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VF-Pesticides FactorFour GC Columns

FOR PESTICIDE RESIDUE ANALYSIS AT PICOGRAM LEVELS



VF-5 Pesticides

VF-1701 Pesticides

The new FactorFour VF-Pesticides columns have been specifically designed for analyzing trace levels of pesticide residues.

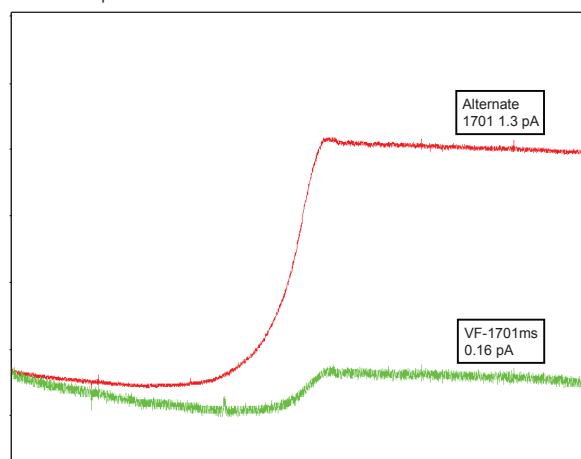
Key benefits include:

- ▶ Each column is individually tested with key pesticides, including endrin and aldrin, before shipment, ensuring optimal performance and consistency of results.
- ▶ Columns are highly inert for trace pesticide determination, affording better detection limits.
- ▶ Columns are ultra low bleed.
- ▶ Proven performance with ECD and MS detection.

Analyses at extremely low, trace level, concentrations are easy with the new VF-Pesticides columns, regardless of whether your method specifies ECD or MS detection.

VF-Pesticides columns benefit from ultra-low bleed FactorFour technology to improve sensitivity and eliminate other problems with column bleed. The VF-1701 Pesticides column demonstrates up to 8 x lower bleed than other columns used for pesticide analysis, as shown in Figure 1. Combined with an extremely inert surface, pesticide residues can be accurately detected down to 3 pg level, as shown in Figure 2.

Figure 1. Bleed comparison of the new VF-1701 Pesticides column and an alternate pesticides column.



The VF-1701 Pesticides column shows an 8 x lower bleed than the alternate column. Column: VF-1701 Pesticides 30 m x 0.25 mm $d_f = 0.25 \mu\text{m}$, Part number CP9070, Temperature: 100 °C + 10 °C/min → 280 °C, Detector: FID.

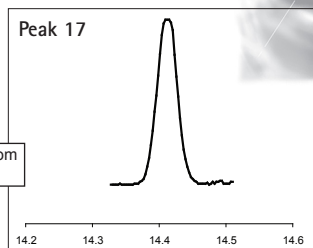
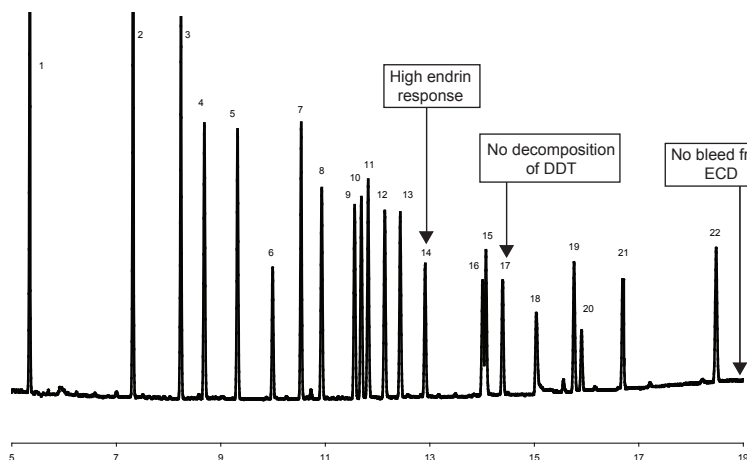
Typical Application Areas

Pesticide residues in food and environmental samples including EPA methods 8081 and 625.

VF-Pesticides FactorFour GC Columns

Figure 2. Analysis of Pesticides using EPA 8081 with ECD.

(a) VF-1701 Pesticides.



Excellent inertness and low bleed enables improved quantitation of DDT at 3pg level.

Peak Identification

1. 2,4,5,6-tetrachloro-m-xylene
2. α -BHC
3. γ -BHC
4. heptachlor
5. aldrin
6. β -BHC
7. δ -BHC
8. heptachlor epoxide
9. endosulfan I
10. γ -chlordane
11. α -chlordane
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

(b) VF-5 Pesticides.

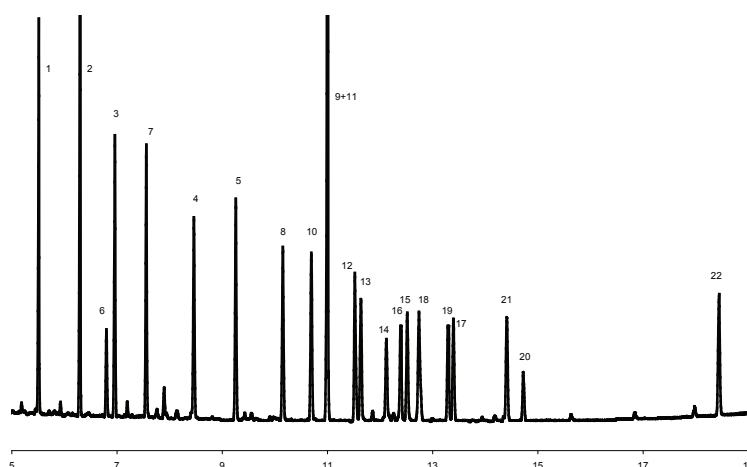


Figure 2 shows EPA method 8081 using a dual column configuration with ECD detection. The VF-Pesticides columns combine excellent inertness with ultra low bleed to enable fast and accurate determination of endrin and DDT at 3pg levels. Technique: GC, Varian CP-3800, Column: (a) VF-1701 Pesticides 30 m x 0.32 mm df = 0.25 μ m, Part No. CP9071, (b) VF-5 Pesticides 30 m x 0.32 mm df = 0.25 μ m, Part No. CP9075, Temperature: 60 $^{\circ}$ C (hold 30 sec.) \rightarrow 150 $^{\circ}$ C @ 50 $^{\circ}$ C/min \rightarrow 275 $^{\circ}$ C @ 8 $^{\circ}$ C/min, Carrier Gas: Helium, 150kPa, Injector: Split/Splitless, in splitless mode, T = 250 $^{\circ}$ C, Detector: ECD, T = 325 $^{\circ}$ C, Sample Size: 0.5 μ L, Sample: Pesticide 8081 Standard Mix, conc.: 6 ng/mL.

Ordering Information

Part number	Description	Bleed pA	T _{max iso/prog} ($^{\circ}$ C)	T _{-min} ($^{\circ}$ C)	As p,p'-DDT	N/m
CP9070	VF-1701 Pesticides 0.25 mm x 0.25 μ m x 30 m	1.00	280/300	-20	1.25	3500
CP9071	VF-1701 Pesticides 0.32 mm x 0.25 μ m x 30 m	1.00	280/300	-20	1.25	2667
CP9074	VF-5 Pesticides 0.25 mm x 0.25 μ m x 30 m	1.00	325/350	-60	1.25	3500
CP9075	VF-5 Pesticides 0.32 mm x 0.25 μ m x 30 m	1.00	325/350	-60	1.25	2667

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