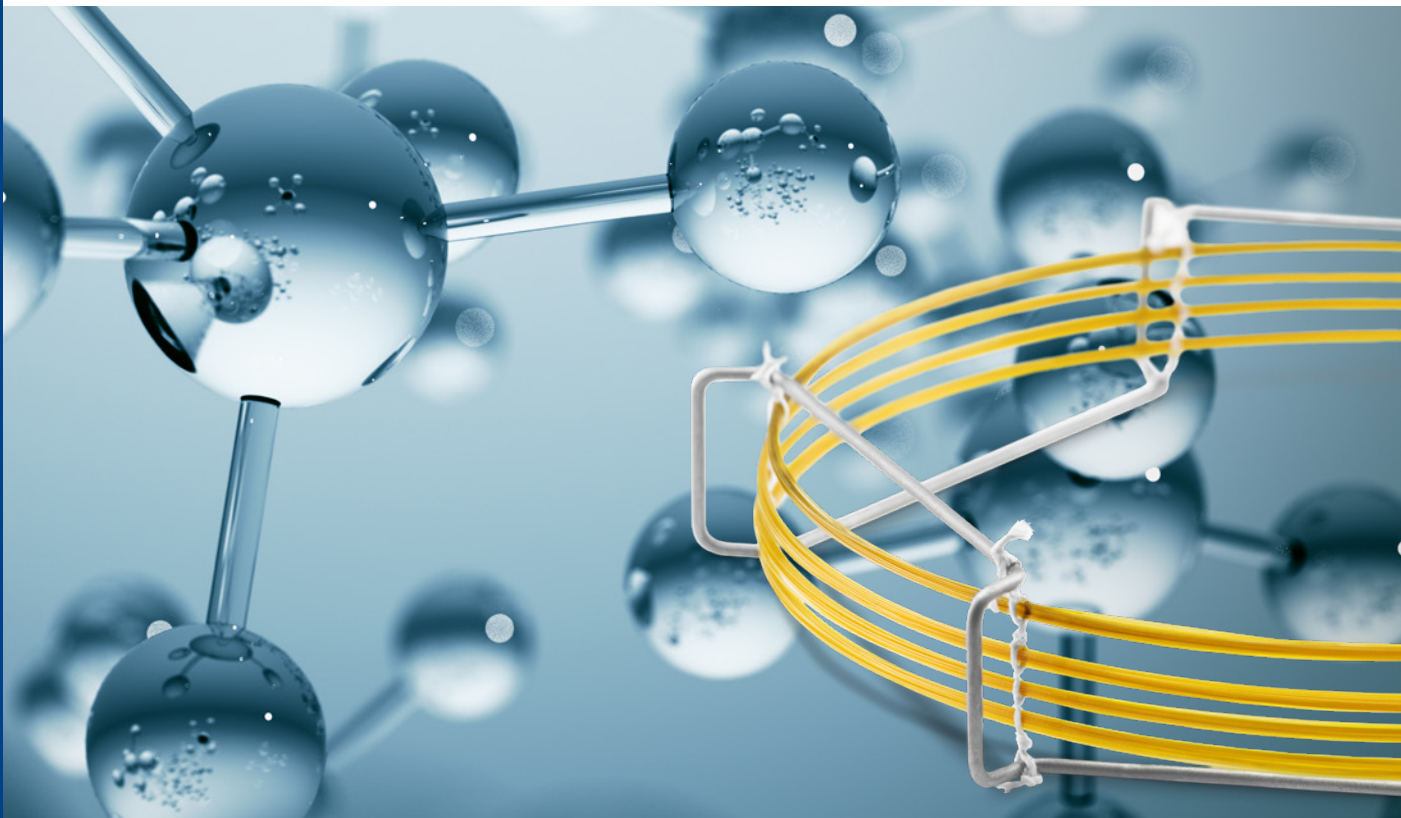


MACHEREY-NAGEL

OPTIMA[®] 17 MS

Chromatography



The ultra low bleed version of a mid polar classic

- Mid-polar ultra low bleed silarylene phase
- Based on 50 % Phenyl – 50 % Methylpolysiloxane composition
- Ideal for GC/MS

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OPTIMA® 17 MS

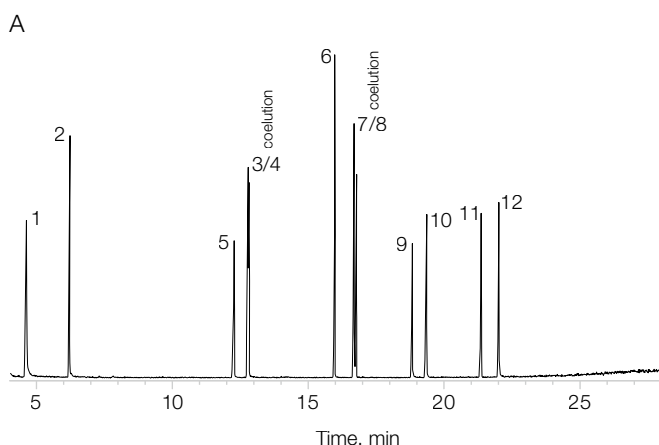
- Mid-polar ultra low bleed silarylene phase (without CN-groups in the polymer)
- Max. temperature for isothermal runs: 340 °C, for short isotherms in a temperature program 360 °C
- Very low bleed characteristics, suitable for ion-trap detection systems, can be rinsed with solvents
- Application area: "all round" phases for environmental analysis, trace analysis, EPA methods, pesticides, PAHs, food and drug analysis
- Chemically bonded, cross-linked silarylene phase, polarity index according to 50 % Phenyl, 50 % Methylpolysiloxane
- Similar phases: OV-17, AT™-50, BPX™-50, DB-17, DB-17ms, HP-50+, HP-17, SPB™-50, SPB™-17, SP™-2250, Rtx®-50, CP-Sil 24 CB, 007-17, VF-17ms, ZB-50
- USP G3

The OPTIMA® 17 MS is the optimal and modern reference column to a non-polar "1" or "5" type ultra low bleed phase. The 50 % phenyl content leads to a significant increase of polarity, compared to these non-polar columns. Thus results in a considerable increase in selectivity and separation efficiency for mid polar analytes.

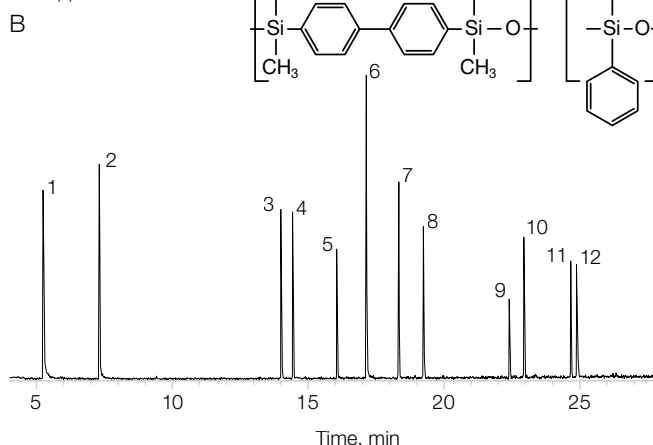
Top selectivity for mid-polar analytes

Drugs of abuse – Comparison of a OPTIMA® 5 MS Accent with the new OPTIMA® 17 MS

MN Appl. No. 213590



MN Appl. No. 213580

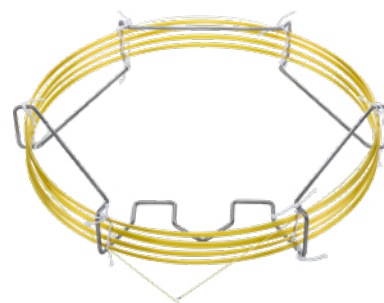
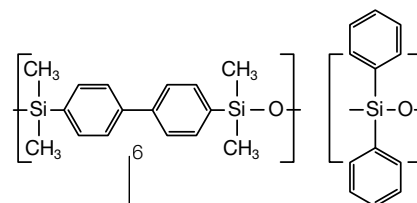


Peaks: 1. methamphetamine hydrochloride, 2. nicotine, 3. diphenyl hydramine, 4. lidocaine, 5. caffeine, 6. methadone, 7. amitriptyline, 8. cocaine, 9. codeine, 10. diazepam, 11. prazepam, 12. fentanyl

Conditions	A) OPTIMA® 5 MS Accent B) OPTIMA® 17 MS 30 m each, 0.25 mm ID, 0.25 µm film
Sample	Drugs of abuse
Carrier gas	Helium
Flow rate	1 ml/min
Injection	2 µl, 280 °C 2 min splitless, 25 ml/min
Temperature	60 °C (2 min) 150 °C (25 °C/min) 320 °C (8 °C/min)
Detector	MSD

Your benefits

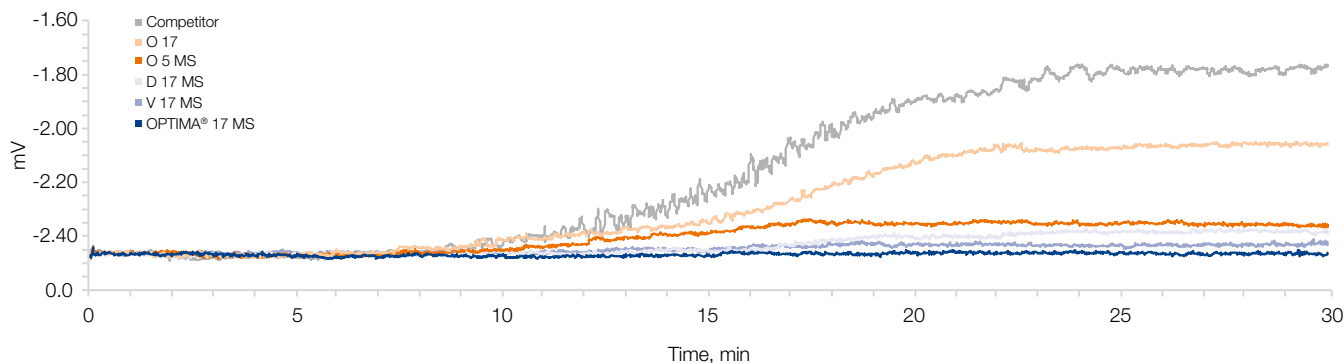
- 100 % Ion-Trap and Quadrupol-MS-compatibility
- Unlimited use of ECD and NPD-detectors
- It is possible to inject aqueous samples, water stable phase
- 50 % phenyl content in the phase
- Easy result transfer from standard "17" phases, i.e. for EPA and ASTM procedures
- Increased selectivity spectrum and separation efficiency for mid-polar analytes Temperature stability up to 360 °C
- Shorter retention times due to higher possible end temperatures
- Longer column lifetime during "normal" use
- Excellent deactivation
- Reliable quantification even for critical samples at ultra trace levels



Lowest column bleed

Reduced contamination of the detection system, improved detectability of solutes in trace analysis

In a bleed comparison test between OPTIMA® 17 MS with a 5 MS, two conventional 17 and two 17 MS phases (all competitor phases), the enormous progress in phase technology and the outmatched performance of this new developed silarylene phase is proved.



Column dimensions (30 m, 0.25 mm, 0.25 µm)

In the picture the baseline increase between 200°C and 320°C is shown 200°C (5 min) – 320°C (10/min) (12 min)

High temperature stability

Extended column lifetime, shorter retention times due to increased heating rates are possible

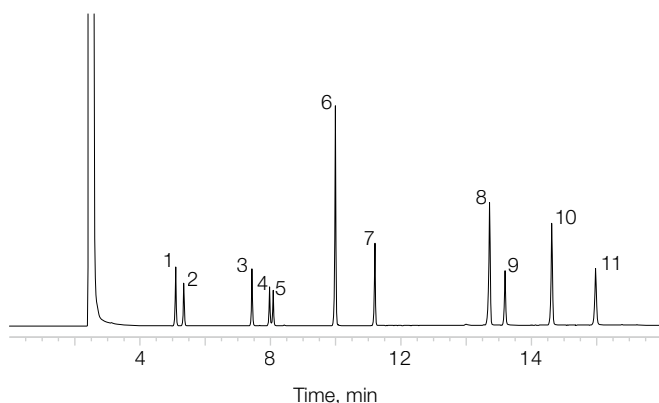
Column	Isotherm Max. temp.	Max. temp. in program
OPTIMA® 17 MS	340 °C	360 °C
Agilent HP-50+	280 °C*	300 °C*
Agilent DB 17ms	320 °C*	340 °C*
Grace AT™-50	300 °C	325 °C
Phenomenex ZB-50	320 °C*	340 °C*
Restek Rtx®-50	300 °C*	320 °C*
Supelco SPB™-17	280 °C	300 °C
Varian Factor Four VF-17 ms	330 °C	360 °C*

* as indicated from manufactures product catalogues 2009

Excellent deactivation

EPA 604 free phenols

MN Appl. No. 213600

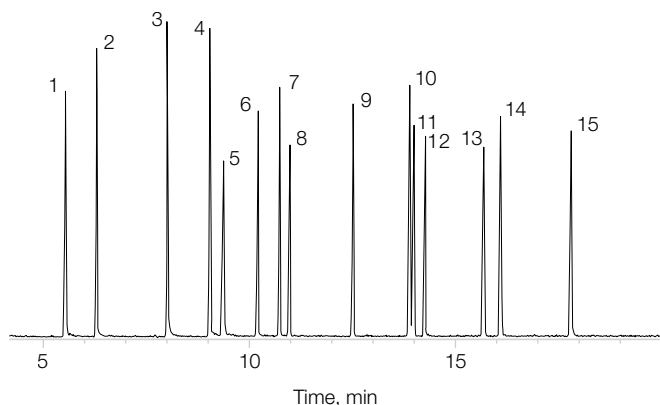


Conditions	OPTIMA® 17 MS, 30 m, 0.25 mm ID, 0.25 µm film (REF 726162.30)
Sample	Phenol-Mix 604
Injection	1 µl, 230 °C
Carrier gas	Helium, 0.8 bar, split 1:30
Temperature	100 °C → 250 °C (10 °C/min)
Detector	FID, 280 °C

Peaks: 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. 4-Nitrophenol, 9. 2,4-Dinitrophenol, 10. 2-Methyl-4,6-dinitrophenol, 11. Pentachlorophenol

EPA 8060 Phthalates

MN Appl. No. 213610

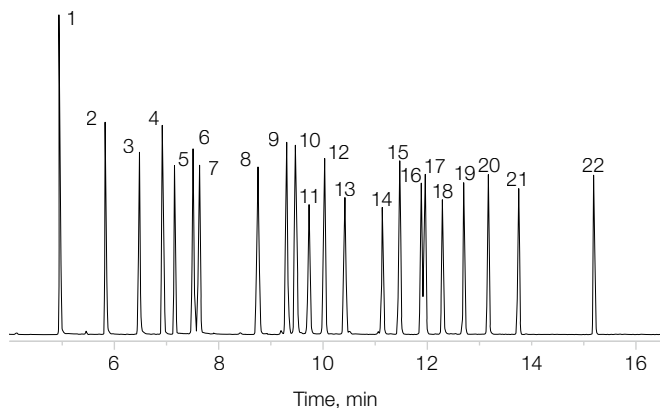


Conditions	OPTIMA® 17 MS, 30 m, 0.25 mm ID, 0.25 µm film (REF 726162.30)
Sample	EPA 8060 Phthalates
Injection	1.0 µl, 280 °C, 0.5 min spitless, 25 ml/min
Carrier gas	Helium, 0.6 bar
Temperature	120 °C → 220 °C (25 °C/min) → 330 °C (8 °C/min) (10 min)
Detector	MSD

Peaks: 1. Dimethyl phthalate, 2. Diethyl phthalate, 3. Di-isobutyl phthalate, 4. Di-*n*-butyl phthalate, 5. Bis (4-methyl-2-pentyl) phthalate, 6. Bis (2-methoxyethyl) phthalate, 7. Di-*n*-pentyl phthalate, 8. Bis (2-ethoxyethyl) phthalate, 9. Di-*n*-hexyl phthalate, 10. Bis (2-ethylhexyl) phthalate, 11. Benzyl-butyl phthalate, 12. Bis-(2-butoxyethyl) phthalate, 13. Di-cyclohexyl phthalate, 14. Di-*n*-octyl phthalate, 15. Di-*n*-nonyl phthalate

EPA 8081 organochlorine pesticides

MN Appl. No. 213630



Conditions	OPTIMA® 17 MS, 30 m, 0.25 mm ID, 0.25 µm film (REF 726162.30)
Sample	organochlorine pesticide mix EPA 8081
Injection	1 µl, 280 °C, 0.5 min spitless, 25 ml/min
Flow rate	1.5 ml/min
Carrier gas	Helium, 0.12 bar, splitless
Temperature	100 °C (0.5 min) → 210 °C (40 °C/min) → 250 °C (6 °C/min) → 330 °C (15 °C/min) (5 min)
Detector	MSD

Peaks: 1. 2,4,5,6-Tetrachloro-*m*-xylene, 2. alpha-BHC, 3. gamma-BHC (Lindan), 4. Heptachlor, 5. beta-BHC, 6. Aldrin, 7. delta-BHC, 8. Heptachlor epoxide, 9. gamma-chlordane, 10. alpha-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

Order information

REF	Length	ID (mm)	df (µm)
726162.30	30	0.25	0.25
726162.60	60	0.25	0.25
726165.30	30	0.32	0.25
726165.60	60	0.32	0.25

Good to know

The MACHEREY-NAGEL application database provides over 3000 chromatography applications examples from HPLC, GC, TLC and SPE and is freely accessible:



chromaAppDB.mn-net.com



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