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## **Method Summary**

### **Determination of Polynuclear Aromatic Hydrocarbons (PAHs) in water by GC-MS**

#### **Scope and Range**

Polynuclear aromatic hydrocarbons (PAHs) are prevalent in the environment. They can either occur naturally in fossil fuel products e.g. coal and oil, or as a result of incomplete combustion of organic material. PAHs are classified as carcinogenic compounds and are monitored in a wide range of environmental matrices. This method is used to analyse 16 USEPA PAHs in water using GC-MS.

Calibration Range: LOR to 12,5µg/l.  
For limits of Report (LOR's) see table 1.

#### **Principle**

##### **Preparation and Extraction**

Samples should be collected in glass containers and kept cooled during transportation. Samples are extracted using liquid/liquid extraction.

##### **Analysis**

Analysis is undertaken by GC-MS using Selective Ion Monitoring (SIM).

#### **Interferences**

By using GC-MS in SIM, there are few significant interferences.  
Components co-eluting and sharing m/z ions with the target compounds will cause interferences.



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Table 1 - USEPA Compounds and their associated Reporting Limits (LOR)

Accredited Method	
Compound	LOR ( $\mu\text{g/l}$ )
Naphthalene	0.01
Acenaphthylene	0.005
Acenaphthene	0.005
Fluorene	0.005
Phenanthrene	0.005
Anthracene	0.005
Fluoranthene	0.005
Pyrene	0.005
Benz(a)anthracene	0.005
Chrysene	0.005
Benzo(b)fluoranthene	0.005
Benzo(k)fluoranthene	0.005
Benzo(a)pyrene	0.002
Indeno(123cd)pyrene	0.005
Dibenzo(ah)anthracene	0.005
Benzo(ghi)perylene	0.005
PAH16 Total *	0.082

\* Calculation of PAH16 Total = Sum of the 16 individual components