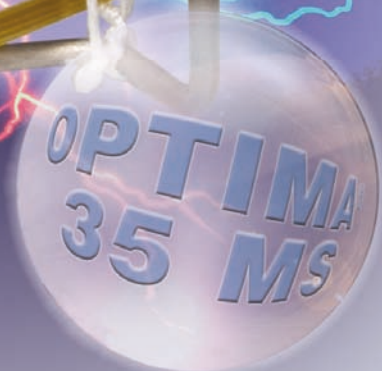


Chromatography

# GC OPTIMA® 35 MS



**Greyhound**  
CHROMATOGRAPHY  
AND ALLIED CHEMICALS



The new  
mid-polar  
ultra low bleed  
GC capillary column  
with unique selectivity

**MACHERY-NAGEL**

[www.mn-net.com](http://www.mn-net.com)



*Since 1911*

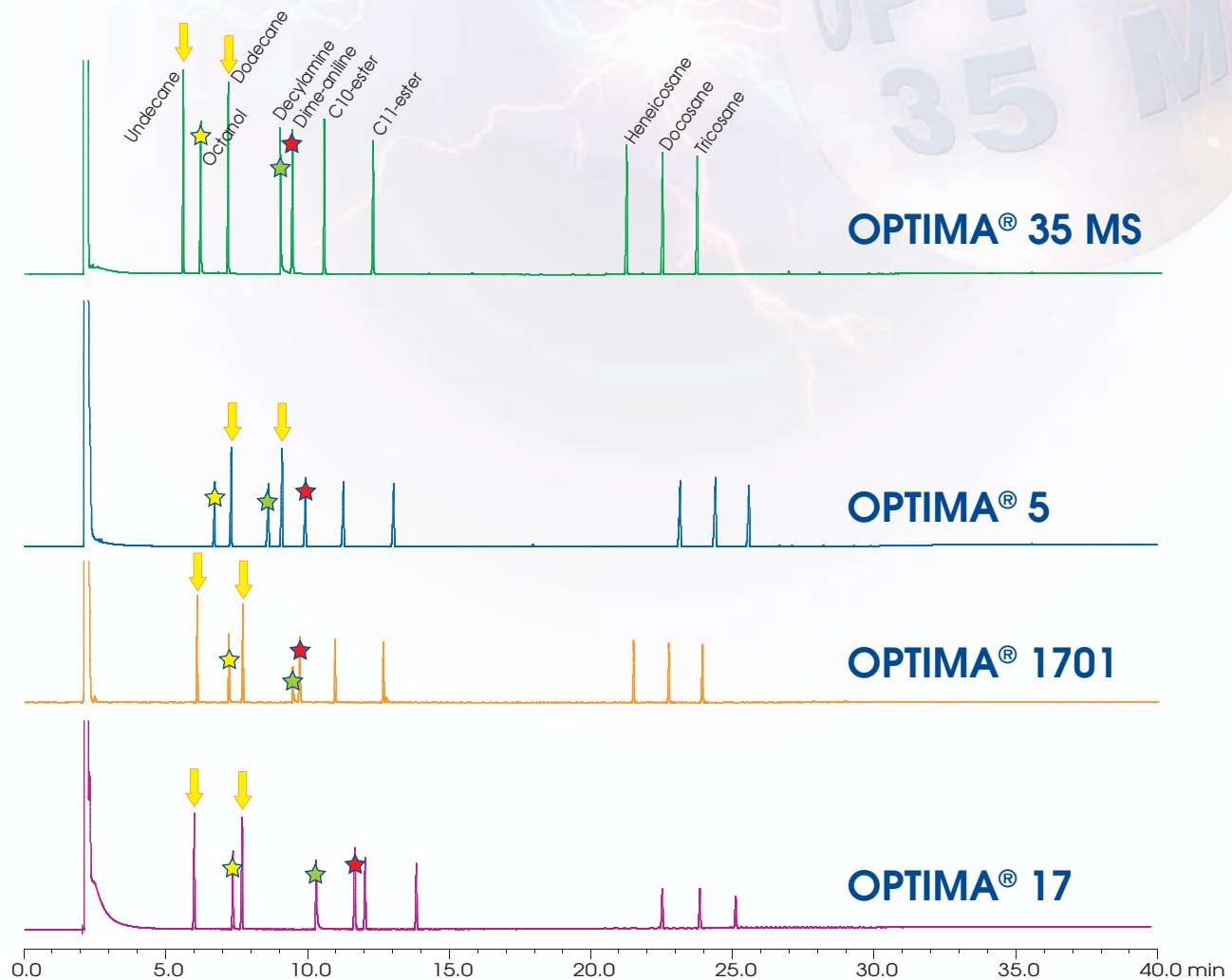


## Why is the new OPTIMA® 35 MS an interesting phase for you?

Alternative to 17- or 1701 phases in the mid-polar range, often used to back the results obtained on 1- or 5 MS columns.

- ✓ **ultra low bleed silarylene phase with higher polarity**  
Your benefit -> Ion-Trap and Quadrupol-MS-compatibility without limitation, increased selectivity spectrum
- ✓ **no CN-groups in the polymer**  
Your benefit -> no limits for the use of ECD and NPD-detectors, aqueous stable phase
- ✓ **temperature stability up to 370°C**  
Your benefit -> shorter retention times and a longer column lifetime
- ✓ **excellent deactivation**  
Your benefit -> reliable quantification even for critical samples at ultra trace levels

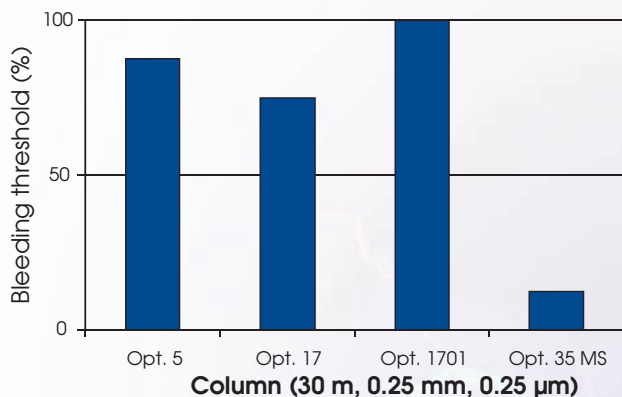
## Unique selectivity in the mid-polar region





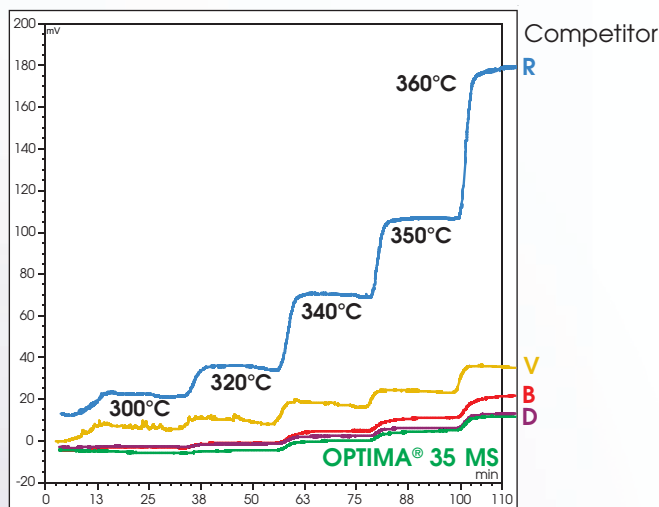
## Lowest column bleed -> reduced contamination of the detection system, improved detectability of solutes in trace analysis

In a bleed comparison test between OPTIMA® 35 MS with a conventional 5-, 17- or 1701- phase, the outmatched performance of the silarylene phase can be shown. Measurements up to 360°C result in the lowest bleeding values, even in comparison with competitor 35 MS phases.



The bleeding is a result of the signals at 320°C and 80°C.

Measuring condition: 0.8 bar Helium



### Conditions:

Column dimensions 30 m, 0.25 mm, df 0.25 µm  
0.5 ml/min He, FID,

### Temperature program:

220°C (8°C/min) -> 300°C (20 min), (8°C/min) -> 320°C (20 min), (8°C/min) -> 340°C (20 min), (8°C/min) -> 350°C (20 min), (8°C/min) -> 360°C (20 min)

## High temperature stability

-> extended column lifetime, applicable for high boiling compounds

Column	Isotherm Max. temp.	Max. temp. in program
OPTIMA® 35 MS	360°C	370°C
Agilent DB 35 MS	340°C*	360°C*
Restek Rtx-35	300°C*	320°C*
SGE BPX 35	360°C*	370°C*
Phenomenex ZB-35	340°C*	360°C*
Varian FactorFour VF-35ms	340°C*	360°C*

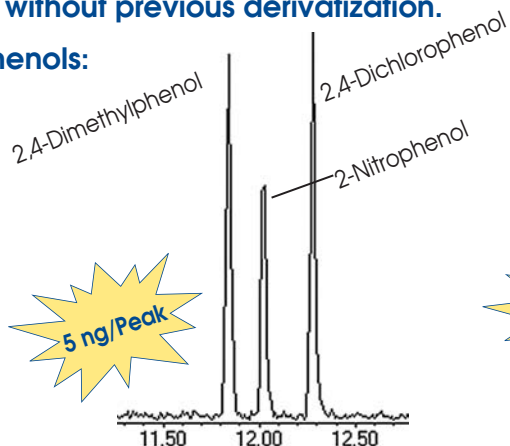
\* as indicated from manufacturers in 2007 product catalogues

## Optimized tubing surface deactivation

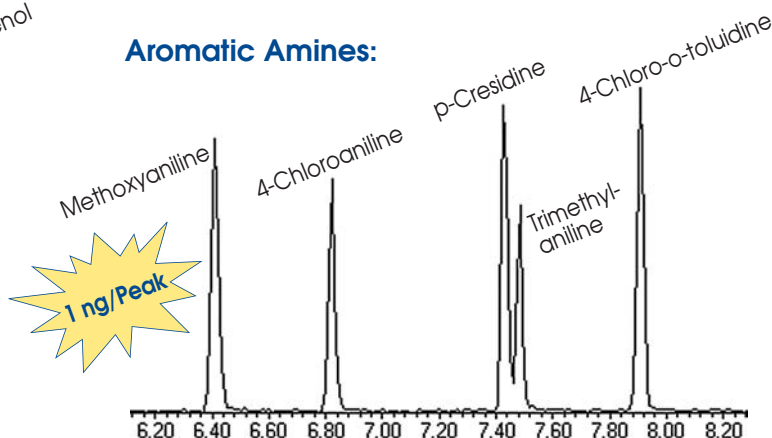
-> reduced tailing of polar compounds

OPTIMA 35 MS exhibits excellent peak shapes and asymmetries for phenols or aromatic amines, even without previous derivatization.

### Phenols:



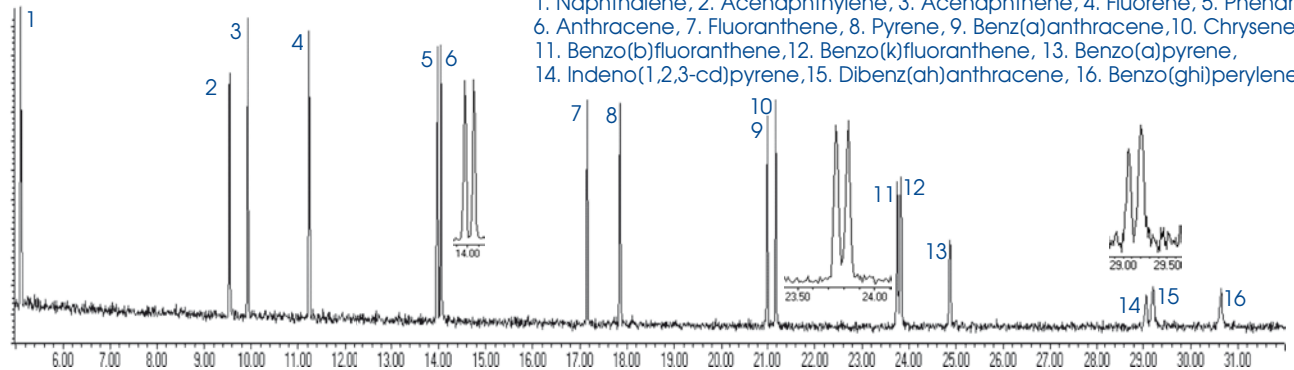
### Aromatic Amines:







## PAH acc. to EPA 610



**Peaks:**

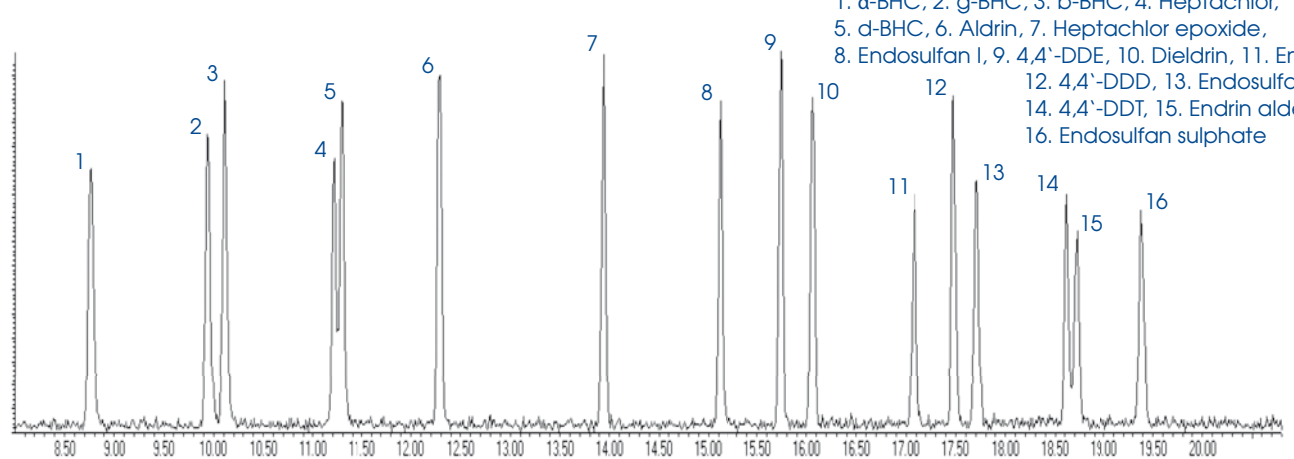
1. Naphthalene, 2. Acenaphthylene, 3. Acenaphthene, 4. Fluorene, 5. Phenanthrene,
6. Anthracene, 7. Fluoranthene, 8. Pyrene, 9. Benz(a)anthracene, 10. Chrysene,
11. Benzo(b)fluoranthene, 12. Benzo(k)fluoranthene, 13. Benzo(a)pyrene,
14. Indeno(1,2,3-cd)pyrene, 15. Dibenz(ah)anthracene, 16. Benzo(ghi)perylene

Conditions: OPTIMA® 35 MS, 30 m x 0.25 mm, df 0.25 µm

Sample: 1 µl, H<sub>2</sub>, 0.6 bar, Split: 1:10, Temp.: 100°C (3 min)->300°C (6°C/min, 10 min), Det.: MSD

MN Appl. No.  
213190

## Pesticides EPA 608



**Peaks:**

1. α-BHC, 2. γ-BHC, 3. β-BHC, 4. Heptachlor,
5. δ-BHC, 6. Aldrin, 7. Heptachlor epoxide,
8. Endosulfan I, 9. 4,4'-DDE, 10. Dieldrin, 11. Endrin,
12. 4,4'-DDD, 13. Endosulfan II,
14. 4,4'-DDT, 15. Endrin aldehyde,
16. Endosulfan sulphate

Conditions: OPTIMA® 35 MS, 30 m x 0.25 mm, df 0.25 µm

Sample: 1 µl, Helium, 0.8 ml/min, Split: 20 ml/min, Temp.: 160°C->260°C (6°C/min, 10 min iso), Det.: MS

MN Appl. No.  
213220

## OPTIMA® 35 MS

- High temperature stability (360 °C for isothermally operated runs / 370 °C for short isothermal runs in temperature programmed GC)
- very low bleed characteristics, mid-polar phase, suitable for ion-trap detection systems
- Application areas: "all round" phases for environmental analysis, trace analysis, EPA methods, pesticides, PCBs, food and drug analysis

Chemically bonded, cross-linked silarylene phase, polarity index according to 35 % Phenyl / 65 % Methyl-Polysiloxane

- similar phases: DB-35 MS, HP-35, SPB-35, Rtx®-35, 007-35, BPX-35, MDN-35, AT™-35 MS, ZB-35, OV-11, VF-35 MS

- USP G 42

Cat. No.	Length	ID (mm)	Film (µm)
726154.30	30	0.25	0.25
726154.60	60	0.25	0.25
726157.30	30	0.32	0.25
726157.60	60	0.32	0.25

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