



PORTABLE EMISSIONS ANALYSERS FOR MINING APPLICATIONS

When extracting and refining valuable geological materials from the earth (eg. limestone, aluminium oxide, gold), a variety of industrial combustion processes are required. The machinery used in these processes such as industrial engines, boilers, and smelters can emit highly toxic gases that are harmful to the environment and to human life. Using a portable emissions analyser enables mining personnel to ensure personal and environmental safety, while optimising the performance of the mining operation.

Emissions Monitoring

At any given mining site, significant levels of CO, CO₂, NO_x (NO + NO₂), SO₂, H₂S, & C_xH_y hydrocarbons can be emitted into the air causing serious harm to the environment. Each year, emissions regulations are becoming more stringent in order to limit the creation of excess greenhouse gases. In addition to the typical emissions that are generated by the many combustion sources present at mines, the materials being mined (eg. gold) can cause the emissions to be particularly dirty and corrosive. Portable emissions analysers provide accurate measurements of important emissions parameters and can allow for easy reporting to regulatory agencies.

Personal Health & Safety

High levels of carbon monoxide in ambient air can cause headaches, fatigue, nausea, and even death in extreme cases. NO_x, especially NO₂, can cause serious respiratory issues, and unburned combustible hydrocarbons can be a safety hazard especially at higher levels that can be ignited. Regular emissions testing with a portable emissions analyser will alert mining personnel of potentially dangerous conditions.

Performance Optimisation

Measuring the O₂ and CO levels in the exhaust or flue gas from generator engines or boilers, for example, can provide an indication of how lean or rich an engine is burning or how efficiently a boiler is running. The combustion analyses can be utilised for tuning the engines and boilers for optimal combustion performance. Optimising engine and boiler performance will save both time and money.

Instrumentation Solution

The Sauermann [Si-CA 8500](#) is a complete portable emissions analyser that can measure up to 9 gases including O₂, CO, CO₂, NO_x (NO + NO₂), SO₂, H₂S, & C_xH_y hydrocarbons and comes standard with a built-in thermoelectric chiller for superior flue gas conditioning and real-time data-logging software. High temperature gas sampling probes with a sintered filter can be provided for many mining processes that produce flue gases with very high temperatures and large amounts of dust, particulates, and ash. The Sauermann [Si-CA 230](#) is a hand-held analyser for the measurement of up to 6 gases: O₂, CO, NO_x (NO + NO₂), SO₂, H₂S, & C_xH_y hydrocarbons.

