

This Application Note contains important information about this product

AFFINILUTE™ MIP – PAH

Description	Quantity	Part Number
AFFINILUTE MIP PAH 25 mg/3 mL	50	M73-0002-B

Molecularly Imprinted Polymers

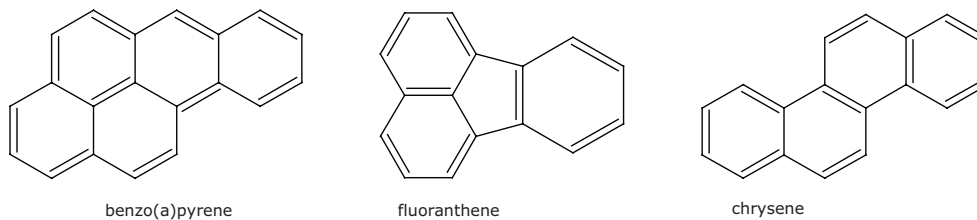
Molecularly imprinted polymers (MIPs) are a class of highly cross linked polymer-based molecular recognition elements engineered to bind one specific target compound or a class of structurally related compounds with high selectivity. The MIP material is designed with cavities that are sterically and chemically complementary to the target analyte(s). As a result, multiple interactions (e.g., hydrogen bonding, ionic, Van der Waals, hydrophobic) can take place between the MIP cavity and the analyte.

Extraction & Analysis of PAHs in Olive Oil

A PAH standard test mix comprising of fluoranthene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123-cd)pyrene, dibenzo(ah)anthracene, and benzo(ghi)perylene (figure 1) was prepared in methylene chloride.

Olive oil was spiked with PAHs in duplicate at the level of 2 ng/g. Chrysene-d₁₂ was spiked as the internal standard at the level of 20 ng/g.

Figure 1. Representative Structures of PAHs



Sample pretreatment

0.5 g of spiked and blank oil sample was mixed with 0.5 mL cyclohexane and was extracted using the AFFINILUTE MIP SPE procedure described below and analyzed via GC-MS under the conditions listed.

Extraction Procedure

A flow rate of ~0.5 mL/min. is recommended. For analyte elution a flow rate of ~0.2 mL/min. is recommended.

1. Condition with 1 mL cyclohexane
2. Load 2 mL diluted oil sample
3. Wash with 1 mL cyclohexane
4. Elute with 3 x 1 mL ethyl acetate
5. Evaporate SPE eluate under nitrogen at 40 °C and reconstitute in 0.2 mL ethyl acetate for analysis.

GC-MS Conditions for PAH analysis

Column: SLB-5ms: 30 m x 0.25 mm ID x 0.25 µm (Cat. No. 28471-U)
Instrument: Agilent GC-MS
Flow rate: Helium, 2 mL/min, constant
Injector temperature: 300 °C
Oven: 60 °C , 25 °C/min. to 275 °C (5 min.), 10 °C/min. to 300 °C (1 min.)
Injection: 1 µL, splitless
MS detection: Autotune + EM offset of 300
Scan range: SIM

Ordering Information

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AFFINILUTE MIP - PAH		
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