

Chromatography



**Lowest bleed and inert
mid-polarity column**



MACHEREY-NAGEL

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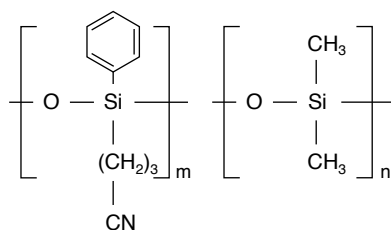
Since 1911



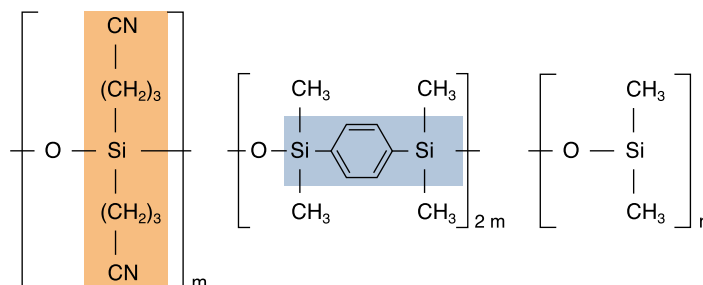
Chromatography

Outstanding features and excellent performance

OPTIMA® 1701



OPTIMA® 1701 MS



The combination of a novel **silarylene** synthesis strategy with symmetrically substituted **cyanopropylsilanes** led to improved stability and substantially reduced column bleed.

Silarylene phase with selectivity analog to

14 % cyanopropyl-phenyl – 86 % dimethylpolysiloxane • USP G46

Reference column for structure identification, e.g., in combination with OPTIMA® 5 MS

Excellent deactivation

- reliable quantification even for critical samples at ultra trace levels

Mid-polar ultra low bleed silarylene phase

- 100 % Ion-Trap and Quadrupol-MS-compatibility

- it is possible to inject aqueous samples, water stable phase

Special selectivity due to high cyanopropyl content

- ideal for mid-polar analytes

Inert column · bleed comparison test

Column:

OPTIMA® 1701 MS, 0.25 µm film, 30 m x 0.25 mm ID

MN Appl. No. 215050

Injection temperature:

280 °C

Carrier gas:

Helium, 0.8 bar

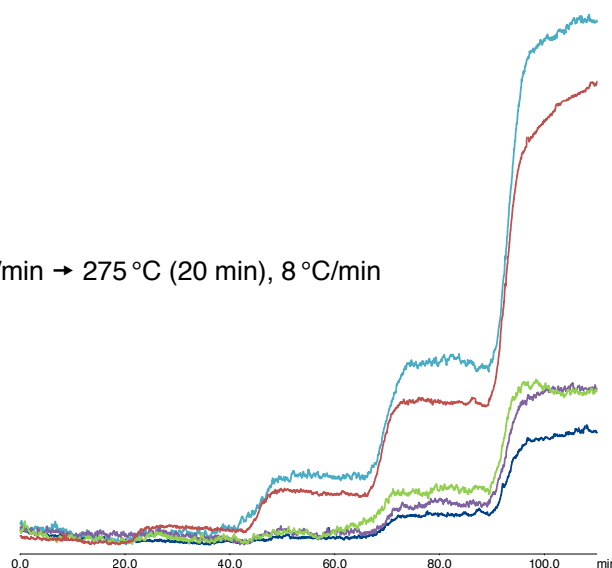
Temperature:

200 °C (20 min) → 225 °C (20 min), 8 °C/min → 250 °C (20 min), 8 °C/min → 275 °C (20 min), 8 °C/min → 300 °C (20 min), 8 °C/min

Detector:

FID, 280 °C

- DB-1701
- ZB-1701
- VF-1701ms
- Rtx-1701
- OPTIMA® 1701MS



Columns were tested under equal conditions and not representative of all applications.



Separation of 16 EPA PAH

Column:

OPTIMA® 1701 MS, 0.25 µm film, 30 m x 0.25 mm ID

Sample:

PAH test mixture acc. to EPA (REF 722314)
(20 µg/mL each in toluene)

Injection volume:

1 µL, splitless (for 1 min)

Injection temperature:

300 °C

Carrier gas:

Helium, lin. velocity 34 cm/sec

Temperature:

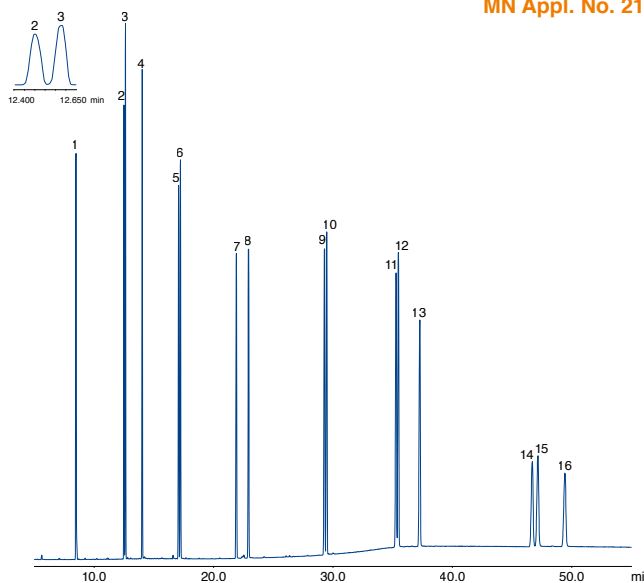
90 °C for 1 min → 220 °C, 10 °C/min → 300 °C, 4 °C/min

Detector:

MSD

Peaks:

1) naphthalene · 2) acenaphthylene · 3) acenaphthene · 4) fluorene · 5) phenanthrene · 6) anthracene · 7) fluoranthene · 8) pyrene
9) benz[a]anthracene · 10) chrysene · 11) benzo[b]fluoranthene · 12) benzo[k]fluoranthene · 13) benzo[a]pyrene · 14) indeno[1,2,3-cd]pyrene
15) dibenz[a,h]anthracene · 16) benzo[ghi]perylene



MN Appl. No. 215070

Herbicide mix

Column:

OPTIMA® 1701 MS, 0.25 µm film, 30 m x 0.25 mm ID

Sample:

Herbicide mix (400 ng/mL in hexane)

Injection volume:

1 µL, splitless (for 1 min)

Injection temperature:

300 °C

Carrier gas:

Helium, lin. velocity 42 cm/sec

Temperature:

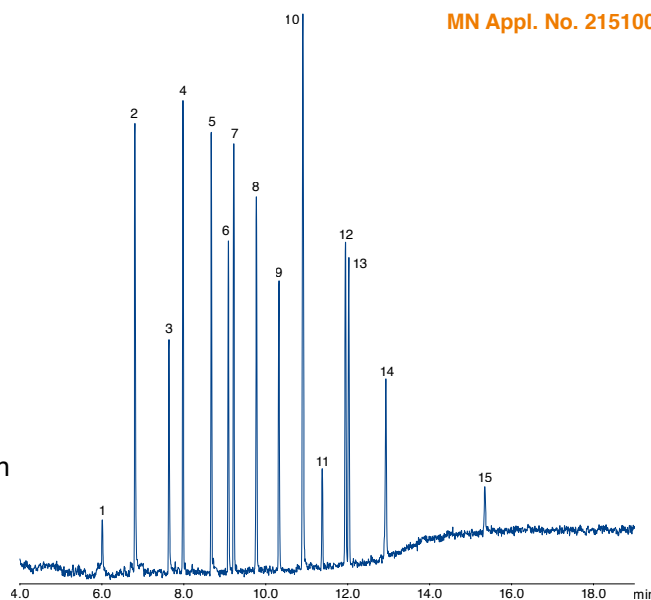
80 °C → 200 °C, 20 °C/min → 245 °C, 8 °C/min → 260 °C, 20 °C/min

Detector:

MSD

Peaks:

1) 3,5-Dichlorobenzoic acid methyl ester (SS) · 2) 4-Nitroanisole · 3) Dicamba methyl ester · 4) Dichlorprop, methyl ester · 5) 2,4-D methyl ester
6) Pentachloroanisole · 7) 2,4,5-TP, methyl ester · 8) 2,4,5-T, methyl ester · 9) Chloramben, methyl ester · 10) 2,4-DB methyl ester
11) Dinoseb methyl ester · 12) Bentazon methyl ester · 13) DCPA methyl ester · 14) Picloram methyl ester · 15) Acifluorfen methyl ester



MN Appl. No. 215100



Triazine pesticide mix

Column:
OPTIMA® 1701 MS, 0.25 µm film, 30 m x 0.25 mm ID

MN Appl. No. 215080

Sample:
Triazine pesticide mix

Injection volume:
1 µL, split 1:100

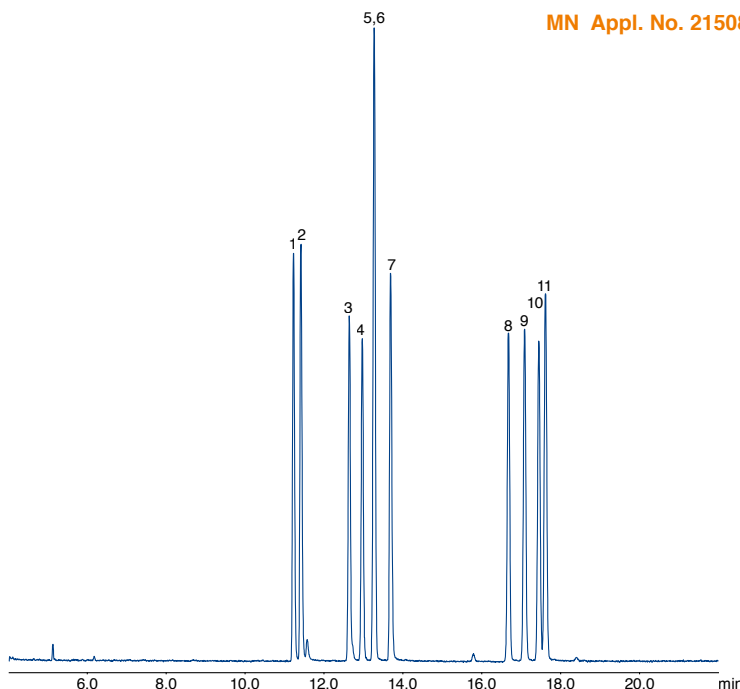
Injection temperature:
250 °C

Carrier gas:
Helium, lin. velocity 42 cm/sec

Temperature:
160 °C for 1 min → 180 °C, 15 °C/min → 220 °C, 2 °C/min

Detector:
MSD

Peaks:
1) prometon · 2) atraton · 3) propazine · 4) atrazine
5+6) simazine + tertbutylazine · 7) secbumetone
8) prometryn · 9) ametryn · 10) simetryn · 11) terbutryn



OPTIMA® 1701 MS

Max. temperature for isothermal operation 280 °C, max. temperature for short isotherms in a temperature program 300 °C;
0.53 mm ID columns: max. temperatures 260 and 280 °C, resp.

Similar phases:

VF-1701ms, TG-1701MS, OV-1701, DB-1701, HP-1701, Rtx-1701, SPB-1701, CP Sil 19 CB, 007-1701, BP10, ZB-1701

Ordering information

ID	Length	Film thickness	Agilent J&W VF-1701ms	Restek Rtx-1701	Phenomenex ZB-1701	MACHEREY-NAGEL OPTIMA® 1701 MS
0.25 mm	30 m	0.25 µm	CP9151	12023	7HG-G006-11	726630.30
0.25 mm	60 m	0.25 µm	CP9154	12026	7KG-G006-11	726630.60
0.25 mm	30 m	0.50 µm	–	12038	–	726631.30
0.25 mm	60 m	0.50 µm	–	12041	–	726631.60
0.25 mm	30 m	1.00 µm	CP9152	12053	7HG-G006-22	726632.30
0.25 mm	60 m	1.00 µm	CP9156	12056	–	726632.60
0.32 mm	30 m	0.25 µm	CP9162	12024	7HM-G006-11	726633.30
0.32 mm	60 m	0.25 µm	CP9165	12027	7KM-G006-11	726633.60
0.32 mm	30 m	0.50 µm	–	12039	–	726634.30
0.32 mm	60 m	0.50 µm	–	12042	–	726634.60
0.32 mm	30 m	1.00 µm	CP9163	12054	7HM-G006-22	726635.30
0.32 mm	60 m	1.00 µm	CP9166	12057	–	726635.60

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