

METHOD STATEMENT

Determinand:

Extractable petroleum hydrocarbons (EPH) >C10 - C44

Matrix:

Raw waters, waste waters, effluents and leachates.

Principle of Method:

Petroleum hydrocarbons are extracted from aqueous samples using n-Hexane and the extracted hydrocarbons are then quantified by capillary gas chromatography with flame ionisation detection (GC FID).

Sampling and Sample Preparation:

250ml glass bottles should be used fitted with PTFE lined screw caps.

Samples should be stored at 5±3°C.

Samples are stable for 13 days (In-House Data) from sampling.

Interferences:

Any co-extracted material which has a retention time in the C10 to C44 range and which elicits a detector response will interfere.

Performance of Method:

The range of analysis is 10 - 2,000µg/l without dilution

Determinand	LOD µg/l	Low Std		High Std	
		Bias	RSD	Bias	RSD
>C10 - C12	0.969	-	-	-	-
>C12 - C16	1.540	-	-	-	-
>C16 - C21	3.072	-	-	-	-
>C21 - C44	7.052	-	-	-	-
>C10 - C16	1.521	-	-	-	-
>C16 - C24	3.869	-	-	-	-
>C24 - C44	7.132	-	-	-	-
TPH (>C10 - C44)	9.038	+3.35%	7.28%	+4.76%	3.32%

Determinand	Dechlorinated Tap		Leachate		Effluent	
	Rec.	RSD	Rec.	RSD	Rec.	RSD
TPH (>C10 - C44)	102.9%	7.80%	96.7%	6.19%	103.5%	7.56%
TPH (>C10 - C44) - High Range	103.2%	6.60%	102.1%	5.93%	103.5%	5.93%

Determinand	Aliphatic LOD µg/l	Aromatic LOD µg/l
>C10 - C12	0.326	0.616
>C12 - C16	0.225	0.351
>C16 - C21	3.125	3.176
>C21 - C44	3.878	5.608
>C10 - C16	0.441	0.540
>C16 - C24	4.076	4.933
>C24 - C44	2.938	4.033
EPH (>C10 - C44)	8.377	9.705



METHOD STATEMENT



Compound	Silica gel fractionation - Mean Recoveries			
	Aliphatic Fraction (F1)		Aromatic Fraction (F2)	
	Recovery (%)	RSD (%)	Recovery (%)	RSD (%)
Naphthalene	<5.00	-	90.4	5.00
2-Methyl Naphthalene	<5.00	-	90.6	5.02
Acenaphthylene	<5.00	-	90.6	4.95
Acenaphthene	<5.00	-	91.0	4.93
Fluorene	<5.00	-	92.2	4.45
Phenanthrene	<5.00	-	94.8	4.09
Anthracene	<5.00	-	94.4	4.07
Fluoranthene	<5.00	-	95.0	3.45
Pyrene	<5.00	-	96.3	3.50
Benzo(a)Anthracene / Chrysene	<5.00	-	97.2	3.14
Benzo(b/k)Fluoranthene	<5.00	-	91.1	3.64
Benzo(a)Pyrene	<5.00	-	102.4	2.10
Dibenzo(ah)Anthracene / Indenopyrene	<5.00	-	97.7	3.62
Benzo(ghi)Perylene	<5.00	-	96.3	5.08
Total Aromatic	<5.00	-	94.3	4.07
Decane (C10)	89.2	2.15	<5.00	-
Dodecane (C12)	88.8	2.30	<5.00	-
Tetradecane (C14)	88.9	1.95	<5.00	-
Hexadecane (C16)	89.2	1.73	<5.00	-
Octadecane (C18)	91.6	1.70	<5.00	-
Nonadecane (C19)	92.5	1.70	<5.00	-
Eicosane (C20)	92.8	1.52	<5.00	-
Docosane (C22)	93.7	1.30	<5.00	-
Tetracosane (C24)	94.2	1.69	<5.00	-
Hexacosane (C26)	92.9	1.15	<5.00	-
Octacosane (C28)	93.0	2.85	<5.00	-
Triacontane (C30)	92.7	1.32	<5.00	-
Hexatriacontane (C36)	91.3	2.54	<5.00	-
Tetratetracontane (C44)	87.9	5.99	<5.00	-
Total Aliphatic	91.3	2.14	<5.00	-

References:

In-House method

