

# Advanced down Hole Fluid Analysis

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The key aim of this research is to design and commercially operate a down-hole sampling tool that could perform a range of fluid analyses. The tool's main functionality will be to rapidly and accurately perform molecular analysis and fluid characterisation at reservoir conditions. Sampling can thus occur over the productive interval to clearly define compositional distribution in a manner that is currently not available.

Operating the analysis equipment down-hole provides the ability to determine molecular composition at reservoir conditions before the fluid leaves the vicinity of the producing interval. The tool's ability to obtain samples repeatedly while in position, precludes the need for further wire line runs to obtain more fluid samples.

Modern methods of fluid sampling and recovery do not allow for the detection of minor components such as mercury that may have a profound effect upon materials used for production and process equipment. Some reservoir fluid components such as hydrogen sulphide are absorbed by the steel tubulars and fittings used down hole and are thus poorly identified at the surface. The down-hole analyses methods should avoid these problems and give a greatly improved accuracy with a faster and cheaper service that will result in improved production and process design.

This research has potential to provide a major contribution in the understanding of vertical fluid distributions within the reservoir and the way we operate formation testing tools.