

## EQA round: TE2/23 - Trace Elements

Deadline: 25.9.2023

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

RoM = robust average	AV = assigned value	D <sub>max</sub> = acceptable difference
SD = standard deviation	CVE = consensus of the experts	LL = lower limit
CV = coefficient of variation	U <sub>AV</sub> = expanded uncertainty of the assigned value (k = 2)	UL = upper limit
N <sub>tot</sub> = total number of the results		N <sub>eva</sub> = number of the results assessed
N <sub>out</sub> = number of the results removed before calculation		N <sub>suc</sub> = number of successful results
		S <sub>rel</sub> = relative success

Test Sample Group	[unit]	RoM	SD	CV [%]	N <sub>tot</sub>	N <sub>out</sub>	Comparability					N <sub>eva</sub>	N <sub>suc</sub>	S <sub>rel</sub> [%]	
							AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL				
<b>Set 1 (plasma)</b>															
(361) Al - plasma	[μmol/L]				3							3	1	33	
Sample A1												3	1	33	
Other					3	0						3			
							1x 2, 2x 7								
Sample B1												3	3	100	
Other					3	0						3			
							1x 2, 2x 7								
(360) Co - plasma	[nmol/L]				2							2	2	100	
Sample A1												2	2	100	
Other					2	0						2			
							1x 2, 1x 7								
Sample B1												2	2	100	
Other					2	0						2			
							1x 2, 1x 7								
(357) Cr - plasma	[nmol/L]				4							4	4	100	
Sample A1												4	4	100	
Other					4	0						4			
							3x 2, 1x 7								
Sample B1												4	4	100	
Other					4	0						4			
							3x 2, 1x 7								
(351) Cu - plasma	[μmol/L]				25							25	20	80	
Sample A1		12,2	1,7	14	25		CVE	12,3	1,1	25%	9,22	15,4	25	22	88
(2) ET-AAS		12,7	1,5	12	5	0							5		
(5) Spectrophotometry		12	2,2	18	12	0							12		
Other					8	0							8		
							4x 1, 4x 7								
Sample B1		15,6	1,9	12	25		CVE	15,9	1,2	25%	11,9	19,9	25	21	84
(2) ET-AAS		16,9	2,3	14	5	0							5		
(5) Spectrophotometry		14,9	2,4	16	12	0							12		
Other					8	0							8		
							4x 1, 4x 7								
(359) Mg - plasma	[mmol/L]				4							4	4	100	
Sample A1												4	4	100	
Other					4	0						4			
							1x 1, 3x 5								
Sample B1												4	4	100	
Other					4	0						4			
							1x 1, 3x 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	5	100	
Sample A1												5	5	100	
Other					5	0						5			
							2x 2, 1x 4, 2x 7								
Sample B1												5	5	100	
Other					5	0						5			
							2x 2, 1x 4, 2x 7								
(350) Zn - plasma	[μmol/L]				23							23	22	96	
Sample A1		21	2	9,3	23		CVE	20,9	1,8	25%	15,6	26,2	23	22	96
(1) F-AAS		20,2	1,8	8,8	9	0							9		
(5) Spectrophotometry		21,6	1,7	7,8	11	0							11		
Other					3	0							3		
							3x 7								
Sample B1		35	3	8,6	23		CVE	35	2,5	25%	26,2	43,8	23	23	100
(1) F-AAS		34,6	2,9	8,4	9	0							9		
(5) Spectrophotometry		35,5	3	8,5	11	0							11		
Other					3	0							3		
							3x 7								

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							AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL			
<b>Set 2 (blood)</b>														
(353) Cd - blood	[nmol/L]				2							2	1	50
<b>Sample A2</b>												2	1	50
Other					2	0	1x 2, 1x 7					2		
<b>Sample B2</b>												2	2	100
Other					2	0	1x 2, 1x 7					2		
(356) Hg - blood	[nmol/L]				3							3	2	67
<b>Sample A2</b>												3	2	67
Other					3	0	1x 2, 1x 7, 1x 99					3		
<b>Sample B2</b>												3	3	100
Other					3	0	1x 2, 1x 7, 1x 99					3		
(339) Mn - blood	[nmol/L]				2							2	1	50
<b>Sample A2</b>												2	1	50
Other					2	0	2x 2					2		
<b>Sample B2</b>												2	1	50
Other					2	0	2x 2					2		
(354) Pb - blood	[nmol/L]				6							6	3	50
<b>Sample A2</b>												6	4	67
Other					6	0	4x 2, 2x 7					6		
<b>Sample B2</b>												6	4	67
Other					6	0	4x 2, 2x 7					6		
<b>Set 3 (urine)</b>														
(348) Al - urine	[µmol/L]				1							1	1	100
<b>Sample A3</b>												1	1	100
Other					1	0	1x 7					1		
<b>Sample B3</b>												1	1	100
Other					1	0	1x 7					1		
(343) Cd - urine	[nmol/L]				3							3	3	100
<b>Sample A3</b>												3	3	100
Other					3	0	1x 2, 2x 7					3		
<b>Sample B3</b>												3	3	100
Other					3	0	1x 2, 2x 7					3		
(347) Cr - urine	[nmol/L]				3							3	2	67
<b>Sample A3</b>												3	2	67
Other					3	0	2x 2, 1x 7					3		
<b>Sample B3</b>												3	2	67
Other					3	0	2x 2, 1x 7					3		
(341) Cu - urine	[µmol/L]				8							8	5	63
<b>Sample A3</b>												8	6	75
Other					8	0	4x 2, 1x 5, 3x 7					8		
<b>Sample B3</b>												8	7	88
Other					8	0	4x 2, 1x 5, 3x 7					8		
(346) Hg - urine	[nmol/L]				2							2	1	50
<b>Sample A3</b>												2	1	50
Other					2	0	1x 2, 1x 99					2		
<b>Sample B3</b>												2	1	50
Other					2	0	1x 2, 1x 99					2		
(362) I - urine	[µmol/L]				2							2	2	100
<b>Sample A3</b>												2	2	100
Other					2	0	1x 7, 1x 99					2		

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							AV	U <sub>AV</sub>	D <sub>max</sub>	LL	UL			
<b>Sample B3</b> Other					2	0	1x 7, 1x 99					2	2	100
(342) <b>Mn - urine</b>	[nmol/L]				2							2	2	100
<b>Sample A3</b> Other					2	0	1x 2, 1x 7					2	2	100
<b>Sample B3</b> Other					2	0	1x 2, 1x 7					2	2	100
(358) <b>Ni - urine</b>	[nmol/L]				1							1	1	100
<b>Sample A3</b> Other					1	0	1x 7					1	1	100
<b>Sample B3</b> Other					1	0	1x 7					1	1	100
(344) <b>Pb - urine</b>	[nmol/L]				4							4	3	75
<b>Sample A3</b> Other					4	0	2x 2, 2x 7					4	3	75
<b>Sample B3</b> Other					4	0	2x 2, 2x 7					4	4	100
(345) <b>Se - urine</b>	[μmol/L]				2							2	2	100
<b>Sample A3</b> Other					2	0	1x 4, 1x 7					2	2	100
<b>Sample B3</b> Other					2	0	1x 4, 1x 7					2	2	100
(340) <b>Zn - urine</b>	[μmol/L]				6							6	3	50
<b>Sample A3</b> Other					6	0	3x 1, 1x 2, 2x 7					6	4	67
<b>Sample B3</b> Other					6	0	3x 1, 1x 2, 2x 7					6	5	83