Measurement uncertainty arising from sampling: A guide to methods and approaches

Second Edition (2019)

ERRATA

The following pages provide editorial corrections to the corresponding elements of the above Guide. Amendments are indicated in colour.

Errata Version	Issue date	Remarks
1.4a	2023-04-27	Correction to RSD in Summary table, Example A4, p. 75 and amendment to column headings and notes.
1.3	2022-11-21	Update to URL, Bibliography, reference [8]
1.2	2020-03-04	Correction to Working Group member list
1.1	2020-01-09	Corrections to Table A3.7 and dependent values in Table A3.4 and summary on p. 60

Title page – Working group composition amended as follows:

Add Eurachem member:

Silke Richter BAM, Germany

Page 57: Table A3.4 amended as follows:

Table A3.4: Relative expanded uncertainty (%, coverage factor 2) for analysis, sampling and between-target (between wells) as obtained during validation using range calculations

Range calculations	Analyses	Sampling	Between-target
Dissolved iron	1.8%	10.5%	70%

Page 59: Table A3.7 amended as follows:

Table A3.7: Results and range calculations for the validation study, dissolved iron, basic data in bold, symbols used to describe calculations only (*T*: target, *S*: sample, *A*: analysis, *R*: absolute differences)

Well	**S1A1**	**S1A2**	**S2A1**	**S2A2**	**R1**	**R2**	**R_{S+A}**	**Average**
	mg l^{-1}	**mg l^{-1}**	**mg l^{-1}**	**mg l^{-1}**	**mg l^{-1}**	**mg l^{-1}**	**mg l^{-1}**	**mg l^{-1}**
99.474	0.815	0.834	0.912	0.893	0.019	0.019	0.078	0.86
99.468	1.8	1.83	1.94	1.93	0.030	0.010	0.12	1.88
99.469	1.69	1.68	1.79	1.77	0.010	0.020	0.095	1.73
99.916	2.62	2.61	2.83	2.84	0.010	0.010	0.22	2.73
99.327	1.66	1.63	1.58	1.59	0.030	0.010	0.06	1.62
99.371	1.52	1.53	1.47	1.50	0.010	0.030	0.04	1.51
				Average	0.018	0.017	0.102	1.719
							Stand. dev	0.604
Analysis	$R_A = (\overline{R_1} + \overline{R_2})/2$		$R_A =$	0.017	$s_A = R_A/1.128$		$s_A =$	0.015
							$CV_A =$	0.89 %
Sampling	$s_{S+A} = \overline{R_{S+A}}/1.128$		$S_{S+A} =$	0.091	$S_S = \sqrt{S_{S+A}{}^2 - \left(\frac{S_A}{\sqrt{2}}\right)^2}$		$s_S =$	0.090
							$CV_S =$	5.23 %
Between target			$S_{T+S+A} =$	0.604	$S_T = \sqrt{S_{T+S+A}{}^2 - \left(\frac{S_{S+A}}{\sqrt{2}}\right)^2}$		$s_T =$	0.601
							$CV_T =$	35 %

Cont/…

Page 60: Summary table amended as follows:

Dissolved iron in groundwater	**Expanded uncertainty, coverage factor of 2**			**Between-target variability**
	Sampling	**Analysis**	**Measurement**	**(*k* = 2)**
Validation	11 %	1.9 %	11 %	70 %[1]
Quality control	3.6%	2.5%	4.4 %	9.9 %[2]

[1]In the validation study, between-target variability was between wells
[2]In the quality control, between-target variability was between sampling occasions

Page 75: Summary table amended as follows:

Measurement uncertainty for **40 g** test samples				Sample
	Sampling	Analytical	Total	Typical variation between sampling targets[2]
Uncertainty *u* (%) = RSD (%)	4.95	8.3	9.7	6.1
[1]Expanded uncertainty *U* (%) = 2**u*	9.9	16.6	19.4	12.2

[1] With a coverage factor of 2 (i.e. 95% confidence)
[2] Calculated as RSD_B (%) from the data in Table A4.3, using classical ANOVA

Page 106: Bibliography

Reference 8: Nordtest (2007) Uncertainty from sampling. A Nordtest handbook for sampling planners and sampling quality assurance and uncertainty estimation. NT tec 604/TR604 :

Amend URL

www.nordicinnovation.net

to read

www.nordtest.info

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