

RemScan®

TPH
Texture

Instant and Accurate Soil Measurement

TPHSoil App



FEATURES AND BENEFITS

RemScan is a portable hand-held instrument for rapid measurement of oil in soil. The user simply pulls the trigger for an accurate measurement in less than 20 seconds. The data is recorded automatically on a Tablet for easy download.

RemScan is used for oil spill assessment, delineation, remediation and monitoring.

RemScan can be used *in-situ* to measure directly in the field, or *ex-situ* in a site hut or lab.

The **TPHSoil App** is one of the many Apps available for RemScan.

Available for Hire or Purchase.

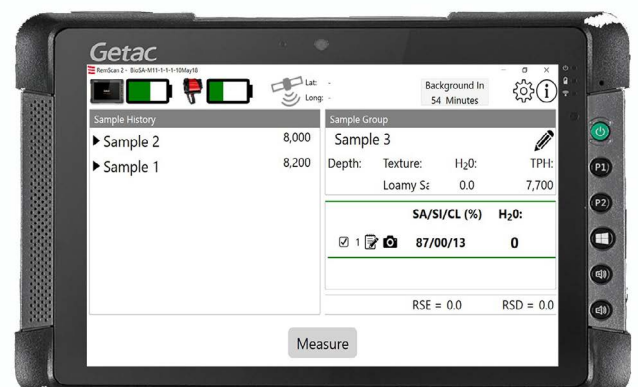


Key Benefits

- Accurate and repeatable
- More data
- Make real-time decisions with confidence
- Accelerate project closure

Key Features

- Measures TPH in soil (>C₁₀)
- Measures soil particle size distribution and the Soil Texture Class (IUSS)
- Results in less than 20 seconds
- Accuracy comparable to laboratory
- Direct infield measurement or in on-site lab
- Sample ID, GPS location, depth, photo and notes logged with each measurement
- No incremental costs
- No sample extraction required
- No chemicals
- No licensing requirements
- Non-destructive



USE CASES

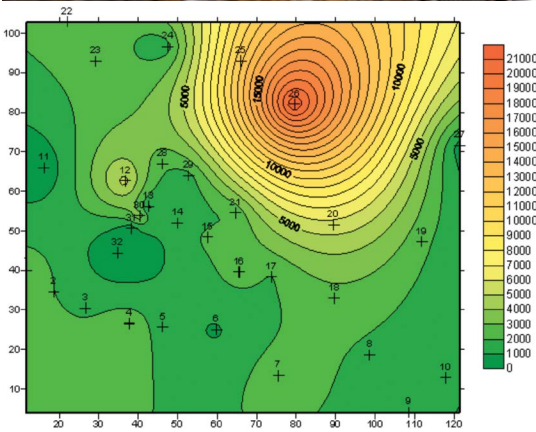
Site Assessment / Delineation



RemScan is used to measure the concentration of oil on the surface of the soil enabling the user to quickly delineate the contaminated area. Depth profiles can be measured by taking a drill core, laying the core out and using RemScan to directly measure the hydrocarbon concentration at various points (depths) along the core.

Some examples:

1. Site Clean-up. RemScan is used to determine the edge of the contaminated zone which can be marked out prior to excavation of the contaminated soil.
2. Emergency Spill response. RemScan is used firstly to delineate the spill and then, during excavation, to chase the spill and then validate that all of the contaminated soil has been removed.
3. Wash bay fines. RemScan can measure the fines which wash off vehicles in a wash bay. Hydrocarbon contaminated fines can be sent for remediation while clean fines can be dumped.



Chasing / Validation



While excavation work is being performed, RemScan can measure the remaining soil to check whether all of the contaminated soil has been removed and whether the remaining soil is clean. Once all contaminated soil has been removed, samples can be sent to the laboratory for final auditing and statutory signoff.

USE CASES

Sorting



RemScan is used to sort clean soil from contaminated, thereby minimising the amount of soil to remediate.

When soil is being sent to different remediation processes depending on the level of contamination, RemScan can be used to sort the soil to ensure the most efficient processing. For example, highly contaminated soil may be sent to a Thermal Desorption Unit (TDU) while lower concentrations may be sent to bioremediation. Each process works most efficiently when fed with a relatively consistent concentration and RemScan can be used to achieve this objective.

Monitoring



RemScan is used to monitor the soil after remediation to ensure that it complies with site requirements. For bioremediation processes, RemScan can monitor the decrease in the concentration of the contamination over time to determine the end point. Once the soil is “clean”, it can be removed from the bioremediation pad, thereby increasing the utilisation and throughput of the bioremediation facility.

For thermal desorption or soil washing processes, RemScan can measure the product to ensure that the process has been working efficiently and correctly.

“The level of customer service provided by Ziltek during this project was outstanding. Ziltek provided excellent support and worked patiently with Cardno through the various issues that inevitably arose over the lifetime of the project”.

Danny McDonald, Principal Environmental Geoscientist, Cardno

OPERATION MODES

RemScan is supplied with two modes of operation. The operator can switch between modes, depending on the application.

Spill Response

Spill Response mode is used for rapid measurements of a new site (like responding to an oil spill at a new site).

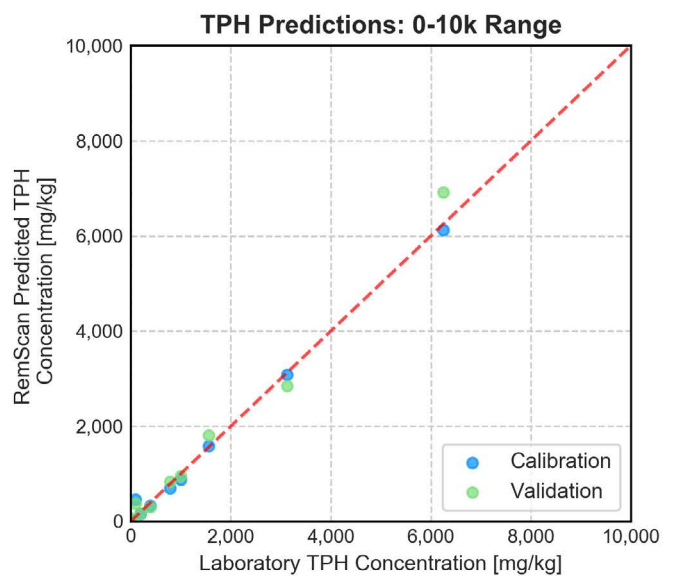
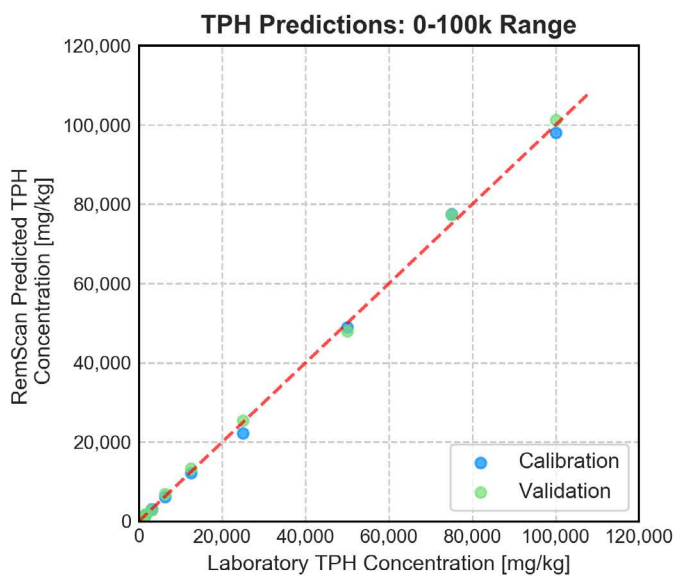
Prior to measurement of soil in the spill zone, the operator simply measures some clean soil to zero the calibration.

RemScan provides results in terms of green/orange/red to indicate whether the soil is clean or contaminated.

Site Specific

Site Specific mode is used for large sites and/or where highly accurate measurements are required. RemScan measurements are provided in numerical values in units of mg/kg. Prior to making measurements, RemScan is specifically calibrated for the site by spiking the soil with different concentrations of TPH and measuring with RemScan.

The graph below shows the comparison between RemScan readings and laboratory assays of TPH for a set of samples. Each point represents one sample. The closeness of the points to the diagonal line demonstrates the accuracy of the RemScan.



OTHER SOFTWARE APPLICATIONS

AgriSoil App



Measures soil parameters for Farmers, Agronomists and Carbon Sequestration:

- Soil Organic Carbon (SOC)
- Total Inorganic Carbon (TIC)
- Soil Texture Class (IUSS)
- Soil pH
- More parameters in development

REMSCAN HARDWARE

RemScan Kit



The RemScan Kit includes the following:

- RemScan Instrument and Accessories
- Tablet and Accessories
- Sampling Tools
- Maintenance Items
- Service and Repair Kits

All packed in Pelican case with custom foam inserts.

Bench Stand



The Bench Stand holds the following to allow hands-free operation of RemScan:

- RemScan
- Tablet
- Background/Reference Caps

Portable Drying Unit



RemScan provides a warning error if samples are above 5% free moisture content, Wet soil samples can be air-dried, or dried using the Portable Drying Unit.

The Portable Drying Unit is used for rapid in-field drying of samples and can dry 35 samples at a time within 30 minutes. The unit is supplied with all accessories. Extra accessories for higher throughput are available upon request.

The Portable Drying Unit is provided in a separate Pelican case with custom foam inserts that also houses the Bench Stand and other equipment for easy use in the field.