

# Mackerel Pesticides Analyzed by Gel Permeation Chromatography with Agilent EnviroPrep

## Application Note

Food Testing and Agriculture

### Author

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### Introduction

As part of a food safety program, it was necessary to assess the level of the pesticide 1,2,3,4,5,6- $C_6H_6Cl_6$  in a sample of seafood. Gel permeation chromatography (GPC) was used because GPC is a simple technique for cleaning up food and environmental samples. Agilent EnviroPrep columns were selected for the separation. These stainless steel columns are packed with high resolution macroporous material ready for use on any preparative high pressure liquid chromatography system. Macroporous materials are highly crosslinked with a rigid and permanent pore structure that ensures high resolution separations, particularly where high sample loading is not required. The low pore size of EnviroPrep columns excludes high molecular material, maximizing separation of these interferences from the low molecular weight species of interest.



## Method and Results

A 1 g sample of mackerel was macerated and the tissue was extracted into 50 M of chloroform. The resulting organic solution was then cleaned up by elution through two EnviroPrep 300 x 25 mm columns connected in series.

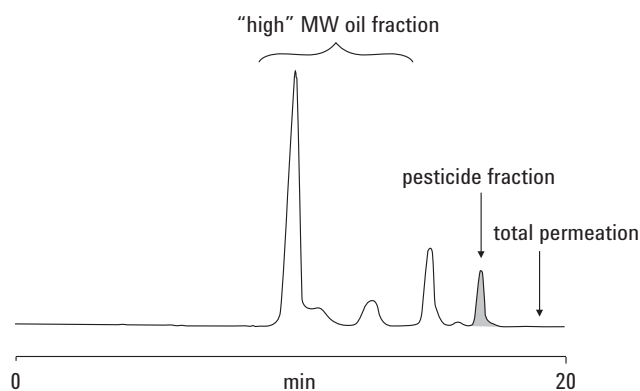


Figure 1. The chromatogram clearly shows that EnviroPrep columns can be used to separate high molecular weight lipids that are excluded on the columns from a small molecule pesticide. This allowed collection of the pure pesticide in solvent for further analysis.

## Conditions

Column	2 x EnviroPrep, 300 x 25 mm (p/n PL1210-6120EPA)
Sample	Mackerel
Eluent	Tetrahydrofuran
Flow Rate	10 mL/min
System	Agilent 1260 Infinity Isocratic Pump, Manual Injector and Refractive Index Detector

## Conclusion

Gel permeation chromatography with EnviroPrep columns is a straightforward system for high resolution separation of pesticides in food samples. In this example, interfering high molecular weight lipids were separated from a low molecular weight pesticide in a sample of mackerel.

To allow the separation of trace components at low concentrations, the rigid and well-defined pores of the EnviroPrep macroporous packing material give unrivalled resolution and peak shape. In addition, for maximum flexibility, the columns can be used with any liquid chromatography system capable of isocratic flow at the required flow rates.

## For More Information

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Printed in the USA  
April 30, 2015  
5990-7621EN