

SCF 510

Extraction of PAHs from Urban Air Particulates Using Supercritical Fluids

Introduction

Supercritical CO₂ alone easily dissolves polyaromatic hydrocarbons (PAHs) from spiked matrices, but not from weathered, aged samples. An extraction at high temperatures is necessary to increase the kinetic rate of desorption of the PAHs from the surface of a weathered sample for complete extraction without organic modifiers.

The high temperature extraction of standard reference material, SRM 1649 shows increased recoveries of PAHs when compared to US EPA liquid/solid extraction techniques.

Equipment

- ✓ Applied Separations' *Spe-ed* SFE Supercritical Extraction System



Materials

- ✓ SRM 1649, Standard Reference Material (PAHs in Air Particulates)
- ✓ SFE grade CO₂
- ✓ C18 Collection cartridge (1g/6mL #12007)
- ✓ Pesticide grade methanol

Method

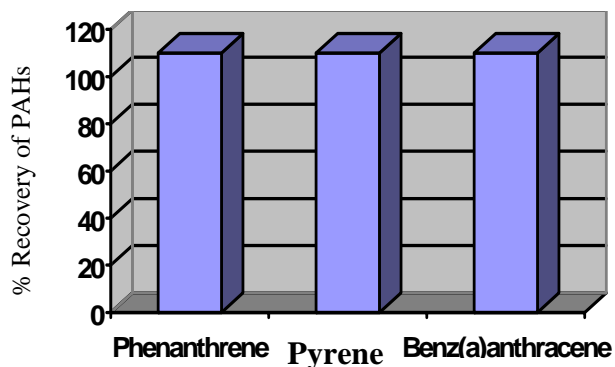
Place 0.5g of soil/sediment into a 1mL extraction vessel. Extract sample at specified conditions.

Extraction Conditions

Extraction vessel:	1mL
Sample:	0.5 g
Pressure:	600 BAR
Temperature:	180°C
CO ₂ Flow Rate:	2L/min (gas)
Collection:	SPE cartridge 1g/6mL C18
Static:	10 minutes
Dynamic:	30 minutes
SPE Rinse:	5mL methanol spiked with internal standard

Results

% PAH Recovery Compared to Certified Value



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Supercritical
Fluids

Application

World Leaders in Sample Preparation

Analysis

GC-MS

Conclusion

High temperature extraction of PAHs from an urban air particulate sample gave excellent results when compared to certified values of a standard reference sample.

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