

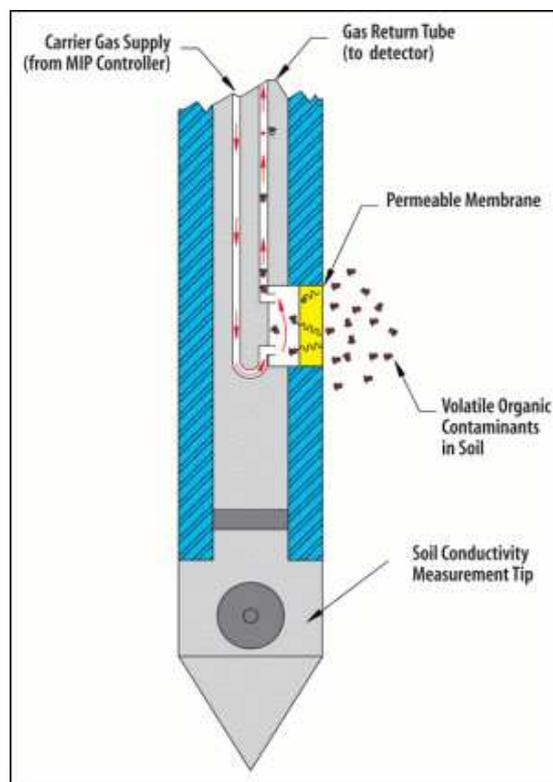
INFORMATION SHEET MIP (MEMBRANE INTERFACE PROBE® - GEOPROBE)

What can MIP be used for?

- Fast, complete and accurate horizontal and vertical demarcation of the contamination with volatile parameters – possible development of 3D images
- Establishment of the relation between the occurrence of pollutions and the measured conductivity (contamination versus geology)
- Estimation of the pollutant concentration and the pollution volume
- Identification and characterisation of the (different) types of contamination
- Targeted sampling – to be executed during or after the MIP-survey through undisturbed sampling (liners) or temporary monitoring wells (direct welling) with the same machine

Principal of operation

The MIP-system uses the volatile properties of the soil contamination. The sounding consists of introducing a probe holding a semi-permeable membrane underneath into the soil. The heater core is being warmed to a temperature of 80 to 125°C in the area of the probe that holds the membrane. This process makes the volatile compounds in the soil transition to a gaseous stage around the area of the membrane. The gaseous VOCs then diffuse through the membrane and are being carried through an inert carrier gas (e.g. nitrogen, helium) to a series of detectors in the gas chromatograph.



The MIP is mounted in a sealed box that is attached to a small motor driven tracked cart (dim. 1/w/h 125m x 065m x 18m).

These small dimensions and the separately driven undercarriage allow for the MIP to be operated in almost any location, no matter how small or how inaccessible the terrain.



Which contaminations can be detected in which detectors?

For the MIP, Geosanda uses a PID and an FID, combined with an XSD detector, which is more stable than a DELCD detector and is an alternative for the ECD detector. The XSD, however, does not use radioactive sources, so that no administrative actions are required to obtain any necessary licenses. The detector is, however, just as sensitive as the ECD.

- PID
 - BTEX (= aromatic HC)
 - chlorinated HC with an ionization potential < 10,6 eV
 - other volatile substances with an ionization potential < 10,6 eV
- FID
 - all volatile substances that reach the detector
 - more sensitive to aliphatic HC (= methane, ethane, butane, etc.)
- XSD
 - all chlorinated HC that reach the detector.

Results?

The results are semi-quantitative and qualitative:

- An entire spatial image is obtained through the combination of geochemical and geophysical parameters.
- The pollution is detected and registered in situ – no waste in the form of contaminated drill cuttings or ground water is being generated
- It can be used in almost any type of alluvial soils, whether it be the saturated or the unsaturated zone
- Use of the highly sensitive and user-friendly XSD