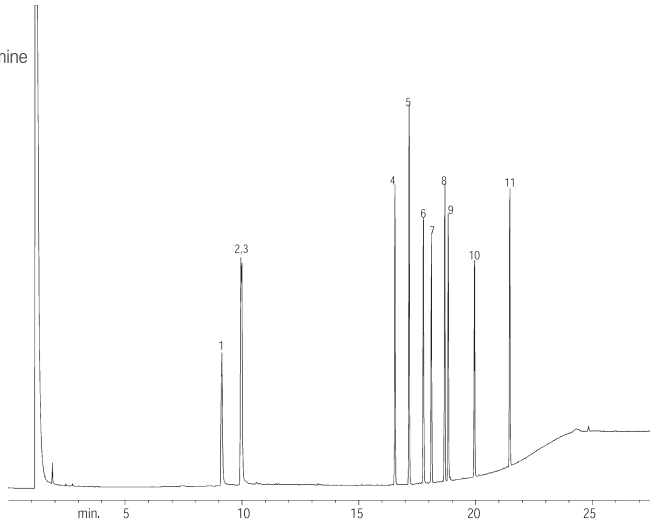
1. Guaifenesin
2. Pheniramine
3. Phenyltoloxamine
4. Chlorpheniramine
5. Brompheniramine
6. Dextromethorphan
7. Pyrilamine
8. Triprolidine
9. Codeine
10. Hydrocodone



Antihistamines

Column:	DM-5 Amine, 30 m x 0.32 mm x 1.00 μm
Cat. No.:	**7817**
Index:	CPR00247
Oven Temp.:	130 °C (hold 5 min) to 305 °C (hold 5 min) at 10 °C/min
Carrier Gas:	H_2, 43 cm/sec, 130 °C
Injection:	Split, 50:1, 305 °C
Sample:	Antihistamines, 1.0 μL, 1,000 ng/μL
Detector:	FID, 6.4 x 10^{-11} AFS, 305 °C

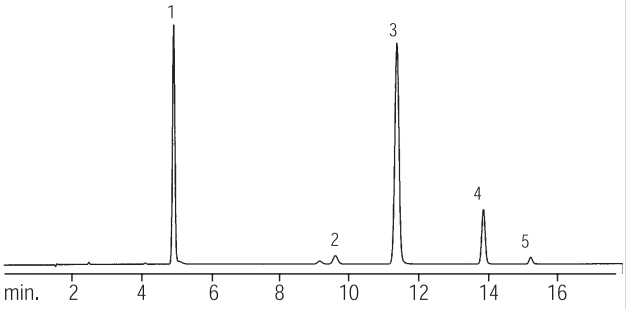
1. Phenylpropanolamine
2. Ephedrine
3. Pseudoephedrine
4. Pheniramine
5. Diphenhydramine
6. Doxylamine
7. Phenyltoloxamine
8. Methapyrilene
9. Chlorpheniramine
10. Brompheniramine
11. Triprolidine



Organic Volatile Impurities (USP 467)

Column:	DM-624, 30 m x 0.53 mm x 3.00 μm + 5 m Guard column
Cat. No.:	**7751**
Index:	CPR00259
Oven Temp.:	40 °C (hold 20 min) to 240 °C (hold 10 min) at 35 °C/min
Carrier Gas:	He, 35 cm/sec, 35 °C
Injection:	Split, 2:1, 180 °C
Detector:	FID, 1.25 x 10^{-10} AFS, 260 °C

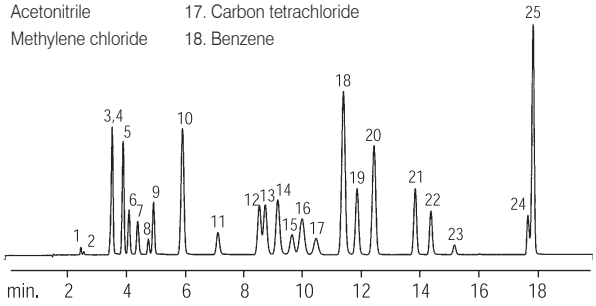
1. Methylene chloride
2. Chloroform
3. Benzene
4. Trichloroethylene
5. 1,4-Dioxane



Organic Volatile Impurities

Column:	DM-624, 30 m x 0.53 mm x 3.00 μm
Cat. No.:	**7751**
Index:	CPR00261
Oven Temp.:	35 °C (hold 10 min) to 100 °C at 5 °C/min to 240 °C (hold 5 min) at 25 °C/min
Carrier Gas:	He, 35 cm/sec, 35 °C
Injection:	Split, 2:1, 220 °C
Detector:	FID, 1.05 x 10^{-11} AFS, 240 °C

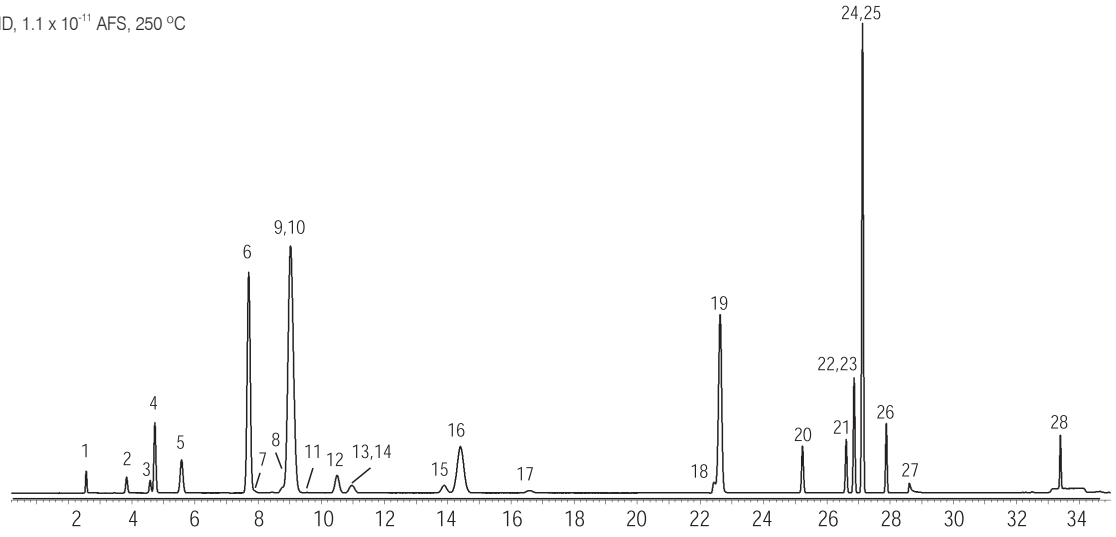
1. Ethylene oxide
2. Methanol
3. Ethanol
4. Diethyl ether
5. 1,1-Dichloroethene
6. Acetone
7. Isopropanol
8. Acetonitrile
9. Methylene chloride
10. *n*-Hexane
11. *n*-Propanol
12. Methyl ethyl ketone
13. Ethyl acetate
14. Tetrahydrofuran
15. Chloroform
16. 1,1,1-Trichloroethane
17. Carbon tetrachloride
18. Benzene
19. 1,2-Dichloroethane
20. Heptane
21. Trichloroethylene
22. *n*-Butanol
23. 1,4-Dioxane
24. Pyridine
25. Toluene



EP Class 1 and Class 2 Solvents

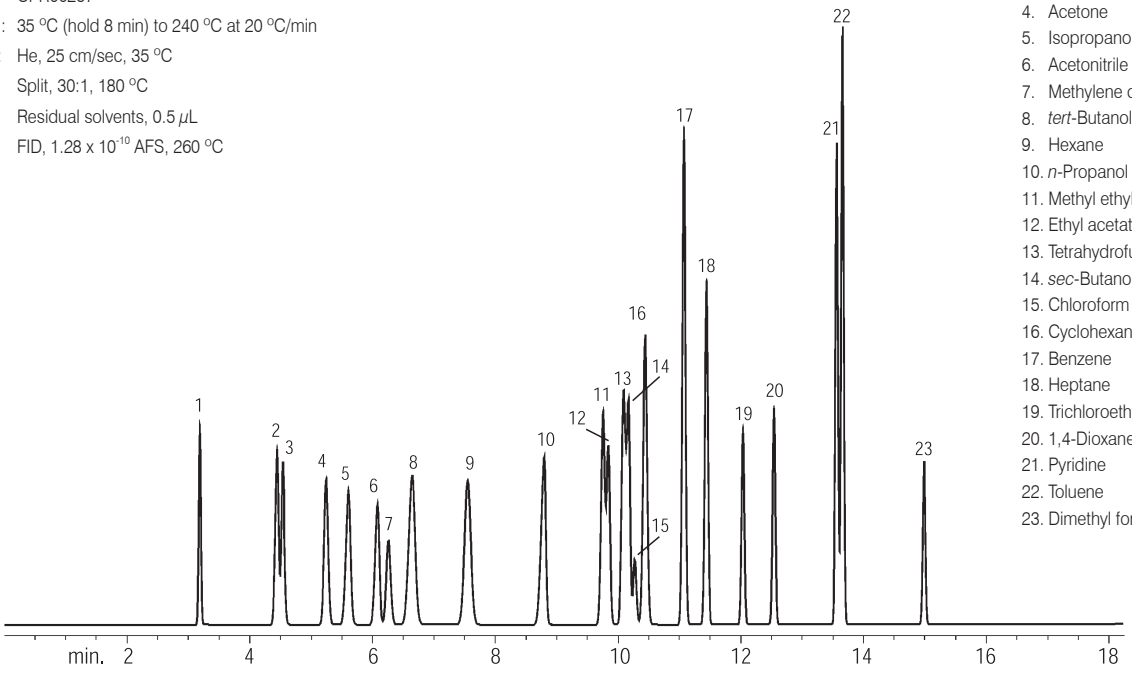
Column:	DM-624, 30 m x 0.53 mm x 3.00 μm
Cat. No.:	**7751**
Index:	CPR00553
Oven Temp.:	40 °C (hold 20 min) to 240 °C (hold 20 min) at 10 °C/min
Carrier Gas:	H_2, 35 cm/sec
Injection:	1 mL Headspace injection, using samples shaken and heated at 80 °C for 15 min, 200 °C
Split Ratio:	2:1
Detector:	FID, 1.1 x 10^{-11} AFS, 250 °C

1. Methanol
2. 1,1-Dichloroethene
3. Acetonitrile
4. Dichloromethane
5. Hexane
6. *cis*-1,2-Dichloroethene
7. Nitromethane
8. Chloroform
9. Cyclohexane
10. 1,1,1-Trichloroethane
11. Carbon tetrachloride
12. Benzene
13. 1,2-Dimethoxyethane
14. 1,2-Dichloroethane
15. 1,1,2-Trichlorethene
16. Methyl cyclohexane
17. 1,4-Dioxane
18. Pyridine
19. Toluene
20. 2-Hexanone
21. Chlorobenzene
22. DMF
23. Ethylbenzene
24. *m*-Xylene
25. *p*-Xylene
26. *o*-Xylene
27. *N,N*-Dimethylacetamide
28. 1,2,3,4-Tetrahydronaphthalene



Residual Solvents

Column:	DM-624, 30 m x 0.53 mm x 3.00 µm
Cat. No.:	**7751**
Index:	CPR00257
Oven Temp.:	35 °C (hold 8 min) to 240 °C at 20 °C/min
Carrier Gas:	He, 25 cm/sec, 35 °C
Injection:	Split, 30:1, 180 °C
Sample:	Residual solvents, 0.5 µL
Detector:	FID, 1.28 x 10^{-10} AFS, 260 °C

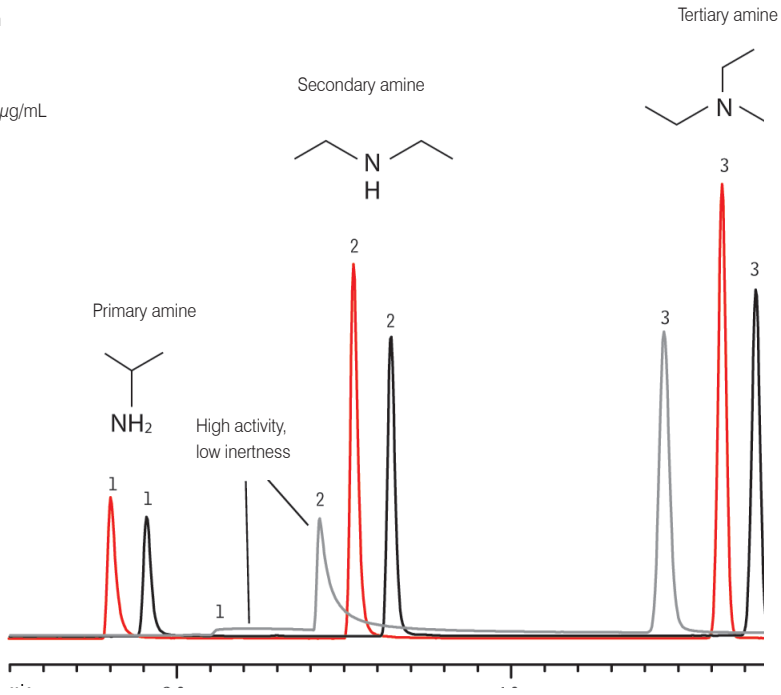


1. Methanol
2. Ethanol
3. Ether
4. Acetone
5. Isopropanol
6. Acetonitrile
7. Methylene chloride
8. *tert*-Butanol
9. Hexane
10. *n*-Propanol
11. Methyl ethyl ketone
12. Ethyl acetate
13. Tetrahydrofuran
14. *sec*-Butanol
15. Chloroform
16. Cyclohexane
17. Benzene
18. Heptane
19. Trichloroethylene
20. 1,4-Dioxane
21. Pyridine
22. Toluene
23. Dimethyl formamide

Primary, Secondary and Tertiary Amines

Column:	DM-624MS, 30 m x 0.32 mm x 1.80 µm
Cat. No.:	**8838**
Index:	CPR1162
Oven Temp.:	50 °C (hold 1 min) to 200 °C (hold 5 min) at 20 °C/min
Carrier Gas:	He, 37 cm/sec
Injection:	Split, 20:1, 1.0 µL, 250 °C
Sample:	Primary, secondary and tertiary amines in DMSO, 100 µg/mL
Detector:	FID, 250 °C

1. Isopropylamine 100 µg/mL
2. Diethylamine 100 µg/mL
3. Triethylamine 100 µg/mL



Industry Index

Product Index

ProElut™ BaP

ProElut™ PLS

ProElut™ PLS GLASS

ProElut™ PXC

Determination of Histamine Originating from Aquatic Products

1. Scope of application

For determination of histamine in aquatic products

2. Sample preparation / extraction

2.1. Weighing

Smoked fish and other dried samples: Weigh 2.5 g of sample (accurate to 0.01 g) in 50 mL centrifuge tube.

Tuna and other wet samples: Weigh 5.0 g of sample (accurate to 0.01 g) in 50 mL centrifuge tube.

2.2. Extraction of histamine

Add 20 mL histamine extract* to centrifuge tube, vortex for 1 min, shock in thermostatic water bath for 30 min at 60 °C, centrifuge at 4,000 rpm for 10 min. Take 6 mL of supernatant and adjust the pH to be between 2 - 3 with 50% H_3PO_4 as the sample solution to be purified.

*Histamine extract: MeOH:50 mM KH_2PO_4 = 1:1

3. Sample purification

ProElut™ PXC 150 mg / 6 mL **(Cat#68204)**

Condition:	6 mL MeOH / 6 mL H_2O
Load:	6 mL supernatant
Wash 1:	6 mL 0.1 M HCl
Wash 2:	6 mL solution of NH_4OH:MeOH:H_2O = 5:5:90
Elute:	6 mL solution of NH_4OH:MeOH:H_2O = 5:60:35
Reconstitute:	Reconstitute to 6 mL with elution solvent

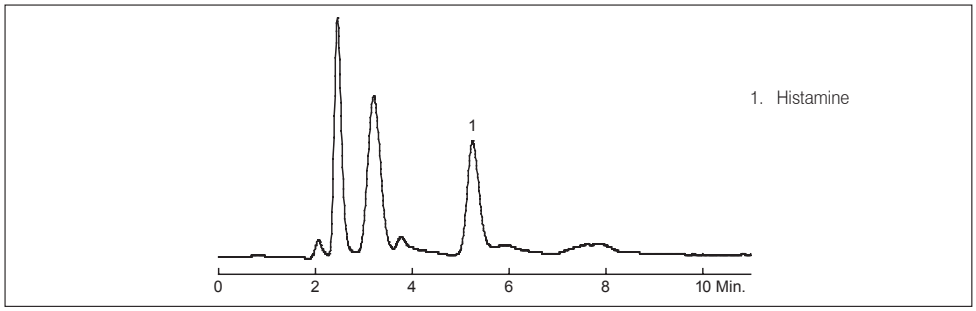
4. HPLC method

Column:	Inspire™ 5 μm C18, 150 x 4.6 mm **(Cat#81001)**
Mobile Phase:	A: MeOH, B: Phosphoric acid - triethylamine buffer*, A:B = 40:60
Flow Rate:	1.0 mL/min
Temperature:	30 °C
Detection:	FLD Ex: 345 nm, Em: 445 nm
Injection Volume:	10 μL
Injection Procedure:	7.5 μL *o*-Phthalaldehyde (OPA) + 10 μL sample + 7.5 μL OPA

*Phosphoric acid - triethylamine buffer: Add 12.5 mL triethylamine and 25.7 mL phosphoric acid to 1 L deionized water

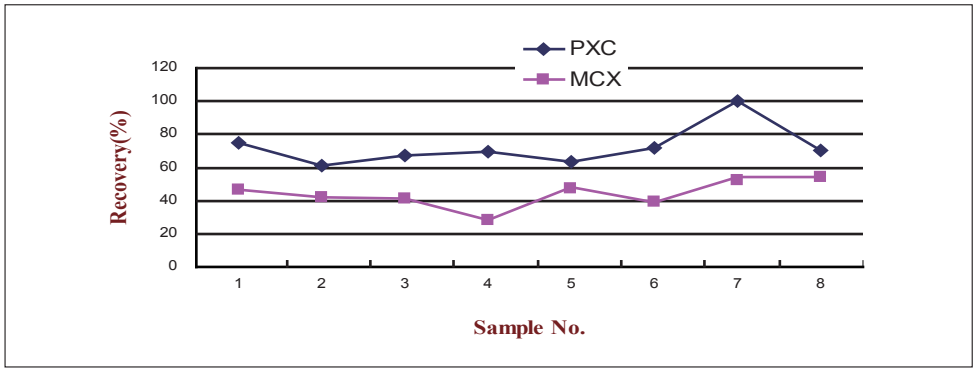
5.1. Recovery

Compounds	Spike Level (mg/kg)	Recovery
Histamine	10	89.96
	10	90.04
	20	73.04
	20	71.50
	40	59.98
	40	53.63



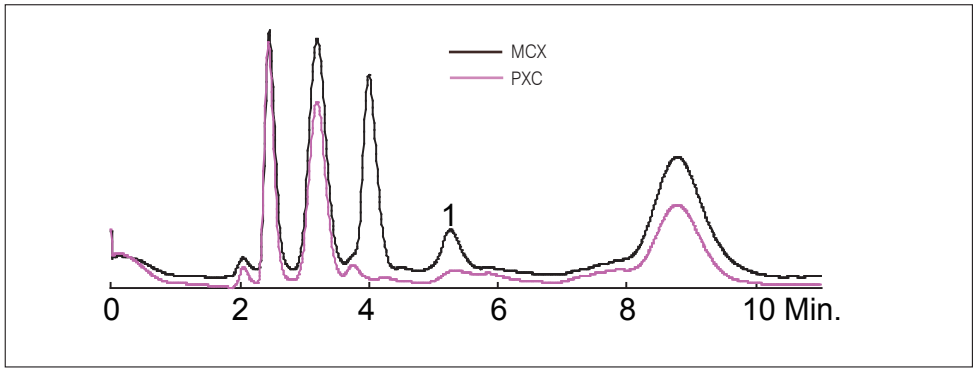
Chromatogram of aquatic products extracts - spiked histamine in aquatic products (10 mg/kg)

5.2. Recovery rate comparison



Samples No. 1 - 6 show the internal standard added in sample. Samples No. 7 and No. 8 show the internal standard added in sample extracting solution. Both methods exhibit stable recovery, the recovery of PXC treatment is better than that of MCX treatment.

5.3. Purification comparison



Determination of Melamine in Milk and Dairy Products

1. Scope of application

For determination of melamine in milk and dairy products

2. Sample preparation

2.1. Milk and milk powder

Dilute milk (2 mL) or milk powder (1 g) with 5 mL of trichloroacetic acid aqueous solution (10 g/L) in a 15 mL centrifuge tube, add 0.5 mL lead acetate aqueous solution (22 g/L) and 2 mL chloroform, vortex and centrifuge for 2 min at 3,000 rpm, collect supernatant, add 5 mL trichloroacetic acid aqueous solution (10 g/L) to residue, vortex and centrifuge for 2 min at 3,000 rpm, collect and combine supernatants.

2.2. Cream candy and cookies

Grind 1 g sample with sand into powder in a mortar, add powder to a 50 mL centrifuge tube, rinse the mortar with 15 mL of trichloroacetic acid aqueous solution (10 g/L), transfer solution to centrifuge tube then shake, add 1 mL lead acetate aqueous solution (22 g/L) and 5 mL chloroform, vortex and centrifuge for 2 min at 3,000 rpm, collect supernatant, add 15 mL trichloroacetic acid aqueous solution (10 g/L) to residue, vortex and centrifuge for 2 min at 3,000 rpm, collect and combine supernatants.

3. Sample purification

ProElut™ PXC 60 mg / 3mL **(Cat#68203)**

Condition:	3 mL MeOH / 3 mL H_2O
Load*:	supernatant
Wash 1:	3 mL deionized water
Wash 2:	3 mL MeOH
Elute:	3 mL 5 % NH_4OH in MeOH
Reconstitute:	Evaporate at 50 ^oC by N_2, reconstitute to 1 mL with MeOH:H_2O (20:80, V / V) solution

*12 mL reservoir **(Cat#4810)** and adaptor **(Cat#4803)** is available for large volume sample

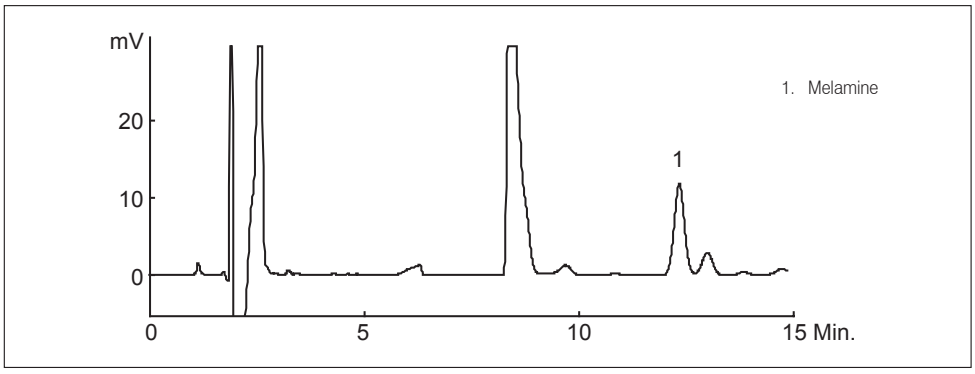
4. HPLC method

Column:	Inspire™ 5 μm C18, 150 x 4.6 mm **(Cat#81001)**
Mobile Phase :	Buffer:MeCN = 92:8
Flow Rate:	1.0 mL/min
Temperature:	30 ^oC
Detection:	UV 240 nm
Injection Volume:	20 μL

Buffer: dilute 2.02 g sodium 1-heptanesulfonate and 2.10 g citric acid with water to total volume 1,000 mL

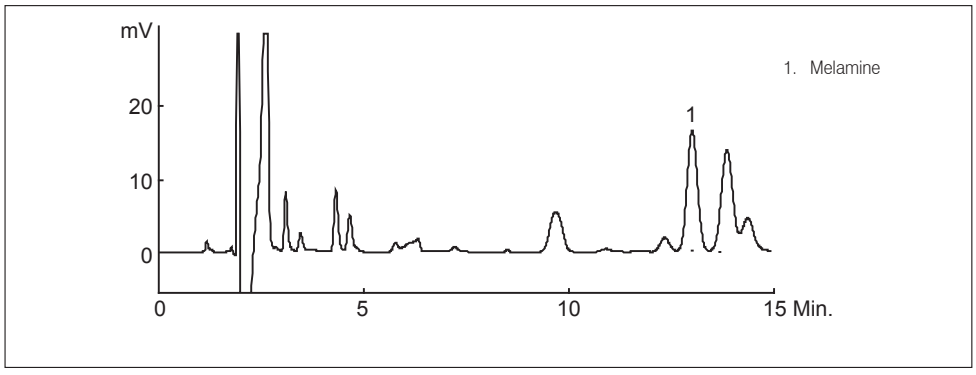
5. Recovery

5.1. Milk powder sample recovery



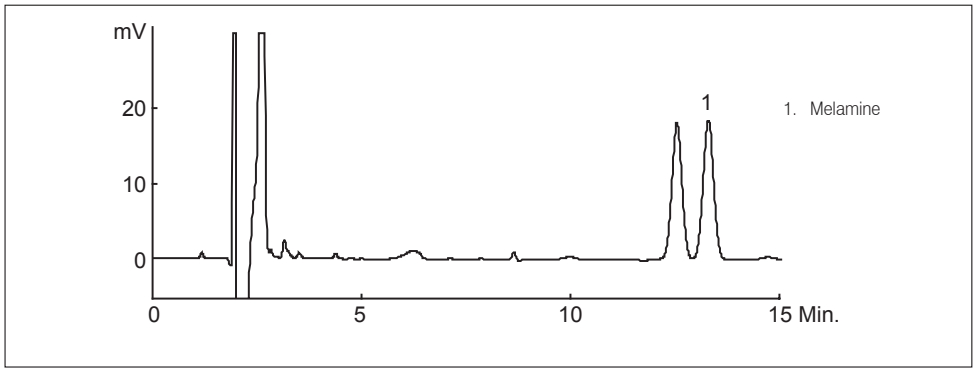
Chromatogram of milk powder extracts - spiked melamine in milk powder, 0.5 mg/kg

5.2. Cookies sample recovery



Chromatogram of cookies extracts - spiked melamine in cookies, 0.5 mg/kg, recovery: 85.9%

5.3. Cream candy sample recovery



Chromatogram of cream candy extracts - spiked melamine in cream candy, 0.5 mg/kg, recovery: 95.9%

Determination of Sulfonamides in Animal Tissue

1. Scope of application

Used for determination of sulfonamides in poultry, meat and aquatic product

2. Sample preparation

Weigh 5 g sample, add 5 g anhydrous sodium sulfate and 25 mL ethyl acetate, homogenize at 10,000 rpm for 2 min, centrifuge at 4,000 rpm for 2 min, collect ethyl acetate layer. Repeat 25 mL ethyl acetate extraction, combined ethyl acetate extracts, and vacuum distillation at 30 °C to near dry. Add 1 mL methanol, 2 mL 1% acetic acid and 3 mL *n*-hexane to the distillation flask, vortex for 1 min, then transfer to 15 mL centrifuge tube. Repeat the dissolution process, add mixture to the centrifuge tube, vortex for 1 min, centrifuge for 1 min at 4,000 rpm, discard the hexane. Add 6 mL *n*-hexane and repeat the operation. Finally, add 6 mL deionized water to the lower layer.

3. Sample purification

ProElut™ PLS 60 mg / 3mL **(Cat#68003)**

Condition:	3 mL MeOH / 3 mL H_2O
Load:	Add sample
Wash 1:	3 mL H_2O
Wash 2:	3 mL MeOH:H_2O = 5:95
Elute:	5 mL MeOH
Reconstitute:	Evaporate at 30 °C by N_2, reconstitute to 1 mL with mobile phase

4. HPLC method

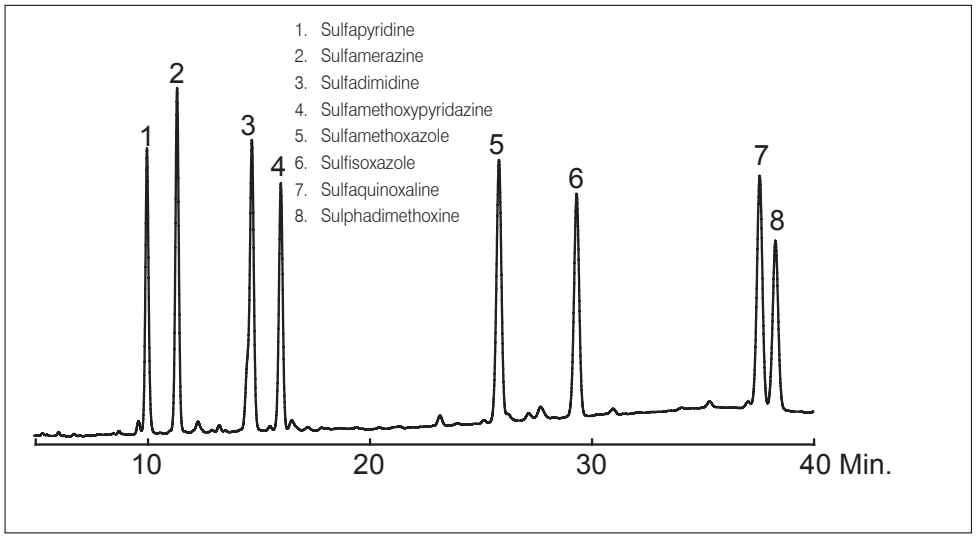
Column:	Inspire™ 5 μm C18, 250 x 4.6 mm **(Cat#81006)**
Mobile Phase:	A: MeCN, B: 2 % CH_3COOH in H_2O
Flow Rate:	1.0 mL/min
Temperature:	35 °C
Detection:	UV 270 nm
Injection Volume:	20 μL

Gradient:

Time / Min.	0	30	40	41	50
A(%)	12	25	25	12	12
B(%)	88	75	75	88	88

5. Recovery

Compounds	Spike Level (mg/kg)	Recovery (%)	RSD (%) (n = 4)
Sulfapyridine	0.1	79.8	5.5
	1.0	81.3	2.8
Sulfamerazine	0.1	89.5	6.4
	1.0	91.3	4.7
Sulfadimidine	0.1	94.3	5.2
	1.0	92.7	2.9
Sulfamethoxypyridazine	0.1	94.4	4.8
	1.0	91.8	3.8
Sulfamethoxazole	0.1	85.3	4.9
	1.0	84.1	3.6
Sulfisoxazole	0.1	93.7	6.4
	1.0	92.8	4.8
Sulfaquinoxaline	0.1	88.5	5.1
	1.0	86.2	3.9
Sulphadimethoxine	0.1	84.6	5.3
	1.0	82.9	3.2



Chromatogram of sulfonamides - spiked 8 sulfonamides in animal tissue (0.1 mg/kg)

Determination of Sulfonamides in Milk and Milk Powder

1. Scope of application

Used for determination of sulfonamides in milk and milk powder

2. Sample preparation

To 15 mL milk (or 3 g milk powder in 15 mL H_2O), add 15 mL acetonitrile, vortex for 2 min, centrifuge at 6,000 rpm for 5 min, transfer 20 mL supernatant to another centrifuge tube, and add 15 mL *n*-hexane, vortex for 2 min, centrifuge at 6,000 rpm for 2 min, then discard the *n*-hexane. Repeat 15 mL *n*-hexane extraction. Add 15 mL ethyl acetate to the lower layer, vortex for 2 min, centrifuge at 6,000 rpm for 2 min, and collect supernatant. Repeat 15 mL ethyl acetate extraction, and combine supernatants. Vacuum evaporate the ethyl acetate layer to near dry at 30 °C, reconstitute with 10 mL 2% phosphoric acid.

3. Sample purification

ProElut™ PXC 200 mg / 6 mL **(Cat#68212)**

Condition:	6 mL MeOH / 6 mL H_2O
Load:	Add sample
Wash 1:	6 mL H_2O
Wash 2:	6 mL MeOH
Elute:	6 mL MeOH (5 % NH_4OH)
Reconstitute:	Vacuum evaporation at 30 °C, reconstitute to 1 mL with mobile phase

4. HPLC method

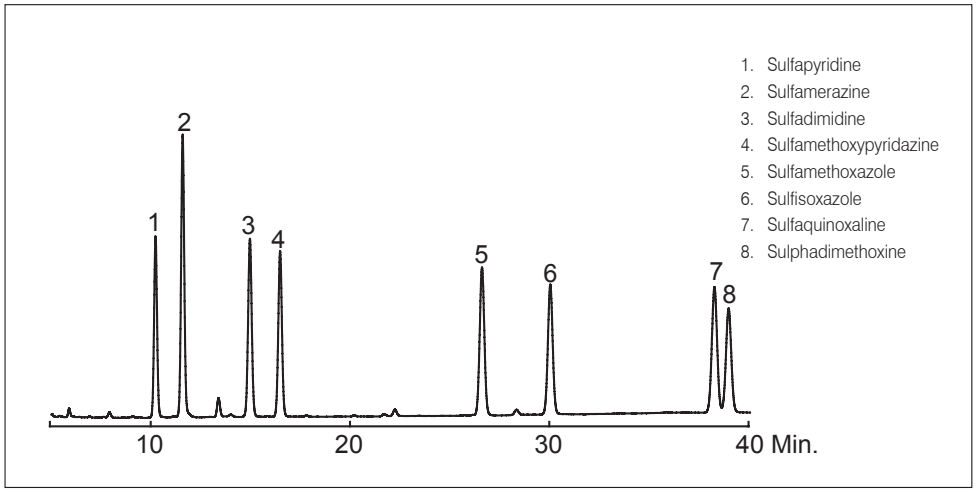
Column:	Inspire™ 5 μm C18, 250 x 4.6 mm **(Cat#81006)**
Mobile Phase:	A: MeCN, B: 2 % CH_3COOH in H_2O
Flow Rate:	1.0 mL/min
Temperature:	35 °C
Detection:	UV 270 nm
Injection Volume:	20 μL

Gradient:

Time / Min.	0	30	38	39	45
A(%)	12	25	25	12	12
B(%)	88	75	75	88	88

5. Recovery

Compounds	Spike Level (mg/kg)	Recovery (%)	RSD (%) (n = 4)
Sulfapyridine	0.1	78.4	4.1
	0.5	97.0	2.9
Sulfamerazine	0.1	82.3	4.6
	0.5	96.0	2.3
Sulfadimidine	0.1	83.5	4.8
	0.5	96.0	2.5
Sulfamethoxypyridazine	0.1	82.0	3.2
	0.5	98.0	2.3
Sulfamethoxazole	0.1	84.3	3.9
	0.5	101.5	2.5
Sulfisoxazole	0.1	75.4	3.4
	0.5	91.8	3.8
Sulfaquinoxaline	0.1	77.8	4.2
	0.5	96.2	3.1
Sulphadimethoxine	0.1	77.5	5.2
	0.5	97.0	2.6



Chromatogram of milk extracts - spiked 8 sulfonamides in milk (0.1 mg/kg)

Determination of β- Agonist Drugs in Animal Tissue

1. Scope of application

Used for determination of clenbuterol hydrochloride, salbutamol, cimaterol, and ractopamine hydrochloride in animal muscle and liver

2. Sample preparation

Weigh 5 g sample, add 15 mL ethyl acetate and 3 mL 10% sodium carbonate, homogenize at 10,000 rpm for 2 min, centrifuge at 6,000 rpm for 2 min, transfer the supernatant to the centrifuge tube, extract residues using 15 mL ethyl acetate, combine ethyl acetate layers. Add 5 mL 0.1 M hydrochloric acid to the ethyl acetate extract, vortex for 1 min, centrifuge for 1 min at 6,000 rpm, collect the lower aqueous phase. Repeat the extraction and combine lower aqueous phase, adjust to pH 5.2 with 2.5 mol/L sodium hydroxide.

3. Sample purification

ProElut™ PXC 60 mg / 3 mL **(Cat#68203)**

Condition:	3 mL MeOH / 3 mL H_2O / 3 mL 30 mM HCl
Load:	Add sample
Wash 1:	3 mL deionized water
Wash 2:	3 mL MeOH
Elute:	5 mL MeOH (4% NH_4OH), evaporate to near dry at 50 °C by N_2

4. Derivatization

Add 100 μL toluene and 100 μL *bis*-trimethylsilyl trifluoroacetamide (BSTFA), vortex for 20 sec, seal, heat for 1 h at 80 °C, add 300 μL of toluene after cooling as the sample solution.

5. GC-MS method

GC conditions

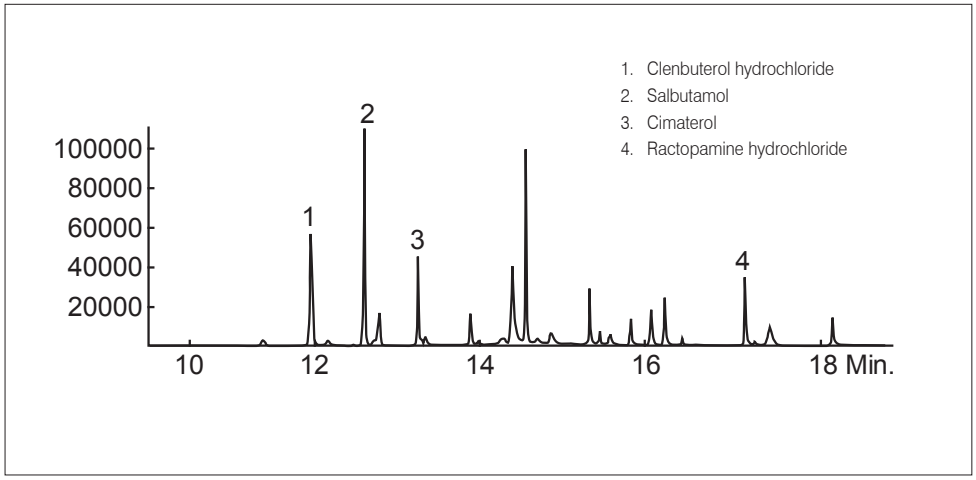
Column:	DM-5MS 30 m x 0.25 mm x 0.25 μm **(Cat#8221)**
Inlet Temperature:	220 °C
Injection Mode:	Splitless
Injection Volume:	1 μL
Temperature Program:	Heating to 70 °C in 0.6 min, then heating to 200 °C with 25 °C/min in 6 min, finally heating to 280 °C with 25 °C/min in 5 min
Carrier Gas:	He > 99.999%, flow rate: 0.9 mL/min

MS conditions

Interface Temperature:	280 °C
Solvent Delay:	8 min
EI Temperature:	230 °C
Quadrupole Temperature:	160 °C
Ion Monitoring:	Qualitative ion 86, 243, 262, 277, quantitative ion 86

5. Recovery

	Spike Level (μg/kg)					
	1.0		10.0		100	
Compounds	Recovery (%)	RSD (%) (n = 3)	Recovery (%)	RSD (%) (n = 3)	Recovery (%)	RSD (%) (n = 3)
Clenbuterol	75.37	5.93	83.21	5.39	90.05	2.86
Salbutamol	72.40	6.12	84.45	5.72	88.27	4.16
Cimaterol	76.73	4.90	85.95	4.68	91.15	3.86
Ractopamine	70.09	7.85	87.46	3.59	89.53	5.93



The total ion chromatogram (TIC) of pig liver extracts - spiked 4 β-agonist drugs in pig liver (0.1 mg/kg)

Determination of Benzopyrene Originating from Vegetable Oil

1. Scope of application

Used for determination of benzopyrene originating from vegetable oil

2. Sample preparation

Weigh 0.4 g sample, accurate to 0.001 g, dilute with 5 mL *n*-hexane.

3. Sample purification

ProElut™ BaP 22 g / 60 mL (Grade IV activity) **(Cat#65351)**

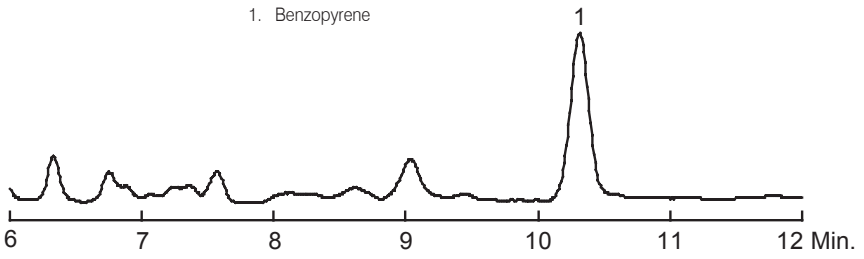
Condition:	30 mL *n*-hexane
Load:	Add sample
Elute:	50 mL *n*-hexane
Reconstitute:	Vacuum evaporation at 30 °C, reconstitute to 1 mL with MeCN:THF (9:1, V / V) solution

4. HPLC method

Column:	Inspire™ 5 μm C18, 250 x 4.6 mm **(Cat#81006)**
Mobile Phase:	MeCN:H_2O = 97:3
Flow Rate:	1.0 mL/min
Temperature:	30 °C
Detection:	FLD Ex: 384 nm, Em: 406 nm
Injection Volume:	5 μL

5. Recovery

Compounds	Spike Level (mg/kg)	Recovery (%)	RSD (%) (n = 4)
Benzopyrene	0.1	96.8	2.30
Benzopyrene	0.01	98.5	4.50



Chromatogram of vegetable oil extracts - spiked benzopyrene in vegetable oil (0.01 mg/kg)

Determination of Tetracyclines in Animal Tissue

1. Scope of application

Used for determination of oxytetracycline, tetracycline, chlortetracycline and doxycycline in animal tissue

2. Sample preparation

Weigh 5.0 g of homogenized sample, add 20 mL of McIlvaine buffer*, vortex 2 min, centrifuge at 4,000 rpm for 5 min, collect supernatant. Wash lower residue with 20 mL, and then 10 mL McIlvaine buffer. Repeat wash and combine extracts, and set the volume to 50 mL. Filter extract with fast filter paper, collect filtrate and take 10 mL as the sample solution.

*McIlvaine buffer: Disodium hydrogen phosphate ($Na_2HPO_4 \cdot 12H_2O$) 27.6 g, citric acid ($C_6H_8O_7 \cdot H_2O$) 12.9 g, EDTA disodium salt 37.2 g, dissolved in water and diluted to 1,000 mL.

3. Sample purification

ProElut™ PLS 60 mg / 3 mL **(Cat#68003)**

Condition:	3 mL MeOH / 3 mL H_2O
Load*:	10 mL sample
Wash 1:	3 mL H_2O
Wash 2:	3 mL 5 % MeOH in H_2O
Elute:	3 mL MeOH
Reconstitute:	Evaporate to near dry, reconstitute to 1 mL with mobile phase

*20 mL reservoir (Cat#4811) and adaptor (Cat#4803) is avilable for large volume sample

4. HPLC method

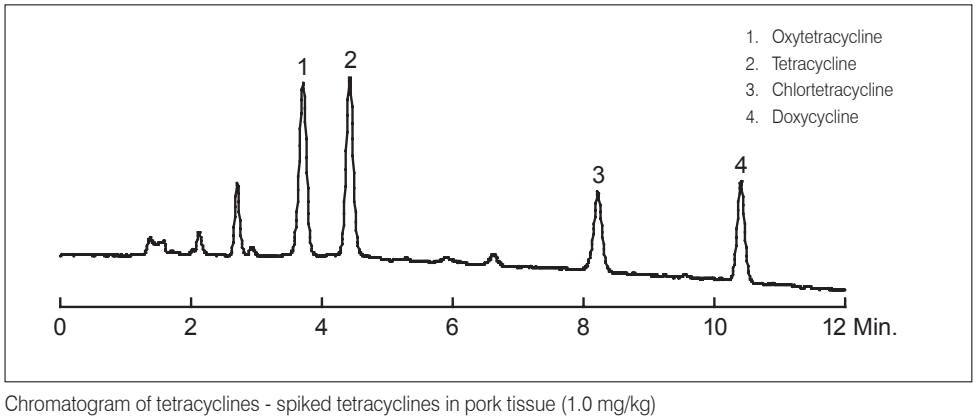
Column:	Spursil™ 5 μm C18, 150 x 4.6 mm **(Cat#82001)**
Mobile Phase:	A: 0.01 M Oxalic acid in H_2O, B: MeOH:MeCN = 1:1
Flow Rate:	1.0 mL/min
Temperature:	30 °C
Detection:	UV 365 nm
Injection Volume:	20 μL

Gradient:

Time / Min.	0	10	10.5	20
A(%)	70	50	70	70
B(%)	30	50	30	30

5. Recovery

Compounds	Spike Level (mg/kg)	Recovery (%)	RSD (%) (n = 3)
Oxytetracycline	0.2	95.31	2.80
	1.0	90.30	2.00
Tetracycline	0.2	83.17	0.54
	1.0	81.84	2.38
Chlortetracycline	0.2	102.70	2.75
	1.0	90.83	3.21
Doxycycline	0.2	83.16	3.12
	1.0	81.30	1.43



Chromatogram of tetracyclines - spiked tetracyclines in pork tissue (1.0 mg/kg)

Determination of Fungicides in Fruit Juice

1. Scope of application

Used for determination of carbendazim and thiabendazole in fruit juice

2. Sample preparation

2.1 Juice drinks and pure fruit juice

Start with 10 mL sample, adjust to pH 10 - 11 with 0.1 M NaOH, add 15 mL ethyl acetate, shake 1 min, centrifuge 1 min at 4,000 rpm, collect ethyl acetate layer. Repeat 15 mL ethyl acetate extraction, and combine organic phases, vacuum distillation at 30 ^{o}C to near dry. Dissolve residue with 0.1 M HCl (6 mL) twice.

2.2 Fruit juice concentrate

Start with 2 mL sample mixed with 8 mL H_2O, adjust to pH 10 - 11 with 0.1 M NaOH, and then follow the above steps.

3. Sample purification

ProElut™ PXC 60 mg / 3 mL **(Cat#68203)**

Condition:	3 mL MeOH / 3 mL H_2O
Load:	Adding sample
Wash:	3 mL H_2O / 3 mL MeOH
Elute:	3 mL MeOH (5 % NH_4OH)
Reconstitute:	Evaporate to near dry at 30 ^{o}C, reconstitute to 1 mL with mobile phase

4. HPLC method

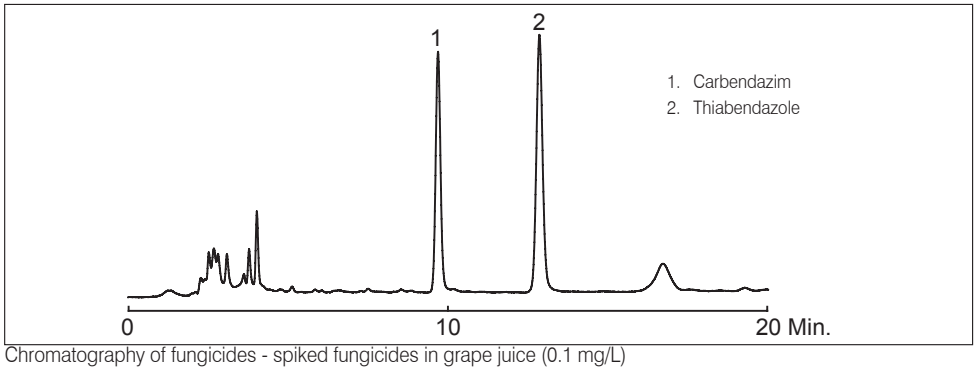
Column:	Inspire™ 5 μm C18, 250 x 4.6 mm **(Cat#81006)**
Mobile Phase:	Phosphate buffer:MeCN = 75:25
Flow Rate:	1.0 mL/min
Temperature:	30 ^{o}C
Detection:	UV 288 nm
Injection Volume:	20 μL

Phosphate buffer: 1.38 g sodium dihydrogen phosphate, 1.41 g disodium hydrogen phosphate, dissolve in 1,000 mL water

5. Recovery

5.1. Grape juice

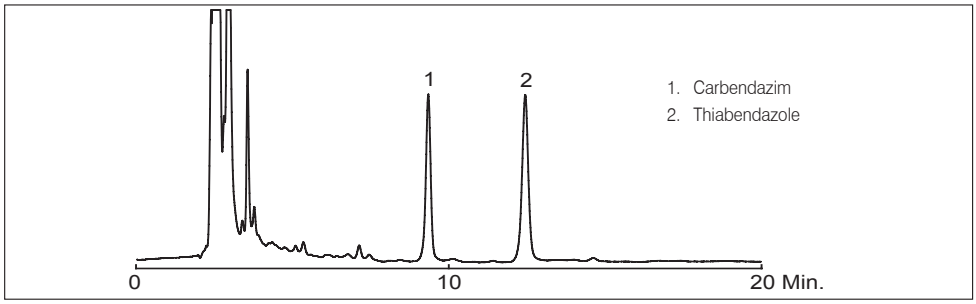
Compounds	Spike Level (mg/L)	Recovery (%)	RSD (%) (n = 3)
Carbendazim	0.1	87.0	8.0
	0.5	99.7	3.5
Thiabendazole	0.1	83.1	7.8
	0.5	102.6	3.8



Chromatography of fungicides - spiked fungicides in grape juice (0.1 mg/L)

5.2. Orange juice

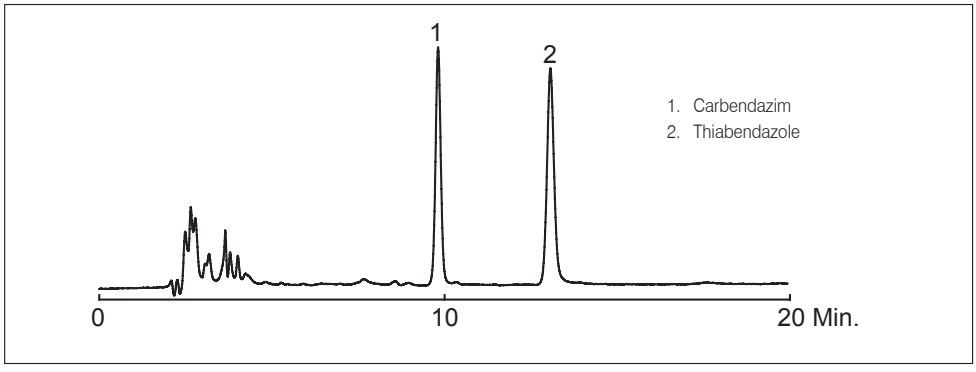
Compounds	Spike Level (mg/L)	Recovery (%)	RSD (%) (n = 3)
Carbendazim	0.1	100.4	2.6
	0.5	94.4	4.5
Thiabendazole	0.1	98.1	3.1
	0.5	98.3	1.9



Chromatography of fungicides - spike fungicides in orange juice (0.1 mg/L)

5.3. Peach juice

Compounds	Spike Level (mg/L)	Recovery (%)	RSD (%) (n = 3)
Carbendazim	0.1	89.9	2.4
	0.5	92.3	5.5
Thiabendazole	0.1	90.0	1.6
	0.5	92.6	2.9



Chromatography of fungicides - spike fungicides in peach juice (0.5 mg/L)

Determination of Tetracyclines in Milk and Dairy Products

1. Scope of application

Used for determination of oxytetracycline, tetracycline, chlortetracycline and doxycycline in milk and dairy products

2. Sample preparation

Dilute milk sample (20 mL) or 2 g solid dairy product with 20 mL H_2O, add 20 mL McIlvaine buffer*, vortex for 2 min, centrifuge at 4,000 rpm for 10 min, take 20 mL supernatant as the sample solution.

*McIlvaine buffer: Disodium hydrogen phosphate ($Na_2HPO_4 \cdot 12H_2O$) 27 g, citric acid ($C_6H_8O_7 \cdot H_2O$) 12 g, EDTA disodium salt 37.2 g, dissolved in water and diluted to 1,000 mL.

3. Sample purification

ProElut™ PLS 150 mg / 6 mL **(Cat#68004)**

Condition:	6 mL MeOH / 6 mL H_2O
Load*:	20 mL sample
Wash 1:	6 mL H_2O
Wash 2:	6 mL 10 % MeOH in H_2O
Elute:	6 mL MeOH
Reconstitute:	Evaporate to near dry at 40 °C, reconstitute to 1 mL with mobile phase

*20 mL reservoir (Cat#4811) and adaptor (Cat#4803) is avilable for large volume sample

4. HPLC method

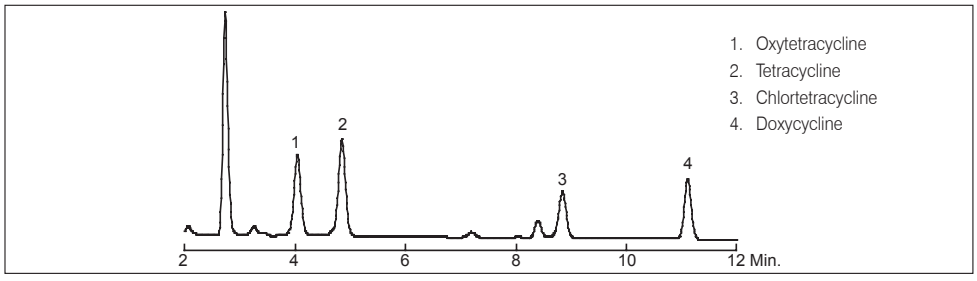
Column:	Spursil™ 5 μm C18, 150 x 4.6 mm **(Cat#82001)**
Mobile Phase:	A: 0.01 M Oxalic acid in H_2O, B: MeOH:MeCN = 1:1
Flow Rate:	1.0 mL/min
Temperature:	30 °C
Detection:	UV 365 nm
Injection Volume:	20 μL

Gradient:

Time / Min.	0	10	10.5	20
A(%)	70	50	70	70
B(%)	30	50	30	30

5. Recovery

Compounds	Spike Level (mg/kg)	Recovery (%)	RSD (%) (n = 3)
Oxytetracycline	0.1	88.17	4.01
	0.5	83.95	2.35
Tetracycline	0.1	89.46	0.69
	0.5	90.06	3.68
Chlortetracycline	0.1	96.54	2.92
	0.5	100.86	0.69
Doxycycline	0.1	90.48	0.99
	0.5	88.26	0.81



Chromatogram of tetracyclines - spiked tetracyclines in milk (0.1 mg/kg)

Determination of Phenols in Water

1. Scope of application

Used for determination of phenols in natural water, drinking water

2. Sample preparation

100 mL sample, adjust to pH 2 with H_3PO_4

3. Sample purification

ProElut™ PLS 60 mg / 3 mL **(Cat#68003)**

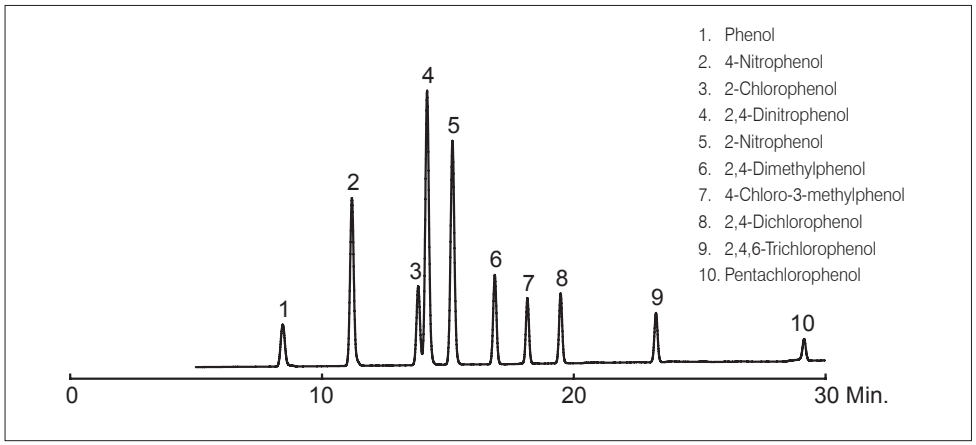
Condition:	3 mL MeOH:MTBE = 10:90 / 3 mL MeOH / 3 mL H_2O
Load:	100 mL sample, flow rate ≤ 5 mL/min
Wash:	3 mL H_2O
Elute:	3 mL MeOH:MTBE = 10:90
Reconstitute:	Evaporate at 40 °C by N_2, reconstitute to 1 mL with MeCN:H_2O (50:50, V / V) solution

4. HPLC method

Column:	Inspire™ 5 μm C18, 150 x 4.6 mm **(Cat#81001)**
Mobile Phase:	A: 1% CH_3COOH in H_2O, B: 1% CH_3COOH in MeCN
Flow Rate:	1.0 mL/min
Temperature:	Ambient
Detection:	UV 280 nm
Injection Volume:	20 μL

Gradient:

Time / Min.	0	25	30	35	37
A(%)	80	30	0	0	80
B(%)	20	70	100	100	20



Determination of Phthalate Esters (PAEs) in Water

1. Scope of application

Used for determination of dimethyl phthalate (DMP), diethyl phthalate (DEP), dipropyl phthalate (DPrP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP), diamyl phthalate (DPP), dicyclohexyl phthalate (DCHP), di-*n*-hexyl phthalate (DHP), and di-(2-ethylhexyl)phthalate (DEHP) in natural water and drinking water.

2. Sample purification

ProElut™ PLS GLASS 200 mg / 6 mL **(Cat#68012G)**

Condition:	6 mL methyl *tert*-butyl ether / 6 mL MeOH / 6 mL H_2O
Load:	Up to 500 mL sample, flow rate ≤15 mL/min
Wash:	3 mL 5 % MeOH / H_2O
Elute:	3 mL MeOH / 6 mL methyl *tert*-butyl ether
Reconstitute:	Evaporate to near dry at 30 °C, reconstitute to 1 mL with acetonitrile

3. HPLC method

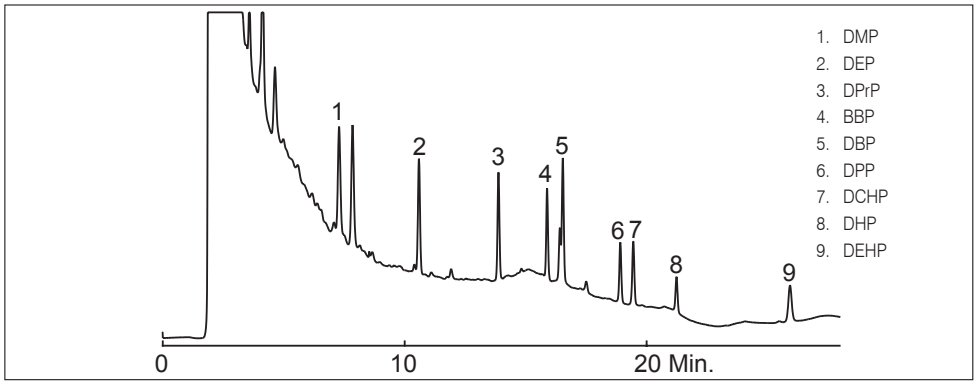
Column:	Inspire™ 5 μm C18, 250 x 4.6 mm **(Cat#81006)**
Mobile Phase:	A: H_2O, B: MeCN
Flow Rate:	1.0 mL/min
Temperature:	30 °C
Detection:	UV 230 nm
Injection Volume:	20 μL

Gradient:

Time / Min.	0	10	15	23	24	33
A(%)	50	10	0	0	50	50
B(%)	50	90	100	100	50	50

4. Recovery

Compounds	Spike Level (μg/L)	Recovery (%)	RSD (%) (n = 3)
DMP	2	110.3	5.6
	10	90.9	3.8
DEP	2	99.4	2.9
	10	88.9	1.3
DPrP	2	98.7	1.5
	10	89.1	1.0
BBP	2	82.6	1.5
	10	76.3	3.0
DBP	2	98.4	1.6
	10	97.1	2.2
DPP	2	74.7	6.4
	10	68.3	5.6
DCHP	2	82.8	1.7
	10	76.2	5.8
DHP	2	70.4	3.0
	10	69.3	3.8
DEHP	2	74.3	1.9
	10	71.9	2.5



Chromatography of PAEs - spiked PAEs in water (2 μg/L)

Determination of Tetracyclines in Serum

1. Scope of application

Used for determination oxytetracycline, tetracycline and chlortetracycline in human and animal serum

2. Sample preparation

2 mL serum, add 40 μL H_3PO_4

3. Sample purification

ProElut™ PLS 60 mg / 3 mL **(Cat#68003)**

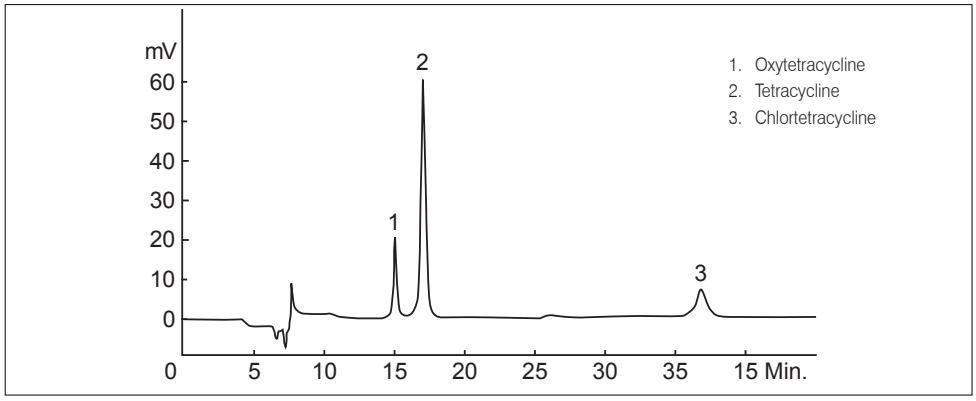
Condition:	3 mL MeOH / 3 mL H_2O
Load:	2 mL sample
Wash:	3 mL 5 % MeOH in H_2O
Elute:	3 mL MeOH
Reconstitute:	Evaporate to near dry at 30 ^oC, reconstitute to 1 mL with mobile phase

4. HPLC method

Column:	Inspire™ 5 μm C18, 250 x 4.6 mm **(Cat#81006)**
Mobile Phase:	MeOH:MeCN:10 mM oxalic acid in H_2O = 15:15:70
Flow Rate:	1.0 mL/min
Temperature:	30 ^oC
Detection:	UV 365 nm
Injection Volume:	20 μL

5. Recovery

Compounds	Spike Level (mg/L)	Recovery (%)	RSD (%) (n = 3)
Oxytetracycline	0.5	92.6	2.1
	2.0	95.8	0.5
Tetracycline	0.5	97.3	2.4
	2.0	95.8	0.8
Chlortetracycline	0.5	102.70	3.1
	2.0	97.3	1.4



Chromatogram of tetracyclines - spiked tetracyclines in serum (0.5 mg/L)

Determination of Migration of Bisphenol A (BPA) from Plastic Baby Bottles

1. Scope of application

Used for determination of migration of bisphenol A (BPA) from plastic baby bottles

2. Sample purification

Wash bottles, dry completely. Add distilled water so that each 8 m^2 of plastic contact area corresponds to 10 mL of simulant immersion. Sealed with aluminum foil, place in oven at 100 ^{o}C for 1 h. Cool to room temperature, then transfer to glass bottles, and seal until detection.

3. Sample purification

ProElut™ PLS GLASS 200 mg / 6 mL **(Cat#68012G)**

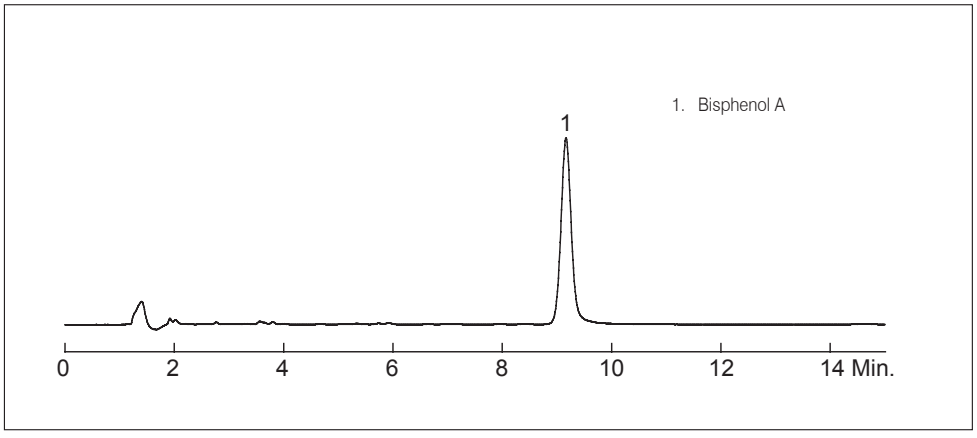
Condition:	6 mL MeOH / 6 mL H_2O
Load:	Adding sample
Wash:	6 mL 5 % MeOH in H_2O
Elute:	6 mL MeOH
Reconstitute:	Evaporate to near dry at 40 ^{o}C, reconstitute to 1 mL with mobile phase

4. HPLC method

Column:	Inspire™ 5 μm C18, 250 x 4.6 mm **(Cat#81006)**
Mobile Phase:	MeCN:2% CH_3COOH in H_2O = 40:60
Flow Rate:	1.0 mL/min
Temperature:	30 ^{o}C
Detection:	FLD Ex: 227 nm, Em: 313 nm
Injection Volume:	20 μL

5. Recovery

Compounds	Spike Level (μg/L)	Recovery (%)	RSD (%) (n = 3)
Bisphenol A	0.4	94.54	5.1
	1.6	97.30	3.7



Chromatography of bisphenol A - immersion concentration (0.4 μg/L)