

# Determination of Benzo[a]pyrene by HPLC After GPC Cleanup

LabTech Inc.

## Introduction

Benzo[a]pyrene is found in coal tar, automobile exhaust fumes, all smoke resulted from the combustion of organic material, and charbroiled food. Cooked meat products, regular consumption of which has been epidemiologically associated with increased levels of colon cancer, have been shown to contain benzo[a]pyrene.

In the oil industry, reliable and rapid method to determine benzo[a]pyrene is very important for process control. The determination of benzo[a]pyrene also could give a message of abusing reused oil or not.

In this research we built a rapid method to determine benzo[a]pyrene by HPLC after GPC Cleanup.

## Instrumentation

PrepElite GV GPC Cleanup-Auto concentration system (LabTech Inc.)

HPLC-FL (LabTech Inc.)

## Method Summary

### GPC Cleanup Method:

Mobile Phase: Ethyl acetate: Cyclohexane =1:1

Column: 20×300mm Bio-Rad SX-3

Flow Rate: 5ml/min

Collection Range:20-28min

### Auto Concentration Method:

Temperature: 40°C

Concentration Mode: Solvent Exchange

Exchange Solvent: Acetonitrile

### HPLC Method:

Mobile Phase: Acetonitrile

Column: LabTech Column C18 5 μm 4.5×150mm

Flow Rate: 1ml/min

Excitation Wavelength: 384nm

Emission Wavelength: 406nms

## Result

The results are listed on table 1 which shows the recovery and RSD. Figure 1 is a Chromatogram of Benzo[a]pyrene on HPLC-FL and Figure 2 is a Chromatogram of Benzo[a]pyrene in oil on HPLC-FL after GPC Cleanup.

Compand	Actual Value (ng/g)	Given Value (ng/g)	Recovery (%)	RSD(%)
	8.256	8.19	99.1	1.3
		8.38	101.5	
		8.21	99.4	

Benzo[a]pyrene	16.512	16.91	102.4	1.5
		16.86	102.1	
		16.46	99.7	
Benzo[a]pyrene	33.024	34.99	106.0	1.7
		94.94	105.8	
		33.97	102.9	

Table 1. The Recovery and RSD of Benzo[a]pyrene in Oil

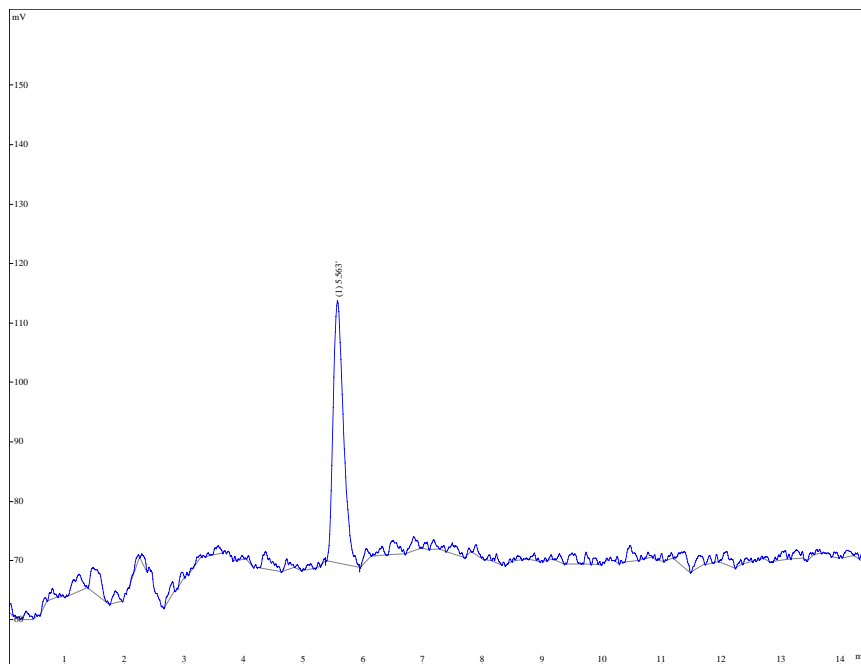


Figure 1. Chromatogram of Benzo[a]pyrene on HPLC-FL

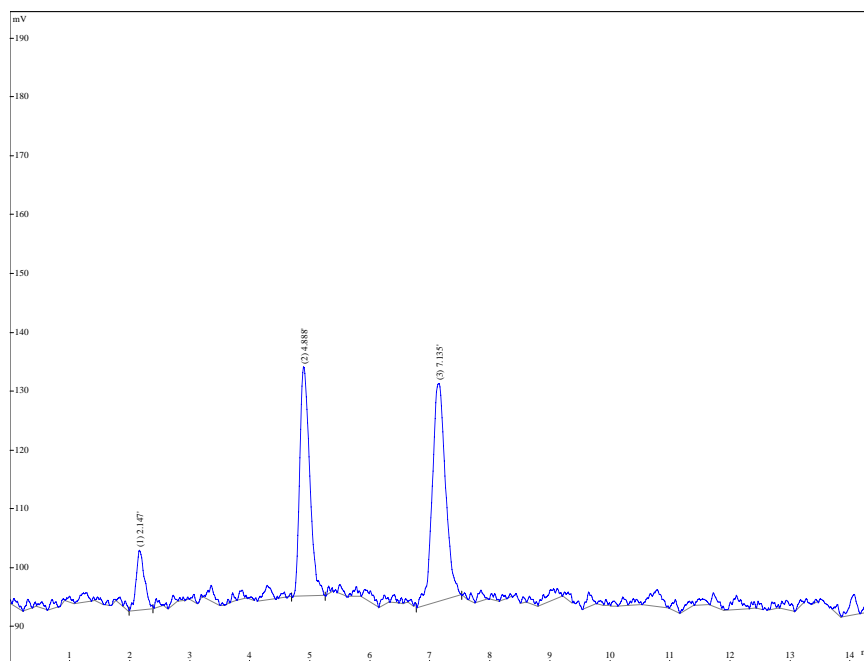


Figure 2. Chromatogram of Benzo[a]pyrene in oil on HPLC-FL after GPC Cleanup