



## **Method Summary**

### **Determination of Speciated Extractable Petroleum Hydrocarbons from Soil by GC-FID**

#### **Scope and Range**

Petroleum Hydrocarbons are a complex mixture of aliphatic and aromatic species. This method describes a procedure for the analysis of solvent (n-hexane/acetone) Extractable Petroleum Hydrocarbons (EPH), in the carbon number range C12 to C44 by Gas Chromatography (GC) with flame ionisation detection (FID) from 'as received' samples. The extracts are speciated into aliphatic and aromatic fractions and banded in the ranges C12-C16, C16-C21, C21-C35, C35-40 and C40-44.

LOD for the method is <100 µg/kg based on a discrete peak. Detection limits for this method are based on 10g of soil being used for the extraction; however, the detection limits will vary if a reduced amount of sample is available for extraction. Any dilution factor (DF) required is taken into account in the calculation of results.

Linear Range: The linear calibration range for the method for aliphatics is LOD to 2400 mg/kg. The linear calibration range for the method for aromatics is LOD to 750 mg/kg.

#### **References**

none

#### **Principle**

Solvent Extraction of Extractable Petroleum Hydrocarbons for Speciation with the use of a reciprocating shaker and analysis by GC-FID is the appropriate sample solvent extraction technique used.

Micro-Column Chromatography by ASPEC is used to separate the solvent extract into aliphatic and aromatic fractions

Quantitation is carried out by means of the external standard technique against 5-point calibration, with internal standard correction. Internal standard correction is implemented to compensate for any deviation from the 1 ml sample volume, which is provided for analysis, in order to achieve consistency of results. Surrogates are added to monitor the efficiency of separation of the sample into aliphatic and aromatic fractions.

#### **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 and reagent blanks. Interferences co-extracted from the sample will vary considerably from source to source. It may be necessary to dilute the sample before GC analysis in order to reduce the effect of interferences.