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## METHOD STATEMENT PAHS & PHENOLS ON FILTERS BY GC / MS

### INTRODUCTION

The performance of this method is validated in accordance with internationally recognised procedures.

This procedure describes the determination of target polyaromatic hydrocarbons (PAHs) and Phenols / Cresols and Xylenols (Phenols) on G / FA filters by solvent extraction / concentration followed by analysis of extracts by gas chromatography with mass spectrometric detection (GC / MS).

### PRINCIPLE

Target compounds are extracted from the test sample with dichloromethane by ultra-sonification, after the addition of a mixture of deuterated PAHs to the test sample. The extracts are then reduced in volume to 1 ml. The extracts are then analysed by GC / MS in the selected ion recording mode. This is normally performed at unit mass resolution, but if very low levels are required analysis can be performed at high resolution using a sector mass spectrometer.

### PERFORMANCE CHARACTERISTICS

#### SUBSTANCES DETERMINED

This method is suitable for the analysis of the 'EPA 16' PAHs:

naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, anthracene, pyrene, fluoranthene, chrysene, benz(a) anthracene, benzo(b)/(k) fluoranthene, benzo(a)pyrene, dibenz(ghi)perylene, indeno(1,2,3,-cd)pyrene and dibenz(a,h) anthracene and Phenols: phenol, 2-cresol, 3-cresol, 4-cresol, 2,6-xyleneol, 2,5-xyleneol and 2,3-xyleneol

Other compounds may be determined by the method, provided suitable standards and validation have been performed.

#### RANGE OF APPLICATION

- 0.01 - 10,000 ug (compound dependent)

#### LIMIT OF DETECTION

- 0.01 - 0.1 ug

#### ANALYTICAL QUALITY CONTROL

Analytical quality control is maintained by a number of measures:

- Multi-point calibration with authentic standards (with defined minimum performance characteristics).



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- Analysis of control samples within each analytical batch, such as independent standards, matrix spikes or reference materials.
- Analysis of reagent / method blanks within each analytical batch.
- Ongoing quality assured by the use of control charts in conjunction with warning and action limits for the QC sample data.
- Participation in external proficiency testing and interlaboratory schemes such as LGC CONTEST and AQUACHECK (for system performance only - will not measure extraction efficiency).

## REFERENCES

- US EPA Method 8270, Revision C, Semivolatile Organic Compounds by Gas Chromatography – Mass Spectrometry (GC/MS).