



COMBINED MIP-HPT-CPT PROBE FOR MULTI-PARAMETER DETECTION

Type of product	In-Situ investigation probe with product presentation leaflet and additional information in associated lectures, papers
Target group	Consulting engineers, scientific researchers
Availability	Timbre website, Fugro homepage (expected) and direct contact



Background: High-resolution methods of subsurface investigation allow an improved understanding of the spatial distribution of parameters controlling contaminant spreading and persistence. They deliver the basis for a reliable risk assessment and remediation planning of subsurface contamination.

Purpose: Multi-parameter probes are cost-effective tools which allow the real-time acquisition of several parameters with just one push. Fugro, as global leader for in-situ direct sensing tools, is dedicated to the further development of sensors capable of providing reliable data on lithology, hydraulics and contamination.

Approach: The MIP-HPT-CPT probe has outstanding capabilities when it comes to the detection of contaminants in soil and groundwater (MIP: Membrane Interface Probe), determining hydraulic conductivities (HPT: Hydraulic Profiling Tool) and providing a lithological classification and geotechnical data (CPT: Cone Penetration Test) simultaneously in just one push.

Associated developments accomplished: Data acquired in the field are transferred online and processed using Fugro developed software. After processing, the data is displayed using Fugro's own GeODin visualization software package. Results are available within one hour. 2D/3D-visualization procedures of the processed field data can be carried out. The retrieved MIP-, HPT- and CPT-data can be further used to compute mass flow rates/discharge.

Practical implications:

- Minimal-invasive investigation of the subsurface, efficient and economical acquisition of various datasets in one single push
- Simultaneous detection of Volatile Organic Compounds (VOCs), soil classification, hydraulic characteristics as well as electrical conductivity and dynamic porewater pressure

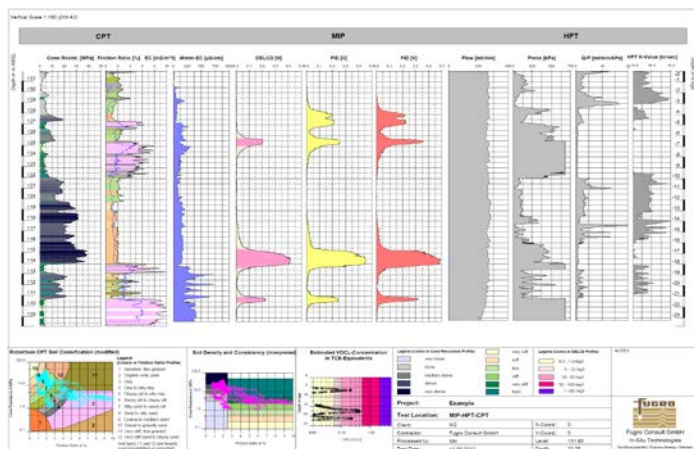


Figure: MIP-HPT-CPT-Layout incl. Robertson soil classification, soil density and consistency, estimation of VOCL-concentration in TCE-equivalents and presentation of hydraulic characteristics

Contact: Dr. Eugen Martac (e.martac@fugro.de)

