WINNER

1996 R&D 100 Awards Winner

Transportable Remote Analyzer for Characterization and Environmental Remediation (TRACER)

Features:

- Only method that provides remote elemental analysis of solids and liquids using a compact, movable probe.
- Measurements can be performed in the field.
- Measurement times are less than 1 minute per sample.
- Automated operation.
- Direct measurement capability reduces analysis times and costs by more than 200 times compared with laboratory analysis.

Applications:

- Rapid determination of toxic and hazardous materials in the environment.
- Analysis of materials in locations to which access is restricted (e.g., down a borehole or in a pipe or glovebox).
- Rapid screening of toxic materials in soils at contaminated locations (e.g., Superfund sites).
- Characterization and monitoring of decommissioning and decontamination activities at facilities such as chemical plants, plating operations, and nuclear power plants.
- Can be used by the mining industry to locate high-yield ore bodies for prospecting, to increase the selectivity of extractive mining, and for process control.
- Can be used onboard robotic systems to survey hazardous environments.
- Evaluating the condition of the national infrastructure (i.e., bridges, railways, and buildings) based on parameters such as corrosion, protective coatings, and metal embrittlement.

Benefits:

- Measurements can be carried out in the field, thereby providing rapid and immediate determination of the presence of toxic materials.
- Measurements can be carried out remotely, many tens of feet from the main instrument, and materials for which access may be restricted can be analyzed.
- Instrument does not require a highly skilled operator.
- Materials can be analyzed in situ, without transport of collected samples back to an analytical laboratory, thereby minimizing the time and costs associated with conventional laboratory analysis.
- Remote analysis minimizes the exposure of workers to harmful materials.