

	Specimen	Result	Target	Bias(%)	Z-score	Uncertainty
Serum Zinc (umol/L)	2015.21	9.27	10.77	-13.9	-1.9	0.13
	2015.22	11.20	12.38	-9.5	-1.3	0.14
Serum Copper (umol/L)	2015.21	10.20	10.67	-4.4	-0.7	0.11
	2015.22	10.80	11.25	-4.0	-0.7	0.13
Blood Chromium (nmol/l)	2015.21	176.0	174.25	+1.0	0.1	4.73
	2015.22	197.0	210.86	-6.6	-0.7	4.03
Blood Cobalt (nmol/l)	2015.21	158.0	143.00	+10.5	1.0	4.22
	2015.22	70.7	72.39	-2.3	-0.1	4.23
Blood Mercury (nmol/l)	2015.21	25.7	24.19	+6.3	0.6	1.31
	2015.22	45.0	44.45	+1.2	0.2	1.68
Urine Selenium (umol/L)	2015.21	0.25	0.30	-16.1	-0.3	0.02
	2015.22	0.39	0.41	-5.6	-0.2	0.01
Urine Nickel (nmol/l)	2015.21	103.0	104.68	-1.6	-0.1	5.15
	2015.22	224.0	221.06	+1.3	0.2	7.99



This is the Final Report.

Frimley Health NHS Foundation Trust, operating UK NEQAS for Trace Elements (7496): Accredited to ISO/IEC 17043:2010

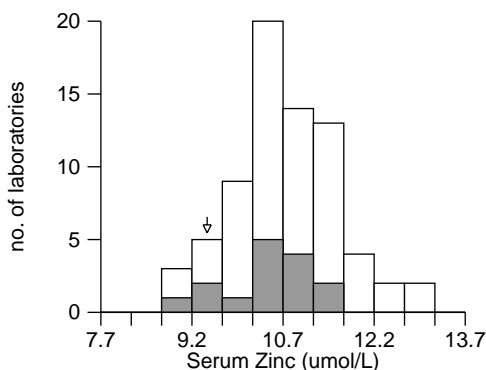
Spec. Pool Pool description / Treatments / Additions

2015.21 980
2015.22 982

□ All methods
▒ ICP-MS
■ ICP-MS

Specimen : 2015.21

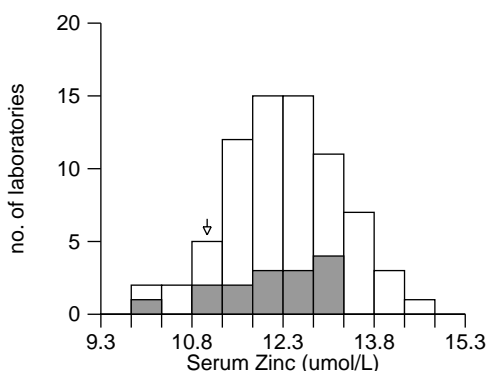
	n	Mean	SD	CV(%)
All methods [ALTM]	74	10.77	0.87	8.0
Colorimetric	2	10.31	0.13	1.3
Colorimetry	3	9.69	1.37	14.2
Colorimetry after Deproteinization	6	11.32	1.10	9.7
Electrothermal A.A.S.	1	10.43		
FAAS after Deproteinization	4	10.85	1.38	12.7
Flame A.A.S.	21	10.91	0.77	7.0
ICP-MS	15	10.48	0.76	7.2
ICP-MS (collision/reaction cell mode)	12	10.81	0.65	6.0
Z-ETAAS	3	13.47	2.68	19.9



Your result 9.27
Target value (ALTM) 10.77
Uncertainty 0.13
Your bias (%) -13.9
Your 'Z' score -1.9
ALTM 10.77
Median 10.70
Your method mean 10.48
Absolute range to 6.88 to 16.52

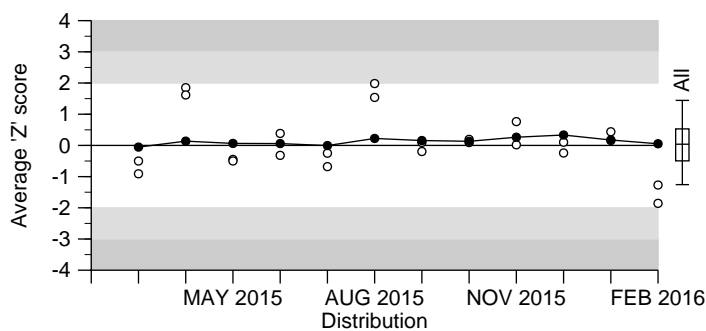
Specimen : 2015.22

	n	Mean	SD	CV(%)
All methods [ALTM]	74	12.38	0.93	7.5
Colorimetric	2	11.84	0.37	3.2
Colorimetry	3	10.58	0.39	3.7
Colorimetry after Deproteinization	6	12.98	0.93	7.2
Electrothermal A.A.S.	1	12.11		
FAAS after Deproteinization	4	12.38	1.64	13.3
Flame A.A.S.	21	12.56	0.88	7.0
ICP-MS	15	12.19	0.85	6.9
ICP-MS (collision/reaction cell mode)	12	12.37	0.63	5.1
Z-ETAAS	3	16.34	5.62	34.4



Your result 11.20
Target value (ALTM) 12.38
Uncertainty 0.14
Your bias (%) -9.5
Your 'Z' score -1.3
ALTM 12.38
Median 12.37
Your method mean 12.19
Absolute range to 10.22 to 22.79

Your Average 'Z' score = +0.1



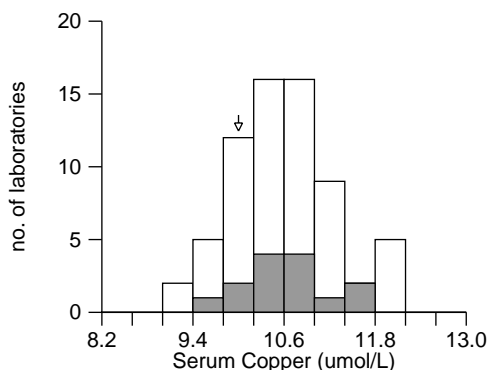
Spec. Pool Pool description / Treatments / Additions

2015.21 980
2015.22 982

□ All methods
▒ ICP-MS
■ ICP-MS

Specimen : 2015.21

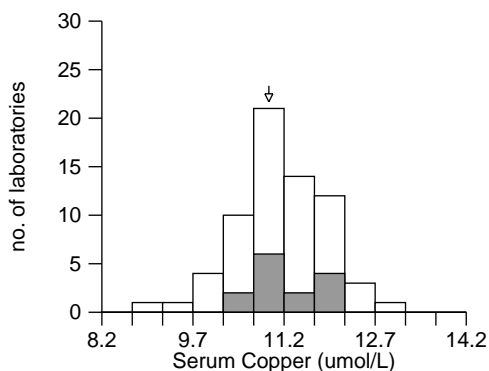
	n	Mean	SD	CV(%)
All methods [ALTM]	70	10.67	0.72	6.8
Colorimetric	5	8.96	2.03	22.6
Electrothermal A.A.S.	3	10.62	0.19	1.7
FAAS after Deproteinization	6	10.63	0.83	7.8
Flame A.A.S.	18	10.98	0.95	8.7
ICP-MS	15	10.65	0.49	4.6
ICP-MS (collision/reaction cell mode)	13	10.40	0.36	3.4
Z-ETAAS	4	11.30	0.59	5.2



Your result 10.20
Target value (ALTM) 10.67
Uncertainty 0.11
Your bias (%) -4.4
Your 'Z' score -0.7
ALTM 10.67
Median 10.60
Your method mean 10.65
Absolute range to 1.63
to 13.14

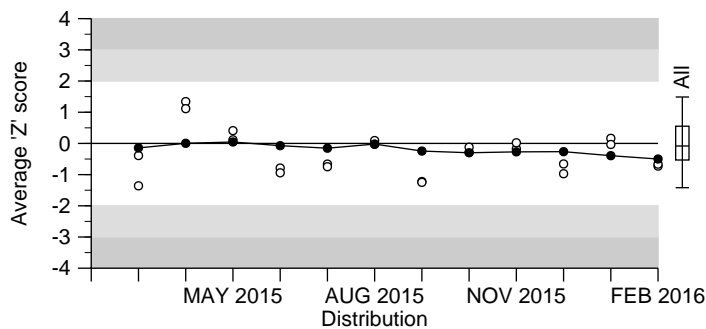
Specimen : 2015.22

	n	Mean	SD	CV(%)
All methods [ALTM]	70	11.25	0.84	7.4
Colorimetric	5	9.52	2.50	26.3
Electrothermal A.A.S.	3	11.39	0.21	1.8
FAAS after Deproteinization	6	10.95	1.12	10.2
Flame A.A.S.	18	11.60	1.12	9.6
ICP-MS	15	11.25	0.50	4.5
ICP-MS (collision/reaction cell mode)	13	10.94	0.42	3.9
Z-ETAAS	4	11.80	0.82	7.0



Your result 10.80
Target value (ALTM) 11.25
Uncertainty 0.13
Your bias (%) -4.0
Your 'Z' score -0.7
ALTM 11.25
Median 11.17
Your method mean 11.25
Absolute range to 1.77
to 14.87

Your Average 'Z' score = -0.5



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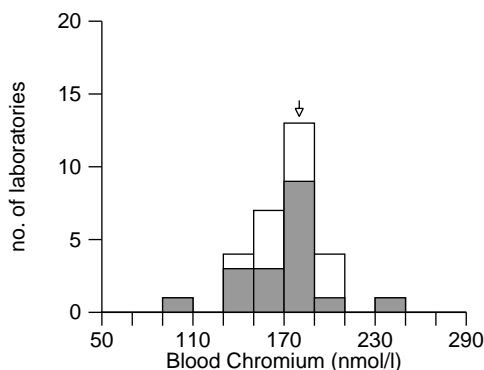
Spec. Pool Pool description / Treatments / Additions

2015.21 993
2015.22 997

□ All methods
■ ICP-MS (Collision/reaction cell mode)

Specimen : 2015.21

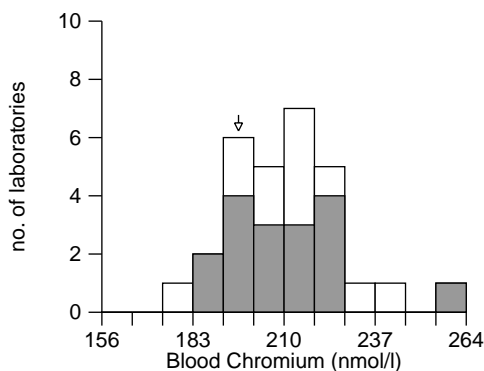
	n	Mean	SD	CV(%)
All methods [ALTM]	30	174.25	20.39	11.7
HR ICP-MS	1	194.00		
ICP-MS	1	167.03		
ICP-MS (Collision/reaction cell mode)	18	168.30	29.03	17.2
Z-ETAAS	1	187.92		



Your result	176.0
Target value (ALTM)	174.25
Uncertainty	4.73
Your bias (%)	+1.0
Your 'Z' score	+0.1
ALTM	174.25
Median	173.54
Your method mean	168.30
Absolute range to	93.00 238.29

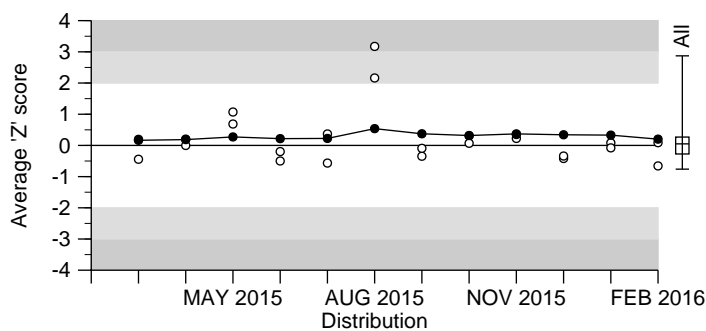
Specimen : 2015.22

	n	Mean	SD	CV(%)
All methods [ALTM]	30	210.86	17.38	8.2
HR ICP-MS	1	230.00		
ICP-MS	1	213.36		
ICP-MS (Collision/reaction cell mode)	18	210.63	18.47	8.8
Z-ETAAS	1	204.85		



Your result	197.0
Target value (ALTM)	210.86
Uncertainty	4.03
Your bias (%)	-6.6
Your 'Z' score	-0.7
ALTM	210.86
Median	209.50
Your method mean	210.63
Absolute range to	110.23 260.96

Your Average 'Z' score = +0.2



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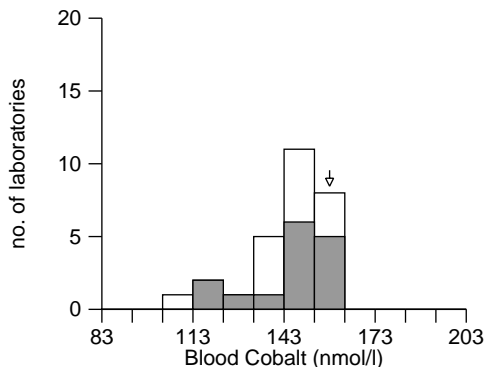
Spec. Pool Pool description / Treatments / Additions

2015.21 993
2015.22 997

□ All methods
■ ICP-MS (Collision/reaction cell mode)

Specimen : 2015.21

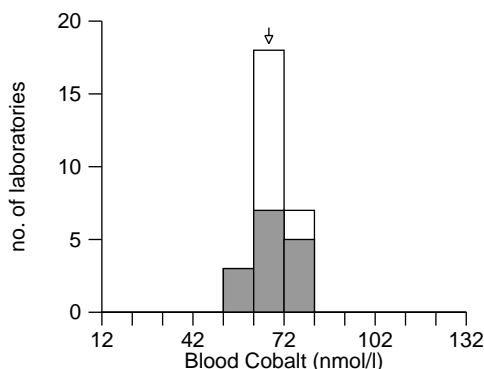
	n	Mean	SD	CV(%)
All methods [ALTM]	30	143.00	18.20	12.7
HR ICP-MS	1	148.00		
ICP-MS	7	528.00	1024.39	194.0
ICP-MS (Collision/reaction cell mode)	16	141.53	21.93	15.5



Your result	158.0
Target value (ALTM)	143.00
Uncertainty	4.22
Your bias (%)	+10.5
Your 'Z' score	+1.0
ALTM	143.00
Median	148.27
Your method mean	141.53
Absolute range to	77.34 2850.84

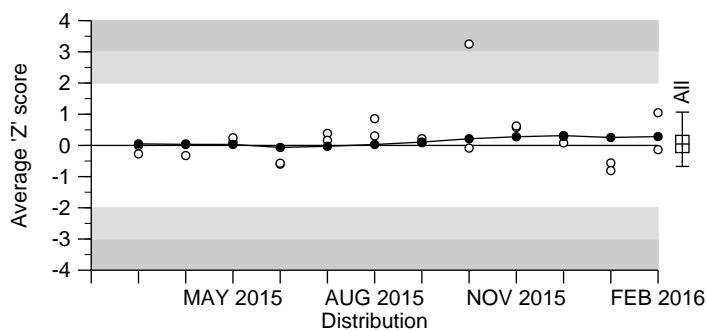
Specimen : 2015.22

	n	Mean	SD	CV(%)
All methods [ALTM]	30	72.39	18.22	25.2
HR ICP-MS	1	68.00		
ICP-MS	7	248.14	474.26	191.1
ICP-MS (Collision/reaction cell mode)	16	69.39	6.59	9.5



Your result	70.7
Target value (ALTM)	72.39
Uncertainty	4.23
Your bias (%)	-2.3
Your 'Z' score	-0.1
ALTM	72.39
Median	69.41
Your method mean	69.39
Absolute range to	55.39 1323.61

Your Average 'Z' score = +0.3



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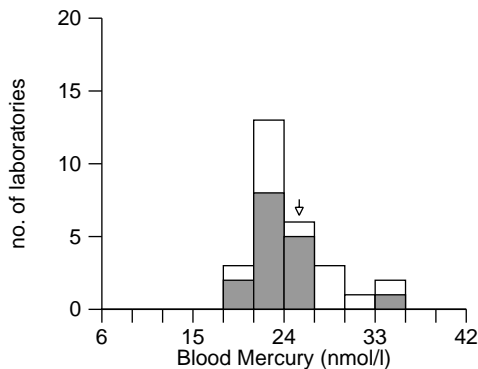
Spec. Pool Pool description / Treatments / Additions

2015.21 993
2015.22 997

□ All methods
■ ICP-MS

Specimen : 2015.21

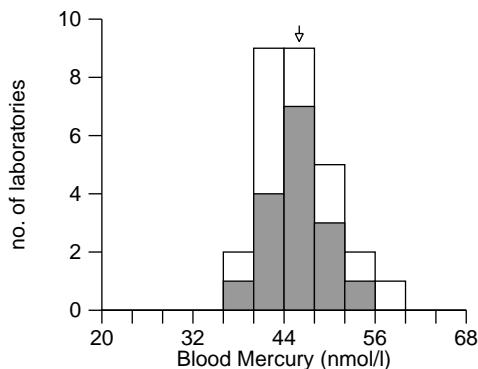
	n	Mean	SD	CV(%)
All methods [ALTM]	30	24.19	5.65	23.4
CV-AAS	4	20.82	12.04	57.8
ICP-MS	17	24.14	3.10	12.9
ICP-MS (Collision/reaction cell mode)	5	24.46	4.88	19.9



Your result	25.7
Target value (ALTM)	24.19
Uncertainty	1.31
Your bias (%)	+6.3
Your 'Z' score	+0.6
ALTM	24.19
Median	23.98
Your method mean	24.14
Absolute range to	3.00 136.59

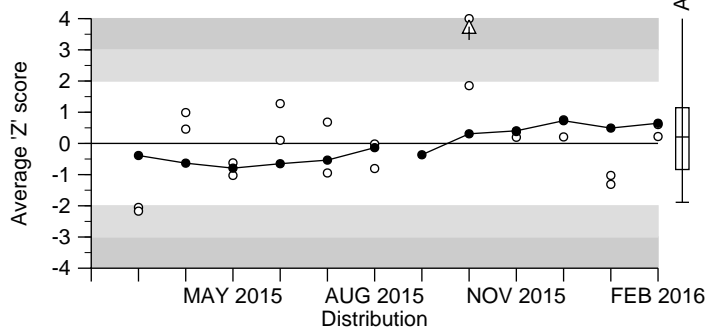
Specimen : 2015.22

	n	Mean	SD	CV(%)
All methods [ALTM]	30	44.45	7.25	16.3
CV-AAS	4	38.49	16.30	42.4
ICP-MS	17	45.53	3.88	8.5
ICP-MS (Collision/reaction cell mode)	5	43.87	4.98	11.4



Your result	45.0
Target value (ALTM)	44.45
Uncertainty	1.68
Your bias (%)	+1.2
Your 'Z' score	+0.2
ALTM	44.45
Median	45.00
Your method mean	45.53
Absolute range to	15.00 283.65

Your Average 'Z' score = +0.6



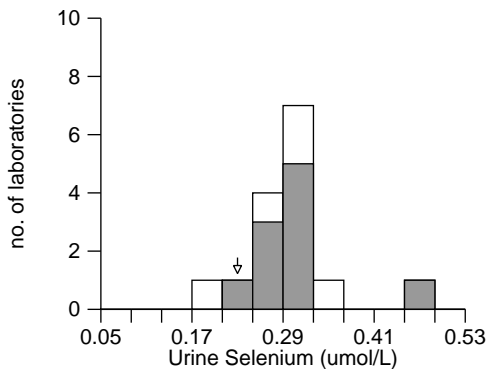
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Spec. Pool Pool description / Treatments / Additions

2015.21 1010
2015.22 1007

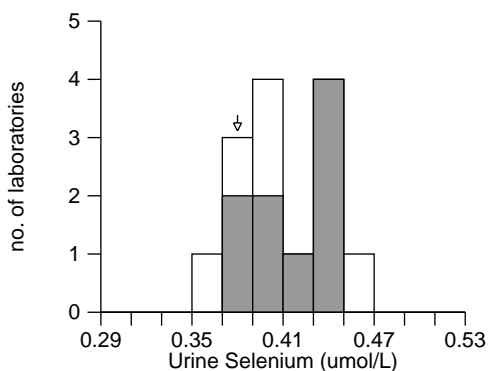
□ All methods
■ ICP-MS (Collision/reaction cell mode)

Specimen : 2015.21	n	Mean	SD	CV(%)
All methods [ALTM]	15	0.30	0.06	19.4
ICP-MS (Collision/reaction cell mode)	10	0.31	0.06	20.0



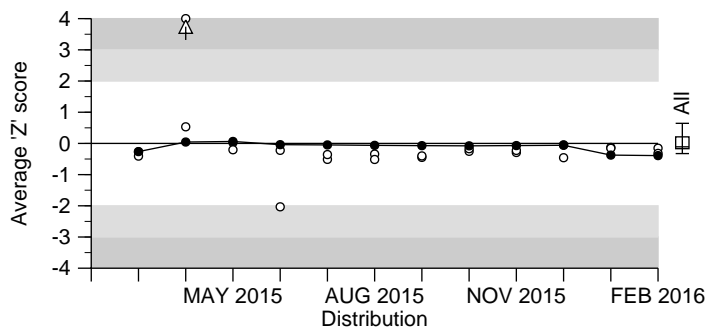
Your result	0.25
Target value (ALTM)	0.30
Uncertainty	0.02
Your bias (%)	-16.1
Your 'Z' score	-0.3
ALTM	0.30
Median	0.29
Your method mean	0.31
Absolute range to	0.20 to 0.47

Specimen : 2015.22	n	Mean	SD	CV(%)
All methods [ALTM]	15	0.41	0.03	6.3
ICP-MS (Collision/reaction cell mode)	10	0.43	0.05	12.2



Your result	0.39
Target value (ALTM)	0.41
Uncertainty	0.01
Your bias (%)	-5.6
Your 'Z' score	-0.2
ALTM	0.41
Median	0.41
Your method mean	0.43
Absolute range to	0.37 to 0.57

Your Average 'Z' score = -0.4



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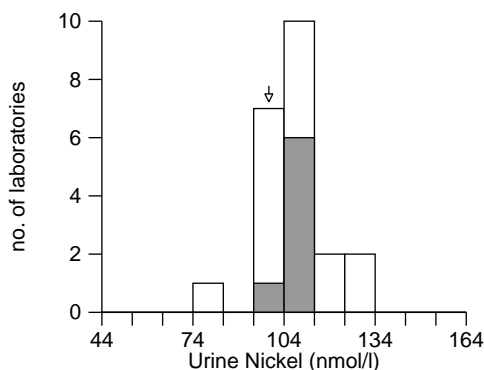
Spec. Pool Pool description / Treatments / Additions

2015.21 1010
2015.22 1007

□ All methods
■ ICP-MS

Specimen : 2015.21

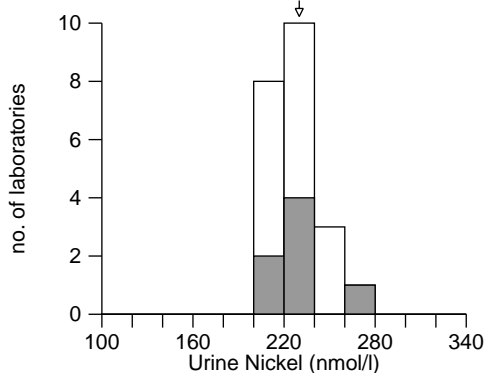
	n	Mean	SD	CV(%)
All methods [ALTM]	24	104.68	19.75	18.9
ETAAS after Extraction	1	25.73		
ICP-MS	7	107.40	3.09	2.9
ICP-MS (Collision/reaction cell mode)	1	115.87	42.95	37.1
Z-ETAAS Zeeman graphite furnace	1	122.08		



Your result	103.0
Target value (ALTM)	104.68
Uncertainty	5.15
Your bias (%)	-1.6
Your 'Z' score	-0.1
ALTM	104.68
Median	106.30
Your method mean	107.40
Absolute range to	25.73 242.97

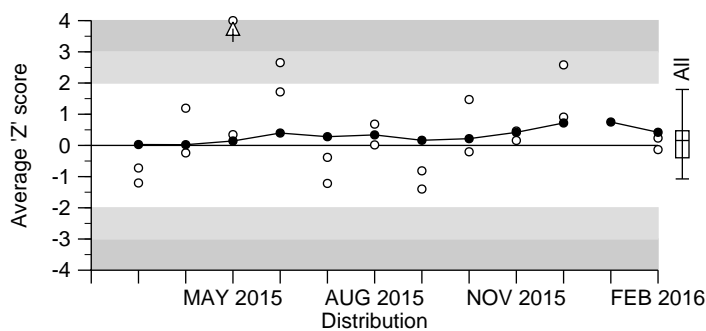
Specimen : 2015.22

	n	Mean	SD	CV(%)
All methods [ALTM]	24	221.06	30.66	13.9
ETAAS after Extraction	1	97.63		
ICP-MS	7	227.45	16.97	7.5
ICP-MS (Collision/reaction cell mode)	1	235.84	51.35	21.8
Z-ETAAS Zeeman graphite furnace	1	249.96		



Your result	224.0
Target value (ALTM)	221.06
Uncertainty	7.99
Your bias (%)	+1.3
Your 'Z' score	+0.2
ALTM	221.06
Median	221.70
Your method mean	227.45
Absolute range to	97.63 386.44

Your Average 'Z' score = +0.4



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