

Annex to declaration of accreditation (scope of accreditation)
Normative document: EN ISO/IEC 17025:2017
Registration number: **K 103**

of **DNV GL Netherlands B.V.**
Gas Consulting & Services

This annex is valid from: **28-04-2021 to 01-03-2025** Replaces annex dated: **21-01-2021**
Imposed suspension for the crossed out activities as of 13-08-2022

Location(s) where activities are performed under accreditation

Head Office

Utrechtseweg 310
6812 AR
Arnhem
The Netherlands

Location	Abbreviation/ location code
Energieweg 17 9743 AN Groningen The Netherlands	GRN

HCS code	Measured quantity, Range	Frequency	CMC ¹	Remarks	Location
LF 0 0	DC/LF electricity				
LF 1 0	Direct Voltage				
LF 1 1	100 mV – 1 V		$6 \mu\text{V} + 1 \cdot 10^{-5} \cdot U$	DMM measuring	GRN
LF 2 0	DC Current				
LF 2 1	Direct Current				GRN
	(2 – 10) mA		$0,3 \mu\text{A} + 3 \cdot 10^{-5} \cdot I$	DMM measuring	
	(10 – 25) mA		$1 \mu\text{A} + 4 \cdot 10^{-5} \cdot I$	DMM measuring	

¹ Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, U , is calculated according to EA-4/02 "Evaluation of the Uncertainty of Measurement in Calibration".

This annex has been approved by the Board of the
Dutch Accreditation Council, on its behalf,

J.A.W.M. de Haas

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HCS code	Measured quantity, Range	Frequency	CMC ¹	Remarks	Location
LF 6 0	Impedance (DC/LF)				
LF 6 2	DC Resistance				GRN
	(70 – 120) Ω		1,2mΩ + 2,5·10 ⁻⁵ ·R	DMM measuring	

HCS code	Measured quantity, Instrument, Measure	Range	CMC ²	Remarks	Location
PV 0 0	Pressure and vacuum				
PV 1 1	Absolute pressure	(950 – 1050) mbar	0,35 mbar	Barometer, measuring	GRN
PV 1 2	Over atmospheric pressure	(0 – 9) bar _g	0,9 mbar		GRN
		(9 – 80) bar _g	1·10 ⁻⁴ ·p _e	p _e = p – p _{amb} p _e = gauge pressure p _{amb} = ambient pressure	
FG 0 0	Flow of gas				
FG 1 0	Gas flow rate	(40 – 200) m ³ _n /h (200 – 3200) m ³ _n /h (3200 – 32000) m ³ _n /h	0,28 % – 0,40 % 0,22 % – 0,35 % 0,22 % – 0,35 %	High pressure natural gas Pressure range (0,9 – 4,0) MPa (abs)	GRN
FG 1 1	Gas Mass Flow rate	(36 – 36000) kg/h	0,33 % – 0,44 %	High pressure natural gas Pressure range (0,9 – 4,0) MPa (abs)	GRN

² Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, U, is calculated according to EA-4/02 "Evaluation of the Uncertainty of Measurement in Calibration".

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HCS code	Measured quantity, Instrument, Measure	Range	CMC ²	Remarks	Location
FM.00.00	Multiphase flow				
FM.01.01	Multiphase mass flow rate—gas	(10—400) kg/h	0,3%	Natural gas, Nitrogen or Argon, (0,9—3,4) MPa (abs), (10—35) °C	GRN
		(33—40000) kg/h	0,3%	Natural gas, Nitrogen or Argon, (0,9—3,4) MPa (abs), (10—35) °C	GRN
FM.01.02	Multiphase volume flow rate—gas	(0,17—10) m³/h (at proces P and T)	0,3%	Natural gas, Nitrogen or Argon, (0,9—3,4) MPa (abs), (10—35) °C	GRN
		(2—1000) m³/h (at proces P en T)	0,3%	Natural gas, Nitrogen or Argon, (0,9—3,4) MPa (abs), (10—35) °C	GRN
FM.02.01	Multiphase mass flow rate—liquid	(10—140000) kg/h	0,2%	Water and/or oil, (0,9—3,4) MPa (abs), (10—35) °C	GRN
FM.02.02	Multiphase volume Flow rate—liquid	(0,01—170) m³/h (at proces P en T)	0,3%	Water and/or oil, (0,9—3,4) MPa (abs), (10—35) °C	GRN
TE 0 0	Temperature				
TE 4 0	Self-indicating thermometers	(-10 till +50) °C	17 mK	Measuring	GRN

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HCS code	Measured quantity, Instrument, Measure	Range	CMC ²	Remarks	Location
RM 0 0	Reference materials				
RM 2 0	Gas Mixtures				
RM 2 1	Natural gas				GRN
	Helium Nitrogen Carbon dioxide Methane Ethane Propane i-Butane n-Butane neo-Pentane i-Pentane n-Pentane 2,2-dimethylbutane	(0.03 – 0.1) % (0.3 – 18.5) % (0.2 – 9.5) % (60 – 99.9) % (0.45 – 12) % (0.1 – 4.4) % (0.03 – 0.75) % (0.03 – 0.75) % (0.005 – 0.35) % (0.005 – 0.35) % (0.005 – 0.35) % (0.005 – 0.35) %	2.0 % 0.5 % 0.5 % 0.1 % 0.5 % 0.5 % 0.5 % 0.5 % 2.0 % 2.0 % 2.0 % 2.0 %	Analysis conforming to ISO 6974	
	2,3-dimethylbutane + 2-methylpentane 3-methylpentane n-Hexane Cyclohexane Benzene Heptanes Methylcyclohexane Toluene Octanes	(0.005 – 0.35) % (0.005 – 0.35) % (0.005 – 0.35) % (0.001 – 0.2) % (0.001 – 0.2) % (0.001 – 0.2) % (0.001 – 0.1) % (0.001 – 0.1) % (0.0005 – 0.05) %	2.0 % 2.0 % 2.0 % 2.0 % 2.0 % 2.0 % 2.0 % 2.0 % 2.0 %	Analysis conforming to ISO 6974	
	Molar mass Density Relative density Calorific value, mol Calorific value, kg Calorific value, vol (ideal) Calorific value, vol (real) Compressibility Wobbe-index		0.1 % 0.1 % 0.1 % 0.1 % 0.1 % 0.1 % 0.1 % 0.1 % 0.1 %	Calculations conforming to ISO 6976:1995, table 3	

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RM 2 0	Synthetic Natural gas mixtures				
	Nitrogen	(0.3 – 18.5) %	0.45 – 0.1 %	Gravimetical prepared calibration gases according to ISO 6142. Certification against nationally traceable gas reference standards using gas chromatography in accordance with ISO 6143	GRN
	Carbon dioxide	(0.2 – 9.5) %	0.49 – 0.16 %		
	Methane	(60 – 99.9) %	0.1 %		
	Ethane	(0.45 – 12) %	1.75 – 0.1 %		
	Propane	(0.1 – 4.4) %	2.5 – 0.26 %		
	i-Butane	(0.03 – 0.75) %	1.5 – 0.5 %		
	n-Butane	(0.03 – 0.75) %	1.5 – 0.5 %		

Remarks:
 The calibrations are carried out at an ambient temperature of (20 ± 2) °C.
 This annex is applicable to calibrations carried out in the own laboratory.