

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: **19-07-2023** to **01-03-2025**

Replaces annex dated: **01-03-2023**

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	E
Zernikelaan 14 9747 AA Groningen The Netherlands	Z

HCS code	Measured quantity, Instrument, Measure	Range	CMC ¹	Remarks	Location
FG 0 0	Flow of gas				
FG 1 0	Gas flow rate	(40 – 225) m ³ /h (225 – 3600) m ³ /h (3600 – 36000) m ³ /h	0,30 % – 0,97 % 0,22 % – 0,38 % 0,24 % – 0,39 %	High pressure natural gas Pressure range (0,9 – 4,0) MPa (abs)	E

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, Instrument, Measure	Range	CMC ¹	Remarks	Location
FG 1 1	Gas Mass Flow rate	(33 – 200) kg/h (200 – 3100) kg/h (3100 – 31000) kg/h	0,39 % – 0,99 % 0,33 % – 0,42 % 0,34 % – 0,44 %	High pressure natural gas Pressure range (0,9 – 4,0) MPa (abs)	E
FM.00.00	Multiphase flow				
FM.01.01	Multiphase mass flow rate - gas	(10 – 100) kg/h (100 – 1000) kg/h (1000 – 40000) kg/h	0,40 % – 1,1 %* 0,40 % – 1,6 %* 0,40 % – 0,57 %*	Natural gas, Nitrogen or Argon, (0,9 – 3,4) MPa (abs), (10 – 35) °C	E
FM.01.02	Multiphase volume flow rate- gas	(0,17 – 10) m ³ /h (10 – 100) m ³ /h (100 – 1000) m ³ /h (at proces P en T)	0,48 % – 1,2 %* 0,52 % – 1,6 %* 0,48 % – 0,59 %*	Natural gas, Nitrogen or Argon, (0,9 – 3,4) MPa (abs), (10 – 35) °C	E
FM.02.01	Multiphase mass flow rate - liquid	(10 – 250) kg/h (250 – 10000) kg/h (10000 – 140000) kg/h	1,5 % – 40 %* 0,27 % – 8,0 %* 0,20 % – 0,81 %*	Water and/or oil, (0,9 – 3,4) MPa (abs), (10 – 35) °C	E
FM.02.02	Multiphase volume Flow rate - liquid	(0,01 – 0,3) m ³ /h (0,3 – 10) m ³ /h (10 – 170) m ³ /h	1,5 % – 40 %* 0,37 % – 8,0 %* 0,33 % – 0,90 %*	Water and/or oil, (0,9 – 3,4) MPa (abs), (10 – 35) °C	E

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HCS code	Measured quantity, Instrument, Measure	Range	CMC ¹	Remarks	Location
RM 0 0	Reference materials				
RM 2 0	Gas Mixtures				
RM 2 1	Natural gas				
	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	Z
	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	Z
	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	Z

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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	Z
	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:

*These uncertainties apply to single phase injection only. For multiphase injection the uncertainty will be larger.

This list of accredited activities applies to in house kalibrations.

The ambient temperature for activity "FG" ranges between 10 °C and 30 °C under the condition that $|T_{\text{gas_working standards}} - T_{\text{ambient}}| < 2 \text{ °C}$.

The ambient temperature whereby activity "FG" is conducted ranges between 10 °C and 30 °C.

The ambient temperature whereby activity "RM" is conducted ranges within $(20 \pm 2) \text{ °C}$.