Direct Measurement of Engine Emissions

Intrinsically Safe Instrumentation
Emissions Measurement System

**Instruments**

Fourier Transform Infrared Spectroscopy (FTIR)
Having the advantage over many analyzers by providing a direct measurement that speciates components within the sample matrix without removing water from the gas stream.

AVL Micro Soot Sensor (MSS)
Measuring soot in transient conditions by sensing the acoustic signature of soot particles excited by a laser. This method allows continuous real-time measurement.

NOx/O2 Sensor
Sensor installed into the exhaust to measure nitrogen oxides and oxygen concentration. This sensor provides a check against measurements obtained with the FTIR.

Data Logging
Engine operation and control data can be logged by plugging into the engine manufacturer’s “OnBoard Diagnostic” tool (OBD), a standardized digital interface with the engine for accessing operational data. This data may include speed, load, fuel consumption and other parameters that can be correlated with emissions measurements.

**18 Gaseous Emissions Measured**

- Nitrogen Oxide
- Carbon Monoxide
- Propylene
- Nitrogen Dioxide
- Methane
- Diesel
- Nitrous Oxide
- Ethane
- Formaldehyde
- Ammonia
- Acetylene
- Acetaldehyde
- Water
- Ethylene
- Formic Acid
- Carbon Dioxide
- Propane
- Methanol

**Many Other Gas Can Be Measured**

- Soot consists of the solid carbon portion of Particulate Matter (PM) which comprises the majority of PM mass. The remainder is a Soluble Organic Fraction (SOF), unburned constituents of fuels and lubricants, along with sulfate produced by oxidation of sulfur present in fuel.