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Cromwell Business Centre
Newport Pagnell
Bucks MK16 9QS

Tel: 01908 612598
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E-mail: service@djblabcare.co.uk
Website: www.djblabcare.co.uk

Date of Calibration: 11th March 2020

Equipment: Geotech G100 CO₂ Analyser
Serial number: IN12840

Analysers are calibrated 7 days prior to any pending CO₂ calibration in accordance with DJB Labcare procedures.

Method

All calibrations are carried out using reference gases providing traceability to UKAS ISO17025 standards and in accordance with manufacturer procedures.

Approved by: Colin Bradnam

A handwritten signature in blue ink, appearing to read 'Colin Bradnam', written in a cursive style.

CERTIFICATE OF CALIBRATION

Page 1 of 1

Approved signatory

Name: Alan Boulton

Signature:

Issued by: **EffectTech**Date of Issue: **13 June 2018**Certificate No.: **18/0796/01**

EffectTech

Global Leaders in Gas Measurement

Dove House
Dove Fields
Uttoxeter
Staffordshire ST14 8HU
United Kingdom

www.effecttech.co.uk

Customer : DJB Labcare Ltd.
Unit 20, Interchange Park, Newport Pagnell, Buckinghamshire, MK16 9QS.
Customer reference : PO No.NS21735
Cylinder number : D690633
Date of calibration : 12 June 2018
Description : Secondary Reference Gas Mixture (SRGM)
carbon dioxide in nitrogen

Composition

component	amount fraction (% mol/mol)
carbon dioxide	5.003 ± 0.019

Supplementary Information

The information provided in this section is outside the scope of UKAS accreditation

Date of expiry : 11 June 2023
Contents pressure at calibration : 150 bar
Cylinder size : 5 litres (water capacity)
Cylinder material : aluminium
Valve outlet connection : BS341 - No.3
Recommended minimum usage pressure : 3 bar

Mixture calibrated by comparison with reference gases generated dynamically in accordance with ISO 6145 - *Gas analysis — Preparation of calibration gas mixtures using dynamic volumetric methods Part 7: Thermal Mass Flow Controllers* using a two-point calibration design with bracketing (TPC) in accordance with ISO 12963 - *Gas analysis — Comparison methods for the determination of the composition of gas mixtures based on one- and two-point calibration.*

To re-order this gas mixture contact EffectTech quoting certificate number 18/0796/01.

telephone : +44(0)1889 569229, fax : +44(0)1889 569220, email : gas@effecttech.co.uk

EffectTech is accredited by UKAS to ISO/IEC 17025 : 2005 to undertake the calibration presented in this certificate. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATION OF CALIBRATION



Date Of Calibration: 11-Mar-2020

Certificate Number: IN12840_15/25263

Issued by: QED Environmental Systems Ltd.

Customer: Gem Scientific Ltd

Unit 301 Batley Enterprise Centre 513 Bradford Road
Batley West Yorkshire WF17 8LL UNITED KINGDOM

Description: Gas Analyser

Model: G100

Serial Number: IN12840

Results after adjustment:

Carbon Dioxide (CO ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
0.00	0.0	0.064
2.524	2.4	0.064
5.014	4.9	0.080
10.21	10.2	0.12

Oxygen (O ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
0.00	0.0	0.19
4.954	5.0	0.20
21.29	21.3	0.30

All concentrations are molar.

CO₂ readings recorded at : 28.2 °C ± 1.5 °C

O₂ readings recorded at : 20.1 °C ± 1.5 °C

Barometric Pressure : 0998 mbar ± 3 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure LP018.

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Calibration Instance: 108 IGC Instance:N/A

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www.qedenv.com +44 (0) 333 800 0088 sales@qedenv.co.uk

QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

CERTIFICATION OF CALIBRATION

Date Of Calibration: 11-Mar-2020



Certificate Number: IN12840_15/25263

Issued by: QED Environmental Systems Ltd.

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.

Date of Issue : 16-Mar-2020

Approved by Signatory

Dawn Hemings

Laboratory Inspection

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance: 108 IGC Instance:N/A

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