

EQA round: TE1/23 - Trace Elements

Deadline: 7.3.2023

Setup: groups - measurement principle; minimal size of the groups n = 5

RoM = robust average

SD = standard deviation

CV = coefficient of variation

N_{tot} = total number of the resultsN_{out} = number of the results removed before calculation

AV = assigned value

CVE = consensus of the experts

U_{AV} = expanded uncertainty of the assigned value (k = 2)D_{max} = acceptable difference

LL = lower limit

UL = upper limit

N_{eva} = number of the results assessedN_{suc} = number of successful resultsS_{rel} = relative success

Test Sample Group	[unit]	RoM	SD	CV [%]	N _{tot}	N _{out}	Comparability					N _{eva}	N _{suc}	S _{rel} [%]	
							AV	U _{AV}	D _{max}	LL	UL				
Set 1 (plasma)															
(361) Al - plasma	[µmol/L]				2							2	1	50	
Sample A1												2	2	100	
Other					2	0						2			
							2x 7								
Sample B1												2	1	50	
Other					2	0						2			
							2x 7								
(360) Co - plasma	[nmol/L]				3							3	2	67	
Sample A1												3	2	67	
Other					3	0						3			
							1x 2, 2x 7								
Sample B1												3	2	67	
Other					3	0						3			
							1x 2, 2x 7								
(357) Cr - plasma	[nmol/L]				5							5	4	80	
Sample A1												5	4	80	
Other					5	0						5			
							3x 2, 2x 7								
Sample B1												5	4	80	
Other					5	0						5			
							3x 2, 2x 7								
(351) Cu - plasma	[µmol/L]				24							24	22	92	
Sample A1		14,5	1,6	11	24		CVE	14,6	1,2	25%	10,9	18,3	24	22	92
(2) ET-AAS		16	1,3	8,3	5	0							5		
(5) Spectrophotometry		13,7	1,5	11	13	0							13		
Other					6	0							6		
							4x 1, 2x 7								
Sample B1		22,5	2,6	11	24		CVE	23,3	1,7	25%	17,4	29,2	24	22	92
(2) ET-AAS		26,2	2,2	8,3	5	0							5		
(5) Spectrophotometry		21	2,1	10	13	0							13		
Other					6	0							6		
							4x 1, 2x 7								
(359) Mg - plasma	[mmol/L]				5							5	5	100	
Sample A1												5	5	100	
Other					5	0						5			
							1x 1, 4x 5								
Sample B1												5	5	100	
Other					5	0						5			
							1x 1, 4x 5								
(352) Mn - plasma	[nmol/L]				4							4	4	100	
Sample A1												4	4	100	
Other					4	0						4			
							2x 2, 2x 7								
Sample B1												4	4	100	
Other					4	0						4			
							2x 2, 2x 7								
(355) Se - plasma	[µmol/L]				5							5	4	80	
Sample A1												5	5	100	
Other					5	0						5			
							2x 2, 1x 4, 2x 7								
Sample B1												5	4	80	
Other					5	0						5			
							2x 2, 1x 4, 2x 7								
(350) Zn - plasma	[µmol/L]				22							22	21	95	
Sample A1		21,7	1,9	8,9	22		CVE	21,8	1,8	25%	16,3	27,3	22	21	95
(1) F-AAS		21,9	1,3	6,1	9	0							9		
(5) Spectrophotometry		21,9	1,8	8,4	11	0							11		
Other					2	0							2		
							2x 7								
Sample B1		38,1	2,3	6,1	22		CVE	38,5	2,5	25%	28,8	48,2	22	21	95
(1) F-AAS		39,1	2,2	5,7	9	0							9		
(5) Spectrophotometry		38,5	1,4	3,6	11	0							11		
Other					2	0							2		
							2x 7								

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							AV	U _{AV}	D _{max}	LL	UL			
Set 2 (blood)														
(353) Cd - blood	[nmol/L]				3							3	2	67
Sample A2												3	2	67
Other					3	0	1x 2, 2x 7					3		
Sample B2												3	3	100
Other					3	0	1x 2, 2x 7					3		
(356) Hg - blood	[nmol/L]				2							2	1	50
Sample A2												2	1	50
Other					2	0	1x 2, 1x 7					2		
Sample B2												2	1	50
Other					2	0	1x 2, 1x 7					2		
(339) Mn - blood	[nmol/L]				1							1	0	0
Sample A2												1	0	0
Other					1	0	1x 7					1		
Sample B2												1	0	0
Other					1	0	1x 7					1		
(354) Pb - blood	[nmol/L]				6							6	6	100
Sample A2												6	6	100
Other					6	0	4x 2, 2x 7					6		
Sample B2												6	6	100
Other					6	0	4x 2, 2x 7					6		
Set 3 (urine)														
(348) Al - urine	[µmol/L]				2							2	2	100
Sample A3												2	2	100
Other					2	0	2x 7					2		
Sample B3												2	2	100
Other					2	0	2x 7					2		
(343) Cd - urine	[nmol/L]				3							3	3	100
Sample A3												3	3	100
Other					3	0	1x 2, 2x 7					3		
Sample B3												3	3	100
Other					3	0	1x 2, 2x 7					3		
(347) Cr - urine	[nmol/L]				5							5	3	60
Sample A3												5	3	60
Other					5	0	2x 2, 3x 7					5		
Sample B3												5	5	100
Other					5	0	2x 2, 3x 7					5		
(341) Cu - urine	[µmol/L]				9							9	6	67
Sample A3												9	6	67
Other					9	0	2x 1, 4x 2, 1x 5, 2x 7					9		
Sample B3												9	9	100
Other					9	0	2x 1, 4x 2, 1x 5, 2x 7					9		
(346) Hg - urine	[nmol/L]				2							2	1	50
Sample A3												2	1	50
Other					2	0	1x 2, 1x 7					2		
Sample B3												2	1	50
Other					2	0	1x 2, 1x 7					2		
(362) I - urine	[µmol/L]				2							2	2	100
Sample A3												2	2	100
Other					2	0	1x 7, 1x 99					2		

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							AV	U _{AV}	D _{max}	LL	UL			
Sample B3 Other					2	0	1x 7, 1x 99					2	2	100
(342) Mn - urine	[nmol/L]				3							3	3	100
Sample A3 Other					3	0	1x 2, 2x 7					3	3	100
Sample B3 Other					3	0	1x 2, 2x 7					3	3	100
(358) Ni - urine	[nmol/L]				2							2	2	100
Sample A3 Other					2	0	2x 7					2	2	100
Sample B3 Other					2	0	2x 7					2	2	100
(344) Pb - urine	[nmol/L]				4							4	3	75
Sample A3 Other					4	0	2x 2, 2x 7					4	3	75
Sample B3 Other					4	0	2x 2, 2x 7					4	4	100
(345) Se - urine	[μmol/L]				3							3	2	67
Sample A3 Other					3	0	1x 4, 2x 7					3	3	100
Sample B3 Other					3	0	1x 4, 2x 7					3	2	67
(340) Zn - urine	[μmol/L]				6							6	6	100
Sample A3 Other					6	0	3x 1, 1x 2, 2x 7					6	6	100
Sample B3 Other					6	0	3x 1, 1x 2, 2x 7					6	6	100