

Membrane Interface Probe - MIP

Membrane interface probe capability

Lankema Inc offers an integrated CPT / MIP geophysical and chemical subsurface investigation tool. This tool incorporates all the advantages of the standard CPT data acquisition with site specific chemical screening capabilities for volatile organic compounds (VOCs).

Applicability

Capable of measuring aliphatic and aromatic hydrocarbons from petroleum releases (e.g hexane, benzene, MTBE). Additionally the detectors are capable of measuring chlorinated solvents released for degreasing operations (e.g. trichloroethylene, perchloroethylene) and many other contaminants.

Advantages

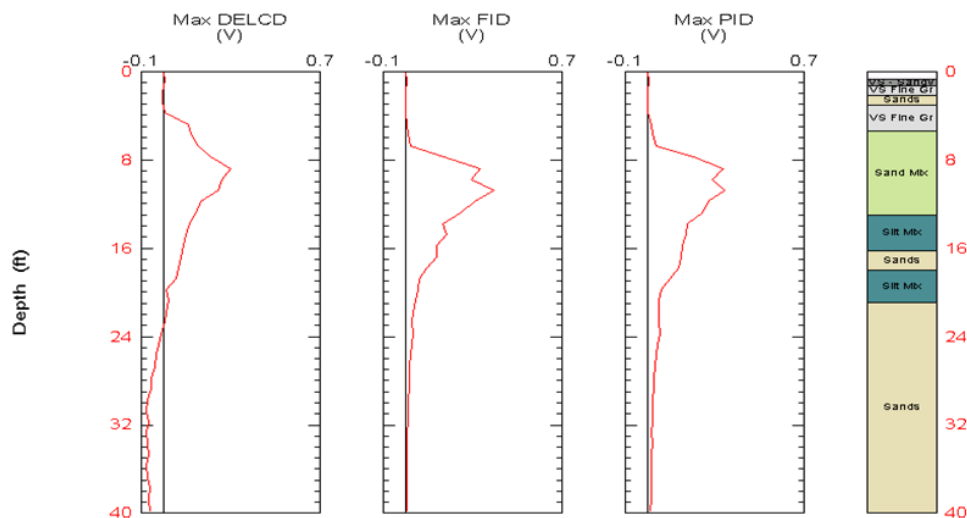
Real-time chemical subsurface investigation tool.

Provides for rapid assessments and high degree of spatial resolution.

Configurable with many chemically selective detectors, including mass spectrometers.

Lower detection limits on the order of 1 to 10 mg/kg (ppm).

Detection in both vadose and saturated zones.



Example CPT - MIP chemical and geophysical depth profile
(USA, imperial measurements)

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Standard chemical detectors

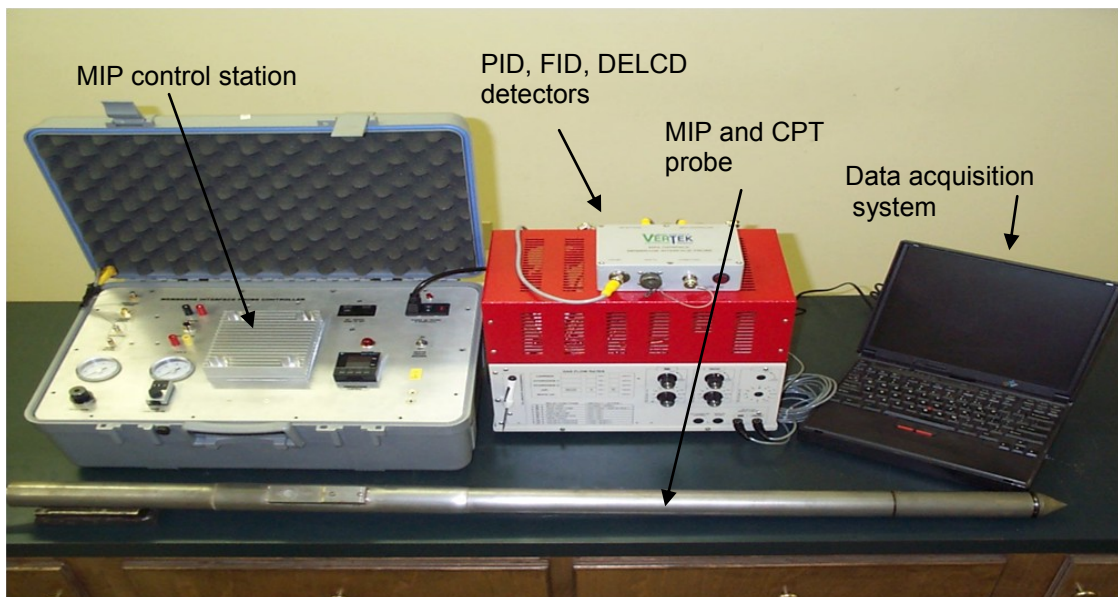
Photo-ionization Detector (PID) – aromatic hydrocarbon selective

Flame-Ionization Detector (FID) – hydrocarbon selective

Dry Electrolytic Conductivity Detector (DELCD) - chlorinated selective

Principle of CPT - MIP operation

Lankelma Inc has integrated the CPT – MIP cone with an umbilical (varies in length) which services the carrier gases and electronics. The MIP controller assembly regulates the heater block temperature and carrier gas flow. At a known depth within the subsurface, a 120 second test is conducted. The analytes are carried from the down-hole CPT – MIP module to the chemical detectors which simultaneously interface with the custom data acquisition system. At the end of the penetration, a processing code is applied to all the tests conducted and a profile of the concentrations versus depth is generated.



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