

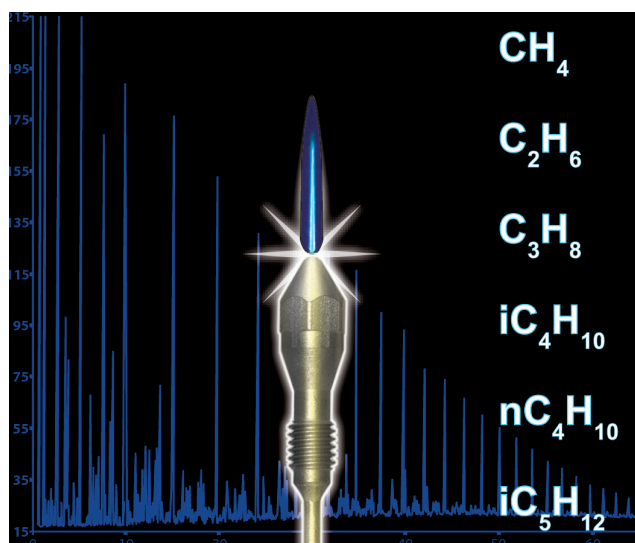
## Reservoir and Process Fluid Characterisation

Accurate compositional analysis of produced fluid is key to the proper characterisation of hydrocarbon reservoirs and the prime factor for the design of their processing facilities. Analyses can be tailored to the exacting needs of a project and performed at our Fluid Analysis Centre in the UK or at remote sites utilising Expro's proprietary GOLD (Global Onsite Laboratory Data) system.

Expro's reservoir and process fluid analyses utilise state of the art equipment for characterising the entire range of fluids produced by hydrocarbon reservoirs.

Gas chromatographs (GC's), high pressure liquid chromatographs, (HPLC's) spectrosopes, cryoscopes and distillation equipment with various specifications are all used to measure gas and liquid compositional properties to exacting published methods.

All equipment is maintained to the highest tolerances, calibrated against standards traceable to National Standards, and backed by Expro's ISO 9000:2000 accreditation.



### Applications:

- Compositional analysis of reservoir fluids
- Compositional analysis of process fluids
- Quantification of contaminants and regression to provide true composition
- Monitoring of processed fluid compositions
- Identification of contaminants and hazardous components in hydrocarbon fluids
- Monitoring of tracer levels
- Compositional comparison of fluids for source determination

### Features:

- Fully traceable QA system using certified oil and gas standards
- Complete range of fluid types can be analysed
- Multiple/Duplicate instruments available
- Integrated with PVT and Production Chemistry
- On-site analysis of gas and liquids available
- On-site water analysis

### Benefits:

- Confidence in characterisation provided
- Tailored analysis packages can be provided
- Turn around time reduced
- Provides complete physical and chemical characterisation
- Same day results with no sample shipping issues
- Same day results with no deterioration of sample quality

## Reservoir and Process Fluid Characterisation

### Technical Specification:

#### Services Provided

#### Reservoir Fluid Characterisation

Compositional analysis to C<sub>36+</sub>  
 Compositional analysis to C<sub>100+</sub>  
 TBP Distillation to C<sub>20+</sub>  
 Identification of major isomers  
 Structural type (PNA, SARA etc)  
 Molecular weight  
 Wax content & analysis  
 Asphaltenes  
 Crude Assay  
 Geochemistry compositional workup  
 Crude Comparisons

#### Methodology

Flash / cryogenic distillation + temperature program GC  
 Flash / cryogenic distillation + temperature program GC  
 Atmospheric pressure & vacuum distillation  
 GC / HPLC  
 GC / HPLC  
 Cryoscopy/Ebulliometry  
 Modified UOP 146 etc.  
 IP 143/Spectrometry  
 Various API, UOP, IP methods  
 GC - tabular and/or graphic data output  
 GC with radial plots of relative component ratios

#### Contaminant Identification and Quantification

Drilling mud / filtrate content GC  
 Tracer content and concentration GC

#### Non Hydrocarbon Components

Sulphur compounds (H<sub>2</sub>S, mercaptans, COS) UOP 212  
 Hydrogen / helium GC  
 Argon GC  
 Oxygen GC  
 Methanol, glycols etc. Trapping + GC  
 Water chemistry & analysis Karl Fischer, distillation, various API, UOP, IP methods

Whole Oil Fingerprint – by Capillary Gas Chromatography

