



INTERNATIONAL
ACCREDITATION
SERVICE®

CERTIFICATE OF ACCREDITATION

This is to attest that

SAUDI INDUSTRIAL GAS COMPANY

STREET #67, 2ND INDUSTRIAL CITY
DAMMAM 31952, KINGDOM OF SAUDI ARABIA

Calibration Laboratory CL-180

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date August 10, 2023

Expiration Date February 1, 2025



A handwritten signature in black ink, reading 'Raj Nathan'.

President

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

SAUDI INDUSTRIAL GAS COMPANY

Contact Name Jamaldeen Ibrahim

Contact Phone + 966-5577-12694

Accredited to ISO/IEC 17025:2017

Effective Date August 10, 2023

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
<i>Chemical/Gas</i>			
Carbon Monoxide in Nitrogen or Synthetic Air	10 ppm to 1000 ppm	3 %	Lab Work Instruction No: LTCM-01 Calibration of gas mixtures using gas chromatography with Methanizer & flame ionization detector (GC-Methanizer-FID)
Carbon Monoxide in Nitrogen	0.10 % to 10 %	2 %	Lab Work Instruction No: LTCM-01 & LTCM-04 Calibration of gas mixtures using gas chromatography with Methanizer-flame ionization detector & Thermal Conductivity Detector (GC-Methanizer-FID & TCD)
Carbon Dioxide in Nitrogen or Synthetic Air	10 ppm to 1000 ppm	3 %	Lab Work Instruction No: LTCM-01 Calibration of gas mixtures using gas chromatography with Methanizer & flame ionization detector (GC-Methanizer-FID)

* If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.

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Carbon Dioxide in Nitrogen or Synthetic Air	0.10 % to 30 %	2 %	Lab Work Instruction No: LTCM-01 & LTCM-04 Calibration of gas mixtures using gas chromatography with Methanizer-flame ionization detector & Thermal Conductivity Detector (GC-Methanizer-FID & TCD)
Methane in Nitrogen or Synthetic Air	5 ppm to 1000 ppm	3 %	Lab Work Instruction No: LTCM-01 Calibration of gas mixtures using gas chromatography with Methanizer & flame ionization detector (GC-Methanizer-FID)
Methane in Nitrogen	0.10 % to 50 %	2 %	Lab Work Instruction No: LTCM-01 & LTCM-04 Calibration of gas mixtures using gas chromatography with Methanizer and flame ionization detector (GC-Methanizer-FID & FID)
Propane in Nitrogen	5 ppm to 1000 ppm 0.10 % to 5 %	3 % 2 %	Lab Work Instruction No: LTCM-06 & LTCM-04 Calibration of gas mixtures using gas chromatography with flame ionization detector (GC-FID)
Oxygen in Nitrogen	10 ppm to 1000 ppm 0.10 % to 25 %	3 % 2 %	Lab Work Instruction No: LTCM-02 & LTCM-03 Calibration of oxygen in gas mixtures by using Zirconia & Paramagnetic O2 Analyzers

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Carbon Monoxide	0.20 % to 10 %	2 %	Lab Work Instruction No: LTCM-04
Carbon Dioxide	0.30 % to 30 %	2 %	
Propane	100 ppm to 0.5 %	3 %	
Nitrogen	Balance (Matrix)	2 %	
			Calibration of gas mixtures using gas chromatography with flame ionization detector and Thermal Conductivity Detectors. (GC-FID & TCD)
Helium	0.25 % to 0.75 %	2 %	Lab Work Instruction No: LTCM-05
Oxygen	0.25 % to 0.75 %	2.2 %	
Nitrogen	2.50 % to 7.50 %	2 %	Calibration of gas mixtures using gas chromatography with flame ionization detector and Thermal Conductivity Detectors. Matrix gas: Methane (GC-FID & TCD)
Carbon Dioxide	0.25 % to 1.50 %	2 %	
Carbon monoxide	0.25 % to 1.50 %	2 %	
Hydrogen	0.50 % to 2.0 %	2 %	
Ethene	0.25 % to 0.75 %	2 %	
Ethane	1.0 % to 3.0 %	2 %	
Propene	0.25 % to 0.75 %	2 %	
Propane	0.5 % to 2.0 %	2.1 %	
n-Butane	0.1 % to 0.3 %	2 %	
iso-Butane	0.1 % to 0.3 %	2 %	
n-Pentane	0.03 % to 0.07 %	2 %	
iso-Pentane	0.03 % to 0.07 %	2.2 %	
n-Hexane	0.03 % to 0.07 %	2.3 %	
Methane (Balance/Matrix)	78.69 % to 93.71 %	2 %	
Carbon Monoxide	0.50 % to 50 %	2 %	Lab Work Instruction No: LTCM-04, LTCM-06 & LTCM-03
Carbon Dioxide	0.50 % to 50 %	2 %	
Methane	10 ppm to 50 %	2 %	
Propane	10 ppm to 10 %	2 %	Calibration of gas mixtures using gas chromatography with Flame ionization detector and Thermal Conductivity Detectors and Paramagnetic Analyzer. Matrix gas: Nitrogen (GC-FID & TCD) and Paramagnetic Oxygen Analyzer
Helium	0.25 % to 50 %	2 %	
Oxygen	0.10 % to 50 %	2 %	
Hydrogen	0.10 % to 50 %	2 %	
Nitrogen (Balance/Matrix)	0.10 % to 100 %	2 %	
Ethene	10 ppm to 10 %	2 %	
Ethane	10 ppm to 10 %	2 %	
Propene	10 ppm to 10 %	2.2 %	
n-butane	10 ppm to 10 %	2 %	
iso-Butane	10 ppm to 10 %	2 %	
n-Pentane	10 ppm to 10 %	2 %	

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iso-Pentane	10 ppm to 10 %	2 %	Lab Work Instruction No: LTCM-04, LTCM-06 & LTCM-03 Calibration of gas mixtures using gas chromatography with Flame ionization detector and Thermal Conductivity Detectors and Paramagnetic Analyzer. Matrix gas: Nitrogen (GC-FID & TCD) and Paramagnetic Oxygen Analyzer
cis-2-butene	10 ppm to 0.5 %	2 %	
trans-2-Butene	10 ppm to 0.5 %	2 %	
Isobutylene	10 ppm to 0.5 %	2 %	
1-butene	10 ppm to 0.5 %	2 %	
n-Hexane	10 ppm to 0.5 %	2 %	

¹The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

²When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

ppm = parts in 10⁶