

**Amount of substance, Gases, Spain**

**CEM (Centro Español de Metrología), ISCIII (Instituto de Salud Carlos III)**

The expanded uncertainty range is expressed as the uncertainty of the smallest value of the quantity to the uncertainty of the largest value of the quantity.

The expanded uncertainties correspond to  $k = 2$  (level of confidence 95%)

NMI Service Identifier	Measurement Service Sub-Category	Matrix	Measurand		Dissemination Range of Measurement Capability			Range of Expanded Uncertainties as Disseminated				Range of Certified Values in Reference Materials			Range of Expanded Uncertainties for Certified Value				Mechanism(s) for Measurement Service Delivery	Comments	Service provider
			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?			
6.6-05(a)	Environmental	nitrogen	nitrogen monoxide	Amount-of-substance fraction	25	500	µmol/mol	1.0	1.0	%	Yes								Calibration, 6.6-05(a)	Approved on 27 March 2013	CEM
6.6-06(a)	Environmental	nitrogen	methane	Amount-of-substance fraction	1	50	µmol/mol	1.6	1.6	%	Yes	1	5.3	µmol/mol	1.0	0.5	%	Yes	PRM supply, CRM, analyser calibration	Approved on 01 March 2005	CEM
6.6-02(a)	Environmental	nitrogen	carbon dioxide	Amount of substance fraction	0.2	200	mmol/mol	0.5	0.5	%	Yes	0.2	200	mmol/mol	0.3	0.3	%	Yes	Calibration, CRM, 6.6-02(a)	Approved on 19 July 2010	CEM
6.6-04(b)	Environmental	nitrogen	propane	Amount-of-substance fraction	600	4000	µmol/mol	0.9	0.9	%	Yes	600	4000	µmol/mol	0.9	0.9	%	Yes	Calibration, CRM, 6.6-04(b)	Approved on 27 March 2013	CEM
6.6-01(b)	Environmental	nitrogen	carbon monoxide	Amount of substance fraction	5	500	µmol/mol	1.6	1.4	%	Yes	10	500	µmol/mol	0.8	0.7	%	Yes	PRM supply, CRM, analyser calibration	Approved on 19 July 2010	CEM
6.6-01(a)	Environmental	nitrogen	carbon monoxide	Amount of substance fraction	500	2000	µmol/mol	1.4	0.6	%	Yes	500	2000	µmol/mol	0.7	0.3	%	Yes	PRM supply, CRM, analyser calibration	Approved on 19 July 2010	CEM
6.6-03(a)	Environmental	nitrogen	oxygen	Amount-of-substance fraction	2	210	mmol/mol	0.5	0.4	%	Yes	2	210	mmol/mol	0.2	0.2	%	Yes	PRM supply and analyser calibration	Approved on 31 March 2006	CEM
6.6-03(b)	Environmental	nitrogen	oxygen	Amount-of-substance fraction	2	210	mmol/mol	0.5	0.4	%	Yes	2	210	mmol/mol	0.8	0.6	%	Yes	CRM supply and analyser calibration	Approved on 31 March 2006	CEM
6.6-4A(b)	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	5	100	mmol/mol	0.6	0.6	%	Yes	5	100	mmol/mol	0.9	0.9	%	Yes	CRM supply and analyser calibration	Approved on 31 March 2006	CEM
			carbon dioxide	Amount-of-substance fraction	10	200	mmol/mol	1.0	1.0	%	Yes	10	200	mmol/mol	1.2	1.2	%	Yes	CRM supply and analyser calibration		
			propane	Amount-of-substance fraction	600	4000	µmol/mol	0.9	0.9	%	Yes	600	4000	µmol/mol	1.2	1.2	%	Yes	CRM supply and analyser calibration		
6.6-7G (2)	Fuel	synthetic natural gas	methane	Amount-of-substance fraction	740	920	mmol/mol	0.3	0.5	%	Yes								Calibration	Approved on 02 July 2007	CEM
			ethane	Amount-of-substance fraction	28	95	mmol/mol	0.6	0.4	%	Yes										

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			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?					
			propane	Amount-of-substance fraction	8	35	mmol/mol	1.0	0.3	%	Yes												
			i-butane	Amount-of-substance fraction	1.5	12	mmol/mol	1.4	0.5	%	Yes												
			n-butane	Amount-of-substance fraction	1.5	12	mmol/mol	1.4	0.4	%	Yes												
			carbon dioxide	Amount-of-substance fraction	8	32	mmol/mol	1.6	0.5	%	Yes												
			nitrogen	Amount-of-substance fraction	35	75	mmol/mol	1.3	0.5	%	Yes												
6.6-4A(a)	Environmental	nitrogen	carbon monoxide	Amount -of-substance fraction	1	100	mmol/mol	0.5	0.3	%	Yes	1	100	mmol/mol	0.3	0.2	%	Yes	Calibration, PRM (6.6-4A(PRM)) and CRM (6.6-4A(CRM))	Approved on 15 December 2008	CEM		
			carbon dioxide	Amount -of-substance fraction	10	800	mmol/mol	0.3	0.1	%	Yes	10	800	mmol/mol	0.2	0.1	%						
			propane	Amount -of-substance fraction	0.02	3	mmol/mol	0.7	0.5	%	Yes	0.02	3	mmol/mol	0.5	0.3	%						
			oxygen	Amount -of-substance fraction	1	210	mmol/mol	1.0	0.7	%	Yes	1	210	mmol/mol	0.5	0.4	%						
ISCIII/01	Environmental	purified air	ozone	Amount of substance fraction	0	1000	nmol/mol	Q[1.4, 0.022 x(O <sub>3</sub> )]		nmol/mol	No								Calibration of monitors and ozone generation	Approved on 27 March 2013	ISCIII		
6.6-07(a)	Environmental	nitrogen	nitrogen dioxide	Amount-of-substance fraction	10	500	μmol/mol	2.7	2	%	Yes								Calibration, 6.6-07(a)	Approved on 13 June 2013	CEM		