

Gas Chromatograph Series Columns

GC Columns Guidebook

SS Column Series
for System GC Application



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Column Selection Guide

No.	Family	Applications	Name	I.D. (mm)	Length (m)	Film thickness (µm)	Max Temp. (*)
1	PLOT Alumina	C1-C10 Hydrocarbons	SS-Alumina-KCL	0.25-0.53	10-50	4-10	200/200 °C
			SS-Alumina-Na ₂ SO ₄	0.25-0.53	25-50	4-10	200/200 °C
			SS-Alumina-MAPD	0.32-0.53	25-50	-	200/200 °C
2	PLOT MS5	Inorganic gases	SS-PLOT-MS5A	0.25-0.53	10-50	10-50	350/350 °C
3	PLOT Q	Volatile Organic Solvents, Hydrocarbons	SS-PLOT-Q-Bond	0.25-0.53	10-50	3-10	300/320 °C
			SS-PLOT-Q	0.25-0.53	10-50	8-20	250/250 °C
4	PLOT U	C1-C9 hydrocarbons, ketones, solvents, C2 isomer	SS-PLOT-U-Bond	0.32	25	7	300/300 °C
			SS-PLOT-U	0.25-0.53	10-25	8-20	190/190 °C
5	PLOT S	Hydrocarbons, Ketones, C3 isomer	SS-PLOT-S	0.53	25	20	250/250 °C
6	PLOT Silica	C1-C4 hydrocarbons	SS-PLOT-Silica	0.32-0.53	15-60	4-6	225/225 °C
7	PLOT Carbon	Inorganic Gases, C1-C2 hydrocarbons	SS-PLOT-Carbon	0.53	25-50	5-10	200/300 °C
8	PLOT Oxygenates	Oxygenates	SS-Oxygenates	0.53	10	10	350/350 °C
9	Ammonia	Ammonia	SS-Ammonia	0.53	3	-	300/300 °C
10	Amine	Volatile Amines, Ammonia	SS-PLOT-Amine	0.32-0.53	25	10-20	220/220 °C
		C1-C10 amine	SS-Amine	0.32	15-60	-	265/300 °C
11	Sulfur	Sulfurs	SS-PLOT-Sulfur	0.32	60	-	185/185 °C
		Sulfurs	SS-Sulfur	0.32	30	4	300/325 °C
12	PONA	PONA	SS-PONA	0.21-0.25	50-150	0.5-1.0	250/275 °C
13	SimDist	SIM-DIST	SS-SimDist	0.32-0.53	5-10	0.1-3.0	375/400 °C
14	WAX	Low boiling point analytes	SS-WAX	0.1-0.53	10-60	0.1-5.0	250/265 °C
			SS-WAX-MS	0.1-0.53	10-60	0.1-2.0	250/265 °C
15	FFAP	Free fatty acid (C2-C24)	SS-FFAP	0.15-0.53	10-50	0.25-1.0	250/270 °C
16	Formaldehyde	Formaldehyde	SS-Formaldehyde	0.32	60	8	300/325 °C
17	Alcohols	Alcohols	SS-Alcohol	0.25	50	0.4	135/140 °C

(*) isothermal / temp. program

Cross Reference

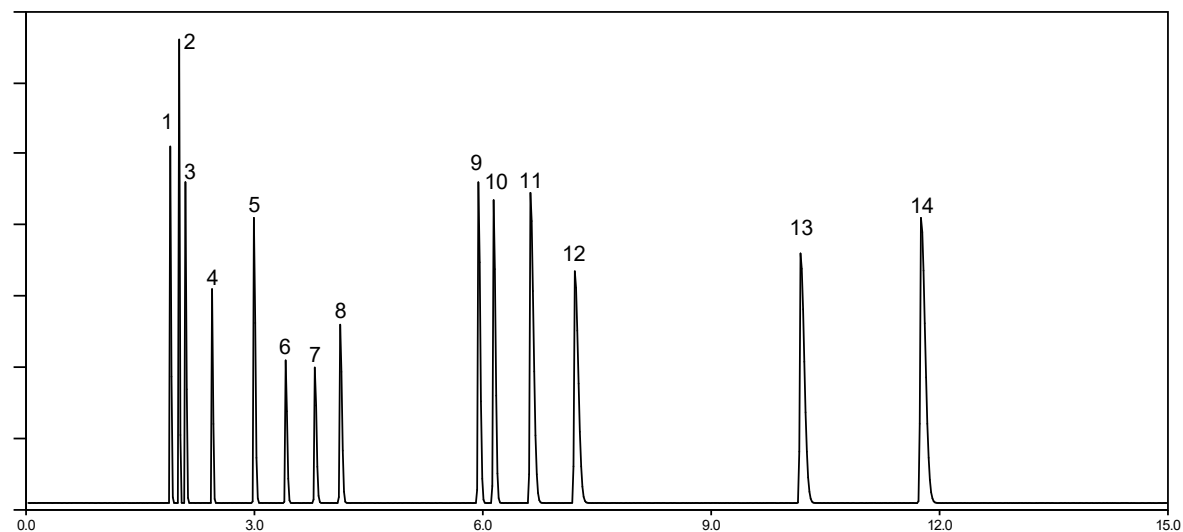
Family	Shimadzu Column Name	Stationary (Liquid) Phase	Similar Phase
PLOT Alumina	SS-Alumina-KCL	Aluminum Oxide KCL treatment	Rt-Alumina BOND/KCL, SH-Alumina BOND/KCL, CP-Al ₂ O ₃ /KCL, GS-Alumina KCL
	SS-Alumina-Na ₂ SO ₄	Aluminum Oxide Na ₂ SO ₄ treatment	Rt-Alumina BOND/Na ₂ SO ₄ , SH-Alumina BOND/Na ₂ SO ₄ , CP-Al ₂ O ₃ /Na ₂ SO ₄
	SS-Alumina-MAPD	Aluminum Oxide	Rt-Alumina BOND/MAPD, TC-BOND Alumina/MAPD, SH-Alumina BOND/MAPD, Select Al ₂ O ₃ MAPD
PLOT MS5A	SS-PLOT-MS5A	Molecular Sieve 5A	Rt-Msieve 5A, HP-PLOT Molesieve, TC-Molsieve 5A, CP-Molesieve 5Å
PLOT Q	SS-PLOT-Q-Bond	Styrene-divinylbenzene polymer	Rt-Q-BOND, TC-BOND Q, CP-PoraBOND Q, HP-PLOT Q
	SS-PLOT-Q	Styrene-divinylbenzene polymer	Rt-Q-BOND, TC-BOND Q, CP-PoraBOND Q, HP-PLOT Q
PLOT U	SS-PLOT-U-Bond	Divinylbenzene ethyleneglycol dimethylacrylate copolymer	Rt-U-BOND, TC-BOND U, CP-PoraPLOT U, CP-PoraBOND U, HP-PLOT U
	SS-PLOT-U	Divinylbenzene ethyleneglycol dimethylacrylate copolymer	Rt-U-BOND, TC-BOND U, CP-PoraPLOT U, CP-PoraBOND U, HP-PLOT U
PLOT S	SS-PLOT-S	Divinylbenzene-4-vinylpyridine copolymer	Rt-S-BOND PLOT, TC-BOND S, CP-PoraPLOT S
PLOT Silica	SS-PLOT-Silica	Silica	Rt-Silica BOND, CP-SilicaPLOT, GS-GasPro
PLOT Carbon	SS-PLOT-Carbon	Charcoal	GS-CarbonPLOT, CP-CarboBOND
PLOT Oxygenate	SS-Oxygenate	(Proprietary)	GS-OxyPLOT, CP-Lowox
Ammonia	SS-Ammonia	(Proprietary)	Select Low Ammonia
Amine	SS-PLOT-Amine	Modified styrene-divinylbenzene copolymer	CP-PoraPLOT Amines
	SS-Amine	Basic modified dimethylpolysiloxane	Rtx-5 Amine, CP-Volamine, InertCap for Amines
Sulfur	SS-PLOT-Sulfur	(Proprietary)	Select Low Sulfur
	SS-Sulfur	Modified dimethylpolysiloxane	Rtx-5, HP-5, DB-5, ZB-5, CP-Sil 5 CB for Sulfur
PONA	SS-PONA	Dimethylpolysiloxane	Rtx-1 PONA Cap, CP-Sil PONA CB, HP-PONA
SimDist	SS-SimDist	Dimethyl Polysiloxane	ZB-1XT SimDist, CP-SimDist, Zebron
WAX	SS-WAX	Polyethyleneglycol	Rtx-WAX, ZB-WAX, ZB-WAXPlus, CP-WAX 52 CB, Supelcowax 10, Stabilwax, BP-20, 007-CW
	SS-WAX-MS	Polyethyleneglycol	Stabilwax-MS, VF-WAXms
FFAP	SS-FFAP	Polyethylene glycol nitro-terephthalate	ZB-FFAP, InertCap FFAP, CP-FFAP CB, DB-FFAP
Formaldehyde	SS-Formaldehyde	Dimethylpolysiloxane	Rtx-5, HP-5, DB-5, ZB-5, CP-Sil 5 CB for Formaldehyde
Alcohol	SS-Alcohol	TCEP (1,2,3-tris [2-cyanoethoxy] propane)	Rt-TCEP, SPB-TCEP, CP-TCEP, CP-TCEP for Alcohols in Gasoline

SS-Alumina-KCL

SS-Alumina-KCL has strong heat resistance, so, it can be used up to 200 °C and is capable of hydrocarbon analysis up to C10. In addition, it has excellent stability and minimizes the retention time fluctuation due to moisture. It shows high selectivity for C1 to C5 hydrocarbons at ppm level. Since the alumina oxide adsorbent is fixed to the inner wall of the column, there is no need to worry about particle exfoliation. A column with a particle trap column (SS-Alumina-KCL-PT) is recommended when connected to MS detector. SS-Alumina-KCL-UMetal uses inactivated metal capillary that are resistant to physical impact, making the column easier to handle than fused silica capillary column.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-Alumina-KCL	S226-80808-01	0.25	25	4.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL	S226-80808-02	0.25	50	4.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL	S226-80808-03	0.32	10	5.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL	S226-80808-04	0.32	50	5.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL-PT	S226-80808-34	0.32	50	5.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL	S226-80808-05	0.32	25	5.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL	S226-80808-06	0.53	25	10.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL	S226-80808-07	0.53	50	10.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL-PT	S226-80808-37	0.53	50	10.00	200/200 °C	Aluminum Oxide KCL treatment
SS-Alumina-KCL-UMetal	S226-80809-01	0.53	50	10.00	200/200 °C	Aluminum Oxide KCL treatment

Analysis of C1 – C4 hydrocarbons



Analytical Conditions

Column : SS-Alumina-KCL, 0.53 mm ID × 50 m

Carrier Gas : H₂ (34.5 kPa)

Column Temp. : 100 °C

Injector : Split

Detector : FID

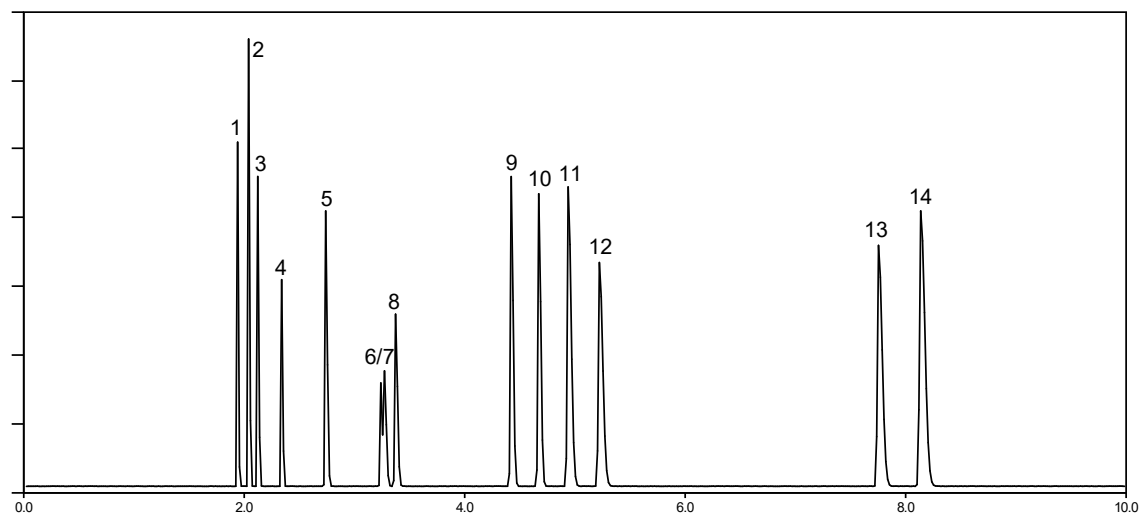
Peak : 1. Methane	8. Butane
2. Ethane	9. trans-2-Butene
3. Ethylene	10. 1-Butene
4. Propane	11. iso-Butene
5. Propylene	12. cis-2-Butene
6. Acetylene	13. Methylacetylene
7. Propadiene	14. 1,3-Butadiene

SS-Alumina-Na₂SO₄

Because SS-Alumina-Na₂SO₄ is more hydrophobic than SS-Alumina-KCL, it has a stronger retention of unsaturated hydrocarbons such as ethylene and acetylene. This column has strong heat resistance, so it can be used up to 200 °C, and can perform hydrocarbon analysis up to C10. In addition, it has excellent stability and minimizes the retention time fluctuation due to moisture. It shows high selectivity for C1 to C5 hydrocarbons at ppm level. Since the alumina oxide adsorbent is fixed to the inner wall of the column, there is no need to worry about particle exfoliation. A column with a particle trap column (SS-Alumina-Na₂SO₄-PT) is recommended when connected to MS detector. SS-Alumina-Na₂SO₄-UMetal uses inactivated metal capillary and is resistant to physical impact, making it easier to handle columns than fused silica capillary column.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-Alumina-Na ₂ SO ₄	S226-80810-01	0.25	25	4.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment
SS-Alumina-Na ₂ SO ₄	S226-80810-02	0.25	50	4.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment
SS-Alumina-Na ₂ SO ₄	S226-80810-03	0.32	50	5.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment
SS-Alumina-Na ₂ SO ₄ -PT	S226-80810-33	0.32	50	5.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment
SS-Alumina-Na ₂ SO ₄	S226-80810-04	0.53	25	10.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment
SS-Alumina-Na ₂ SO ₄	S226-80810-05	0.53	50	10.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment
SS-Alumina-Na ₂ SO ₄ -PT	S226-80810-35	0.53	50	10.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment
SS-Alumina-Na ₂ SO ₄ -UMetal	S226-80811-01	0.53	50	10.00	200/200 °C	Aluminum Oxide Na ₂ SO ₄ treatment

Analysis of C1 – C4 hydrocarbons



Analytical Conditions

Column : SS-Alumina-Na₂SO₄, 0.53 mm ID × 50 m

Carrier Gas : H₂ (29.7 kPa)

Column Temp. : 130 °C

Injector : Split

Detector : FID

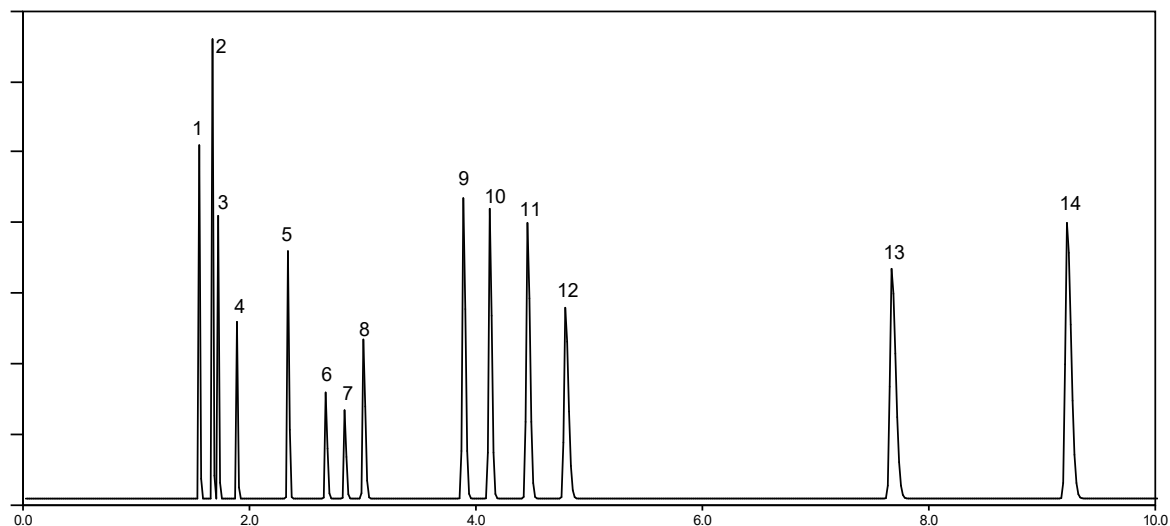
Peak : 1. Methane	8. Butane
2. Ethane	9. trans-2-Butene
3. Ethylene	10. 1-Butene
4. Propane	11. iso-Butene
5. Propylene	12. cis-2-Butene
6. Acetylene	13. 1,3-Butadiene
7. Propadiene	14. Methylacetylene

SS-Alumina-MAPD

SS-Alumina-MAPD is an alumina column focused specifically on the separation of the peaks from methylacetylene to propadiene (MAPD). This column has strong heat resistance, so it can be used up to 200 °C and can perform hydrocarbon analysis up to C10. In addition, it has excellent stability and minimizes the retention time fluctuation due to moisture. It shows high selectivity for C1 to C5 hydrocarbons at ppm level. Since the alumina oxide adsorbent is fixed to the inner wall of the column, there is no need to worry about particle exfoliation.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-Alumina-MAPD	S226-80807-01	0.32	50	-	200/200 °C	Aluminum Oxide
SS-Alumina-MAPD	S226-80807-02	0.53	25	-	200/200 °C	Aluminum Oxide
SS-Alumina-MAPD	S226-80807-03	0.53	50	-	200/200 °C	Aluminum Oxide

Analysis of C1 – C4 hydrocarbons



Analytical Conditions

Column : SS-Alumina-MAPD, 0.32 mm ID × 50 m

Carrier Gas : H₂ (95 kPa)

Temp. Program : 80 °C – 10 °C/min – 200 °C

Injector : Split

Detector : FID

Peak : 1. Methane

2. Ethane

3. Ethylene

4. Propane

5. Propylene

6. Butane

7. Propadiene

8. Acetylene

9. trans-2-Butene

10. Butane

11. iso-Butene

12. cis-2-Butene

13. 1,3-Butadiene

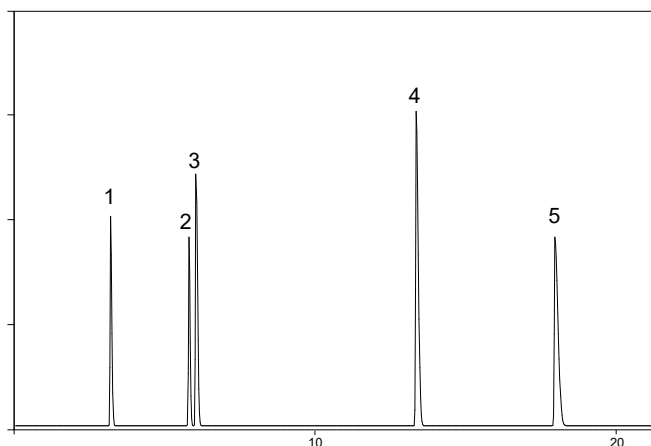
14. Methylacetylene

SS-PLOT-MS5A

SS-PLOT-MS5A is a dedicated column for inorganic gas analysis. In conventional molecular sieve columns, the carbon monoxide (CO) peak is strongly retained due to adsorption and tailing is observed. In this column, the CO peak elutes quickly and the peak symmetry is very good. Good separation of argon and oxygen can be achieved even at room temperature. Since it is coated with molecular sieves, there is almost no particle exfoliation. When connected to an MS detector, a column with a particle trap column (SS-PLOT-MS5A-PT) is recommended. SS-PLOT-MS5A-UMetal uses inactivated metal capillary that are resistant to physical impact, making the column easier to handle than fused silica capillary column.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-PLOT-MS5A	S226-80813-01	0.25	25	30.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-02	0.32	10	30.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-03	0.32	25	30.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A-PT	S226-80813-33	0.32	25	30.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-04	0.32	30	10.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A-PT	S226-80813-34	0.32	30	10.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-05	0.32	50	50.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-06	0.53	10	50.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-07	0.53	15	15.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-08	0.53	25	50.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A-PT	S226-80813-38	0.53	25	50.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-09	0.53	30	15.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A	S226-80813-10	0.53	50	50.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A-PT	S226-80813-40	0.53	50	50.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A-UMetal	S226-80812-01	0.53	10	50.00	350/350 °C	Molecular Sieve 5A
SS-PLOT-MS5A-UMetal	S226-80812-02	0.53	25	50.00	350/350 °C	Molecular Sieve 5A

Analysis of inorganic gases



Analytical Conditions

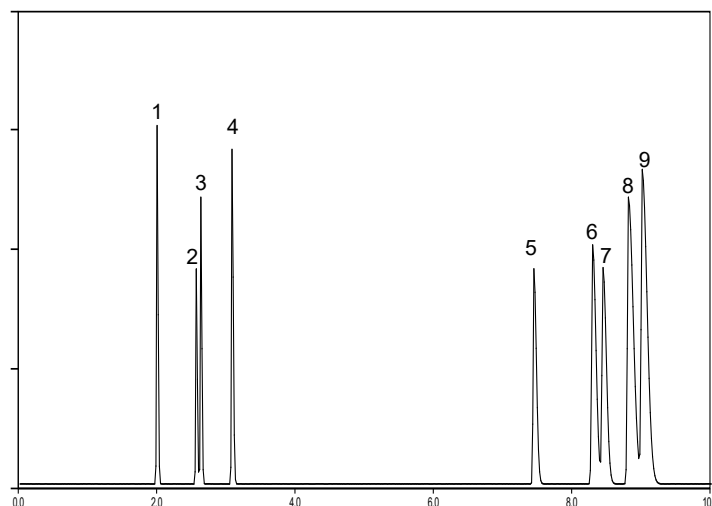
Column : SS-PLOT-MS5A, 0.53 mm ID × 50 m
 Carrier Gas : H₂ (55 kPa)
 Column Temp. : 30 °C
 Injector : Split
 Detector : TCD
 Peak : 1. Helium
 2. Argon
 3. oxygen
 4. Nitrogen
 5. Methane

SS-PLOT-Q-Bond

SS-PLOT-Q-Bond is a widely used column for the analysis of hydrocarbons and volatile organic solvents. Since a porous polymer (styrene divinylbenzene) is chemically bonded to the column, elution of polymer particles can be minimized. In addition, due to the high heat resistance of the polymer particles, it can be used at 320 °C and the polymer particles do not decompose. Furthermore, since the particle shape does not change due to water, the analysis of samples containing a large amount of water is also stable. A column with a particle trap column (SS-PLOT-Q-Bond-PT) is recommended when connected to an MS detector.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-PLOT-Q-Bond	S226-80815-01	0.25	10	3.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond	S226-80815-02	0.25	25	3.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond-PT	S226-80815-32	0.25	25	3.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond	S226-80815-03	0.32	10	5.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond	S226-80815-04	0.32	25	5.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond-PT	S226-80815-34	0.32	25	5.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond	S226-80815-05	0.32	50	5.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond-PT	S226-80815-35	0.32	50	5.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond	S226-80815-06	0.53	10	10.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond-PT	S226-80815-36	0.53	10	10.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond	S226-80815-07	0.53	25	10.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond-PT	S226-80815-37	0.53	25	10.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-Bond	S226-80815-08	0.53	50	10.00	190/190 °C	Styrene-divinylbenzene polymer

Analysis of short chain hydrocarbons



Analytical Conditions

Column : SS-PLOT-Q-Bond, 0.53 mm ID × 50 m
 Carrier Gas : He (20 kPa)
 Column Temp. : 60 °C
 Injector : Split
 Detector : FID
 Peak : 1. Methane
 2. Acetylene
 3. Ethylene
 4. Ethane
 5. Propylene
 6. Propadiene
 7. Methylacetylene
 8. Propane
 9. Cyclopropane

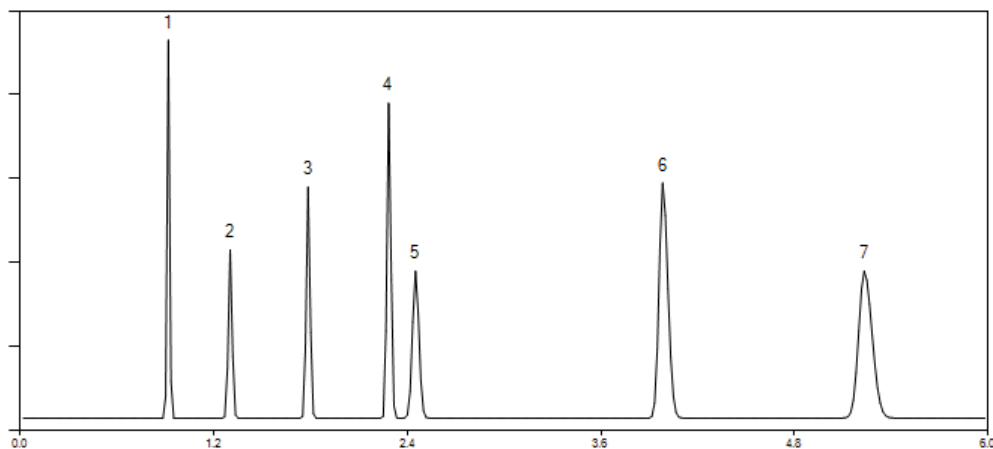
SS-PLOT-Q

SS-PLOT-Q is a widely used column for the analysis of hydrocarbons and volatile organic solvents. It can analyze non-polar hydrocarbons and permanent gases as well as highly polar volatile compounds such as hydrocarbons C1 to C6, ketones, organic solvents, alcohols, free fatty acids, halogen compounds, and sulfides. Water can also be injected into the columns, and good retention time reproducibility can be obtained. SS-PLOT-Q-UMetal uses deactivated metal capillaries that are resistant to physical impact, making the column easier to handle than fused silica capillaries.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-PLOT-Q	S226-80830-01	0.25	10	8.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q	S226-80830-02	0.25	25	8.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q	S226-80830-03	0.32	10	10.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q	S226-80830-04	0.32	25	10.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q	S226-80830-05	0.32	50	10.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q	S226-80830-06	0.53	10	20.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q	S226-80830-07	0.53	25	20.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q	S226-80830-08	0.53	50	20.00	250/250 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-UMetal	S226-80814-01	0.53	10	20.00	300/320 °C	Styrene-divinylbenzene polymer
SS-PLOT-Q-UMetal	S226-80814-02	0.53	25	20.00	300/320 °C	Styrene-divinylbenzene polymer

(2.5 m particle trap column is included as a standard)

Analysis of short chain hydrocarbons and Oxygenates



Analytical Conditions

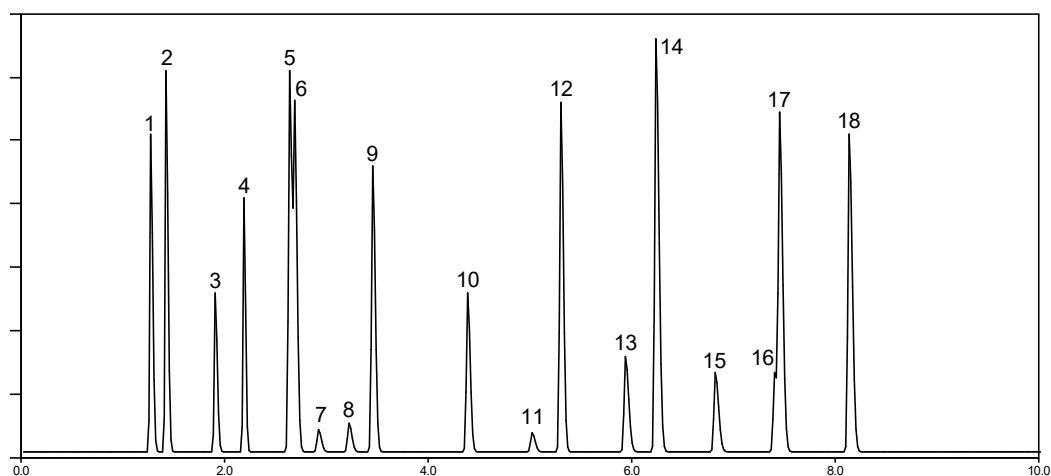
Column : SS-PLOT-Q, 0.53 mm ID × 10 m (2.5 m PT)
 Carrier Gas : H₂ (9.7 kPa)
 Column Temp. : 150 °C
 Injector : Split
 Detector : FID
 Peak : 1. Methanol
 2. Ethanol
 3. Acetone
 4. Diethyl ether
 5. n-Pentane
 6. Propadiene
 7. Ethyl acetate
 8. n-Hexane

SS-PLOT-U-Bond

SS-PLOT-U-Bond is a PLOT column in which a highly polar polymer is chemically bonded to the inner wall of the column. It was developed for the analysis of highly polar volatile compounds. The chemically bonded PLOT column not only eliminates the risk of particle exfoliation, but also extends the maximum operating temperature to 300 °C, enabling hydrocarbon analysis up to C9. Bleeding at high temperatures can also be minimized, enabling stable and highly sensitive analysis.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (µm)	Max Temp.	Stationary Phase
SS-PLOT-U-Bond	S226-80817-01	0.32	25	7.00	300/300 °C	Divinylbenzene ethyleneglycol dimethylacrylate copolymer

Analysis of hydrocarbons and organic solvents



Analytical Conditions

Column : SS-PLOT-U-Bond, 0.32 mm ID x 25 m

Carrier Gas : He (50 kPa)

Temp. Program : 100 °C – 10 °C/min – 200 °C

Injector : Split

Detector : FID

Peak : 1. Methane	11. iso-Pentane
2. Ethane+Ethylene	12. Pentane
3. Propane	13. 2-Propanol
4. Methyl Chloride	14. Acetone
5. Methanol	15. 1-Propanol
6. Vinyl Chloride	16. tert-Butanol
7. iso-Butane	17. Vinyl Acetate
8. Butane	18. Ethyl Acetate
9. Acetaldehyde	
10. Ethanol	

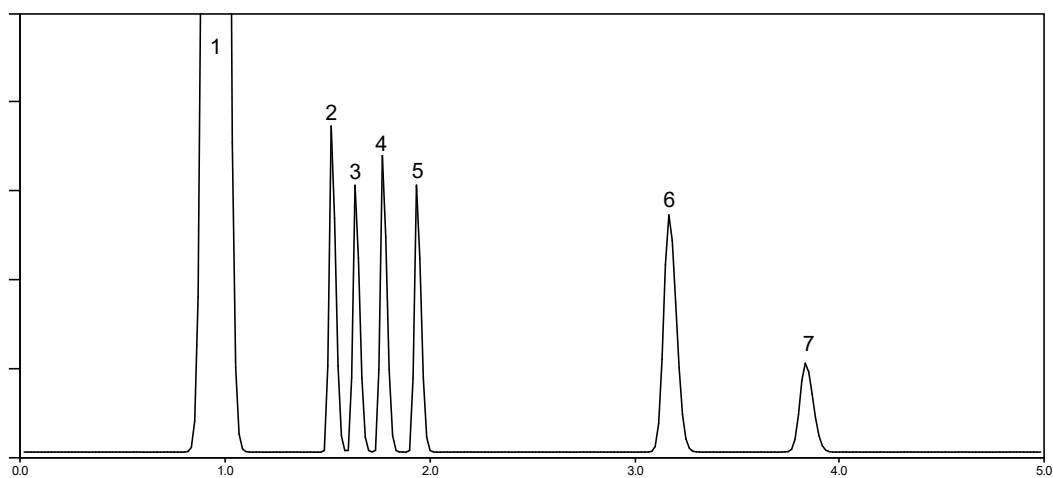
SS-PLOT-U

SS-PLOT-U is the most polar PLOT column and can be used for the analysis of polar compounds such as alcohols, ketones and halogens, organic solvents and non-polar compounds such as hydrocarbons up to C6 (especially C2 isomer analysis). Since it is hardly affected by moisture, the repeatability of the retention time is improved even for samples with high moisture content. Also, the peak of water itself can be obtained sharply, so it can be quantified.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp. °C	Stationary Phase
SS-PLOT-U	S226-80816-01	0.25	25	8.00	190/190 °C	Divinylbenzene ethyleneglycol dimethylacrylate copolymer
SS-PLOT-U	S226-80816-02	0.32	10	10.00	190/190 °C	Divinylbenzene ethyleneglycol dimethylacrylate copolymer
SS-PLOT-U	S226-80816-03	0.32	25	10.00	190/190 °C	Divinylbenzene ethyleneglycol dimethylacrylate copolymer
SS-PLOT-U	S226-80816-04	0.53	10	20.00	190/190 °C	Divinylbenzene ethyleneglycol dimethylacrylate copolymer
SS-PLOT-U	S226-80816-05	0.53	25	20.00	190/190 °C	Divinylbenzene ethyleneglycol dimethylacrylate copolymer

(2.5 m particle trap column is included as a standard)

Analysis of alcohol, ketone, hydrocarbons mixture



Analytical Conditions

Column : SS-PLOT-U, 0.53 mm ID × 10 m + Particle Trap (2.5 m)
 Carrier Gas : H₂ (9.7 kPa)
 Column Temp. : 150 °C
 Injector : Split
 Detector : FID
 Peak : 1. Methanol
 2. Ethanol
 3. n-Pentane
 4. Diethyl ether
 5. Aceone
 6. n-Hexane
 7. Ethyl acetate

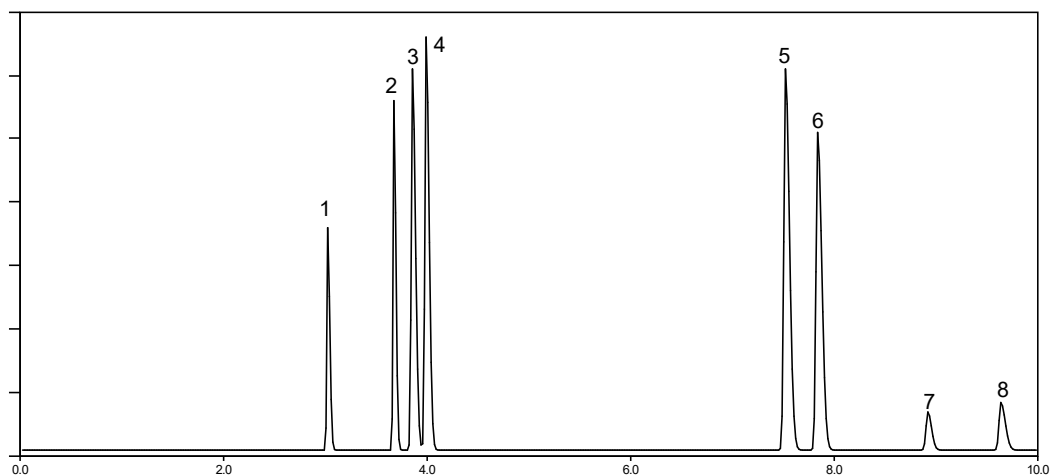
SS-PLOT-S

SS-PLOT-S is a medium polar column using divinylbenzene-4-vinylpyridine polymer as an adsorbent. This column is suitable for C2-C3 hydrocarbon analysis and is excellent for C3 isomer analysis. In addition, it can be used up to 250 °C, making it suitable for the analysis of medium-polarity volatile compounds.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-PLOT-S	S226-80818-01	0.53	25	20.00	250/250 °C	Divinylbenzene-4-vinylpyridine copolymer

(2.5 m particle trap column is included as a standard)

Analysis of hydrocarbons



Analytical Conditions

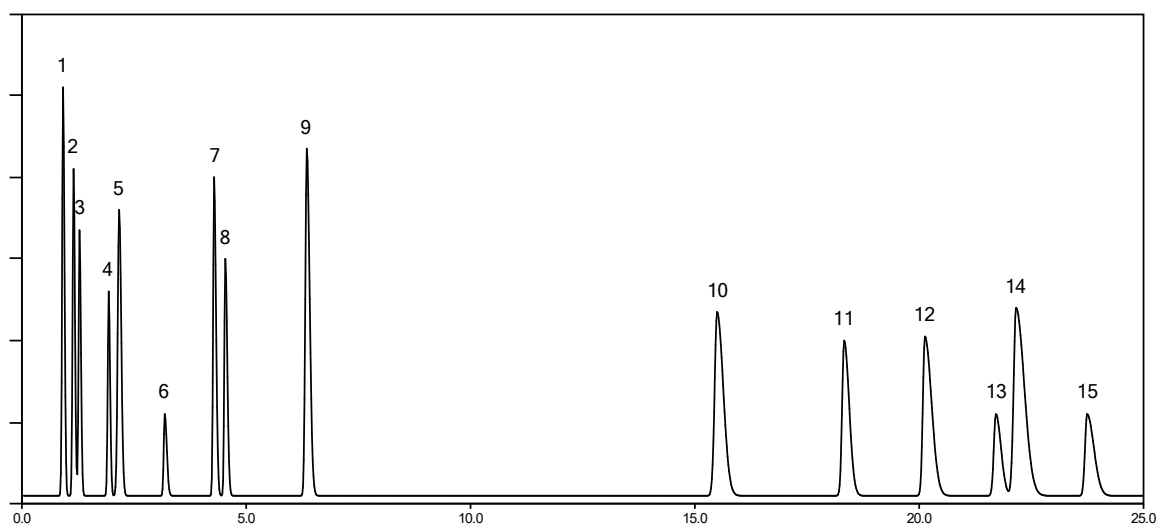
Column : SS-PLOT-S, 0.53 mm ID × 25 m
Carrier Gas : H₂ (30 kPa)
Column Temp. : 80 °C
Injector : Split
Detector : FID
Peak : 1. Methane
 2. Ethylene
 3. Acetylene
 4. Ethane
 5. Propylene
 6. Propane
 7. Propadiene
 8. Propyne

SS-PLOT-Silica

SS-PLOT-Silica is used for isomer analysis of hydrocarbons up to C₄. In addition, since there is almost no effect of retention time due to moisture, it can be used stably even with sample gas containing a lot of moisture. In addition, sulfur gases such as H₂S and COS can be also separated at the ppm level.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-PLOT-Silica	S226-80819-01	0.32	15	4	225/225 °C	Silica
SS-PLOT-Silica	S226-80819-02	0.32	30	4	225/225 °C	Silica
SS-PLOT-Silica	S226-80819-03	0.32	60	4	225/225 °C	Silica
SS-PLOT-Silica	S226-80819-04	0.53	30	6	225/225 °C	Silica
SS-PLOT-Silica	S226-80819-05	0.53	60	6	225/225 °C	Silica
SS-PLOT-Silica	S226-80819-06	0.53	15	4	225/225 °C	Silica

Analysis of hydrocarbons



Analytical Conditions

Column : SS-PLOT-Silica, 0.53 mm ID × 30 m

Carrier Gas : He (150 kPa)

Column Temp. : 60 °C

Injector : Split

Detector : FID

Peak : 1. Methane
2. Ethane
3. Ethylene
4. Acetylene
5. Propane
6. Cyclopropane
7. Propylene
8. Isobutane

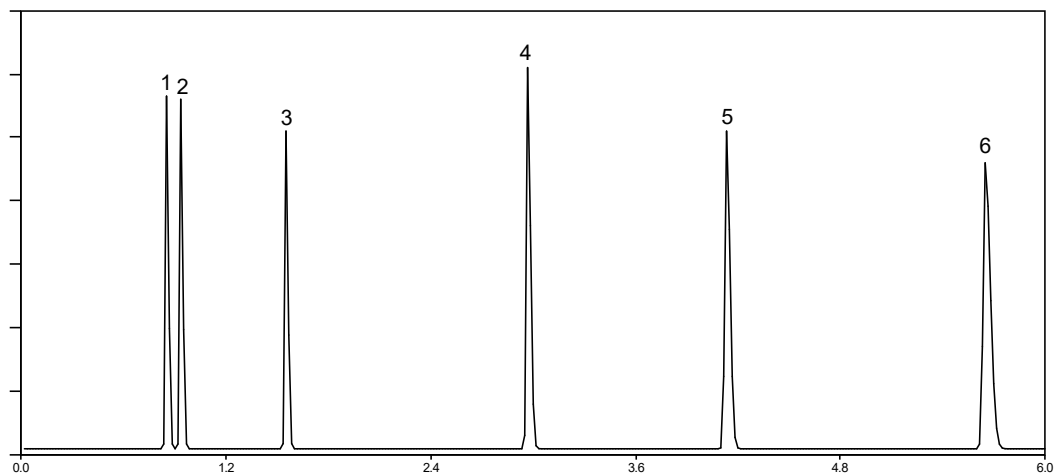
9. Butane
10. 1-Butene
11. Methylacetylene
12. 1,3-Butadiene
13. trans-2-Butene
14. Isobutene
15. cis-2-Butene

SS-PLOT-Carbon

SS-PLOT-Carbon is an ideal column for the analysis of hydrocarbons in ethylene, (He, Xe, Ne, O₂/Ar, N₂, CO, CH₄, CO₂) in ethylene and propylene. The maximum operating temperature of SS-PLOT-Carbon has been extended to 300 °C. Therefore, high-boiling compounds can be eluted in a short time. Since it is not affected by water, the repeatability of the retention time is excellent.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-PLOT-Carbon	S226-80820-01	0.53	25	5.00	200/300 °C	Charcoal
SS-PLOT-Carbon	S226-80820-02	0.53	25	10.00	200/300 °C	Charcoal
SS-PLOT-Carbon	S226-80820-03	0.53	50	5.00	200/300 °C	Charcoal
SS-PLOT-Carbon	S226-80820-04	0.53	50	10.00	200/300 °C	Charcoal

Analysis of CO/CO₂ and C1, C2



Analytical Conditions

Column : SS-PLOT-Carbon, 0.53 mm ID x 50 m
Carrier Gas : H₂ (60 kPa)
Temp. Program : 35 °C (7 min) – 30 °C/min – 180 °C
Injector : Split
Detector : FID with Jetanizer
Peak : 1. Carbon Monoxide
2. Methane
3. Carbon Dioxide
4. Acetylene
5. Ethylene
6. Ethane

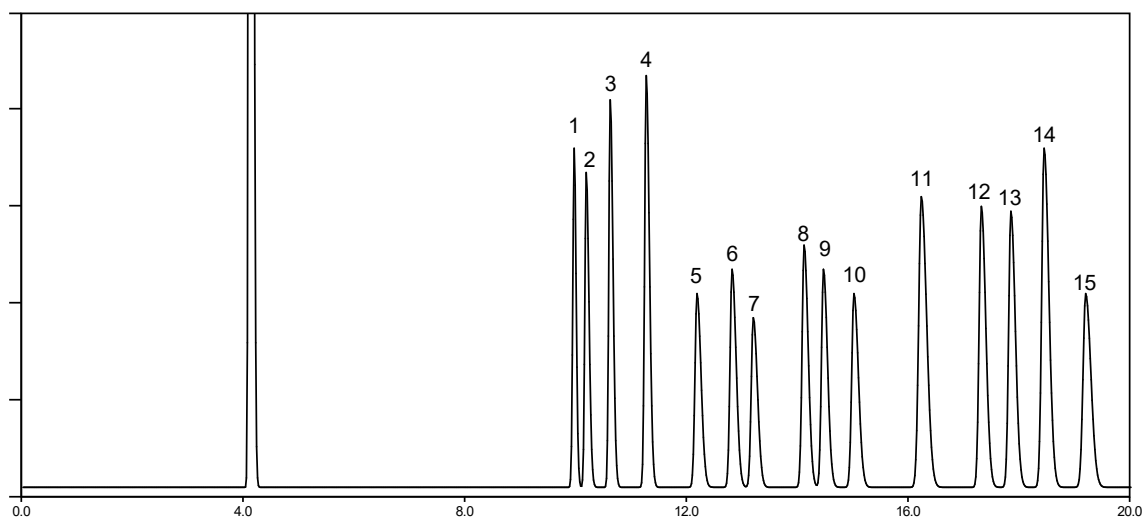
SS-Oxygenate

SS-Oxygenates is a highly polar column developed for oxygenates. Compatible with ASTM D7423, this column is ideal for the analysis of trace amounts of oxygenates. Since particle exfoliation is suppressed as much as possible, it can be used stably for a long time.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μ m)	Max Temp.	Stationary Phase
SS-Oxygenate	S226-80823-01	0.53	10	10.00	350/350 °C	(Proprietary)

(2.5 m particle trap column is included as a standard)

Analysis of Oxygenates



Analytical Conditions

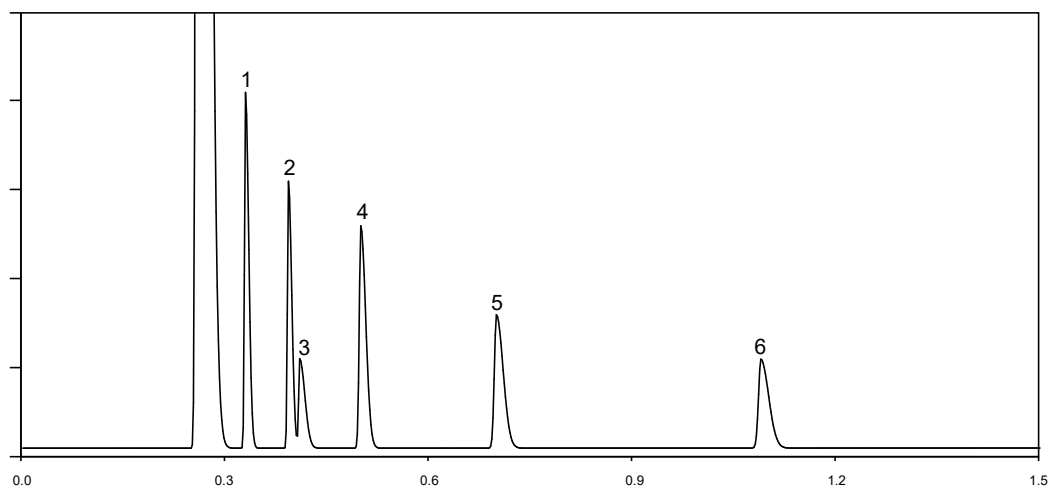
Column : SS-Oxygenate, 0.53 mm ID $\times$ 10 m (10 μ m) + SH-1, 0.53 mm ID $\times$ 30 m (1 μ m) as a pre-column
 Carrier Gas : He
 Temp. Program : 50 °C (5 min) – 10 °C/min – 240 °C (5 min)
 Injector : 200 °C, Split (1:1)
 Detector : FID (300 °C)
 Peak : 1. ETBE
 2. DIPE
 3. TAME
 4. MSBE
 5. Isobutyraldehyde
 6. Butyraldehyde
 7. Methanol
 8. Isovaleraldehyde
 9. Valeraldehyde
 10. Ethanol
 11. i-Propanol, n-Propanol, 1-Propanol, 2-Propanol
 12. i-Butanol, 2-Butanol, tert-Butyl alcohol, Sec-Butanol
 13. n-Butanol
 14. t-Petanol
 15. DME

SS-Ammonia

SS-Ammonia is a column developed for the analysis of ammonia in light hydrocarbons. Since ammonia is eluted after undecane, it is an ideal column for ammonia analysis in C2-C4. Due to the sufficient inert treatment, even a low concentration of ammonia can be analyzed with high sensitivity without adsorption.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μ m)	Max Temp.	Stationary Phase
SS-Ammonia	S226-80828-01	0.53	3	-	300/300 °C	(Proprietary)

Analysis of Ammonia and hydrocarbons



Analytical Conditions

Column : SS-Ammonia, 0.53 mm ID x 3 m
Carrier Gas : H₂ (5 mL/min)
Column Temp. : 175 °C
Injector : 250 °C, Split
Detector : TCD (250 °C)
Peak : 1. n-Decane
2. n-Undecane
3. Ammonia
4. n-Dodecane
5. n-Tridecane
6. n-Tetradecane

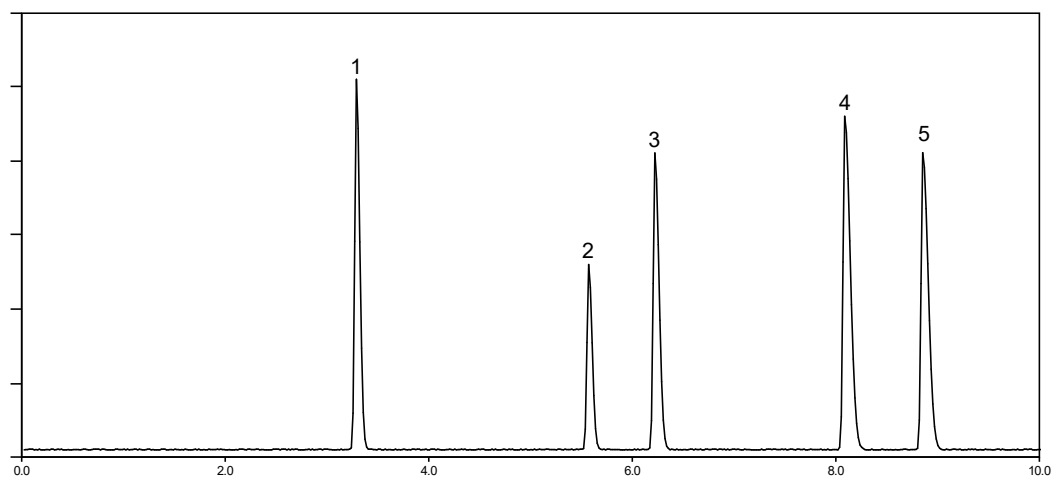
SS-PLOT-Amine

SS-PLOT-Amine is a PLOT column originally developed for the analysis of highly volatile amines. By modifying a portion of the styrene-divinylbenzene polymer used as a packing material, it was possible to analyze trace amounts of amines and ammonia by reducing adsorption and tailing. In case of non-volatile amine analysis, an SS-Amine column is recommendable.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-PLOT-Amine	S226-80822-01	0.32	25	10.00	220/220 °C	Modified styrene-divinylbenzene copolymer
SS-PLOT-Amine	S226-80822-02	0.53	25	20.00	220/220 °C	Modified styrene-divinylbenzene copolymer

(2.5 m particle trap column is included as a standard)

Analysis of amines



Analytical Conditions

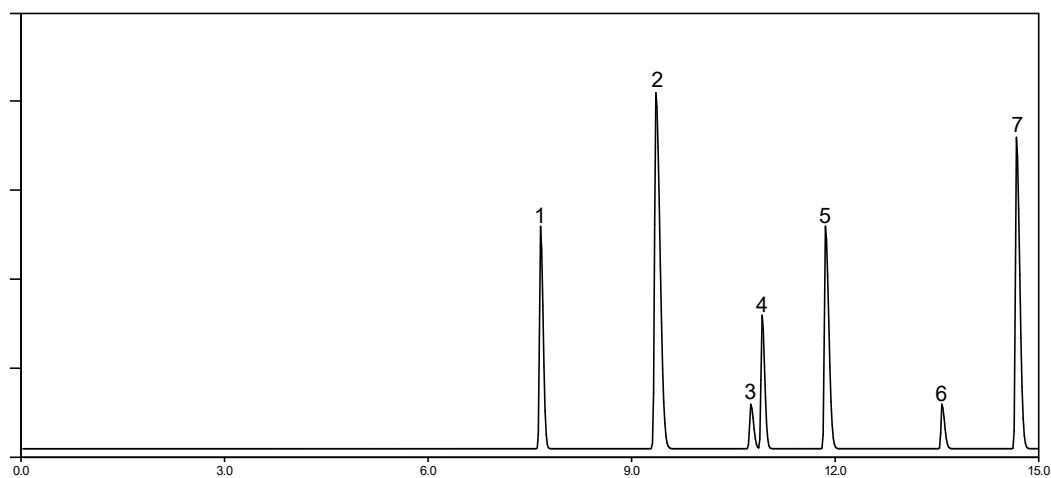
Column : SS-PLOT-Amin, 0.32 mm ID × 25 m (10 μm)
 Carrier Gas : He
 Temp. Program : 100 °C (3 min) – 80 °C/min – 200 °C (5 min)
 Injector : Split
 Detector : TCD
 Peak : 1. Ammonia
 2. Dimethyl ether
 3. Monomethylamine
 4. Dimethylamine
 5. Trimethylamine

SS-Amine

SS-Amine is a column developed for the analysis of volatile amines. This column is coated with a nonpolar stationary phase, and has high water resistance and excellent peak symmetry. The volatile amine can be analyzed stably even in the analysis of the sample containing much water. It is suitable for analysis of monomethylamine, dimethylamine and trimethylamine volatile amines and up to C10 amines.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μ m)	Max Temp.	Stationary Phase
SS-Amine	S226-80821-01	0.32	15	-	265/300 °C	Basic modified dimethylpolysiloxane
SS-Amine	S226-80821-02	0.32	30	-	265/300 °C	Basic modified dimethylpolysiloxane
SS-Amine	S226-80821-03	0.32	60	-	265/300 °C	Basic modified dimethylpolysiloxane

Analysis of Amines



Analytical Conditions

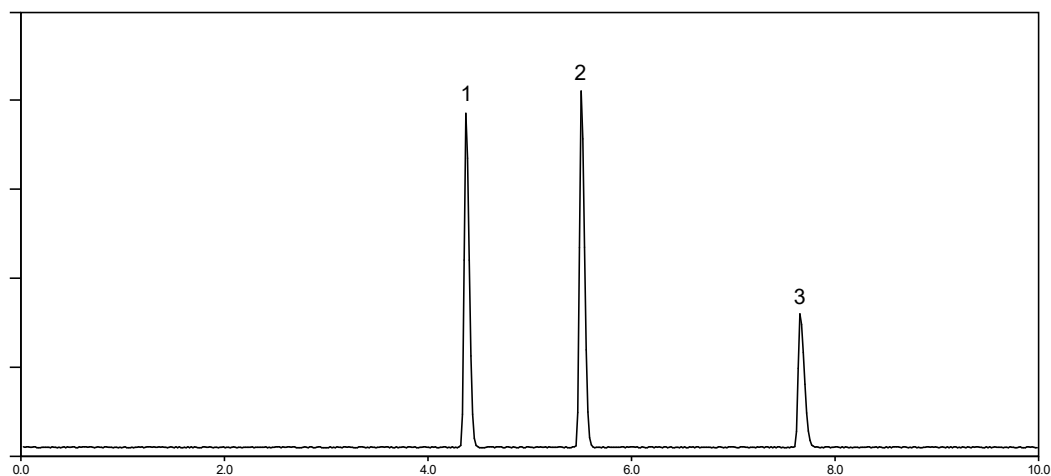
Column : SS-Amine, 0.32 mm ID x 60 m
 Carrier Gas : He (68 kPa)
 Temp. Program : 40 °C (10 min) – 20 °C/min – 250 °C
 Injector : 40 °C, Split (1:50)
 Detector : TCD
 Peak : 1. Ammonia
 2. Water
 3. Monomethylamine
 4. Diethylether
 5. Methanol
 6. Dimethylamine
 7. Trimethylamine

SS-PLOT-Sulfur

SS-PLOT-Sulfur is a PLOT column developed for the analysis of trace sulfur compounds in ethylene and propylene. Since porous siloxane polymer is used as the stationary phase, there is no particle exfoliation, and sufficient inert treatment suppresses adsorption of trace sulfur components and peak tailing, so it can be used stably for a long time. In case of high boiling point sulfur analysis, an SS-Sulfur column is recommendable.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μ m)	Max Temp.	Stationary Phase
SS-PLOT-Sulfur	S226-80826-01	0.32	60	-	185/185 °C	(Proprietary)

Analysis of H₂S, COS and CH₃SH



Analytical Conditions

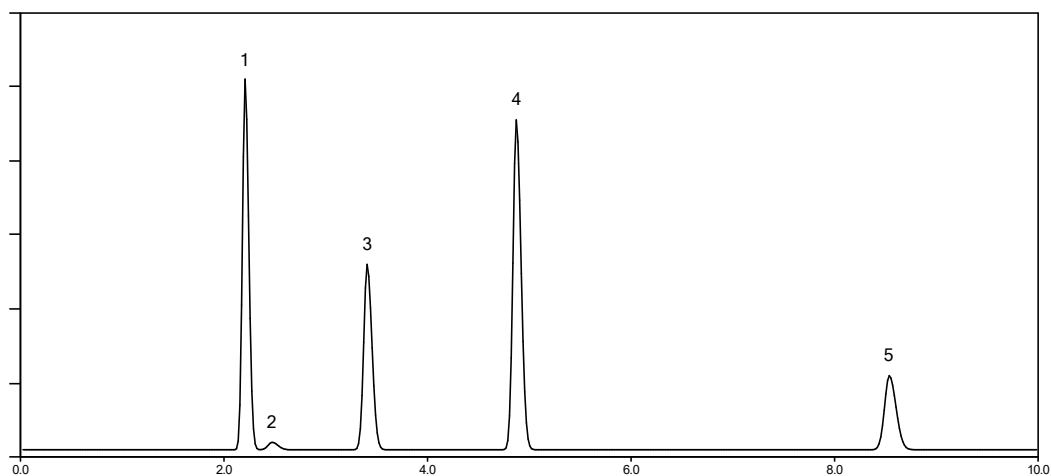
Column : SS-PLOT-Sulfur, 0.32 mm ID × 60 m
Carrier Gas : He
Flow Rate : 2.0 mL/min (constant flow rate)
Column Temp. : 65 °C
Injector : 200 °C, Split (1:20)
Detector : FPD (200 °C)
Peak : 1. H₂S
 2. COS
 3. CH₃SH

SS-Sulfur

SS-Sulfur is a non-polar column developed for the analysis of volatile sulfur compounds. With sufficient inert treatment, it is possible to analyze SO₂ as well as sulfur compounds up to C7 mercaptan.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-Sulfur	S226-80827-01	0.32	30	4.00	300/325 °C	Modified dimethylpolysiloxane

Analysis of Sulfurs



Analytical Conditions

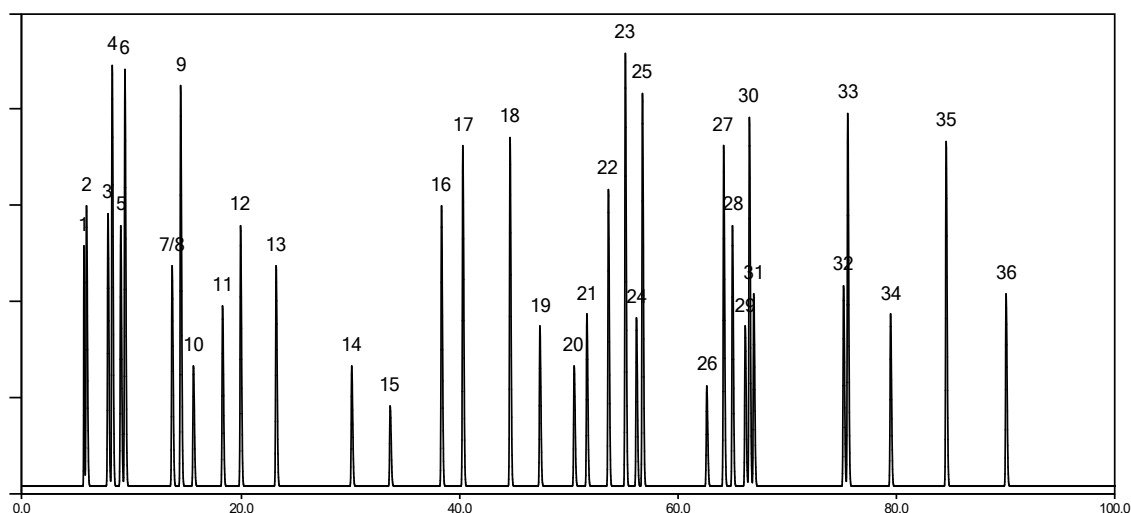
Column : SS-Sulfur, 0.32 mm ID × 30 m
Carrier Gas : H₂ (1 mL/min)
Temp. Program : 35 °C (30 min) – 2 °C/min – 200 °C (10 min)
Injector : 250 °C, Split
Detector : FID (250 °C)
Peak : 1. H₂S
2. SO₂
3. Methylmercaptan
4. Dimethyl Sulfide
5. Dimethyl Disulfide

SS-PONA

SS-PONA is the dedicated column for PONA analysis complied with ASTM D5134-90. It guarantees the number of theoretical plates of 225,000 or more, and has performance that satisfies the ASTM specification of separation of 1.35 or more between 2-methylheptane and 4- methylheptane.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (µm)	Max Temp.	Stationary Phase
SS-PONA	S226-80803-01	0.21	50	0.50	250/275 °C	Dimethylpolysiloxane
SS-PONA	S226-80803-02	0.25	100	0.50	250/275 °C	Dimethylpolysiloxane
SS-PONA	S226-80803-03	0.25	150	1.00	250/275 °C	Dimethylpolysiloxane

Analysis of ASTM D5134



Analytical Conditions

Column : SS-PONA, 0.21 mm ID x 50 m, 0.5 µm
 Carrier Gas : He (215 kPa)
 Temp. Program : 35 °C (30 min) – 2 °C/min – 200 °C (10 min)
 Injector : 200 °C, Split
 Detector : FID (250 °C)
 Peak

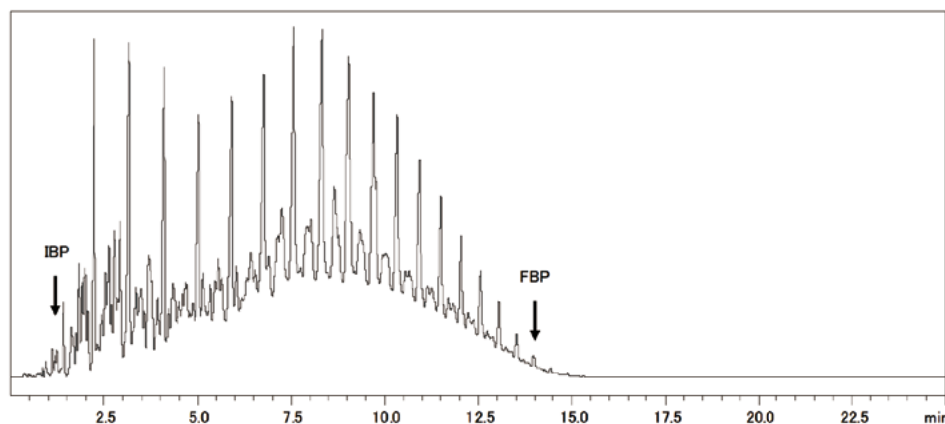
- | | | |
|-----------------------|-----------------------|----------------------------------|
| 1. Pentene | 13. Methylcyclohexane | 25. Isopropylcyclohexene |
| 2. Pentane | 14. Toluene | 26. 2-Methylnonane |
| 3. Cyclopentane | 15. 2-Methylheptane | 27. tert-Butylcyclohexane |
| 4. 2-Methylpentane | 16. Octene | 28. Decene |
| 5. Hexene | 17. n-Octane | 29. sec-Butylbenzene |
| 6. Hexane | 18. Ethyl cyclohexane | 30. n-Decane |
| 7. Benzene | 19. Ethylbenzene | 31. 1,2,3-Trimethylbenzene |
| 8. Methylcyclopentene | 20. 2-Methyloctane | 32. cis-Decalene |
| 9. Cyclohexane | 21. o-Xylene | 33. Undecane |
| 10. 2-Methylhexane | 22. Nonene | 34. 1,2,3,4-Tetramethylbenzene |
| 11. Heptene | 23. n-Nonane | 35. Dodecane |
| 12. Heptane | 24. Isopropylbenzene | 36. 1,2,3,4,5-Pentamethylbenzene |

SS-SimDist

SS-SimDist is a dedicated column for Simulated Distillation (SIM-DIST) analysis up to C100. The stable liquid phase at high temperatures minimizes bleeding at 400 °C. The high-temperature polyimide coating also provides a long life time even under high temperatures. This column is designed for ASTM D2887. On the other hand, SS-SimDist-UMetal uses an inert metal capillary tube, so it can be used up to 450 °C and can be analyzed up to 120 °C. Used for high temperature SIM-DIST analysis such as ASTM D7213 and ASTM D7169.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-SimDist	S226-80804-01	0.53	10	3.00	375/400 °C	Dimethylpolysiloxane
SS-SimDist	S226-80804-02	0.53	5	0.17	375/400 °C	Dimethylpolysiloxane
SS-SimDist	S226-80804-03	0.53	10	0.10	375/400 °C	Dimethylpolysiloxane
SS-SimDist	S226-80804-04	0.32	10	0.10	375/400 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-01	0.53	5	0.09	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-02	0.53	5	0.17	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-03	0.53	5	0.88	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-04	0.53	5	2.65	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-05	0.53	10	0.17	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-06	0.53	10	0.53	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-07	0.53	10	0.88	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-08	0.53	10	1.20	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-09	0.53	10	2.65	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-10	0.53	10	5.00	450/450 °C	Dimethylpolysiloxane
SS-SimDist-UMetal	S226-80805-11	0.53	20	0.11	450/450 °C	Dimethylpolysiloxane
Retention Gap	S226-80806-01	0.53	10	0.06	450/450 °C	Dimethylpolysiloxane
Retention Gap	S226-80806-02	0.53	25	0.06	450/450 °C	Dimethylpolysiloxane

Chromatogram of ASTM D2887 analysis



SS-WAX

By strengthening the cross-linking structure, the operating temperature range (20 to 250/260 °C) can be widened. In addition, the state-of-the-art deactivation process produces sharp and symmetrical peaks and maintains deactivation for a long time, allowing stable use. These improved the separation performance of low-boiling compounds and enhanced repeatability and temperature stability.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-WAX	S226-80800-01	0.25	30	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-02	0.25	30	0.50	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-03	0.25	60	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-04	0.25	60	0.50	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-05	0.32	30	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-06	0.32	30	0.50	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-07	0.32	60	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-08	0.32	60	0.50	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-09	0.53	30	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-10	0.53	30	0.50	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-11	0.53	30	1.00	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-12	0.53	60	1.00	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-13	0.1	10	0.10	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-14	0.1	10	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-15	0.15	15	0.15	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-16	0.15	25	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-17	0.2	30	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-18	0.2	50	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-19	0.25	10	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-20	0.25	15	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-21	0.25	25	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-22	0.25	25	1.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-23	0.25	30	0.15	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-24	0.25	50	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-25	0.32	10	1.00	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-26	0.32	15	0.25	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-27	0.32	15	5.00	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-28	0.32	25	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-29	0.32	25	0.40	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-30	0.32	25	1.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-31	0.32	50	0.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-32	0.32	50	0.40	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-33	0.32	50	1.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-34	0.32	60	1.20	250/265 °C	Polyethyleneglycol
SS-WAX	S226-80800-35	0.53	10	2.00	230/250 °C	Polyethyleneglycol
SS-WAX	S226-80800-36	0.53	15	1.00	240/260 °C	Polyethyleneglycol
SS-WAX	S226-80800-37	0.53	25	1.00	240/260 °C	Polyethyleneglycol
SS-WAX	S226-80800-38	0.53	25	2.00	230/250 °C	Polyethyleneglycol
SS-WAX	S226-80800-39	0.53	50	1.00	240/260 °C	Polyethyleneglycol
SS-WAX	S226-80800-40	0.53	50	2.00	230/250 °C	Polyethyleneglycol
SS-WAX	S226-80800-41	0.53	100	2.00	230/250 °C	Polyethyleneglycol

SS-WAX-MS

SS-WAX-MS is a high-performance WAX column developed for GCMS applications. By strengthening the cross-linking structure, the operating temperature range (20 to 250/260 °C) can be widened. In addition, the state-of-the-art deactivation process produces sharp and symmetrical peaks and maintains deactivation for a long period of time, allowing stable use. These improved the separation performance of low-boiling compounds and enhanced reproducibility and temperature stability.

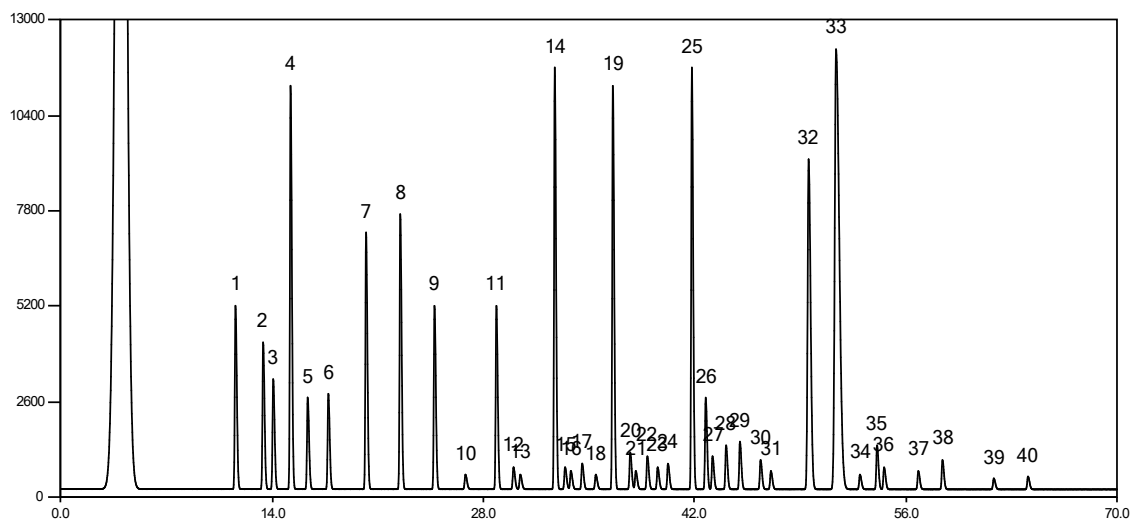
Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-WAX-MS	S226-80801-01	0.25	30	0.25	250/265 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-02	0.25	30	0.50	250/265 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-03	0.25	60	0.25	250/265 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-04	0.25	60	0.50	240/240 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-05	0.32	30	0.25	250/265 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-06	0.32	30	0.50	250/265 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-07	0.32	60	0.25	250/265 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-08	0.32	60	0.50	240/240 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-09	0.53	30	1.00	240/240 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-10	0.53	60	1.00	240/240 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-11	0.1	10	0.10	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-12	0.1	10	0.20	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-13	0.1	20	0.10	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-14	0.15	15	0.15	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-15	0.15	20	0.15	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-16	0.15	30	0.15	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-17	0.25	15	0.25	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-18	0.25	15	0.50	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-19	0.25	25	0.20	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-20	0.25	30	0.25	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-21	0.25	30	1.00	240/240 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-22	0.25	60	0.25	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-23	0.32	30	1.00	240/240 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-24	0.32	60	1.00	230/230 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-25	0.53	15	1.00	250/260 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-26	0.53	30	2.00	230/230 °C	Polyethyleneglycol
SS-WAX-MS	S226-80801-27	0.53	60	2.00	230/230 °C	Polyethyleneglycol

SS-FFAP

SS-FFAP is a dedicated column for free fatty acid analysis. By chemically bonding the liquid phase to the capillary tube, the maximum operating temperature can be raised to 250 °C. This allows analysis of free fatty acids from C2 to C24 without methyl derivatization. By chemically bonding the liquid phase, even if a large amount of water or organic solvent is injected, the column performance is hardly affected.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (µm)	Max Temp.	Stationary Phase
SS-FFAP	S226-80802-01	0.25	30	0.25	250/270 °C	Polyethylene glycol nitro-terephthalate
SS-FFAP	S226-80802-02	0.32	30	0.25	250/270 °C	Polyethylene glycol nitro-terephthalate
SS-FFAP	S226-80802-03	0.32	50	0.50	250/270 °C	Polyethylene glycol nitro-terephthalate
SS-FFAP	S226-80802-04	0.53	15	1.00	250/270 °C	Polyethylene glycol nitro-terephthalate
SS-FFAP	S226-80802-05	0.53	30	1.00	250/270 °C	Polyethylene glycol nitro-terephthalate
SS-FFAP	S226-80802-06	0.15	25	0.25	250/275 °C	Polyethylene glycol nitro-terephthalate
SS-FFAP	S226-80802-07	0.32	25	0.30	250/275 °C	Polyethylene glycol nitro-terephthalate
SS-FFAP	S226-80802-08	0.53	25	1.00	250/275 °C	Polyethylene glycol nitro-terephthalate

Analysis of free fatty acids



Analytical Conditions

Column : SS-FFAP, 0.32 mm ID × 30 m, 0.25 µm
 Carrier Gas : He (60 kPa)
 Temp. Program : 40 °C (0.2 min) – 25 °C/min – 100 °C (0.2 min) – 10 °C/min – 240 °C (17 min)
 Injector : On-column (OCI)
 Detector : FID (280 °C)

Peak	: 1. C2:0	14. C12:0	27. C17:iso
	2. C3:0	15. C12:1	28. C17:antiso
	3. C4:iso	16. C13:iso	29. C17:0
	4. C4:0	17. C13:0	30. C17:1
	5. C5:iso	18. C14:iso	31. C18:iso
	6. C5:0	19. C14:0	32. C18:0
	7. C6:0	20. C14:1+C15:iso	33. C18:1
	8. C7:0	21. C15:antiso	34. C18:2
	9. C8:0	22. C15:0	35. C18:2
	10. C9:0	23. C15:1	36. C19:0
	11. C10:0	24. C16:iso	37. C18:3
	12. C10:1	25. C16:0	38. C18:2conj
	13. C11:0	26. C16:1	39. C20:0
			40. C20:1

SS-Formaldehyde

SS-Formaldehyde is a non-polar column developed for the analysis of formaldehyde. Suitable for trace analysis of water and methanol, as well as sulfur compounds and some inorganic gases.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-Formaldehyde	S226-80824-01	0.32	60	8.00	300/325 °C	Dimethylpolysiloxane

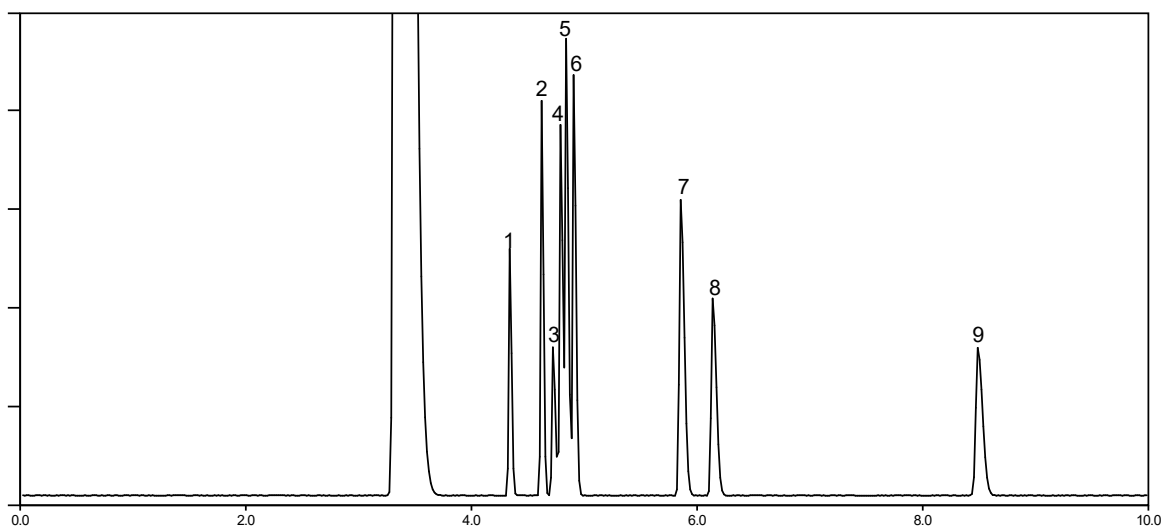


SS-Alcohol

SS-Alcohol uses TCEP (1,2,3-tris [2-cyanoethoxy] propane) as a liquid phase and is a strong polar column developed for the analysis of alcohols and aromatic hydrocarbons in gasoline. Since methanol and benzene are eluted after C11, alcohol and aromatic hydrocarbons in gasoline can be easily separated.

Name	P/N	I.D. (mm)	Length (m)	Film thickness (μm)	Max Temp.	Stationary Phase
SS-Alcohol	S226-80825-01	0.25	50	0.40	135/140 °C	TCEP (1,2,3-tris[2-cyanoethoxy]propane)

Analysis of alcohol and aromatic hydrocarbons



Analytical Conditions

Column : SS-Alcohol, 0.25 mm ID x 50 m
 Carrier Gas : H₂ (210 kPa)
 Column Temp. : 78 °C
 Injector : 250 °C, Split
 Detector : FID (250 °C)

Peak : 1. n-Undecane
 2. tert-Butanol
 3. Methanol
 4. 2-Propanol
 5. Benzene
 6. Ethanol
 7. 2-Butanol
 8. Toluene
 9. Ethylbenzene

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