

GC Analysis of Halogenated Pesticides using the Agilent J&W FactorFour VF-1701ms with EZ-Guard

Application Note

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Introduction

Pesticides analyses can be challenging due to complex sample matrices. Guard columns are often used to protect the analytical column from non-volatile compounds in the sample matrix. While prolonging the lifetime of the analytical column, the guard can introduce the risk of leakage through the coupling, or adsorption of analytes due to the influence of the connector. Leakage decreases column lifetime and adsorption causes asymmetrical peaks, lower detection response, and decreases the sensitivity of the analysis.

EZ-Guard is an integrated guard column that eliminates the risk of leakage and adsorption. When the resolution or the analyte response diminishes, a coil is removed from the EZ-Guard column so that column performance will improve.

The VF-1701ms is often used as a conformation column for pesticide analysis. Now with EZ-Guard, the VF-1701ms can be used for such samples in complex matrices. This application note demonstrates the performance of the VF-1701ms with EZ-Guard in the separation of pesticides.



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Materials and Methods

Column: VF-1701ms, 30 m x 0.25 mm ID, df=0.25 µm, + 10 m EZ-Guard (part number CP9177)
Sample Size: 2 µL, Split ratio 1:50
Sample Conc: 0.1% in hexane
Temp Program: 220 °C
Carrier Gas: H₂
Pressure: 90 kPa
Injector Temp: 275 °C, split
Detector Temp: 300 °C, ECD

Results and Discussion

As shown in the chromatogram (Figure 1) all compounds have excellent peak shape and high response, including unstable endrin and p, p'-DDT, demonstrating the inertness of the whole GC column.

Conclusion

The J&W FactorFour VF-1701ms with EZ-Guard offers improved column lifetimes and high performance in

the analysis of pesticides in complex matrices. Peak shapes are excellent, maximizing the sensitivity of the analysis. In addition, EZ-Guard columns are fast and easy to install and operate, boosting productivity and delivering improved efficiency. Also, the last meter is uncoated, functioning as an integrated transfer line, providing faster detector stabilization.

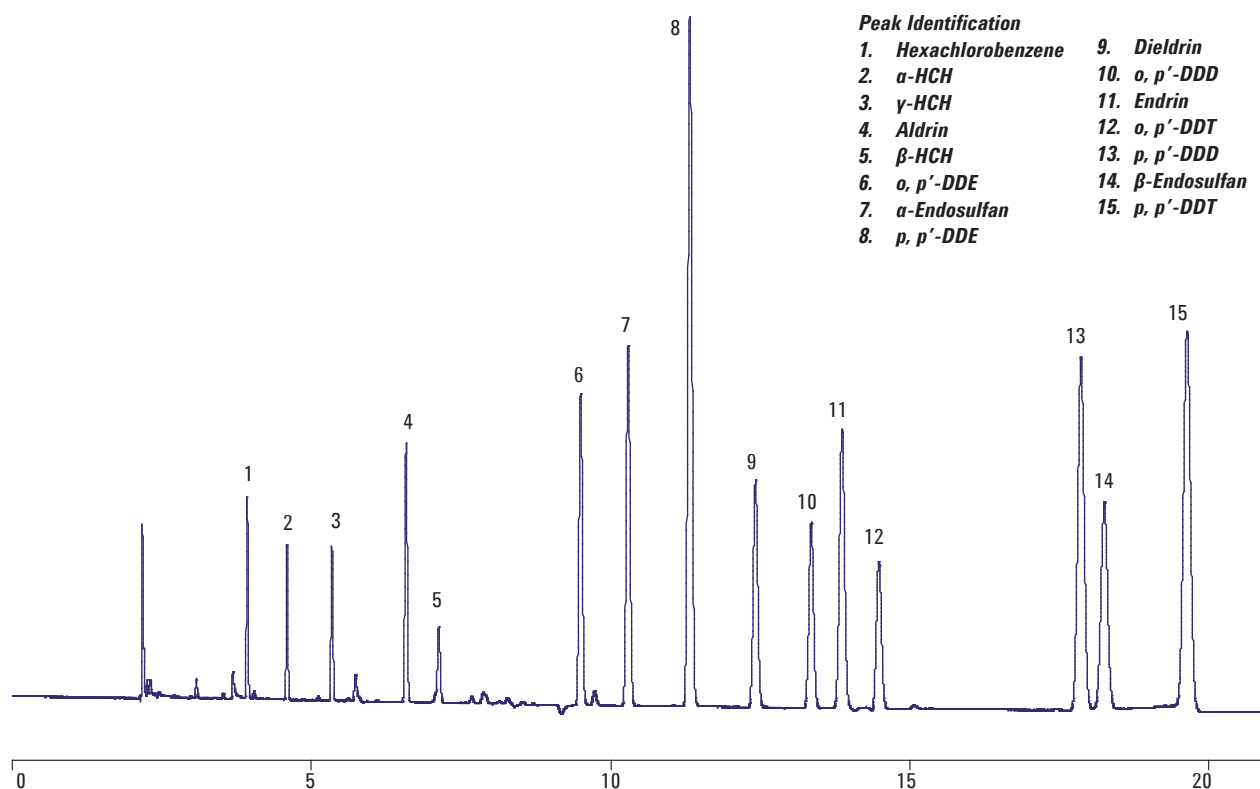


Figure 1. Excellent resolution of 12 halogenated pesticides on a VF-1701ms GC column with EZ-Guard

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