

## Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleev Institute for Metrology, Rostekhnregulirovaniye of Russia)

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

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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?		
4.1-01	High Purity	hydrogen	carbon monoxide	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes								Calibration	
			carbon dioxide	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes									
			nitrogen	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes									
			oxygen	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes									
			total hydrocarbons	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes									
			water	Amount-of-substance fraction	1	10	µmol/mol	30	8	%	Yes									
4.1-02	High Purity	nitrogen	carbon monoxide	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes								Calibration	
			carbon dioxide	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes									
			argon	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes									
			oxygen	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes									
			neon	Amount-of-substance fraction	0.2	10	µmol/mol	30	6	%	Yes									
			hydrogen	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes									
			total nitrogen oxides	Amount-of-substance fraction	0.002	1	µmol/mol	30	6	%	Yes									
			total hydrocarbons	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	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?			
			water	Amount-of-substance fraction	0.5	10	µmol/mol	30	8	%	Yes										
4.1-03	High Purity	helium	carbon monoxide	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes									Calibration	
			carbon dioxide	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			nitrogen	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			oxygen	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			total hydrocarbons	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			neon	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			argon	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			water	Amount-of-substance fraction	0.5	10	µmol/mol	30	8	%	Yes										
4.1-04	High Purity	oxygen	neon	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes									Calibration	
			argon	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			hydrogen	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			nitrogen	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			carbon monoxide	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										

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			carbon dioxide	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			methane	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			krypton	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			xenon	Amount-of-substance fraction	0.1	10	µmol/mol	30	6	%	Yes										
			water	Amount-of-substance fraction	0.5	10	µmol/mol	30	8	%	Yes										
4.1-05	High Purity	methane	carbon dioxide	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes								Calibration		
			carbon monoxide	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes										
			hydrogen	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes										
			nitrogen	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes										
			oxygen	Amount-of-substance fraction	2	10	µmol/mol	6	4	%	Yes										
			water	Amount-of-substance fraction	2	10	µmol/mol	15	8	%	Yes										
			ethane	Amount-of-substance fraction	0.1	100	µmol/mol	20	3	%	Yes										
			higher hydrocarbons	Amount-of-substance fraction	10	1000	µmol/mol	20	3	%	Yes										
4.1-06	High Purity	synthetic air	carbon monoxide	Amount-of-substance fraction	0.1	1	µmol/mol	30	6	%	Yes								Calibration		

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			carbon dioxide	Amount-of-substance fraction	0.1	1	µmol/mol	30	6	%	Yes									
			total nitrogen oxides	Amount-of-substance fraction	0.01	1	µmol/mol	30	6	%	Yes									
			total hydrocarbons	Amount-of-substance fraction	0.15	1	µmol/mol	30	6	%	Yes									
			water	Amount-of-substance fraction	0.5	10	µmol/mol	30	8	%	Yes									
4.2-01a	Environmental	nitrogen	carbon monoxide	Amount of substance fraction	1	10	micromol/mol	2	0.5	%	Yes	1	10	micromol/mol	2	0.5	%	Yes	SM 06.02.34 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 december 2011
4.2-01b	Environmental	synthetic air	carbon monoxide	Amount of substance fraction	1	10	micromol/mol	2	0.5	%	Yes	1	10	micromol/mol	2	0.5	%	Yes	SM 06.02.34 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 december 2011
4.2-02a	Environmental	nitrogen	carbon monoxide	Amount of substance fraction	10	1000	µmol/mol	0.5	0.5	%	Yes	10	1000	µmol/mol	0.5	0.5	%	Yes	SM 06.02.004 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 19 July 2010
4.2-02b	Environmental	synthetic air	carbon monoxide	Amount of substance fraction	10	1000	µmol/mol	0.5	0.5	%	Yes	10	1000	µmol/mol	0.5	0.5	%	Yes	SM 06.02.004 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 19 July 2010
4.2-03	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	1	5	mmol/mol	0.5	0.5	%	Yes	1	5	mmol/mol	0.5	0.5	%	Yes	Calibration	
																		PRM SM 06.02.005		
4.2-03	Environmental	air	carbon monoxide	Amount-of-substance fraction	1	5	mmol/mol	0.5	0.5	%	Yes	1	5	mmol/mol	0.5	0.5	%	Yes	Calibration	
																		PRM SM 06.02.005		

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4.2-04	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	5	100	mmol/mol	0.5	0.2	%	Yes	5	100	mmol/mol	0.5	0.2	%	Yes	Calibration	
																			PRM SM 06.02.006	
4.2-04	Environmental	air	carbon monoxide	Amount-of-substance fraction	5	100	mmol/mol	0.5	0.2	%	Yes	5	100	mmol/mol	0.5	0.2	%	Yes	Calibration	
																			PRM SM 06.02.006	
4.2-06a	Environmental	nitrogen	carbon dioxide	Amount-of-substance fraction	1	25	mmol/mol	0.2	0.2	%	Yes	1	25	mmol/mol	0.2	0.2	%	Yes	SM 06.02.018 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 24 June 2008
4.2-06b	Environmental	air	carbon dioxide	Amount-of-substance fraction	1	25	mmol/mol	0.2	0.2	%	Yes	1	25	mmol/mol	0.2	0.2	%	Yes	SM 06.02.018 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 24 June 2008
4.2-07a	Environmental	nitrogen	carbon dioxide	Amount-of-substance fraction	25	300	mmol/mol	0.2	0.15	%	Yes	25	300	mmol/mol	0.2	0.15	%	Yes	SM 06.02.018 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 24 June 2008
4.2-07b	Environmental	air	carbon dioxide	Amount-of-substance fraction	25	300	mmol/mol	0.2	0.15	%	Yes	25	300	mmol/mol	0.2	0.15	%	Yes	SM 06.02.018 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 24 June 2008
4.2-11	Environmental	nitrogen	nitrogen dioxide	Amount-of-substance fraction	0.1	50	µmol/mol	5	1.5	%	Yes								Calibration	
4.2-11	Environmental	air	nitrogen dioxide	Amount-of-substance fraction	0.1	50	µmol/mol	5	1.5	%	Yes								Calibration	
4.2-12	Environmental	nitrogen	nitrogen dioxide	Amount-of-substance fraction	50	5000	µmol/mol	1.5	1.5	%	Yes	50	5000	µmol/mol	1.5	1.5	%	Yes	Calibration	
																			PRM SM 06.02.015	

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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?		
4.2-12	Environmental	air	nitrogen dioxide	Amount-of-substance fraction	50	5000	µmol/mol	1.5	1.5	%	Yes	50	5000	µmol/mol	1.5	1.5	%	Yes	Calibration	
																			PRM SM 06.02.015	
4.2-13	Environmental	nitrogen	nitrogen dioxide	Amount-of-substance fraction	5	25	mmol/mol	1	0.3	%	Yes	5	25	mmol/mol	1	0.3	%	Yes	Calibration	
																			PRM SM 06.02.020	
4.2-13	Environmental	air	nitrogen dioxide	Amount-of-substance fraction	5	25	mmol/mol	1	0.3	%	Yes	5	25	mmol/mol	1	0.3	%	Yes	Calibration	
																			PRM SM 06.02.020	
4.2-14	Environmental	nitrogen	sulfur dioxide	Amount-of-substance fraction	0.1	100	µmol/mol	5	1	%	Yes								Calibration	
4.2-15	Environmental	nitrogen	sulfur dioxide	Amount-of-substance fraction	100	1000	µmol/mol	1	1	%	Yes	100	1000	µmol/mol	1	1	%	Yes	Calibration	
																			PRM SM 06.02.013	
4.2-16	Environmental	nitrogen	propane	Amount-of-substance fraction	5	20	µmol/mol	2	1	%	Yes								Calibration	
4.2-17	Environmental	synthetic air	methane	Amount-of-substance fraction	10	5000	µmol/mol	1	1	%	Yes	10	5000	µmol/mol	1	1	%	Yes	Calibration	
																			PRM SM 06.02.008	
4.2-18	Environmental	nitrogen	methane	Amount-of-substance fraction	5	20	mmol/mol	0.5	0.5	%	Yes	5	20	mmol/mol	0.5	0.5	%	Yes	Calibration	
																			PRM SM 06.02.009	
4.2-19	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	5	50	mmol/mol	0.3	0.2	%	Yes	5	50	mmol/mol	0.3	0.2	%	Yes	SM 06.02.029 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis.
			carbon dioxide	Amount-of-substance fraction	40	160	mmol/mol	0.3	0.2	%	Yes	40	160	mmol/mol	0.3	0.2	%	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	0.1	3	mmol/mol	0.5	0.2	%	Yes	0.1	3	mmol/mol	0.5	0.2	%	Yes		Approved on 21 December 2007
4.3-01	Fuel	natural gas	methane	Amount-of-substance fraction	763.7	907.6	mmol/mol	0.05	0.05	%	Yes	763.7	907.6	mmol/mol	0.05	0.05	%	Yes	Calibration	
			ethane	Amount-of-substance fraction	30	93	mmol/mol	0.8	0.8	%	Yes	30	93	mmol/mol	0.8	0.8	%	Yes	PRM SM 06.03.001	
			propane	Amount-of-substance fraction	5	33	mmol/mol	1.3	1.3	%	Yes	5	33	mmol/mol	1.3	1.3	%	Yes	PRM SM 06.03.002	
			butane	Amount-of-substance fraction	1	10	mmol/mol	0.5	0.5	%	Yes	1	10	mmol/mol	0.5	0.5	%	Yes		
			carbon dioxide	Amount-of-substance fraction	5	30	mmol/mol	1	1	%	Yes	5	30	mmol/mol	1	1	%	Yes		
			nitrogen	Amount-of-substance fraction	40	135	mmol/mol	0.8	0.8	%	Yes	40	135	mmol/mol	0.8	0.8	%	Yes		
4.6-01	Other	synthetic air	methane	Amount-of-substance fraction	5	23	mmol/mol	0.8	0.6	%	Yes	5	23	mmol/mol	0.4	0.3	%	Yes	Calibration	
																		PRM SM 06.02.027		
4.6-02	Other	synthetic air	propane	Amount-of-substance fraction	5	10	mmol/mol	0.8	0.4	%	Yes	5	10	mmol/mol	0.4	0.2	%	Yes	Calibration	
																		PRM SM 06.02.028		
4.2-20	Environmental	nitrogen	sulfur dioxide	Amount-of-substance fraction	5	25	mmol/mol	1	1	%	Yes	5	25	mmol/mol	1	1	%	Yes	Calibration	
																		PRM SM 06.02.021		
4.2-21	Environmental	nitrogen	oxygen	Amount-of-substance fraction	1	5	mmol/mol	0.5	0.5	%	Yes	1	5	mmol/mol	0.5	0.5	%	Yes	Calibration	
																		PRM SM 06.02.001		

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4.2-22	Environmental	nitrogen	oxygen	Amount-of-substance fraction	5	100	mmol/mol	0.5	0.2	%	Yes	5	100	mmol/mol	0.5	0.2	%	Yes	Calibration	
																			PRM SM 06.02.002	
4.2-23	Environmental	nitrogen	oxygen	Amount-of-substance fraction	100	250	mmol/mol	0.2	0.2	%	Yes	100	250	mmol/mol	0.2	0.2	%	Yes	Calibration	
																			PRM SM 06.02.003	
4.2-24	Environmental	nitrogen	propane	Amount-of-substance fraction	20	5000	µmol/mol	1	1	%	Yes	20	5000	µmol/mol	1	1	%	Yes	Calibration	
																			PRM SM 06.02.010	
4.2-25	Environmental	nitrogen	propane	Amount-of-substance fraction	5	10	mmol/mol	1	0.5	%	Yes	5	10	mmol/mol	1	0.5	%	Yes	Calibration	
																			PRM SM 06.02.011	
4.2-26	Environmental	nitrogen	hydrogen sulfide	Amount-of-substance fraction	20	1000	µmol/mol	2	1.5	%	Yes	20	1000	µmol/mol	2	1.5	%	Yes	Calibration	
																			PRM SM 06.02.016	
4.2-27a	Environmental	nitrogen	ammonia	Amount of substance fraction	100	1000	micromol/mol	2	2	%	Yes	100	1000	micromol/mol	2	2	%	Yes	SM 06.02.017 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 December 2011
4.2-27b	Environmental	synthetic air	ammonia	Amount of substance fraction	100	1000	micromol/mol	2	2	%	Yes	100	1000	micromol/mol	2	2	%	Yes	SM 06.02.017 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 December 2011
4.2-28	Environmental	nitrogen	hydrogen chloride	Amount-of-substance fraction	20	1000	µmol/mol	5	3	%	Yes								Calibration	
4.2-29a	Environmental	nitrogen	benzene	Amount-of-substance fraction	5	1000	nmol/mol	5	5	%	Yes								Calibration	

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4.2-29b	Environmental	air	benzene	Amount-of-substance fraction	5	1000	nmol/mol	5	5	%	Yes							Calibration		
4.2-30a	Environmental	nitrogen	toluene	Amount-of-substance fraction	5	1000	nmol/mol	5	5	%	Yes							Calibration		
4.2-30b	Environmental	air	toluene	Amount-of-substance fraction	5	1000	nmol/mol	5	5	%	Yes							Calibration		
4.2-34a	Environmental	nitrogen	1-butanol	Amount-of-substance fraction	0.5	20	µmol/mol	5	2	%	Yes	0.5	20	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																		PRM SM 06.05.005		
4.2-34b	Environmental	air	1-butanol	Amount-of-substance fraction	0.5	20	µmol/mol	5	2	%	Yes	0.5	20	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																		PRM SM 06.05.005		
4.2-35a	Environmental	nitrogen	methanol	Amount-of-substance fraction	0.5	50	µmol/mol	5	2	%	Yes	0.5	50	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																		PRM SM 06.05.006		
4.2-35b	Environmental	air	methanol	Amount-of-substance fraction	0.5	50	µmol/mol	5	2	%	Yes	0.5	50	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																		PRM SM 06.05.006		
4.2-36a	Environmental	nitrogen	ethylacetate	Amount-of-substance fraction	0.5	20	µmol/mol	5	2	%	Yes	0.5	20	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																		PRM SM 06.05.007		
4.2-36b	Environmental	air	ethylacetate	Amount-of-substance fraction	0.5	20	µmol/mol	5	2	%	Yes	0.5	20	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																		PRM SM 06.05.007		
4.2-37a	Environmental	nitrogen	n-hexane	Amount-of-substance fraction	0.1	20	µmol/mol	5	2	%	Yes	0.1	20	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004

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NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
																			PRM SM 06.05.008	
4.2-37b	Environmental	air	n-hexane	Amount-of-substance fraction	0.1	20	μmol/mol	5	2	%	Yes	0.1	20	μmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.008	
4.2-42a	Environmental	nitrogen	ethylbenzene	Amount-of-substance fraction	0.5	20	μmol/mol	5	2	%	Yes	0.5	20	μmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.029	
4.2-42b	Environmental	air	ethylbenzene	Amount-of-substance fraction	0.5	20	μmol/mol	5	2	%	Yes	0.5	20	μmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.029	
4.2-45a	Environmental	nitrogen	sulfur dioxide	Amount-of-substance fraction	0.1	20	μmol/mol	5	1.5	%	Yes	0.1	20	μmol/mol	5	1.5	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.014	
																			PRM SM 06.05.015	
4.2-45b	Environmental	air	sulfur dioxide	Amount-of-substance fraction	0.1	20	μmol/mol	5	1.5	%	Yes	0.1	20	μmol/mol	5	1.5	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.014	
																			PRM SM 06.05.015	
4.2-46a	Environmental	nitrogen	hydrogen sulfide	Amount-of-substance fraction	0.1	20	μmol/mol	5	1.5	%	Yes	0.1	20	μmol/mol	5	1.5	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.016	
4.2-46b	Environmental	air	hydrogen sulfide	Amount-of-substance fraction	0.1	20	μmol/mol	5	1.5	%	Yes	0.1	20	μmol/mol	5	1.5	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.016	

## Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleyev Institute for Metrology, Rostekhnregulirovaniye of Russia)

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

NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
4.2-47a	Environmental	nitrogen	nitrogen dioxide	Amount-of-substance fraction	0.1	20	µmol/mol	5	1.5	%	Yes	0.1	20	µmol/mol	5	1.5	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.017	
4.2-47b	Environmental	air	nitrogen dioxide	Amount-of-substance fraction	0.1	20	µmol/mol	5	1.5	%	Yes	0.1	20	µmol/mol	5	1.5	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.017	
4.2-48a	Environmental	nitrogen	ammonia	Amount-of-substance fraction	1	100	µmol/mol	5	2	%	Yes	1	100	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.018	
4.2-48b	Environmental	air	ammonia	Amount-of-substance fraction	1	100	µmol/mol	5	2	%	Yes	1	100	µmol/mol	5	2	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.05.018	
4.2-49	Environmental	nitrogen	carbon dioxide	Amount of substance fraction	50	100	micromol/mol	1	1	%	Yes	50	1000	micromol/mol	1	1	%	Yes	SM 06.02.59 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 december 2011
4.2-53	Environmental	nitrogen	carbon dioxide	Amount of substance fraction	100	1000	micromol/mol	1	0.2	%	Yes	50	1000	micromol/mol	1	0.2	%	Yes	SM 06.02.34 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 december 2011
4.4-01	Forensic	nitrogen	ethanol	Amount-of-substance fraction	20	100	µmol/mol	2	1	%	Yes	20	100	µmol/mol	2	1	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.02.025	
4.4-02	Forensic	nitrogen	ethanol	Amount-of-substance fraction	100	900	µmol/mol	1	1	%	Yes	100	900	µmol/mol	1	1	%	Yes	Calibration	Approved on 09 December 2004
																			PRM SM 06.02.026	

## Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleyev Institute for Metrology, Rostekhnregulirovaniye of Russia)

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

NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
4.6-03a	Other	nitrogen	n-hexane	Amount of substance fraction	40	400	micromol/mol	1	0.5	%	Yes	40	400	micromol/mol	1	0.5	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.6-03b	Other	synthetic air	n-hexane	Amount of substance fraction	40	400	micromol/mol	1	0.5	%	Yes	40	400	micromol/mol	1	0.5	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.6-17	Other	nitrogen	n-hexane	Amount of substance fraction	0.4	4	mmol/mol	0.5	0.3	%	Yes	0.4	4	mmol/mol	0.5	0.3	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.6-18	Other	synthetic air	n-hexane	Amount of substance fraction	0.4	4	mmol/mol	0.5	0.3	%	Yes	0.4	4	mmol/mol	0.5	0.3	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.3-03	Fuel	natural gas	methane	Molar fraction	750	997	mmol/mol	0.25	0.03	%	Yes	750	997	mmol/mol	0.25	0.03	%	Yes	Calibration Approved on 07 February 2005	
			helium	Molar fraction	0.1	5	mmol/mol	5	0.5	%	Yes	0.1	5	mmol/mol	5	0.5	%	Yes	PRM SM 06.03.002	
			nitrogen	Molar fraction	0.5	120	mmol/mol	5	0.5	%	Yes	0.5	120	mmol/mol	5	0.5	%	Yes		
			carbon dioxide	Molar fraction	0.5	40	mmol/mol	5	0.5	%	Yes	0.5	40	mmol/mol	5	0.5	%	Yes		
			ethane	Molar fraction	0.5	150	mmol/mol	5	0.5	%	Yes	0.5	150	mmol/mol	5	0.5	%	Yes		
			propane	Molar fraction	0.1	60	mmol/mol	5	0.5	%	Yes	0.1	60	mmol/mol	5	0.5	%	Yes		
			i-butane	Molar fraction	0.1	40	mmol/mol	5	1.0	%	Yes	0.1	40	mmol/mol	5	1.0	%	Yes		
			n-butane	Molar fraction	0.1	40	mmol/mol	5	1.0	%	Yes	0.1	40	mmol/mol	5	1.0	%	Yes		
			iso-pentane	Molar fraction	0.1	5	mmol/mol	5	1.0	%	Yes	0.1	5	mmol/mol	5	1.0	%	Yes		
			n-pentane	Molar fraction	0.1	5	mmol/mol	5	1.0	%	Yes	0.1	5	mmol/mol	5	1.0	%	Yes		
			neo-pentane	Molar fraction	0.1	0.5	mmol/mol	5	1.5	%	Yes	0.1	0.5	mmol/mol	5	1.5	%	Yes		

## Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleev Institute for Metrology, Rostekhnregulirovaniye of Russia)

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NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
			n-hexane	Molar fraction	0.1	5	mmol/mol	5	1.0	%	Yes	0.1	5	mmol/mol	5	1.0	%	Yes		
4.3-04	Fuel	natural gas	methane	Molar fraction	750	997	mmol/mol	0.25	0.03	%	Yes	750	997	mmol/mol	0.25	0.03	%	Yes	Calibration	Approved on 07 February 2005
			helium	Molar fraction	0.1	5	mmol/mol	5	0.5	%	Yes	0.01	5	mmol/mol	5	0.5	%	Yes	PRM SM 06.03.002	
			hydrogen	Molar fraction	0.1	5	mmol/mol	5	1.0	%	Yes	0.01	5	mmol/mol	5	1.0	%	Yes		
			oxygen	Molar fraction	0.5	20	mmol/mol	10	1.0	%	Yes	0.05	20	mmol/mol	10	1.0	%	Yes		
			nitrogen	Molar fraction	0.5	120	mmol/mol	5	0.5	%	Yes	0.05	120	mmol/mol	5	0.5	%	Yes		
			carbon dioxide	Molar fraction	0.5	40	mmol/mol	5	0.5	%	Yes	0.05	40	mmol/mol	5	0.5	%	Yes		
			ethane	Molar fraction	0.5	150	mmol/mol	5	0.5	%	Yes	0.05	150	mmol/mol	5	0.5	%	Yes		
			propane	Molar fraction	0.1	60	mmol/mol	5	0.5	%	Yes	0.05	60	mmol/mol	5	0.5	%	Yes		
			i-butane	Molar fraction	0.1	40	mmol/mol	5	1.0	%	Yes	0.02	40	mmol/mol	5	1.0	%	Yes		
			n-butane	Molar fraction	0.1	40	mmol/mol	5	1.0	%	Yes	0.02	40	mmol/mol	5	1.0	%	Yes		
			iso-pentane	Molar fraction	0.1	5	mmol/mol	5	1.0	%	Yes	0.01	5	mmol/mol	5	1.0	%	Yes		
			n-pentane	Molar fraction	0.1	5	mmol/mol	5	1.0	%	Yes	0.01	5	mmol/mol	5	1.0	%	Yes		
			neo-pentane	Molar fraction	0.1	0.5	mmol/mol	5	1.5	%	Yes	0.01	0.5	mmol/mol	5	1.5	%	Yes		
			n-hexane	Molar fraction	0.1	5	mmol/mol	5	1.0	%	Yes	0.01	5	mmol/mol	5	1.0	%	Yes		
4.3-05	Fuel	synthetic natural gas mixtures	n-heptane	Molar fraction	0.05	2.5	mmol/mol	8	2	%	Yes	0.05	2.5	mmol/mol	8	2	%	Yes	Calibration	Approved on 07 February 2005
			n-octane	Molar fraction	0.05	0.5	mmol/mol	8	5	%	Yes	0.05	0.5	mmol/mol	8	5	%	Yes	PRM SM 06.03.003	
			n-nonane	Molar fraction	0.02	0.25	mmol/mol	8	5	%	Yes	0.02	0.25	mmol/mol	8	5	%	Yes		
			n-decane	Molar fraction	0.02	0.1	mmol/mol	8	5	%	Yes	0.02	0.1	mmol/mol	8	5	%	Yes		
			benzene	Molar fraction	0.05	0.5	mmol/mol	8	5	%	Yes	0.05	0.5	mmol/mol	8	5	%	Yes		

**Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleev Institute for Metrology, Rostekhnregulirovaniye of Russia)**



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

NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
			toluene	Molar fraction	0.05	0.5	mmol/mol	8	5	%	Yes	0.05	0.5	mmol/mol	8	5	%	Yes		
4.6-04a	Other, transformer gas	helium	hydrogen	Molar fraction	0.1	1.0	mmol/mol	5	2.5	%	Yes								Calibration	Approved on 07 February 2005
			oxygen	Molar fraction	0.1	1.0	mmol/mol	5	2.0	%	Yes									
			nitrogen	Molar fraction	0.1	1.0	mmol/mol	5	2.0	%	Yes									
			carbon dioxide	Molar fraction	0.2	1.0	mmol/mol	2	1.0	%	Yes									
			carbon monoxide	Molar fraction	0.2	1.0	mmol/mol	2	1.5	%	Yes									
			methane	Molar fraction	0.1	1.0	mmol/mol	2	1.0	%	Yes									
			ethane	Molar fraction	0.1	1.0	mmol/mol	2	1.5	%	Yes									
			ethylene	Molar fraction	0.1	1.0	mmol/mol	2	1.5	%	Yes									
			acetylene	Molar fraction	0.1	1.0	mmol/mol	3	2.0	%	Yes									
4.6-04b	Other, transformer gas	argon	hydrogen	Molar fraction	0.1	1.0	mmol/mol	2	1.0	%	Yes								Calibration	Approved on 07 February 2005
			oxygen	Molar fraction	0.1	1.0	mmol/mol	5	2.0	%	Yes									
			nitrogen	Molar fraction	0.1	1.0	mmol/mol	3	2.0	%	Yes									
			carbon dioxide	Molar fraction	0.2	1.0	mmol/mol	2	2	%	Yes									
			carbon monoxide	Molar fraction	0.2	1.0	mmol/mol	2	2	%	Yes									
			methane	Molar fraction	0.1	1.0	mmol/mol	2	1.0	%	Yes									
			ethane	Molar fraction	0.1	1.0	mmol/mol	2	1.5	%	Yes									
			ethylene	Molar fraction	0.1	1.0	mmol/mol	2	1.0	%	Yes									
			acetylene	Molar fraction	0.1	1.0	mmol/mol	3	1.5	%	Yes									
4.1-07	High purity	carbon dioxide	hydrogen	Molar fraction	2	20	µmol/mol	10	4	%	Yes								Calibration	Approved on 07 February 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?		
			nitrogen	Molar fraction	2	100	μmol/mol	10	3	%	Yes									
			methane	Molar fraction	2	20	μmol/mol	10	5	%	Yes									
			carbon monoxide	Molar fraction	2	20	μmol/mol	10	5	%	Yes									
			water	Molar fraction	0.5	100	μmol/mol	30	5	%	Yes									
4.2-67a	Environmental	nitrogen	carbon tetrafluoride	Amount-of-substance fraction	0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes	PRM SM 06.02.031/1 plus instrument calibration	Approved on 29 April 2005
4.2-67b	Environmental	synthetic air	carbon tetrafluoride	Amount-of-substance fraction	0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes	PRM SM 06.02.031/2 plus instrument calibration	Approved on 29 April 2005
4.2-68a	Environmental	nitrogen	hexafluoroethane	Amount-of-substance fraction	0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes	PRM SM 06.02.031/3 plus instrument calibration	Approved on 29 April 2005
4.2-68b	Environmental	synthetic air	hexafluoroethane	Amount-of-substance fraction	0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes	PRM SM 06.02.031/4 plus instrument calibration	Approved on 29 April 2005
4.2-69a	Environmental	nitrogen	trifluoromethane	Amount-of-substance fraction	0.01	100	mmol/mol	3	1	%	Yes	0.01	100	mmol/mol	3	1	%	Yes	PRM SM 06.02.031/5 plus instrument calibration	Approved on 29 April 2005
4.2-69b	Environmental	synthetic air	trifluoromethane	Amount-of-substance fraction	0.01	100	mmol/mol	3	1	%	Yes	0.01	100	mmol/mol	3	1	%	Yes	PRM SM 06.02.031/6 plus instrument calibration	Approved on 29 April 2005
4.2-70a	Environmental	nitrogen	sulfur hexafluoride	Amount-of-substance fraction	0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes	PRM SM 06.02.031/7 plus instrument calibration	Approved on 29 April 2005
4.2-70b	Environmental	synthetic air	sulfur hexafluoride	Amount-of-substance fraction	0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes	PRM SM 06.02.031/8 plus instrument calibration	Approved on 29 April 2005

## Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleev Institute for Metrology, Rostekhnregulirovaniye of Russia)

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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?		
4.2-71a	Environmental	nitrogen	nitrogen trifluoride	Amount-of-substance fraction	0.01	100	mmol/mol	5	1	%	Yes	0.01	100	mmol/mol	5	1	%	Yes	PRM SM 06.02.031/9 plus instrument calibration	Approved on 29 April 2005
4.2-71b	Environmental	synthetic air	nitrogen trifluoride	Amount-of-substance fraction	0.01	100	mmol/mol	5	1	%	Yes	0.01	100	mmol/mol	5	1	%	Yes	PRM SM 06.02.031/10 plus instrument calibration	Approved on 29 April 2005
4.2-72	Environmental	nitrogen	carbon tetrafluoride	Amount-of-substance fraction	0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes	PRM SM 06.02.031 plus instrument calibration	Approved on 29 April 2005
			sulfur hexafluoride		0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes		
			hexafluoroethane		0.01	100	mmol/mol	2	1	%	Yes	0.01	100	mmol/mol	2	1	%	Yes		
			trifluoromethane		0.01	100	mmol/mol	3	1	%	Yes	0.01	100	mmol/mol	3	1	%	Yes		
			nitrogen trifluoride		0.01	100	mmol/mol	5	1	%	Yes	0.01	100	mmol/mol	5	1	%	Yes		
4.2-43a	Environmental	nitrogen	chloroform	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/1 plus instrument calibration	Approved on 24 January 2006
4.2-43b	Environmental	synthetic air	chloroform	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/2 plus instrument calibration	Approved on 24 January 2006
4.2-44a	Environmental	nitrogen	dichloromethane	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/3 plus instrument calibration	Approved on 24 January 2006
4.2-44b	Environmental	synthetic air	dichloromethane	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/4 plus instrument calibration	Approved on 24 January 2006
4.2-50a	Environmental	nitrogen	trichloroethylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/5 plus instrument calibration	Approved on 24 January 2006

## Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleev Institute for Metrology, Rostekhnregulirovaniye of Russia)

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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?		
4.2-50b	Environmental	synthetic air	trichloroethylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/6 plus instrument calibration	Approved on 24 January 2006
4.2-51a	Environmental	nitrogen	tetrachloroethylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/7 plus instrument calibration	Approved on 24 January 2006
4.2-51b	Environmental	synthetic air	tetrachloroethylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/8 plus instrument calibration	Approved on 24 January 2006
4.2-52a	Environmental	nitrogen	1,2-dichloroethane	Amount-of-substance fraction	0.05	100	µmol/mol	4	3	%	Yes	0.05	100	µmol/mol	6	4	%	Yes	PRM SM 06.02.030/9 plus instrument calibration	Approved on 24 January 2006
4.2-52b	Environmental	synthetic air	1,2-dichloroethane	Amount-of-substance fraction	0.05	100	µmol/mol	4	3	%	Yes	0.05	100	µmol/mol	6	4	%	Yes	PRM SM 06.02.030/10 plus instrument calibration	Approved on 24 January 2006
4.2-54a	Environmental	nitrogen	vinyl chloride	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/13 plus instrument calibration	Approved on 24 January 2006
4.2-54b	Environmental	synthetic air	vinyl chloride	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/14 plus instrument calibration	Approved on 24 January 2006
4.2-55a	Environmental	nitrogen	carbon tetrachloride	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/15 plus instrument calibration	Approved on 24 January 2006
4.2-55b	Environmental	synthetic air	carbon tetrachloride	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/16 plus instrument calibration	Approved on 24 January 2006
4.2-56a	Environmental	nitrogen	1,1,1-trichloroethane	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/17 plus instrument calibration	Approved on 24 January 2006

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NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
4.2-56b	Environmental	synthetic air	1,1,1-trichloroethane	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/18 plus instrument calibration	Approved on 24 January 2006
4.2-57a	Environmental	nitrogen	o-xylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/19 plus instrument calibration	Approved on 24 January 2006
4.2-57b	Environmental	synthetic air	o-xylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/20 plus instrument calibration	Approved on 24 January 2006
4.2-58a	Environmental	nitrogen	m-xylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/21 plus instrument calibration	Approved on 24 January 2006
4.2-58b	Environmental	synthetic air	m-xylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/22 plus instrument calibration	Approved on 24 January 2006
4.2-59a	Environmental	nitrogen	p-xylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/23 plus instrument calibration	Approved on 24 January 2006
4.2-59b	Environmental	synthetic air	p-xylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/24 plus instrument calibration	Approved on 24 January 2006
4.2-60a	Environmental	nitrogen	1,1-dichloroethylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/25 plus instrument calibration	Approved on 24 January 2006
4.2-60b	Environmental	synthetic air	1,1-dichloroethylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/26 plus instrument calibration	Approved on 24 January 2006
4.2-61a	Environmental	nitrogen	cis-1,2-dichloroethylene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/27 plus instrument calibration	Approved on 24 January 2006

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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?		
4.2-61b	Environmental	synthetic air	cis-1,2-dichloroethane	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/28 plus instrument calibration	Approved on 24 January 2006
4.2-62a	Environmental	nitrogen	1,1,2-trichloroethane	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/29 plus instrument calibration	Approved on 24 January 2006
4.2-62b	Environmental	synthetic air	1,1,2-trichloroethane	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/30 plus instrument calibration	Approved on 24 January 2006
4.2-63a	Environmental	nitrogen	trans-1,3-dichloropropene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/31 plus instrument calibration	Approved on 24 January 2006
4.2-63b	Environmental	synthetic air	trans-1,3-dichloropropene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/32 plus instrument calibration	Approved on 24 January 2006
4.2-64a	Environmental	nitrogen	cis-1,3-dichloropropene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/33 plus instrument calibration	Approved on 24 January 2006
4.2-64b	Environmental	synthetic air	cis-1,3-dichloropropene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/34 plus instrument calibration	Approved on 24 January 2006
4.2-65a	Environmental	nitrogen	ethyl benzene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/35 plus instrument calibration	Approved on 24 January 2006
4.2-65b	Environmental	synthetic air	ethyl benzene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030/36 plus instrument calibration	Approved on 24 January 2006
4.2-66	Environmental	nitrogen	benzene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	PRM SM 06.02.030 plus instrument calibration	Approved on 24 January 2006
			chloroform		0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes		
			dichloromethane		0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	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?		
			trichloroethylene		0.05	100	μmol/mol	3	2	%	Yes	0.05	100	μmol/mol	5	3	%	Yes		
			tetrachloroethylene		0.05	100	μmol/mol	3	2	%	Yes	0.05	100	μmol/mol	5	3	%	Yes		
			1,2-dichloroethane		0.05	100	μmol/mol	4	3	%	Yes	0.05	100	μmol/mol	6	4	%	Yes		
			vinyl chloride		0.05	100	μmol/mol	3	2	%	Yes	0.05	100	μmol/mol	5	3	%	Yes		
4.2-73	Environmental	nitrogen	carbon monoxide	Amount-of-substance fraction	100	700	mmol/mol	1.5	0.15	%	Yes	100	700	mmol/mol	1.5	0.15	%	Yes	SM 06.01.125, 06.01.126, 06.01.129 plus calibration	Approved on 12 December 2006
4.6-05	Other	nitrogen	methane	Amount-of-substance fraction	20	300	mmol/mol	0.8	0.7	%	Yes	20	300	mmol/mol	0.8	0.7	%	Yes	SM 06.01.168, 06.01.169, 06.01.174, 06.01.176, 06.01.179, 06.01.180, 06.01.181 plus calibration	Approved on 12 December 2006
4.6-06	Other	nitrogen	hydrogen	Amount-of-substance fraction	12	50	mmol/mol	2.5	0.8	%	Yes	12	50	mmol/mol	2.5	0.8	%	Yes	SM 06.01.203, 06.01.204, 06.01.205, 06.01.206, 06.01.208 plus calibration	Approved on 12 December 2006
4.6-07	Other	air	hydrogen	Amount-of-substance fraction	2	20	mmol/mol	5	1.5	%	Yes	2	20	mmol/mol	5	1.5	%	Yes	SM 06.01.386, 06.01.387, 06.01.388, 06.01.241 plus calibration	Approved on 12 December 2006
4.6-08	Other	argon	hydrogen	Amount-of-substance fraction	15	50	mmol/mol	2	1.5	%	Yes	15	50	mmol/mol	2	1.5	%	Yes	SM 06.01.246, 06.01.249, 06.01.250 plus calibration	Approved on 12 December 2006
4.6-09	Other	helium	hydrogen	Amount-of-substance fraction	5	500	mmol/mol	2	2	%	Yes	5	500	mmol/mol	2	2	%	Yes	SM 06.01.450, 06.01.451, 06.01.796, 06.01.797 plus calibration	Approved on 12 December 2006
4.6-10	Other	argon	propane	Amount-of-substance fraction	15	110	mmol/mol	2.5	2	%	Yes	15	110	mmol/mol	2.5	2	%	Yes	SM 06.01.448, 06.01.449 plus calibration	Approved on 12 December 2006

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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?		
4.6-11	Other	nitrogen	helium	Amount-of-substance fraction	15	950	mmol/mol	2.5	0.2	%	Yes	15	950	mmol/mol	2.5	0.2	%	Yes	SM 06.01.270, 06.01.272, 06.01.274, 06.01.276, 06.01.277 plus calibration	Approved on 12 December 2006
4.6-12	Other	nitrogen	argon	Amount-of-substance fraction	80	975	mmol/mol	2.5	0.2	%	Yes	80	975	mmol/mol	2.5	0.2	%	Yes	SM 06.01.296, 06.01.301 plus calibration	Approved on 12 December 2006
4.6-13	Other	nitrogen	oxygen	Amount-of-substance fraction	5	900	mmol/mol	4	0.2	%	Yes	5	900	mmol/mol	4	0.2	%	Yes	SM 06.01.343, 06.01.344, 06.01.345, 06.01.346, 06.01.347, 06.01.348, 06.01.349, 06.01.350, 06.01.391 plus calibration	Approved on 12 December 2006
			carbon dioxide		50	150	mmol/mol	2	1.3	%	Yes	50	150	mmol/mol	2	1.3	%	Yes		
4.6-14	Other	nitrogen	oxygen	Amount-of-substance fraction	5	800	mmol/mol	4	0.5	%	Yes	5	800	mmol/mol	4	0.5	%	Yes	SM 06.01.352, 06.01.353, 06.01.354, 06.01.355, 06.01.356, 06.01.357, 06.01.358, 06.01.359 plus calibration	Approved on 12 December 2006
			hydrogen		6	12	mmol/mol	5	2.5	%	Yes	6	12	mmol/mol	5	2.5	%	Yes		
4.6-15	Other	nitrogen	oxygen	Amount-of-substance fraction	2.5	500	mmol/mol	4	1.5	%	Yes	2.5	500	mmol/mol	4	1.5	%	Yes	SM 06.01.361, 06.01.362, 06.01.363, 06.01.364, 06.01.365, 06.01.366, 06.01.367 plus calibration	Approved on 12 December 2006
			methane		6	12	mmol/mol	5	2.5	%	Yes	6	12	mmol/mol	5	2.5	%	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?		
4.6-16	Other	nitrogen	hydrogen	Amount-of-substance fraction	35	200	mmol/mol	1.5	1	%	Yes	35	200	mmol/mol	1.5	1	%	Yes	SM 06.01.373, 06.01.374, 06.01.375, 06.01.376 plus calibration	Approved on 12 December 2006
			carbon dioxide		60	300	mmol/mol	3	1	%	Yes	60	300	mmol/mol	3	1	%	Yes		
4.6-17	Other	nitrogen	hexane	Amount-of-substance fraction	0.5	5	mmol/mol	4	2	%	Yes	0.5	5	mmol/mol	4	2	%	Yes	SM 06.01.419, 06.01.461, 06.01.462, 06.01.463, 06.01.464, 06.01.548, 06.01.549 plus calibration	Approved on 12 December 2006
4.6-18	Other	air	hexane	Amount-of-substance fraction	0.65	5	mmol/mol	4.5	2	%	Yes	0.65	5	mmol/mol	4.5	2	%	Yes	SM 06.01.465, 06.01.551, 06.01.552 plus calibration	Approved on 12 December 2006
4.6-19	Other	nitrogen	krypton	Amount-of-substance fraction	100	200	mmol/mol	2	2	%	Yes	100	200	mmol/mol	2	2	%	Yes	SM 06.01.584, 06.01.585, 06.01.586 plus calibration	Approved on 12 December 2006
4.6-20	Other	xenon	krypton	Amount-of-substance fraction	50	150	mmol/mol	2	2	%	Yes	50	150	mmol/mol	2	2	%	Yes	SM 06.01.587, 06.01.588, 06.01.589 plus calibration	Approved on 12 December 2006
4.6-21	Other	helium	argon	Amount-of-substance fraction	100	300	mmol/mol	2	2	%	Yes	100	300	mmol/mol	2	2	%	Yes	SM 06.01.590, 06.01.591, 06.01.592 plus calibration	Approved on 12 December 2006
4.6-22	Other	helium	krypton	Amount-of-substance fraction	100	300	mmol/mol	2	2	%	Yes	100	300	mmol/mol	2	2	%	Yes	SM 06.01.593, 06.01.594, 06.01.595 plus calibration	Approved on 12 December 2006
4.6-23	Other	nitrogen	hydrogen	Amount-of-substance fraction	2.5	10	mmol/mol	4	1	%	Yes	2.5	10	mmol/mol	4	1	%	Yes	GSO 7606-99, 7607-99 plus calibration	Approved on 12 December 2006
			carbon dioxide		100	100	mmol/mol	1.5	1.5	%	Yes	100	100	mmol/mol	1.5	1.5	%	Yes		
			oxygen		20	20	mmol/mol	1.5	1.5	%	Yes	20	20	mmol/mol	1.5	1.5	%	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?		
4.2-75	Environmental	argon	carbon monoxide	Amount-of-substance fraction	5	50	µmol/mol	4	1	%	Yes	5	50	µmol/mol	4	1	%	Yes	SM 06.01.638, 06.01.639 plus calibration	Approved on 12 December 2006
4.6-24	Other	argon	iso-pentane	Amount-of-substance fraction	5	10	mmol/mol	3	1.5	%	Yes	5	10	mmol/mol	3	1.5	%	Yes	SM 06.01.642 plus calibration	Approved on 12 December 2006
			n-pentane		50	60	mmol/mol	3	2.5	%	Yes	50	60	mmol/mol	3	2.5	%	Yes		
			n-hexane		5	10	mmol/mol	3	1.5	%	Yes	5	10	mmol/mol	3	1.5	%	Yes		
4.6-25	Other	nitrogen	propane	Amount-of-substance fraction	30	60	mmol/mol	1.7	0.8	%	Yes	30	60	mmol/mol	1.7	0.8	%	Yes	SM 06.01.648 plus calibration	Approved on 12 December 2006
4.6-26	Other	helium	methane	Amount-of-substance fraction	10	10	mmol/mol	5	5	%	Yes	10	10	mmol/mol	5	5	%	Yes	SM 06.01.651 plus calibration	Approved on 12 December 2006
			ethane		10	10	mmol/mol	5	5	%	Yes	10	10	mmol/mol	5	5	%	Yes		
			propane		10	10	mmol/mol	5	5	%	Yes	10	10	mmol/mol	5	5	%	Yes		
			n-butane		10	10	mmol/mol	5	5	%	Yes	10	10	mmol/mol	5	5	%	Yes		
4.6-27	Other	helium	hydrogen	Amount-of-substance fraction	50	50	mmol/mol	5	5	%	Yes	50	50	mmol/mol	5	5	%	Yes	SM 06.01.654 plus calibration	Approved on 12 December 2006
			oxygen		15	15	mmol/mol	0.5	0.5	%	Yes	15	15	mmol/mol	0.5	0.5	%	Yes		
			nitrogen		50	50	mmol/mol	5	5	%	Yes	50	50	mmol/mol	5	5	%	Yes		
			carbon dioxide		5	5	mmol/mol	5	5	%	Yes	5	5	mmol/mol	5	5	%	Yes		
4.2-76	Environmental	helium	carbon monoxide	Amount-of-substance fraction	10	5000	µmol/mol	4	4	%	Yes	10	5000	µmol/mol	4	4	%	Yes	SM 06.01.792 plus calibration	Approved on 12 December 2006
4.6-28	Other	helium	propane	Amount-of-substance fraction	1	5	mmol/mol	4	4	%	Yes	1	5	mmol/mol	4	4	%	Yes	SM 06.01.793 plus calibration	Approved on 12 December 2006
			hexane		0.2	5	mmol/mol	4	4	%	Yes	0.2	5	mmol/mol	4	4	%	Yes		
4.2-77	Environmental	helium	nitrogen	Amount-of-substance fraction	40	400	µmol/mol	5	5	%	Yes	40	400	µmol/mol	5	5	%	Yes	SM 06.01.798 plus calibration	Approved on 12 December 2006
			oxygen		40	400	µmol/mol	5	5	%	Yes	40	400	µmol/mol	5	5	%	Yes		
			carbon dioxide		40	400	µmol/mol	5	5	%	Yes	40	400	µmol/mol	5	5	%	Yes		
			carbon monoxide		40	400	µmol/mol	5	5	%	Yes	40	400	µmol/mol	5	5	%	Yes		
4.6-29	Other	helium	propane	Amount-of-substance fraction	0.01	100	mmol/mol	4	3	%	Yes	0.01	100	mmol/mol	4	3	%	Yes	SM 06.01.799, 06.01.800 plus calibration	Approved on 12 December 2006

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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?		
4.6-30	Other	oxygen	nitrogen	Amount-of-substance fraction	100	950	mmol/mol	1	1	%	Yes	100	950	mmol/mol	1	1	%	Yes	SM 06.01.802 plus calibration	Approved on 12 December 2006
4.6-31	Other	argon	nitrogen	Amount-of-substance fraction	5	100	mmol/mol	4	4	%	Yes	5	100	mmol/mol	4	4	%	Yes	SM 06.01.803 plus calibration	Approved on 12 December 2006
4.6-32	Environmental	hydrogen	helium	Amount-of-substance fraction	5	100	mmol/mol	4	4	%	Yes	5	100	mmol/mol	4	4	%	Yes	SM 06.01.806 plus calibration	Approved on 12 December 2006
4.2-78	Other	hydrogen	carbon monoxide	Amount-of-substance fraction	5	100	mmol/mol	4	4	%	Yes	5	100	mmol/mol	4	4	%	Yes	SM 06.01.807 plus calibration	Approved on 12 December 2006
4.6-33	Other	hydrogen	methane	Amount-of-substance fraction	5	100	mmol/mol	4	4	%	Yes	5	100	mmol/mol	4	4	%	Yes	SM 06.01.808 plus calibration	Approved on 12 December 2006
4.6-34	Other	helium	methane	Amount-of-substance fraction	5	100	mmol/mol	4	4	%	Yes	5	100	mmol/mol	4	4	%	Yes	SM 06.01.810 plus calibration	Approved on 12 December 2006
4.6-35	Other	helium	methane	Amount-of-substance fraction	100	950	mmol/mol	1	1	%	Yes	100	950	mmol/mol	1	1	%	Yes	SM 06.01.811 plus calibration	Approved on 12 December 2006
4.3-06	Fuel	synthetic natural gas	methane	Amount-of-substance fraction	700	980	mmol/mol	0.1	0.05	%	Yes	700	980	mmol/mol	0.1	0.05	%	Yes	SM 06.03.002, 06.03.003 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
			nitrogen	Amount-of-substance fraction	10	200	mmol/mol	0.4	0.4	%	Yes	10	200	mmol/mol	0.4	0.4	%	Yes		
			carbon dioxide	Amount-of-substance fraction	1	50	mmol/mol	0.6	0.6	%	Yes	1	50	mmol/mol	0.6	0.6	%	Yes		
			ethane	Amount-of-substance fraction	10	200	mmol/mol	0.4	0.4	%	Yes	10	200	mmol/mol	0.4	0.4	%	Yes		
			propane	Amount-of-substance fraction	1	50	mmol/mol	0.6	0.6	%	Yes	1	50	mmol/mol	0.6	0.6	%	Yes		
			i-butane	Amount-of-substance fraction	0.5	15	mmol/mol	1.5	1	%	Yes	0.5	15	mmol/mol	1.5	1	%	Yes		

## Amount of substance, Gases, Russian Federation, VNIIM (D.I. Mendeleyev Institute for Metrology, Rostekhregulirovaniye of Russia)

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

NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
			n-butane	Amount-of-substance fraction	0.5	15	mmol/mol	1.5	1	%	Yes	0.5	15	mmol/mol	1.5	1	%	Yes		
4.2-79	Environmental	air	hydrogen sulfide	Amount-of-substance fraction	20	500	µmol/mol	1.5	1.5	%	Yes	20	500	µmol/mol	2	2	%	Yes		Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-36	Other	nitrogen	hydrogen sulfide	Amount-of-substance fraction	1	5	mmol/mol	1.5	1.5	%	Yes	1	5	mmol/mol	1.5	1.5	%	Yes	SM 06.02.016 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-37	Other	hydrogen	nitrogen	Amount-of-substance fraction	20	40	mmol/mol	2	1	%	Yes	20	40	mmol/mol	2	1	%	Yes	SM 06.01.034 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.2-81	Environmental	helium	carbon dioxide	Amount-of-substance fraction	500	1000	µmol/mol	3	1.5	%	Yes	500	1000	µmol/mol	3	1.5	%	Yes	SM 06.01.088 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-38	Other	air	helium	Amount-of-substance fraction	25	100	mmol/mol	2.5	0.8	%	Yes	25	100	mmol/mol	2.5	0.8	%	Yes	SM 06.01.278, 06.01.279 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-39	Other	oxygen	hydrogen	Amount-of-substance fraction	10	19	mmol/mol	2.6	1.3	%	Yes	10	19	mmol/mol	2.6	1.3	%	Yes	SM 06.01.393 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-40	Other	nitrogen	ammonia	Amount-of-substance fraction	1	5	mmol/mol	4	4	%	Yes	1	5	mmol/mol	4	4	%	Yes	SM 06.02.017 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-41	Other	air	ammonia	Amount-of-substance fraction	10	15	mmol/mol	4	4	%	Yes	10	15	mmol/mol	4	4	%	Yes	SM 06.01.622, 06.01.623, plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007

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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?		
4.6-42	Other	nitrogen	ethylene	Amount-of-substance fraction	25	100	mmol/mol	0.6	0.6	%	Yes	25	100	mmol/mol	0.6	0.6	%	Yes	SM 06.01.634, 06.01.635, 06.01.690, 06.01.691 plus calibration Approved on 18 June 2007	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-43	Other	nitrogen	acetylene	Amount-of-substance fraction	75	140	mmol/mol	3	3	%	Yes	75	140	mmol/mol	3	3	%	Yes	SM 06.01.636, 06.01.637 plus calibration Approved on 18 June 2007	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.6-46	Other	nitrogen	sulfur dioxide	Amount-of-substance fraction	1	5	mmol/mol	1	1	%	Yes	1	5	mmol/mol	1.5	1.5	%	Yes	SM 06.02.013, plus calibration Approved on 18 June 2007	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Uncertainty convention 2. Approved on 18 June 2007
4.6-48	Other	nitrogen	sulfur hexafluoride	Amount-of-substance fraction	10	100	μmol/mol	5	5	%	Yes	10	100	μmol/mol	5	5	%	Yes	SM 06.01.812 plus calibration Approved on 18 June 2007	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
			carbon tetrafluoride	Amount-of-substance fraction	10	100	μmol/mol	5	5	%	Yes	10	100	μmol/mol	5	5	%	Yes		
			carbon monoxide	Amount-of-substance fraction	10	100	μmol/mol	5	5	%	Yes	10	100	μmol/mol	5	5	%	Yes		
4.2-31a	Environmental	nitrogen	benzene	Amount-of-substance fraction	0.05	100	μmol/mol	3	2	%	Yes	0.05	100	μmol/mol	5	3	%	Yes	SM 06.02.23 plus calibration Approved on 18 June 2007	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.2-31b	Environmental	air	benzene	Amount-of-substance fraction	0.05	100	μmol/mol	3	2	%	Yes	0.05	100	μmol/mol	5	3	%	Yes	SM 06.02.23 plus calibration Approved on 18 June 2007	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007
4.2-32a	Environmental	nitrogen	toluene	Amount-of-substance fraction	0.05	100	μmol/mol	3	2	%	Yes	0.05	100	μmol/mol	5	3	%	Yes	SM 06.02.24 plus calibration Approved on 18 June 2007	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis. Approved on 18 June 2007

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NMI Service Identifier	Measurement Service Category	Matrix	Mesurand		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?		
4.2-32b	Environmental	air	toluene	Amount-of-substance fraction	0.05	100	µmol/mol	3	2	%	Yes	0.05	100	µmol/mol	5	3	%	Yes	SM 06.02.24 plus calibration Approved on 18 June 2007	
4.2-80	Environmental	helium	carbon dioxide	Amount-of-substance fraction	100	500	µmol/mol	4	3	%	Yes	100	500	µmol/mol	4	3	%	Yes	SM 06.01.791 plus calibration Approved on 21 December 2007	
4.2-82	Environmental	synthetic air	carbon dioxide	Amount of substance fraction	100	1000	µmol/mol	1	0.2	%	Yes	100	1000	µmol/mol	1	0.2	%	Yes	SM 06.02.018 plus calibration Approved on 19 July 2010	
4.6-49	Other	helium	carbon dioxide	Amount-of-substance fraction	1	300	mmol/mol	0.2	0.15	%	Yes	1	300	mmol/mol	0.2	0.15	%	Yes	SM 06.02.018 plus calibration Approved on 24 June 2008	
4.2-08	Environmental	nitrogen	nitrogen monoxide	Amount-of-substance fraction	0.1	10	micromol/mol	5	1	%	Yes							Calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 12 March 2009	
4.2-09	Environmental	nitrogen	nitrogen monoxide	Amount-of-substance fraction	10	100	micromol/mol	1	0.7	%	Yes	10	100	micromol/mol	1	0.7	%	Yes	SM 06.02.014 plus calibration Approved on 12 March 2009	
4.6-47	Other	nitrogen	nitrogen monoxide	Amount-of-substance fraction	0.1	5	mmol/mol	1	0.6	%	Yes	0.1	5	mmol/mol	1	0.6	%	Yes	SM 06.02.014 plus calibration Approved on 12 March 2009	
4.2-10	Environmental	nitrogen	nitrogen monoxide	Amount-of-substance fraction	5	25	mmol/mol	0.6	0.3	%	Yes	5	25	mmol/mol	0.6	0.3	%	Yes	SM 06.02.014 plus calibration Approved on 12 March 2009	

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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?		
4.2-85	Environmental	air	ozone	Amount-of-substance fraction x	0	1000	nmol/mol	Q[1.1, 0.022 x], x in nmol/mol	Q[1.1, 0.022 x], x in nmol/mol	nmol/mol	No							calibration	Approved on 30 July 2009	
4.6-44	Other	nitrogen	hydrogen sulphide	Amount of substance fraction	1	10	µmol/mol	2.5	1.5	%	Yes	1	10	µmol/mol	3	2	%	Yes	SM 06.02.152 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 19 July 2010
			methanethiol		1	10	µmol/mol	2.5	1.5	%	Yes	1	10	µmol/mol	3	2	%	Yes		
			ethanethiol		1	10	µmol/mol	2.5	1.5	%	Yes	1	10	µmol/mol	3	2	%	Yes		
4.3-08	Fuel	methane	hydrogen sulphide	Amount of substance fraction	10	500	µmol/mol	1.5	1	%	Yes	10	500	µmol/mol	2	1.5	%	Yes	SM 06.02.102 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 19 July 2010
			methanethiol		10	1000	µmol/mol	1.5	1	%	Yes	10	1000	µmol/mol	2	1.5	%	Yes		
			ethanethiol		10	1000	µmol/mol	1.5	1	%	Yes	10	1000	µmol/mol	2	1.5	%	Yes		
4.6-45	Other	nitrogen	hydrogen sulphide	Amount of substance fraction	10	500	µmol/mol	1.5	1	%	Yes	10	500	µmol/mol	2	1.5	%	Yes	SM 06.02.153 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 19 July 2010
			methanethiol		10	1000	µmol/mol	1.5	1	%	Yes	10	1000	µmol/mol	2	1.5	%	Yes		
			ethanethiol		10	1000	µmol/mol	1.5	1	%	Yes	10	1000	µmol/mol	2	1.5	%	Yes		
4.3-07	Fuel	methane	hydrogen sulphide	Amount of substance fraction	1	10	micromol/mol	2.5	1.5	%	Yes	1	10	micromol/mol	3	2	%	Yes	SM 06.02.101 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 December 2011
			methanethiol		1	10	micromol/mol	2.5	1.5	%	Yes	1	10	micromol/mol	3	2	%	Yes		
			ethanethiol		1	10	micromol/mol	2.5	1.5	%	Yes	1	10	micromol/mol	3	2	%	Yes		
4.3-09	Fuel	methane	hydrogen sulphide	Amount of substance fraction	10	500	micromol/mol	1.5	1	%	Yes	10	500	micromol/mol	2	1.5	%	Yes	SM 06.02.103 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 December 2011

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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?		
			methanethiol		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			ethanethiol		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			carbonyl sulphide		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			carbon disulphide		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			dimethyl sulphide		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			diethyl sulphide		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			ethyl methyl sulphide		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			dimethyl disulphide		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			diethyl disulphide		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			1-propanethiol		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			2-propanethiol		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			1-butanethiol		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			2-butanethiol		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			2-methyl-2-propanethiol		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
			tetrahydrothio phene		10	1000	micromol/mol	1.5	1	%	Yes	10	1000	micromol/mol	2	1.5	%	Yes		
4.6-50	Other	nitrogen	oxygen	Amount-of-substance fraction	10	1000	micromol/mol	3	0.5	%	Yes	10	1000	micromol/mol	3	0.5	%	Yes	SM 06.02.154 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 December 2011
4.6-51	Other	nitrogen	argon	Amount-of-substance fraction	10	10000	micromol/mol	3	0.5	%	Yes	10	10000	micromol/mol	3	0.5	%	Yes	SM 06.02.155 plus calibration	Calibration service involves calibration of gas mixtures of known composition against primary standards on regular basis Approved on 06 December 2011

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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?		
4.6-52	Other	nitrogen	neon	Amount-of-substance fraction	10	10000	micromol/mol	3	0.5	%	Yes	10	10000	micromol/mol	3	0.5	%	Yes	SM 06.02.156 plus calibration Approved on 06 December 2011	
4.6-53	Other	nitrogen	helium	Amount-of-substance fraction	10	10000	micromol/mol	5	0.5	%	Yes	10	10000	micromol/mol	5	0.5	%	Yes	SM 06.02.157 plus calibration Approved on 06 December 2011	
4.6-54	Other	nitrogen	hydrogen	Amount-of-substance fraction	10	10000	micromol/mol	5	0.5	%	Yes	10	10000	micromol/mol	5	0.5	%	Yes	SM 06.02.158 plus calibration Approved on 06 December 2011	
4.6-55	Other	methane	n-hexane	Amount of substance fraction	40	400	micromol/mol	1	0.5	%	Yes	40	400	micromol/mol	1	0.5	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.6-56	Other	helium	n-hexane	Amount of substance fraction	40	400	micromol/mol	1	0.5	%	Yes	40	400	micromol/mol	1	0.5	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.6-57	Other	methane	n-hexane	Amount of substance fraction	0.4	4	mmol/mol	0.5	0.3	%	Yes	0.4	4	mmol/mol	0.5	0.3	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.6-58	Other	helium	n-hexane	Amount of substance fraction	0.4	4	mmol/mol	0.5	0.3	%	Yes	0.4	4	mmol/mol	0.5	0.3	%	Yes	SM 06.02.012 plus calibration Approved on 06 December 2011	
4.2-83a	Environmental	nitrogen	nitrous oxide	Amount of substance fraction	0.2	20	micromol/mol	1	0.8	%	Yes	0.2	20	micromol/mol	1	0.8	%	Yes	SM 06.02.092 plus calibration Approved on 06 December 2011	

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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?		
4.2-83b	Environmental	synthetic air	nitrous oxide	Amount of substance fraction	0.2	20	micromol/mol	1	0.8	%	Yes	0.2	20	micromol/mol	1	0.8	%	Yes	SM 06.02.092 plus calibration Approved on 06 December 2011	
4.2-84	Environmental	nitrogen	carbon dioxide	Amount-of-substance fraction	50000	#####	micromol/mol	0.5	0.5	%	Yes	50	200	mmol/mol	0.5	0.5	%	Yes	SM 06.02.093 plus calibration Approved on 06 December 2011	
			propane		1	100	micromol/mol	2	1	%	Yes	1	100	micromol/mol	2	1	%	Yes		
			nitrogen monoxide		10	1000	micromol/mol	2	0.5	%	Yes	10	1000	micromol/mol	2	0.5	%	Yes		
			sulfur dioxide		10	1000	micromol/mol	2	0.5	%	Yes	10	1000	micromol/mol	2	0.5	%	Yes		