
**Soil quality — Screening soils for
isopropanol-extractable organic
compounds by determining
emulsification index by light
attenuation**

*Qualité du sol — Analyse rapide des sols pour les composés
organiques extractibles à l'isopropanol en déterminant l'indice
d'émulsification par l'atténuation de la lumière*

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Foreword

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The committee responsible for this document is ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical methods and soil characteristics*.

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Introduction

Light attenuation due to light scattering/absorption by emulsions can be used to screen for a variety of isopropanol-extractable organic substances such as total petroleum hydrocarbons (TPH). This is one of the main organic contaminants of many contaminated land sites.

Petroleum hydrocarbons do not typically have many functional groups or contain any hetero-atoms that are easily detected in common analytical procedures. When the non-polar nature of organic compounds is targeted, as in this proposed method, turbidity/emulsification is produced by a number of organic compounds including BTEX (benzene, toluene, ethylbenzene and xylenes); PNAs (poly-nuclear aromatics); fuels; oils and greases that frequently are found at contaminated land sites.

This method can be used for screening soil samples to estimate the total amount of recoverable petroleum hydrocarbon contamination in soil including a wide range of fuels, oils, and greases. The emulsification approach in this method is incorporated to rapidly screen soil samples using a system calibrated with the organic substance present on the investigated site. If the contaminant is unknown, commercially available diesel oil can be used for calibration. This makes turbidity/emulsification analysis a very versatile analytical method that can be used on most hydrocarbon/non-polar organic substance spills without prior knowledge of the exact BTEX or PNA content or composition of the contaminant. This method is more sensitive to non-polar heavier organic compounds from jet fuel to oils and greases, but less sensitive to more volatile and lighter hydrocarbon fuels. A turbidity analysis assists the user in recognizing the contamination by non-polar organic compounds at a given site.

This International Standard describes the procedure for on-site soil screening of organic compounds using emulsification and light attenuation due to light scattering/absorption analysis.

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