

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: **26-06-2024** to **01-03-2025**

Replaces annex dated: **19-07-2023**

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 (recalculated to normal-conditions**)	(40 – 225) m ³ /h (225 – 3600) m ³ /h (3600 – 36000) m ³ /h	0,34 % – 0,71 % 0,24 % – 0,42 % 0,26 % – 0,42 %	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

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: **26-06-2024** to **01-03-2025**

Replaces annex dated: **19-07-2023**

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	0,42 % – 0,73 % 0,34 % – 0,46 % 0,36 % – 0,46 %	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	0,90 % – 1,7 % 0,47 % – 1,2 % 0,45 % – 0,62 %	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)	0,85 % – 1,8 % 0,61 % – 1,2 % 0,52 % – 0,75 %	Natural gas, Nitrogen or Argon, (0,9 – 3,4) MPa (abs), (10 – 35) °C	E
			1,5 % – 40 % 0,27 % – 8,0 % 0,20 % – 0,76 %		
FM.02.01	Multiphase mass flow rate - liquid*	(10 – 250) kg/h (250 – 10000) kg/h (10000 – 140000) kg/h	1,5 % – 40 % 0,52 % – 8,0 % 0,37 % – 0,90 % 1,5 % – 40 % 0,37 % – 2,1 % 0,33 % – 0,57 %	Water and/or oil, (0,9 – 3,4) MPa (abs), (10 – 35) °C	E
FM.02.02	Multiphase mass flow rate - oil*	(0,01 – 0,3) m ³ /h (0,3 – 10) m ³ /h (10 – 170) m ³ /h	1,5 % – 40 % 0,52 % – 8,0 % 0,37 % – 0,90 %	(0,9 – 3,4) MPa (abs), (10 – 35) °C	E
	Multiphase mass flow rate - water*	(0,01 – 0,3) m ³ /h (0,3 – 10) m ³ /h (10 – 140) m ³ /h	1,5 % – 40 % 0,37 % – 2,1 % 0,33 % – 0,57 %	(0,9 – 3,4) MPa (abs), (10 – 35) °C	E

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

This annex is valid from: **26-06-2024 to 01-03-2025**

Replaces annex dated: **19-07-2023**

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) %	12,5 % 2 % 1 % 0,1 % 0,5 % 0,5 % 0,5 % 0,5 % 2,5 % 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 % 5,0 % 5,0 % 5,0 % 50 %	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

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: **26-06-2024 to 01-03-2025**

Replaces annex dated: **19-07-2023**

HCS code	Measured quantity, Instrument, Measure	Range	CMC ¹	Remarks	Location
RM 2 2	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.

** : Normal conditions means that the volume flow rate (m³/h) measured under operating conditions, characterised by the prevailing gas pressure and -temperature, has been recalculated to a volume flow rate under normal conditions (m³/h) of 0 °C and 1,01325 bar. With this conversion the mass flow rate remains the same.

1. The ambient temperature at which the operations of HCS code "FG" are performed is between 10 °C and 30 °C with the additional condition $|T_{\text{gas, working standards}} - T_{\text{ambient}}| < 2 \text{ °C}$.
2. The ambient temperature at which the activities of HCS code "FM" are performed is between 10 °C and 30 °C.
3. The ambient temperature at which the operations of HCS code "RM" are performed is $(20 \pm 2) \text{ °C}$.