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**Equipment:** G100 Gas Analyser  
**Serial number:** IN12840

Analysers are calibrated up to 7 days prior to any pending CO<sub>2</sub> 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.

Approved by: Colin Bradnam

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

# CERTIFICATE OF CALIBRATION

Page 1 of 1

Approved signatory  
Name: Amy Karvir  
SignatureIssued by **EffecTech**Date of Issue **10 February 2020**Certificate Number **20/0255/01**Dove House  
Dove Fields  
Uttoxeter  
Staffordshire ST14 8HU  
United Kingdom[www.effectech.co.uk](http://www.effectech.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 : EffecTech 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 EffecTech quoting certificate number 20/0255/01.

tel: +44(0)1889 569229 email: [sales@effectech.co.uk](mailto:sales@effectech.co.uk)

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