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Method Summary

Determination of Extractable Petroleum Hydrocarbons from Water by GC-FID

Scope and Range

Petroleum Hydrocarbons is a complex mixture of aliphatic and aromatic species. This method describes a procedure for the analysis of solvent Extractable Petroleum Hydrocarbons (EPH), in the carbon number range >C10 up to and including C40 by Gas Chromatography (GC) with flame ionisation detection (FID). This total does not include any clean up process and the extract is run directly on the instrument.

It is also applicable to Aliphatic (Mineral Oil) fractions, following suitable clean-up procedures of the solvent extract as well as a silica gel clean up.

This method is applicable to contaminated waters and leachates. This method is accredited to ISO 17025 standard for ground waters, surface waters, non-regulatory drinking water and final effluent. Silica gel clean up and the aliphatic fraction (mineral oil) are outside the scope of accreditation.

The Reporting limit (LOR) for the method is <100 µg/l.

Linear Range: The linear calibration range for the method is LOR to 12500µg/l.

References

Annex 3 and 4 DTI Conditions for the Discharge of Oil Contaminated Cuttings
Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria Working group (TPHCWG).

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-FID.

Interferences

Solvents, reagent glassware and other sample processing hardware may yield artifacts and/or interferences to sample analysis. All these materials must be demonstrated to be free from interferences under the conditions of the analysis. This is undertaken by analysis of method blanks.

Interferences co-extracted from the sample will vary considerably from source to source. If analysis of an extracted sample is prevented due to interferences, it may be necessary to dilute the sample before GC analysis in order to reduce the effect of interferences.

Flame ionisation is a non-specific means of detection; therefore, any substances that co-elute from the chromatographic column with any of the components of interest will interfere with this determination.