

Spec

The Mass Spectrometer for wellsite gas analysis.

Mud-gas analysis is the analysis of formation fluids entrained in the drilling mud while drilling. This is a key and cost-effective piece of information for formation evaluation.

Spec is a mass spectrometer specifically designed for advanced wellsite mud-gas analysis in real-time. Spec is a fully automated continuous-flow gas analyzer. It collects comprehensive gas data and correlates it with drilling parameters received over WITS to create a real-time depth log. Its easy setup, standalone and robust design, and minimal oversight requirements make it the ideal choice for gas analysis/mudlogging.



Applications

- Exploration, Development, and Production
- Conventional and unconventional resources
- Petroleum type and quality, Geochemical fingerprinting
- Compartmentalization, Seals, Low gas shows
- Fluid contacts, Proximity to pay and near-miss zones, Water saturation
- Porosity and permeability, Faults and fracture networks
- Sweet spots in unconventional and potential geosteering
- Bit wear detection
- Provide reservoir fluid composition data – can be correlated with PVT data
- Improve well completions
- Overpressure detection
- Problem gas (sulfur species) detection
- Geothermal and Helium wells
- Carbon capture, utilization, and storage (CCUS)

Capabilities

- Organic species: Total gas, C1-C10 hydrocarbons; Distinguishes alkanes, cycloalkanes, and aromatics; BTEX compounds and water-soluble organic acids: Benzene, toluene, ethylbenzene, xylene, acetic acid; Standard gas ratios: Pixler, wetness, balance, character
- Inorganic species: Hydrogen, helium, carbon dioxide, nitrogen, oxygen, argon; Sulfur species: SO/SO₂, COS, CS₂. H₂S with external sensor.
- Compatible with oil-based mud (OBM), water-based mud (WBM), and air drilling; Distinguishes formation gas from mud additives.
- No chromatographic separation required.
- No carrier gases needed, no combustion during measurement – reduces costs and improves safety. Also eliminates carrier gas and HC/CO₂ interference.
- No calibration gases needed. Semiquantitative calibration under atmospheric nitrogen. Minimal drift over months.
- Works with various types of gas extractors, including nitrogen purged. Evaluates extractor and sample line performance.
- Continuous self-diagnostics with visual and email/text alerts. Remote monitoring and operation over internet. Unmanned operation possible.

Specifications

- Dimensions: 24"x7.5"x14"
- Weight: 45lbs
- Power: 100-240 VAC 50/60 Hz
- Cycle Time: 70 s
- Mass Range: 2 – 140 amu
- Dynamic Detection Range: 100% to 10ppb
- WITS enabled; Internet connected.
- Data profile viewable onsite and remotely. Data output as LAS file and real-time over WITS.
- Three 24VDC relay inputs and outputs.
- One 4-20mA external sensor input.
- Sample flow rate required: 2-10scfh or 1-5lpm, clean and dry.