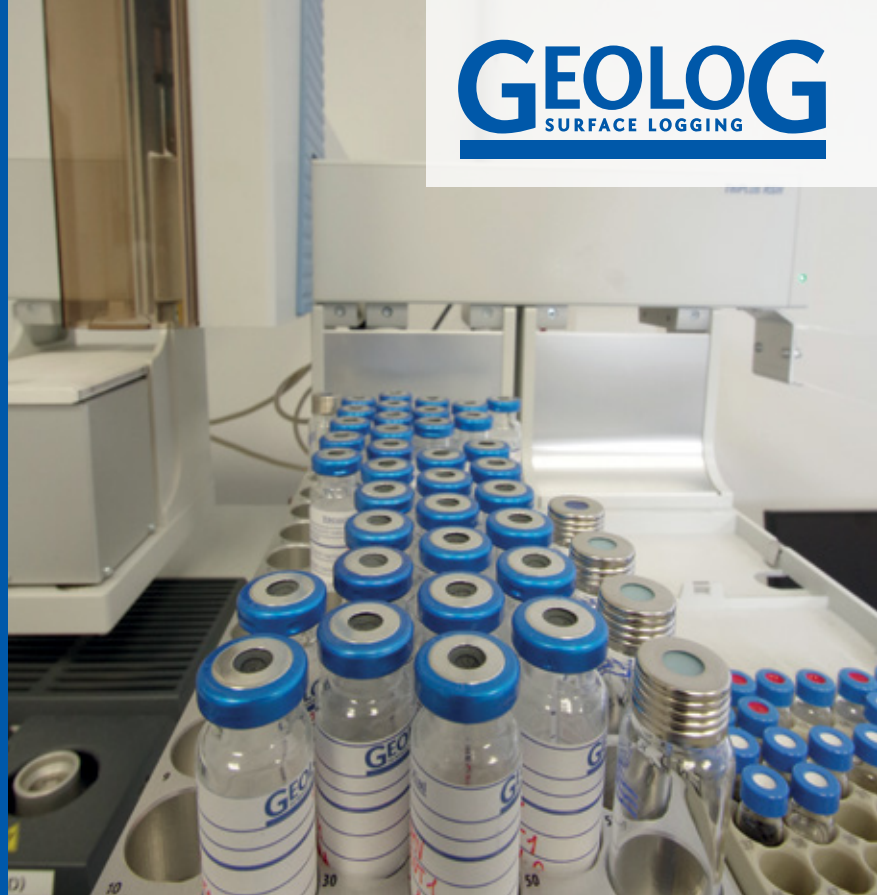


Quick and cost-effective gas sampling at the wellsite

GeoTube provides an efficient and cost-effective method of sampling gas at the rigsite. The pre-evacuated tubes are quickly filled via an outlet on the front panel of every GEOLOG gas distribution panel, allowing samples to be taken whenever there is a notable gas event, or as a routine sampling schedule during operations.



Benefits

- Quick and convenient to use
- Cost-effective: allows higher sampling frequency within the same budget
- Secure storage and reduced shipping volume and cost
- Provides back-up to real-time gas measurements, allowing more in-depth analysis in the laboratory

Challenges and Solutions

Whilst GEOLOG's field gas detection and analysis systems are the most technologically advanced available, there are limitations to what can currently be achieved at the rigsite when compared to the laboratory. Analysis of Hydrogen-Deuterium and isotopic ratios of C4 and above are currently unavailable in the field but can provide vital information regarding the genesis and migration of reservoir fluids. High resolution Gas Chromatography-Mass spectroscopy on light gasses can likewise provide additional understanding of reservoir gasses and validate field measurements.

GeoTubes provide a simple and cost-effective method of sampling gas at the rigsite for further analysis in the laboratory. The standard GEOLOG gas distribution panel contains a front mounted outlet port allowing GeoTubes to be quickly filled in response to observed gas events during the drilling phase, capturing unexpected shows and allowing these to be analysed in greater depth in the laboratory and helping to avoid missed pay zones. Custom designed sampling systems for other gas chains are available if required.

Applications

Whenever a more in-depth investigation of mud gas is required, GeoTube provides a fast and cost-effective method of capturing samples for further laboratory-based studies. GeoTube can be utilised in regular sampling programs to allow verification of field gas data and to enable high-resolution profiles of the well gas geochemistry to be created for correlation purposes or reservoir studies. Their low cost and long lifespan allow for samples to be captured as a routine part of well monitoring operations for future analysis as required.

GeoTubes vials



GeoTubes are pre-evacuated to a pressure of 0.025mbar utilising custom-designed hardware to ensure a consistent, accurate vacuum. Rigorous quality control is applied throughout the process to optimise reliability and repeatability.

The glass vial with Teflon sealing allows for safe sample containment even in case of H2S presence.*

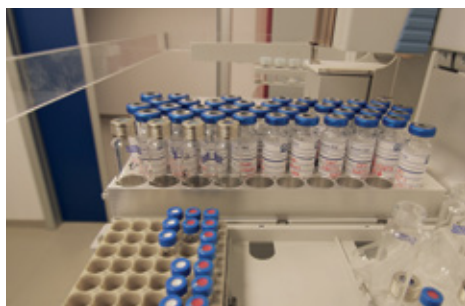
**Note that for air shipping, no H2S should be present in compliance with IATA regulations.*

Filling GeoTube in the field



Every GEOLOG Gas Distribution panel includes a front mounted port for filling of GeoTube. This allows samples to be taken easily and quickly, without interruption to ongoing operations.

Automated Sampling for GC-FID and GC-MS



Gas samples can easily be extracted from GeoTube using commercially available lab analysis systems* without the need of any additional extraction manifold.

The volume contained within the GeoTube is ideally suited to modern gas analysis systems whilst being compact and more easily transported in large numbers than other types of gas containers.

Coupled with a highly competitive price, they form a cost-effective method of achieving higher sampling rates, thereby giving better vertical resolution and enhancing the understanding of reservoir gas compositions.

**GEOLOG's GEOTech Laboratories High-Resolution gas analysis systems, enable GC-FID and GC-MS analysis to be carried out quickly and efficiently alongside GC-IRMS analysis.*

GeoTube vs other commercially available products



Whilst the 20ml sampling volume suffices for all modern lab analysis needs, GeoTube offer the advantages of a smaller size and weight, allowing for easier logistics, a lower cost per vessel, allowing for more samples within the same budget, and no additional equipment required for sampling operations at the wellsite* and for subsequent extraction at the lab for analysis.

**Sampling operations at the wellsite can only be performed on a GEOLOG Unit.*

**Size comparison between a GeoTube and the typical commercially available alternative.*

Specifications

Volume	20ml
Pressure	Pre-evacuated to 0.025 mbar
Material	Glass with metal cap Rubber/Teflon septum

GEOLOG around the World

