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Certificate of Calibration

Certificate Number: DJB0619-2
Date of Calibration: 23/06/2020

Equipment: Geotech G100 CO₂ Analyser
Serial number: IN03049

Analysers are calibrated on the morning of any pending CO₂ calibrations 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.

Certified traceable sample gas from EffecTech, Laboratory Number 0590 Co2 5%

Certificate Number **20/0255/01**
Cylinder number : D527722
Date of calibration : 10 February 2020

Approved by: Colin Bradnam

CERTIFICATE OF CALIBRATION

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Approved signatory
Name: Amy Karvir
SignatureIssued by **EffectTech**
Date of Issue **10 February 2020**Certificate Number **20/0255/01**Dove House
Dove Fields
Uttoxeter
Staffordshire ST14 8HU
United Kingdomwww.effecttech.co.uk

Customer : DJB Labcare Limited
Unit 12 Howard Way, Cromwell Business Centre, Newport Pagnell, Buckinghamshire, MK16 9QS.

Customer reference : PO No.NS22632

Product Description : Certified Reference Material (CRM) for use as a calibration gas mixture in emissions gas analysis
carbon dioxide in nitrogen

Preparation method : Mixture prepared by ISO 6142-1:2015 - *Gas Analysis - Preparation of calibration gas mixtures - Part 1 : Gravimetric method for Class I mixtures*

Calibration method : 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*

Traceability : Mixture classified as a Secondary Reference Gas Mixture (SRGM) at Level-2 in the metrological hierarchy of traceability by direct analytical comparison with a Primary Reference Gas Mixture (PRGM)

Cylinder number : D527722**Date of calibration** : 10 February 2020**Contents pressure** : 150 bar**Cylinder size** : 5 litres**Cylinder material** : aluminium**Valve outlet connection** : BS341 - No.3**Minimum usage pressure** : 3 bar**Usage temperature range** : 0 to 50°C**Storage (transport) temperature range** : 0 to 50°C

The reference values presented in this certificate apply to the calibration of the individual and unique gas mixture identified above

Composition

component	amount fraction (%mol/mol)
carbon dioxide	4.985 ± 0.026

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

The following information provided on stability and the expiry date is outside the scope of UKAS accreditation but is required to fulfil the mandatory requirements of ISO 6141:2015 - *Gas Analysis - Contents of certificates for calibration gas mixtures*

Stability : EffectTech stability studies of similar gas mixtures in this type of cylinder/valve combination have demonstrated a shelf-life of 5 years, providing the contents pressure and usage/storage temperature remain within the limits stated in the table above.

Expiry date : 10 February 2025

To re-order this gas mixture contact EffectTech quoting certificate number 20/0255/01.

tel: +44(0)1889 569229 email: sales@effecttech.co.uk

EffectTech is accredited by UKAS to ISO/IEC 17025:2005 to undertake the calibration presented in this certificate.

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