

CERTIFICATION OF CALIBRATION



ISSUED BY: GEOTECH LABORATORY

Date Of Calibration: 22 December, 2011

Certificate Number: GA12094_1/8344_UKAS



No. 4533

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Approved by Signatory

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Dawn Hemings

Laboratory Inspection

Customer: Tier Consult Ltd

Elm House Farm
Saighton Lane
Saighton
CHESTER

CH3 6EN
UNITED KINGDOM

Description: Gas Analyser

Model: GA2000

Serial Number: GA12094

UKAS Accredited results:

Methane (CH ₄)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
50.01	49.28	0.94
15.02	15.00	0.64
5.02	5.00	0.41

Carbon Dioxide (CO ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
49.99	50.10	1.11
15.00	14.72	0.70
5.00	4.80	0.43

Oxygen (O ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
20.88	20.91	0.31

All concentrations are molar.

CH₄, CO₂ 30.6°C

O₂ reading recorded at: 20.1°C

Barometric Pressure: 1017mb

Method of Test: The analyser is calibrated in a temperature controlled chamber using reference gases.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrations marked 'Non-UKAS Accredited results' on this Certificate have been included for completeness.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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UKAS ACCREDITED CALIBRATION LABORATORY NO. 4533

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Non-UKAS Accredited results:

Barometer (mb)	
Reference	Reading
1017mb	1017mb

Additional Gas Cells		
Gas	Certified Gas (ppm)	Instrument Reading (ppm)
CO	499	501.1
H2S	51.3	52

Internal Flow		
Normal (l/hr)	Applied (l/hr)	Measured (l/hr)
5	5	5.1
10	10.1	10.1

End of Certificate