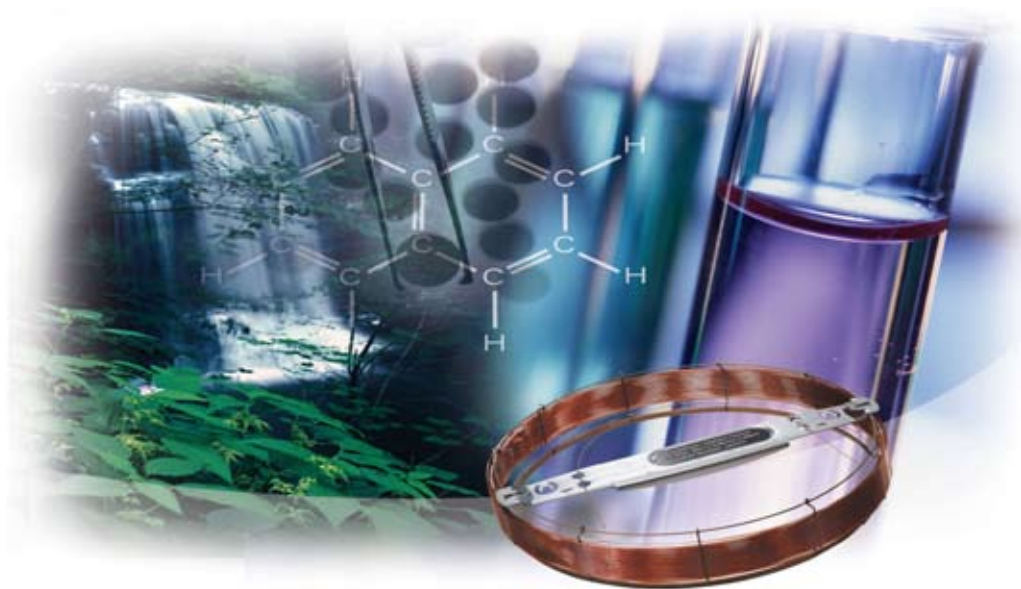


# Ultra Low-Bleed Cyano-based GC Columns

for EPA 500, 600, 8000 and USP 467 Test Methods

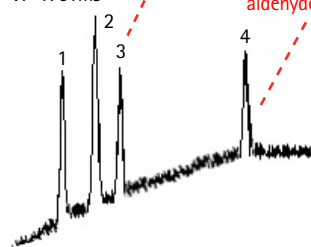


factorFOUR™

Highest response for p,p'-DDT

FactorFour  
VF-1701ms

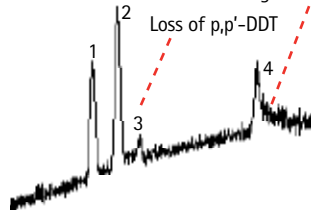
Best peak shape for endrin  
aldehyde



Competitor 'X-1701'

Tailing on endrin aldehyde

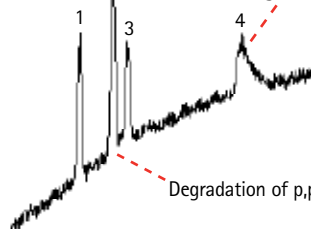
Loss of p,p'-DDT



Competitor 'Y-1701'

Tailing on endrin aldehyde

Degradation of p,p'-DDT



**EPA 625 Halogenated pesticides  
on "1701" type phases**

Columns: "1701" type 30 m x 0.25 mm x 0.25 µm  
Oven: 150°C, 5°C/min to 275°C  
Split: T = 275°C ECD: T = 275°C, 2 pg

## Varian FactorFour™ Cyano GC Columns

FactorFour phases:

- ▶ VF-624ms: 6% cyanopropylphenyl / 94% PDMS
- ▶ VF-1701ms: 14% cyanopropylphenyl / 86% PDMS
- ▶ VF-1301ms: 6% cyanopropylphenyl / 94% PDMS

## THE FactorFour ADVANTAGE

- ▶ Improved signal-to-noise for trace levels of late-eluting compounds such as naphthalene (VF-624ms)
- ▶ Elute problematic pesticides such as p,p'-DDT and endrin aldehyde - with near perfect peak shape (VF-1701ms)
- ▶ Significant improvement in the separation of typical co-eluters, such as aromatics and hydrocarbons like benzene and 1,2-dichloroethane, as well as solvents, such as acetaldehyde and methanol (VF-624ms)
- ▶ Higher operating temperatures possible: Tmax (280/300°C iso/prog)
- ▶ Eliminate ghost peaks

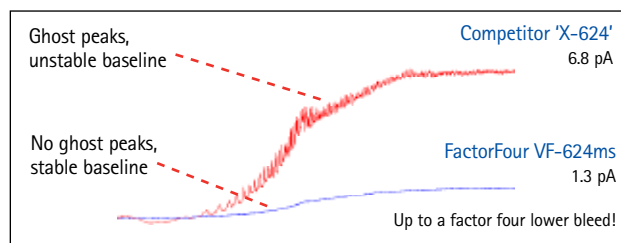
NOTICE: Varian, Inc. was acquired by Agilent Technologies in May 2010. This document is provided as a courtesy but is no longer kept current and thus will contain historical references to Varian. For more information, go to [www.agilent.com/chem](http://www.agilent.com/chem).

# FactorFour VF-624ms, VF-1701ms and VF-1301ms improves analysis of volatile and semi-volatile compounds

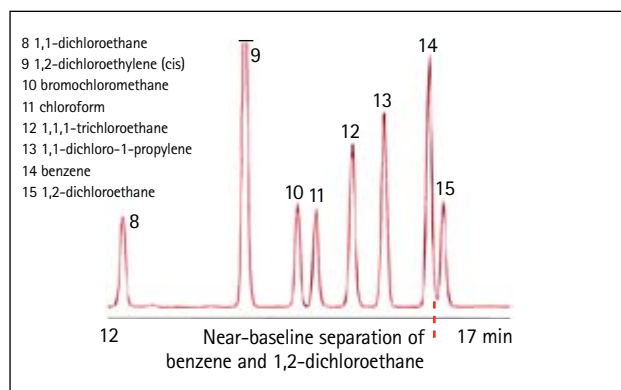
Whether analyzing trace pesticides (EPA 525.2), volatile pollutants from drinking water (EPA 524.2), volatiles from ground water (EPA 8260) or residual solvents in pharmaceuticals according to USP 467, the FactorFour VF-624ms, VF-1701ms and VF-1301ms GC columns provide unrivalled analytical performance – especially with ECD, FID and MS detectors.

## Eliminate ghost peaks and unstable baselines!

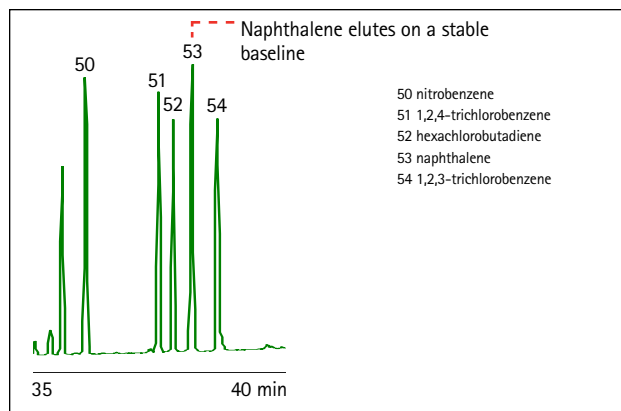
Ghost peaks are concentrated bleed products that re-elute in subsequent analyses. The ghost peaks and resulting unstable baselines mask the detection of trace analytes. The new FactorFour cyano GC columns help eliminate ghost peaks and unstable baselines, offering a significant improvement in signal-to-noise.



**Bleed profile for a VF-624ms**  
(FID: Oven 100°C, 10°C/min to 260°C)



Column: VF-624ms 60 m x 0.32 mm x 1.8 µm, Oven: 40°C (5 min) at 5°C/min to 250°C (20 min), Carrier gas: Helium 1 mL/min, Split 1:100, 1°C Injection temp 250°C, Detection: MS iontrap: 2100T Temp trap: 150°C Temp manifold: 40°C Temp transfer line: 185°C, Sample conc: 2 mg/mL



## Eliminate compound breakdown and loss of late eluters!

FactorFour deactivation technology means elution of problematic pesticides, such as p,p'-DDT and endrin aldehyde – with near perfect peak shape – even at concentrations as low as 2 pg. With low-bleed FactorFour technology, improved signal-to-noise for trace levels of late-eluting compounds, such as naphthalene, are easily achieved.

## Eliminate co-elution!

The superior selectivity of FactorFour technology gives a significant improvement in the separation of typical co-eluters, such as aromatics and hydrocarbons like benzene and 1,2-dichloroethane, as well as solvents, such as acetaldehyde and methanol.

## Ordering Information – VF-1701ms (T<sub>max</sub> = 280/300°C)

Part No.	ID (mm)	Length (m)	Film (µm)	Bleed Spec (pA)
CP9143	0.15	15	0.15	0.5
CP9145	0.15	20	0.15	0.5
CP9144	0.15	15	0.60	0.5
CP9146	0.15	20	0.60	0.5
CP9175	0.15	15	0.10	0.5
CP9148	0.25	15	0.25	0.5
CP9149	0.25	15	1.00	1.0
CP9151	0.25	30	0.25	1.0
CP9152	0.25	30	1.00	2.0
CP9154	0.25	60	0.25	2.0
CP9155	0.25	60	0.50	4.0
CP9158	0.32	15	0.25	0.5
CP9159	0.32	15	1.00	1.0
CP9162	0.32	30	0.25	1.0
CP9163	0.32	30	1.00	2.0
CP9165	0.32	60	0.25	2.0
CP9166	0.32	60	1.00	4.0

## Ordering Information – VF-624ms (T<sub>max</sub> = 280/300°C)

Part No.	ID (mm)	Length (m)	Film (µm)	Bleed Spec (pA)
CP9101	0.15	15	0.84	1.0
CP9100	0.15	20	0.84	1.3
CP9109	0.15	30	0.84	1.5
CP9110	0.15	40	0.84	2.0
CP9102	0.25	30	1.40	2.5
CP9104	0.32	30	1.80	3.0
CP9105	0.32	60	1.80	6.0
CP9106	0.53	30	3.00	8.0

## Ordering Information – VF-1301ms (T<sub>max</sub> = 280/300°C)

Part No.	ID (mm)	Length (m)	Film (µm)	Bleed Spec (pA)
CP9050	0.15	15	0.15	0.5
CP9051	0.15	20	0.15	0.5
CP9053	0.25	30	0.25	0.5
CP9054	0.25	30	1.00	2.0
CP9056	0.25	60	1.00	4.0
CP9062	0.53	15	1.00	2.0
CP9063	0.53	30	1.00	4.0

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