

Amount of substance, Gases, Portugal, IPQ (Instituto Portugues da Qualidade)

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
			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?		
702.01a	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	100	4000	µmol/mol	0.6	0.5	%	Yes	100	4000	µmol/mol	0.6	0.5	%	Yes	Calibration, CRM, 702.01a	Approved on 19 July 2010
702.01b	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	5	50	mmol/mol	0.5	0.5	%	Yes	5	50	mmol/mol	0.5	0.5	%	Yes	Calibration, CRM, 702.01b	Approved on 19 July 2010
702.01c	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	5	100	µmol/mol	1.6	0.6	%	Yes	5	100	µmol/mol	1.6	0.6	%	Yes	Calibration, CRM, 702.01c	Approved on 19 July 2010
702.02	Environmental	nitrogen	carbon dioxide	Amount-of-substance fraction	10	200	mmol/mol	0.4	0.3	%	Yes	10	200	mmol/mol	0.4	0.3	%	Yes	Calibration, CRM, 702.02	Approved on 19 July 2010
702.08a	Environmental	nitrogen	propane	Amount-of-substance fraction	100	1000	µmol/mol	2.0	1.0	%	Yes	100	1000	µmol/mol	2.0	1.0	%	Yes	Calibration, CRM, 702.08a	Approved on 01 March 2005
702.08b	Environmental	nitrogen	propane	Amount-of-substance fraction	1	4	mmol/mol	0.9	0.9	%	Yes	1	4	mmol/mol	0.9	0.9	%	Yes	Calibration, CRM, 702.08b	Approved on 01 March 2005
702.04	Forensic	nitrogen	ethanol	Amount-of-substance fraction	100	500	µmol/mol	1.6	0.7	%	Yes	100	500	µmol/mol	1.6	0.7	%	Yes	Calibration, CRM, 702.04	Approved on 01 March 2005
702.03	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	5	50	mmol/mol	0.6	0.6	%	Yes	5	50	mmol/mol	0.4	0.4	%	Yes	Calibration, CRM, 702.03	Approved on 01 March 2005
			carbon dioxide	Amount-of-substance fraction	60	140	mmol/mol	0.3	0.3	%	Yes	60	140	mmol/mol	0.3	0.3	%	Yes		
			propane	Amount-of-substance fraction	0.2	2	mmol/mol	0.7	0.7	%	Yes	0.2	2	mmol/mol	0.5	0.5	%	Yes		
702.06	Environmental	nitrogen	nitrogen monoxide	Amount-of-substance fraction	40	150	µmol/mol	1.5	0.5	%	Yes	40	150	µmol/mol	1.5	0.5	%	Yes	Calibration, CRM	Approved on 24 June 2008
702.06a	Environmental	nitrogen	nitrogen monoxide	Amount-of-substance fraction	150	1000	µmol/mol	0.5	0.4	%	Yes	150	1000	µmol/mol	0.5	0.4	%	Yes	Analyser and CRM Calibration	Approved on 01 March 2005

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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?		
702.11	Environmental	nitrogen	hydrogen sulfide	Amount-of-substance fraction	5	250	μmol/mol	0.9	0.7	%	Yes	5	250	μmol/mol	0.9	0.7	%	Yes	Calibration, custom CRMs	Approved on 02 November 2006
702.07	Fuel	synthetic natural gas	methane	Amount-of-substance fraction	700	900	mmol/mol	0.4	0.3	%	Yes	700	900	mmol/mol	0.3	0.4	%	Yes	Calibration, custom CRMs	Approved on 08 December 2006
			ethane	Amount-of-substance fraction	7	110	mmol/mol	0.5	0.5	%	Yes	7	110	mmol/mol	0.5	0.5	%	Yes		
			propane	Amount-of-substance fraction	3	45	mmol/mol	0.7	0.4	%	Yes	3	45	mmol/mol	0.7	0.4	%	Yes		
			n-butane	Amount-of-substance fraction	1	7	mmol/mol	1.4	0.8	%	Yes	1	7	mmol/mol	1.4	0.8	%	Yes		
			i-butane	Amount-of-substance fraction	1	7	mmol/mol	1.5	0.7	%	Yes	1	7	mmol/mol	1.5	0.7	%	Yes		
			nitrogen	Amount-of-substance fraction	12	140	mmol/mol	0.5	0.4	%	Yes	12	140	mmol/mol	0.4	0.5	%	Yes		
			carbon dioxide	Amount-of-substance fraction	2	40	mmol/mol	1.8	1.5	%	Yes	2	40	mmol/mol	1.8	1.5	%	Yes		
702.05	Environmental	nitrogen	sulfur dioxide	Amount-of-substance fraction	20	500	μmol/mol	1	0.5	%	Yes	20	500	μmol/mol	1	0.5	%	Yes	Calibration, CRM, 702.05	Approved on 06 December 2011