

Final Proficiency Test Report **for stainless steel 1.4404 Additive** **Manufacturing Powder (FXRV-2026-02)**

FLX-3001



Bedburg-Hau, September 02nd 2026

Coordinator of PT

Charlotte Winkels-Herding

Statistics and Report

Dr. Rainer Schramm

	As	C	Co	Cr	Cu	Fe	Mn	Mo	N	Ni	O
Unit	%	%	%	%	%	%	%	%	%	%	%
Labs	3	12	6	11	11	9	11	11	7	11	7
Mean m	0,0030	0,0220	0,0482	18,04	0,1424	64,27	0,9399	2,302	0,0984	12,84	0,0200
Repro. s _R	0,0003	0,0048	0,0037	0,33	0,0129	1,20	0,0371	0,114	0,0071	0,40	0,0076
Repeat. s _r	0,0001	0,0009	0,0002	0,09	0,0020	0,30	0,0074	0,016	0,0026	0,03	0,0010
Repro. s*	0,0003	0,0041	0,0035	0,29	0,0121	1,05	0,0117	0,113	0,0095	0,33	0,0070
U (s*)	0,0004	0,0030	0,0036	0,22	0,0091	0,88	0,0088	0,085	0,0090	0,25	0,0066
U (s _R)	0,0004	0,0035	0,0037	0,25	0,0098	1,00	0,0280	0,086	0,0067	0,30	0,0072
Mean-2*s _R	0,0024	0,0123	0,0409	17,38	0,1165	61,88	0,8657	2,075	0,0842	12,03	0,0048
Mean+2*s _R	0,0036	0,0316	0,0556	18,70	0,1683	66,67	1,0142	2,530	0,1126	13,65	0,0352

	P	S	Si	Sn	V
Unit	%	%	%	%	%
Labs	9	11	9	4	9
Mean m	0,0160	0,0072	0,6389	0,0029	0,0347
Repro. s _R	0,0038	0,0010	0,0747	0,0002	0,0031
Repeat. s _r	0,0002	0,0003	0,0092	0,0000	0,0003
Repro. s*	0,0034	0,0014	0,0627	0,0002	0,0032
U (s*)	0,0029	0,0010	0,0522	0,0003	0,0027
U (s _R)	0,0032	0,0008	0,0623	0,0003	0,0026
Mean-2*s _R	0,0084	0,0051	0,4895	0,0025	0,0286
Mean+2*s _R	0,0237	0,0092	0,7884	0,0033	0,0409

All values are based on dried sample material.

Mean	calculated from laboratory means using traceable methods only
s _R	Reproducibility standard deviation
s _r	Repeatability standard deviation
s*	Robust standard deviation
U (s*)	uncertainty calculated for a confidence interval of P= 95% (k=2)
U (s _R)	uncertainty calculated for a confidence interval of P= 95% (k=2)
Range of tolerance	Mean ± 2 x s _R ; all labs within this range show satisfactory performance

Info Only Elements

	Al	B	Nb	Ti	W	Zn
Unit	%	%	%	%	%	%
Labs	6	3	5	5	4	5
Mean m	0,0296	0,0083	0,0040	0,0006	0,0121	0,0028
Repro. s _R	0,0411	0,0102	0,0024	0,0013	0,0023	0,0033
Repeat. s _r	0,0006	0,0001	0,0003	0,0004	0,0002	0,0004
Repro. s*	0,0419	0,0286	0,0024	0,0014	0,0023	0,0027
U (s*)	0,0428	0,0412	0,0027	0,0016	0,0029	0,0030
U (s _R)	0,0419	0,0147	0,0027	0,0014	0,0029	0,0037
Mean-2*s _R	-0,0525	-0,0122	-0,0009	-0,0020	0,0074	-0,0038
Mean+2*s _R	0,1117	0,0287	0,0089	0,0031	0,0167	0,0095

All values are based on dried sample material.

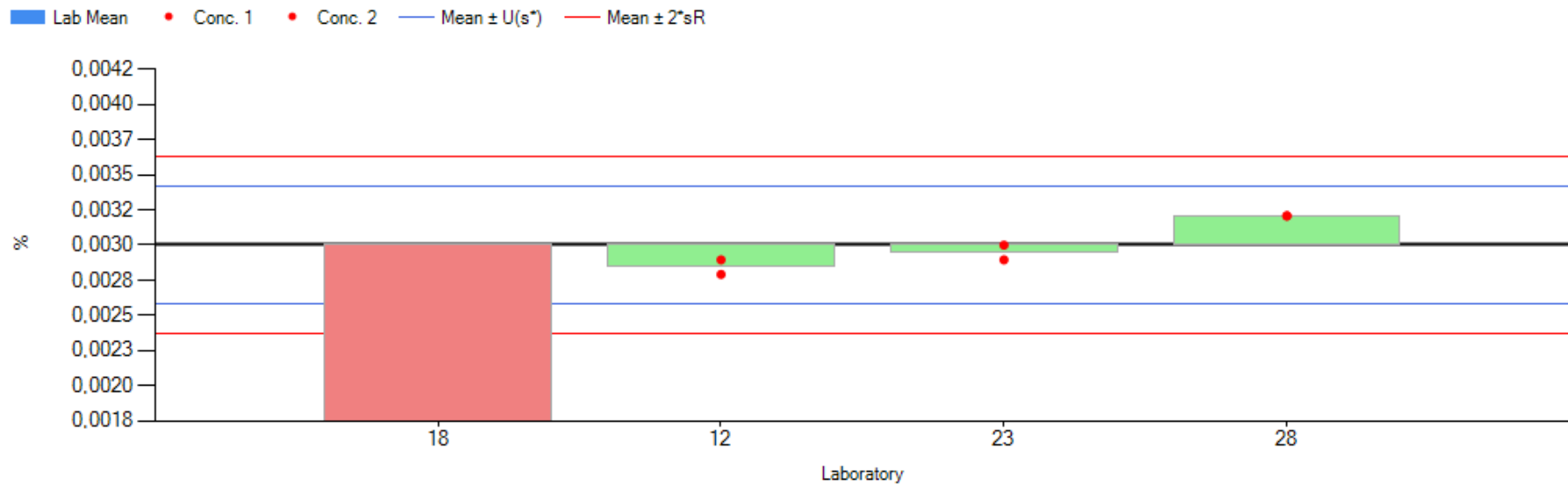
Mean	calculated from laboratory means using traceable methods only
s _R	Reproducibility standard deviation
s _r	Repeatability standard deviation
s*	Robust standard deviation
U (s*)	uncertainty calculated for a confidence interval of P= 95% (k=2)
U (s _R)	uncertainty calculated for a confidence interval of P= 95% (k=2)
Range of tolerance	Mean ± 2 x s _R ; all labs within this range show satisfactory performance

Participants

Treibacher Industrie AG	Austria
Aperam Isbergues	France
BEFESA VALERA	France
IC2MP - UMR CNRS 7285	France
Chemilytics GmbH & Co. KG	Germany
FLUXANA GmbH & Co. KG	Germany
PK Rohstoffe GmbH	Germany
Rigaku Europe SE	Germany
Rolls-Royce Solutions GmbH	Germany
Salzgitter Flachstahl GmbH	Germany
THYSSENKRUPP STEEL EUROPE AG	Germany
Nalco Europe BV	Netherlands
SSP Analytical Services B.V.	Netherlands
Bruker Nano Analytics Division	United States

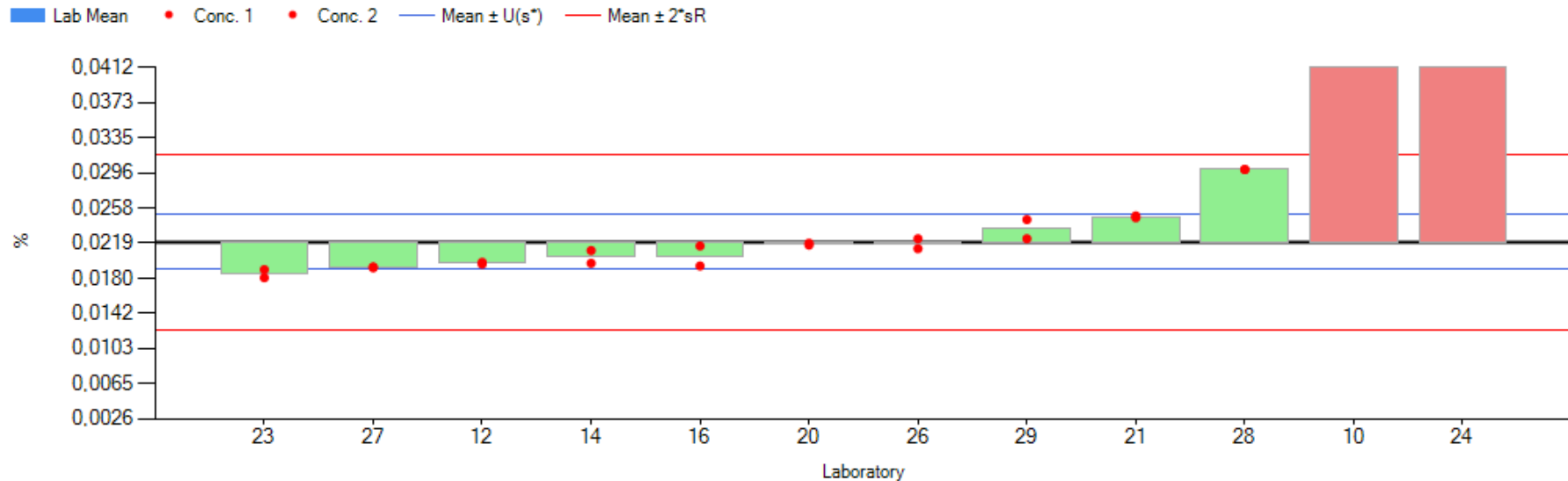
Summary results

Sample: FLX-3001 Mean $\pm$ U(s*): 0,0030 $\pm$ 0,0004 % Reproducibility s_R: 0,0003 % Mean - 2*s_R: 0,0024 % (2 z-score)
 Measurand: As Lab. display/calculation: 4 / 3 Repeatability s_r: 0,0001 % Mean + 2*s_R: 0,0036 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
12	0,0029	0,0028	0,0028	0,0001	-0,5	ICP-OES	ISO 17025	
18	0,0013	0,0013	0,0013	0,0000	-5,7	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
23	0,0029	0,0030	0,0029	0,0001	-0,2	ICP-MS	no accreditation	
28	0,0032	0,0032	0,0032	0,0000	0,7	ICP-OES	ISO 17025	

Sample: FLX-3001 **Mean ± U(s*):** 0,0220 ± 0,0030 % **Reproducibility s_R:** 0,0048 % **Mean - 2*s_R:** 0,0123 % (2 z-score)
Measurand: C **Lab. display/calculation:** 12 / 12 **Repeatability s_r:** 0,0009 % **Mean + 2*s_R:** 0,0316 % (2 z-score)



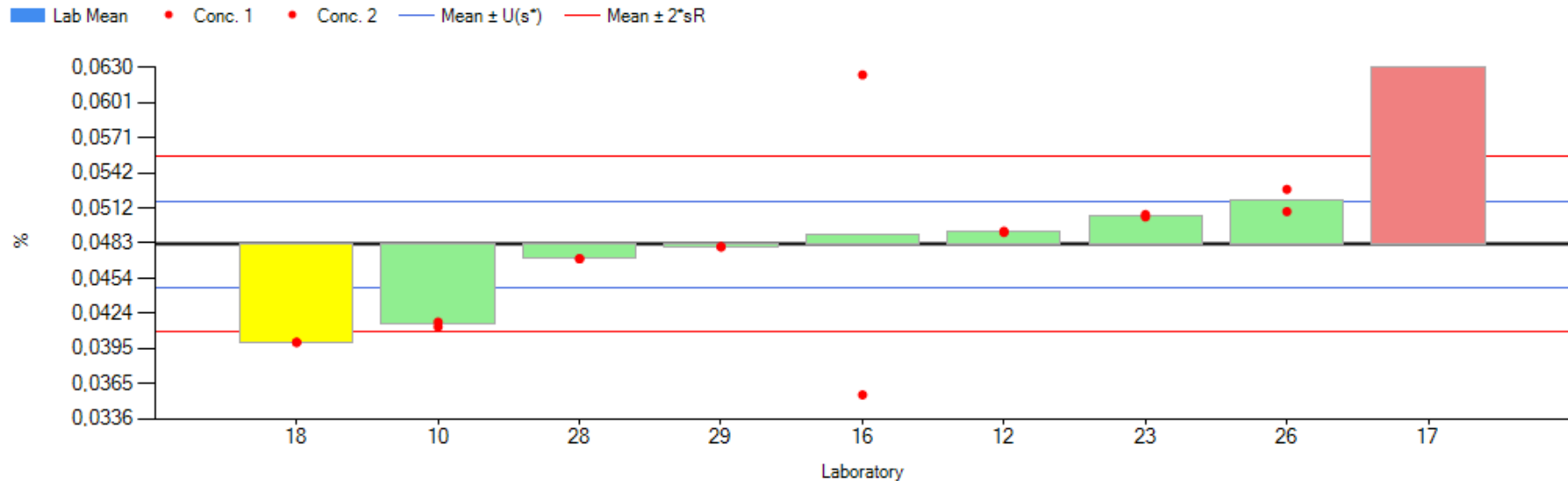
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,0900	0,0900	0,0900	0,0000	14,2	Combustion	no accreditation	
12	0,0198	0,0196	0,0197	0,0001	-0,5	Combustion	ISO 17025	
14	0,0197	0,0211	0,0204	0,0010	-0,3	Combustion	no accreditation	
16	0,0216	0,0194	0,0205	0,0016	-0,3	Other Method	no accreditation	Comb. followed by GC
20	0,0219	0,0217	0,0218	0,0001	0,0	Combustion	ISO 17025	
21	0,0247	0,0249	0,0248	0,0001	0,6	Combustion	ISO 17025	
23	0,0190	0,0181	0,0186	0,0006	-0,7	Combustion	ISO 17025	IR
24	0,1100	0,1120	0,1110	0,0014	18,5	Combustion	no accreditation	
26	0,0224	0,0213	0,0218	0,0008	0,0	Combustion	no accreditation	
27	0,0193	0,0192	0,0193	0,0001	-0,6	Combustion	no accreditation	

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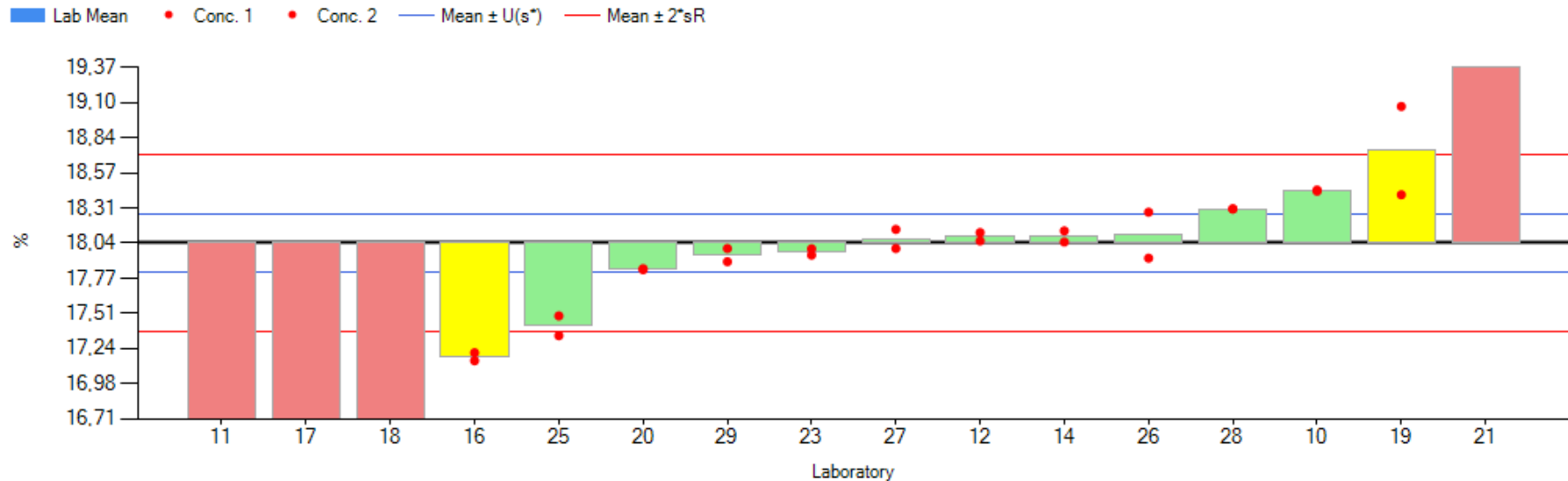
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
28	0,0300	0,0300	0,0300	0,0000	1,7	Combustion	ISO 17025	
29	0,0224	0,0245	0,0234	0,0015	0,3	Combustion	ISO 17025	DIN EN ISO 15350

Sample: FLX-3001 **Mean ± U(s*):** 0,0482 ± 0,0036 % **Reproducibility s_R:** 0,0037 % **Mean - 2*s_R:** 0,0409 % (2 z-score)
Measurand: Co **Lab. display/calculation:** 9 / 6 **Repeatability s_r:** 0,0002 % **Mean + 2*s_R:** 0,0556 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,0413	0,0417	0,0415	0,0003	-1,8	XRF (fusion)	no accreditation	
12	0,0493	0,0492	0,0492	0,0001	0,3	ICP-OES	ISO 17025	
16	0,0624	0,0356	0,0490	0,0190	0,2	XRF (pressed pellet)	no accreditation	In PP cup under Helium. Not found with ICP; Info only
17	0,0649	0,0670	0,0660	0,0015	4,8	XRF (pressed pellet)	no accreditation	Info only
18	0,0400	0,0400	0,0400	0,0000	-2,2	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
23	0,0507	0,0505	0,0506	0,0001	0,6	ICP-OES	ISO 17025	
26	0,0509	0,0528	0,0519	0,0013	1,0	ICP-OES	no accreditation	
28	0,0470	0,0470	0,0470	0,0000	-0,3	ICP-OES	ISO 17025	
29	0,0480	0,0480	0,0480	0,0000	-0,1	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean ± U(s*):** 18,04 ± 0,22 % **Reproducibility s_R:** 0,33 % **Mean - 2*s_R:** 17,38 % (2 z-score)
Measurand: Cr **Lab. display/calculation:** 16 / 11 **Repeatability s_r:** 0,09 % **Mean + 2*s_R:** 18,70 % (2 z-score)



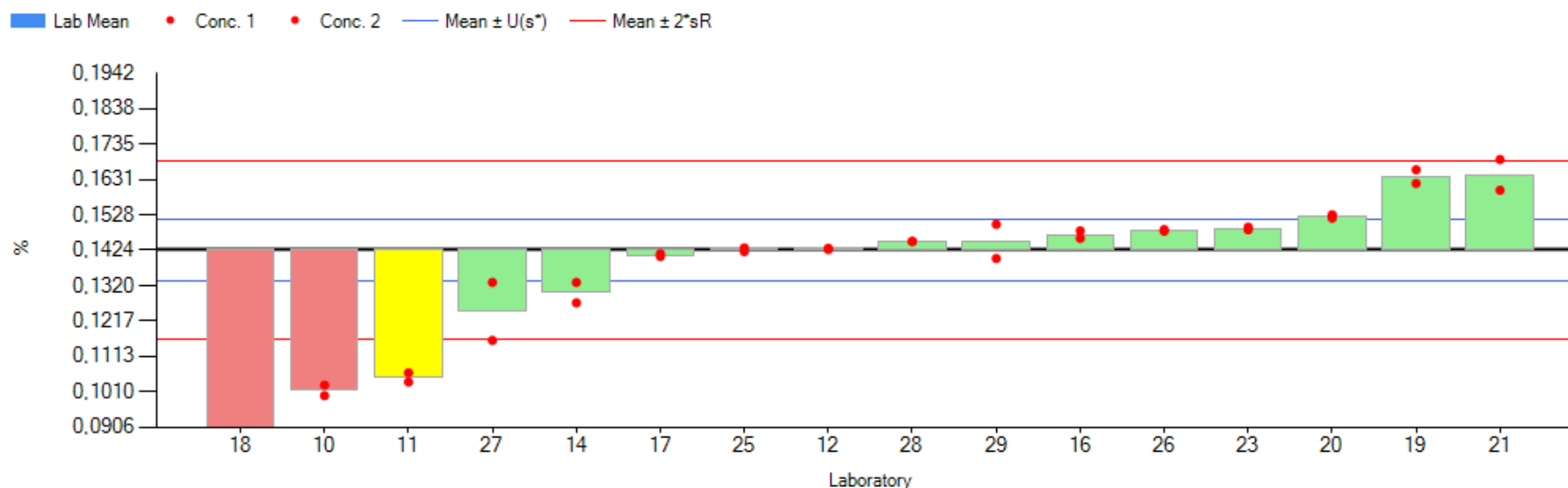
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	18,43	18,44	18,44	0,01	1,2	XRF (fusion)	no accreditation	
11	11,26	11,19	11,22	0,05	-20,5	Other Method	no accreditation	standardless, powder; Info only
12	18,06	18,12	18,09	0,05	0,1	XRF (fusion)	no accreditation	
14	18,05	18,13	18,09	0,06	0,2	XRF (fusion)	ISO 17025	
16	17,21	17,15	17,18	0,04	-2,6	XRF (pressed pellet)	no accreditation	In PP cup under Helium; Info only
17	12,61	12,56	12,59	0,04	-16,4	XRF (pressed pellet)	no accreditation	Info only
18	16,07	16,08	16,08	0,01	-5,9	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	19,08	18,41	18,74	0,47	2,1	Other Method	no accreditation	XRF, standardless; Info only
20	17,85	17,84	17,84	0,01	-0,6	ICP-OES	ISO 17025	
21	25,02	25,99	25,51	0,69	22,5	XRF (fusion)	ISO 17025	

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Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
23	17,95	18,00	17,97	0,03	-0,2	ICP-OES	ISO 17025	
25	17,34	17,49	17,42	0,11	-1,9	ICP-OES	no accreditation	
26	17,93	18,28	18,10	0,25	0,2	ICP-OES	no accreditation	
27	18,00	18,15	18,07	0,10	0,1	XRF (fusion)	ISO 17025	
28	18,30	18,30	18,30	0,00	0,8	ICP-OES	ISO 17025	
29	18,00	17,90	17,95	0,07	-0,3	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean $\pm$ U(s*):** 0,1424 $\pm$ 0,0091 % **Reproducibility s_R:** 0,0129 % **Mean - 2*s_R:** 0,1165 % (2 z-score)
Measurand: Cu **Lab. display/calculation:** 16 / 11 **Repeatability s_r:** 0,0020 % **Mean + 2*s_R:** 0,1683 % (2 z-score)



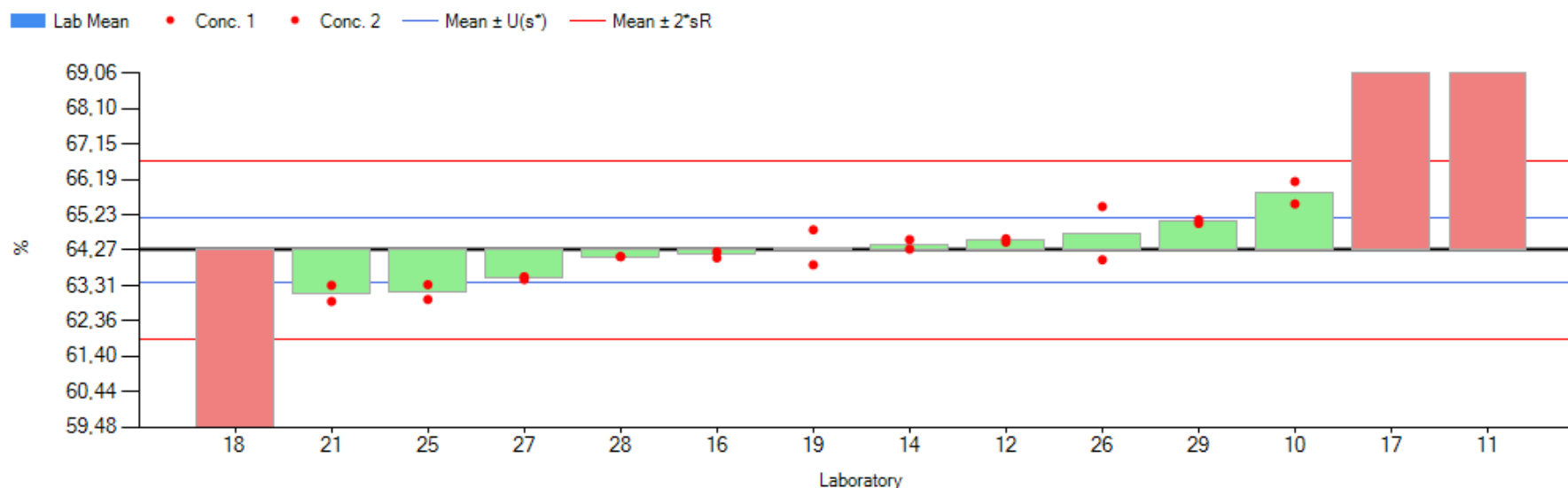
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,1029	0,0998	0,1013	0,0022	-3,2	XRF (fusion)	no accreditation	
11	0,1038	0,1065	0,1051	0,0019	-2,9	Other Method	no accreditation	standardless, powder; Info only
12	0,1430	0,1426	0,1428	0,0003	0,0	ICP-OES	ISO 17025	
14	0,1330	0,1270	0,1300	0,0042	-1,0	XRF (fusion)	ISO 17025	
16	0,1459	0,1481	0,1470	0,0016	0,4	XRF (pressed pellet)	no accreditation	In PP cup under Helium. Not found with ICP; Info only
17	0,1414	0,1406	0,1410	0,0006	-0,1	XRF (pressed pellet)	no accreditation	Info only
18	0,0800	0,0800	0,0800	0,0000	-4,8	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	0,1660	0,1620	0,1640	0,0028	1,7	Other Method	no accreditation	XRF, standardless; Info only
20	0,1518	0,1528	0,1523	0,0007	0,8	ICP-OES	ISO 17025	
21	0,1690	0,1600	0,1645	0,0064	1,7	XRF (fusion)	ISO 17025	

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Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
23	0,1484	0,1492	0,1488	0,0006	0,5	ICP-OES	ISO 17025	
25	0,1420	0,1431	0,1425	0,0008	0,0	ICP-OES	no accreditation	
26	0,1485	0,1480	0,1482	0,0003	0,5	ICP-OES	no accreditation	
27	0,1160	0,1330	0,1245	0,0120	-1,4	XRF (fusion)	ISO 17025	
28	0,1450	0,1450	0,1450	0,0000	0,2	ICP-OES	ISO 17025	
29	0,1400	0,1500	0,1450	0,0071	0,2	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean ± U(s*):** 64,27 ± 0,88 % **Reproducibility s_R:** 1,20 % **Mean - 2*s_R:** 61,88 % (2 z-score)
Measurand: Fe **Lab. display/calculation:** 14 / 9 **Repeatability s_r:** 0,30 % **Mean + 2*s_R:** 66,67 % (2 z-score)



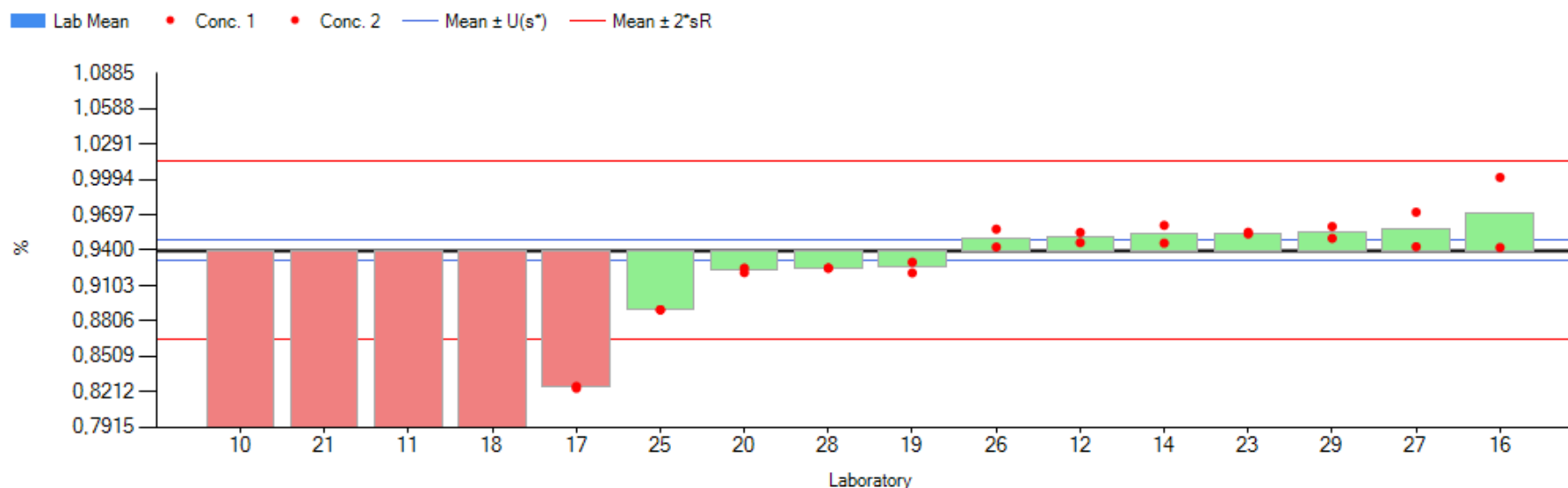
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	66,13	65,53	65,83	0,43	1,3	XRF (fusion)	no accreditation	
11	76,58	76,79	76,68	0,15	10,4	Other Method	no accreditation	standardless, powder; Info only
12	64,49	64,59	64,54	0,07	0,2	XRF (fusion)	no accreditation	
14	64,30	64,56	64,43	0,18	0,1	XRF (fusion)	no accreditation	
16	64,06	64,23	64,15	0,12	-0,1	XRF (pressed pellet)	no accreditation	In PP cup under Helium; Info only
17	69,44	69,38	69,41	0,04	4,3	XRF (pressed pellet)	no accreditation	Info only
18	41,69	41,70	41,70	0,01	-18,9	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	63,88	64,83	64,35	0,67	0,1	Other Method	no accreditation	XRF, standardless; Info only
21	62,89	63,32	63,10	0,31	-1,0	XRF (fusion)	ISO 17025	
25	62,94	63,34	63,14	0,28	-0,9	ICP-OES	no accreditation	

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Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
26	64,01	65,45	64,73	1,02	0,4	ICP-OES	no accreditation	
27	63,56	63,48	63,52	0,06	-0,6	XRF (fusion)	ISO 17025	
28	64,10	64,10	64,10	0,00	-0,1	ICP-OES	ISO 17025	
29	65,00	65,10	65,05	0,07	0,6	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean ± U(s*):** 0,9399 ± 0,0088 % **Reproducibility s_R:** 0,0371 % **Mean - 2*s_R:** 0,8657 % (2 z-score)
Measurand: Mn **Lab. display/calculation:** 16 / 11 **Repeatability s_r:** 0,0074 % **Mean + 2*s_R:** 1,0142 % (2 z-score)



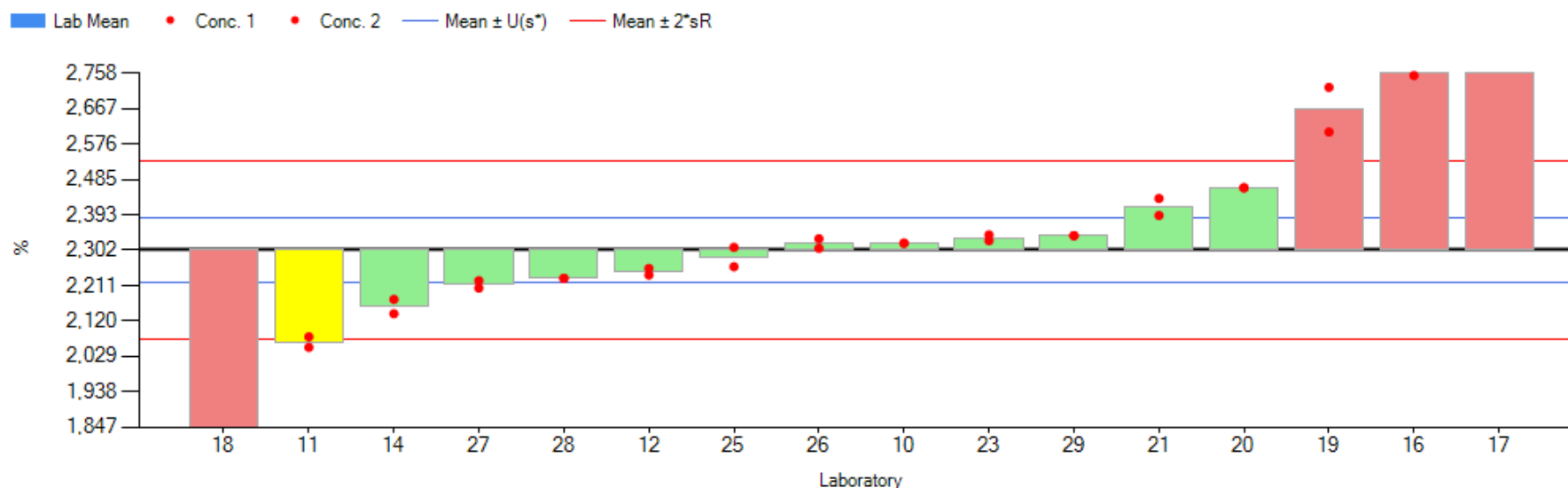
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,3341	0,3321	0,3331	0,0014	-16,4	XRF (fusion)	no accreditation	
11	0,6429	0,6402	0,6416	0,0019	-8,0	Other Method	no accreditation	standardless, powder; Info only
12	0,9550	0,9464	0,9507	0,0061	0,3	XRF (fusion)	no accreditation	
14	0,9610	0,9460	0,9535	0,0106	0,4	XRF (fusion)	ISO 17025	
16	1,0012	0,9423	0,9717	0,0416	0,9	XRF (pressed pellet)	no accreditation	In PP cup under Helium; Info only
17	0,8257	0,8241	0,8249	0,0011	-3,1	XRF (pressed pellet)	no accreditation	Info only
18	0,7600	0,7700	0,7650	0,0071	-4,7	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	0,9300	0,9210	0,9255	0,0064	-0,4	Other Method	no accreditation	XRF, standardless; Info only
20	0,9212	0,9250	0,9231	0,0027	-0,5	ICP-OES	ISO 17025	
21	0,5560	0,5630	0,5595	0,0049	-10,3	XRF (fusion)	ISO 17025	

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Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
23	0,9537	0,9552	0,9545	0,0011	0,4	ICP-OES	ISO 17025	
25	0,8900	0,8900	0,8900	0,0000	-1,3	ICP-OES	no accreditation	
26	0,9428	0,9577	0,9502	0,0106	0,3	ICP-OES	no accreditation	
27	0,9720	0,9430	0,9575	0,0205	0,5	XRF (fusion)	ISO 17025	
28	0,9250	0,9250	0,9250	0,0000	-0,4	ICP-OES	ISO 17025	
29	0,9600	0,9500	0,9550	0,0071	0,4	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean $\pm$ U(s*):** 2,302 $\pm$ 0,085 % **Reproducibility sr:** 0,114 % **Mean - 2*s_{sr}:** 2,075 % (2 z-score)
Measurand: Mo **Lab. display/calculation:** 16 / 11 **Repeatability sr:** 0,016 % **Mean + 2*s_{sr}:** 2,530 % (2 z-score)



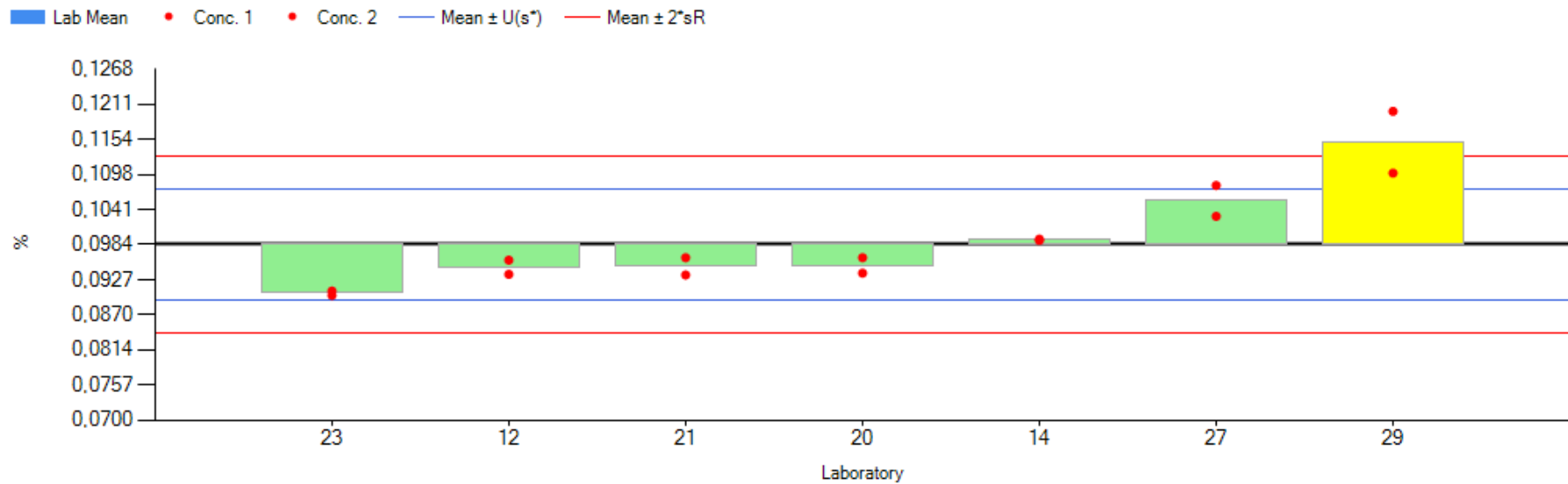
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	2,321	2,320	2,321	0,000	0,2	XRF (fusion)	no accreditation	
11	2,080	2,053	2,066	0,019	-2,1	Other Method	no accreditation	standardless, powder; Info only
12	2,256	2,239	2,247	0,012	-0,5	XRF (fusion)	no accreditation	
14	2,139	2,176	2,158	0,026	-1,3	XRF (fusion)	ISO 17025	
16	2,861	2,753	2,807	0,077	4,4	XRF (pressed pellet)	no accreditation	In PP cup under Helium; Info only
17	3,091	3,090	3,091	0,001	6,9	XRF (pressed pellet)	no accreditation	Info only
18	1,530	1,540	1,535	0,007	-6,7	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	2,722	2,607	2,665	0,081	3,2	Other Method	no accreditation	XRF, standardless; Info only
20	2,464	2,463	2,463	0,001	1,4	ICP-OES	ISO 17025	
21	2,392	2,436	2,414	0,031	1,0	XRF (fusion)	ISO 17025	

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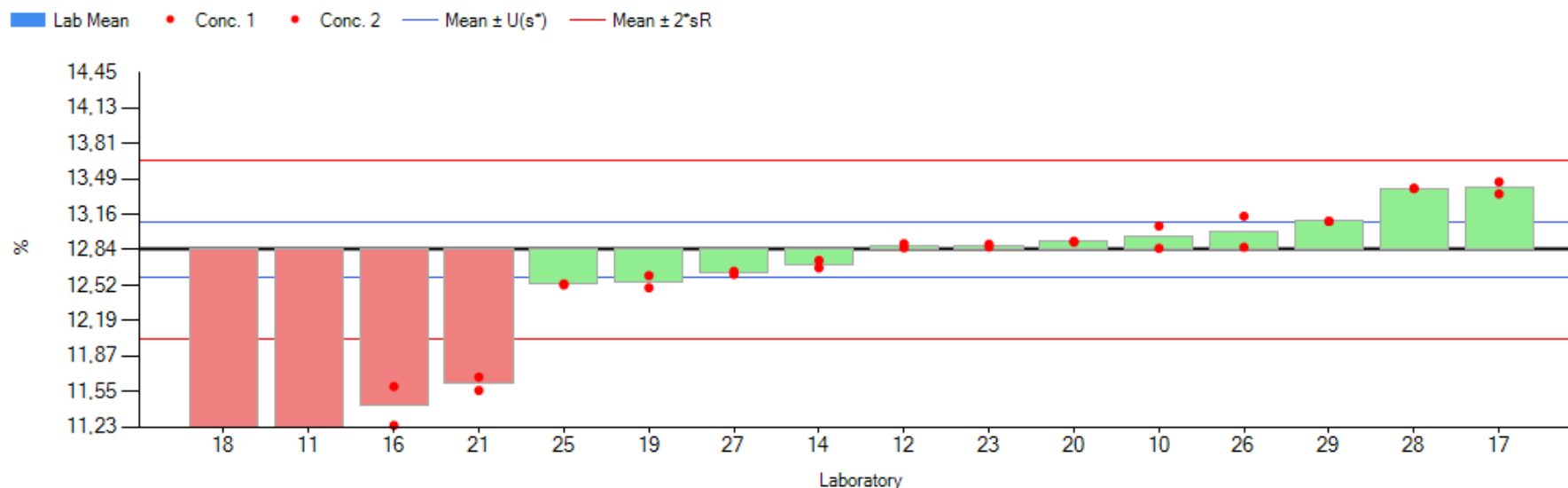
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
23	2,327	2,342	2,335	0,011	0,3	ICP-OES	ISO 17025	
25	2,260	2,310	2,285	0,035	-0,2	ICP-OES	no accreditation	
26	2,308	2,332	2,320	0,017	0,2	ICP-OES	no accreditation	
27	2,224	2,205	2,215	0,013	-0,8	XRF (fusion)	ISO 17025	
28	2,230	2,230	2,230	0,000	-0,6	ICP-OES	ISO 17025	
29	2,340	2,340	2,340	0,000	0,3	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean ± U(s*):** 0,0984 ± 0,0090 % **Reproducibility s_R:** 0,0071 % **Mean - 2*s_R:** 0,0842 % (2 z-score)
Measurand: N **Lab. display/calculation:** 7 / 7 **Repeatability s_r:** 0,0026 % **Mean + 2*s_R:** 0,1126 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
12	0,0936	0,0959	0,0947	0,0016	-0,5	Combustion	ISO 17025	
14	0,0991	0,0993	0,0992	0,0001	0,1	Combustion	no accreditation	
20	0,0963	0,0938	0,0950	0,0018	-0,5	Combustion	ISO 17025	
21	0,0963	0,0935	0,0949	0,0020	-0,5	Combustion	ISO 17025	
23	0,0909	0,0902	0,0905	0,0005	-1,1	Combustion	ISO 17025	TC
27	0,1080	0,1030	0,1055	0,0035	1,0	Combustion	no accreditation	
29	0,1100	0,1200	0,1150	0,0071	2,3	Combustion	ISO 17025	DIN EN ISO 15351

Sample: FLX-3001 **Mean ± U(s*):** 12,84 ± 0,25 % **Reproducibility s_R:** 0,40 % **Mean - 2*s_R:** 12,03 % (2 z-score)
Measurand: Ni **Lab. display/calculation:** 16 / 11 **Repeatability s_r:** 0,03 % **Mean + 2*s_R:** 13,65 % (2 z-score)



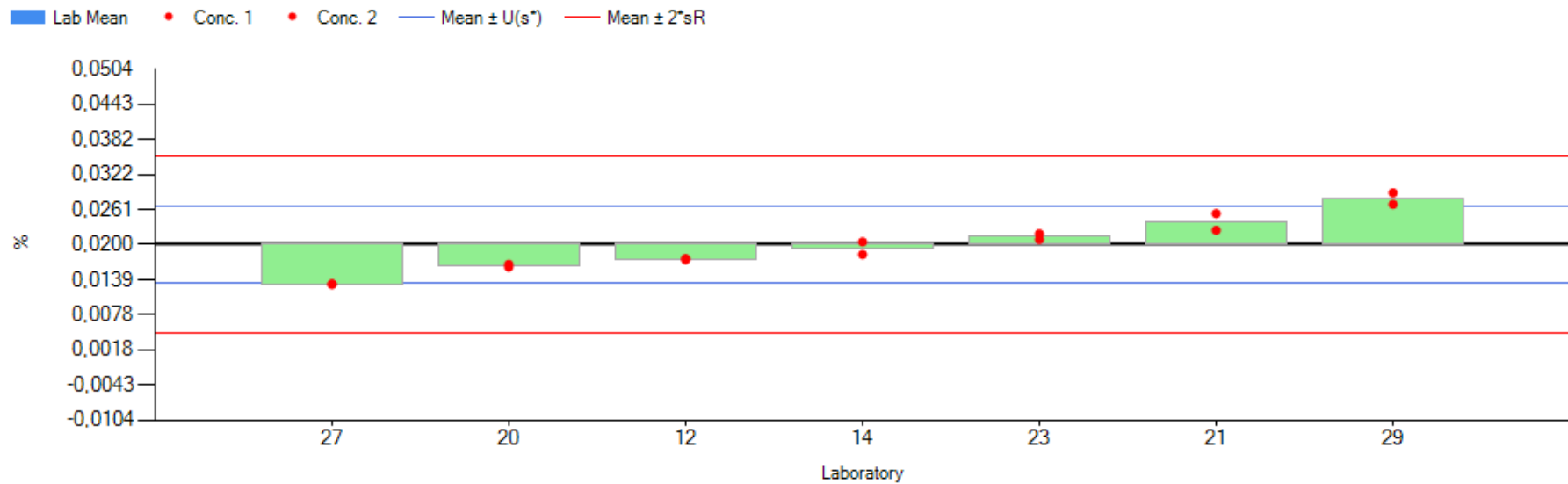
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	13,06	12,85	12,96	0,14	0,3	XRF (fusion)	no accreditation	
11	8,89	8,80	8,85	0,07	-9,9	Other Method	no accreditation	standardless, powder; Info only
12	12,86	12,90	12,88	0,03	0,1	XRF (fusion)	no accreditation	
14	12,74	12,68	12,71	0,05	-0,3	XRF (fusion)	ISO 17025	
16	11,24	11,59	11,42	0,25	-3,5	XRF (pressed pellet)	no accreditation	In PP cup under Helium; Info only
17	13,35	13,46	13,41	0,08	1,4	XRF (pressed pellet)	no accreditation	Info only
18	6,63	6,67	6,65	0,03	-15,3	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	12,61	12,49	12,55	0,08	-0,7	Other Method	no accreditation	XRF, standardless; Info only
20	12,92	12,91	12,91	0,01	0,2	ICP-OES	ISO 17025	
21	11,56	11,68	11,62	0,09	-3,0	XRF (fusion)	ISO 17025	

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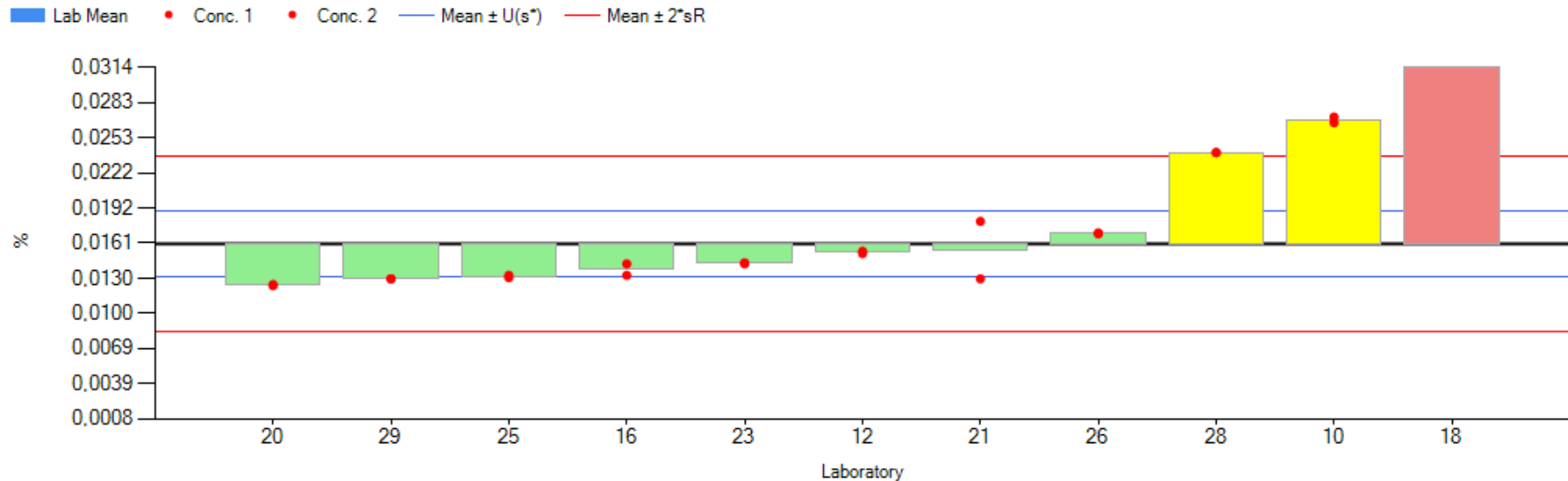
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
23	12,87	12,89	12,88	0,02	0,1	ICP-OES	ISO 17025	
25	12,52	12,53	12,53	0,01	-0,8	ICP-OES	no accreditation	
26	12,86	13,15	13,01	0,20	0,4	ICP-OES	no accreditation	
27	12,64	12,62	12,63	0,02	-0,5	XRF (fusion)	ISO 17025	
28	13,40	13,40	13,40	0,00	1,4	ICP-OES	ISO 17025	
29	13,10	13,10	13,10	0,00	0,6	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean ± U(s*):** 0,0200 ± 0,0066 % **Reproducibility s_R:** 0,0076 % **Mean - 2*s_R:** 0,0048 % (2 z-score)
Measurand: O **Lab. display/calculation:** 7 / 7 **Repeatability s_r:** 0,0010 % **Mean + 2*s_R:** 0,0352 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
12	0,0176	0,0174	0,0175	0,0001	-0,3	Combustion	ISO 17025	
14	0,0183	0,0205	0,0194	0,0016	-0,1	Combustion	no accreditation	
20	0,0166	0,0161	0,0164	0,0004	-0,5	Combustion	ISO 17025	
21	0,0254	0,0225	0,0240	0,0021	0,5	Combustion	ISO 17025	
23	0,0219	0,0209	0,0214	0,0007	0,2	Combustion	ISO 17025	IR
27	0,0132	0,0131	0,0132	0,0001	-0,9	Combustion	no accreditation	
29	0,0290	0,0270	0,0280	0,0014	1,1	Combustion	ISO 17025	DIN EN 10276-2

Sample: FLX-3001 **Mean ± U(s*):** 0,0160 ± 0,0029 % **Reproducibility s_R:** 0,0038 % **Mean - 2*s_R:** 0,0084 % (2 z-score)
Measurand: P **Lab. display/calculation:** 11 / 9 **Repeatability s_r:** 0,0002 % **Mean + 2*s_R:** 0,0237 % (2 z-score)



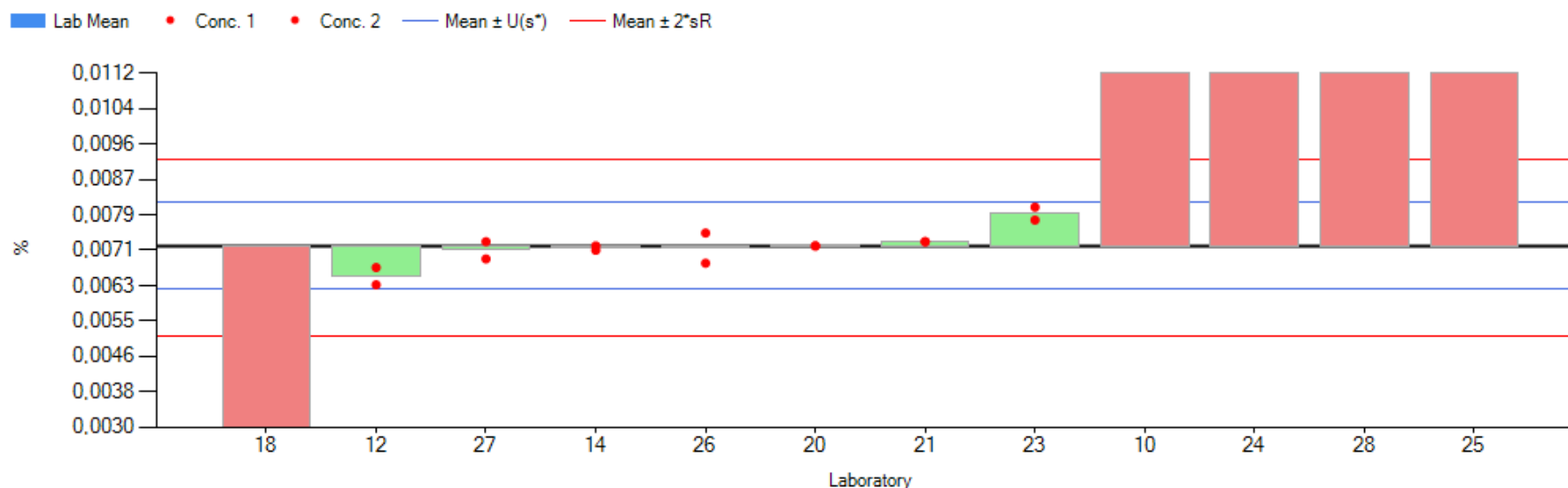
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,0271	0,0266	0,0269	0,0004	2,9	XRF (fusion)	no accreditation	
12	0,0152	0,0154	0,0153	0,0001	-0,2	ICP-OES	ISO 17025	
16	0,0133	0,0143	0,0138	0,0007	-0,6	XRF (pressed pellet)	no accreditation	In PP cup under Helium. Not found with ICP; Info only
18	0,1500	0,1500	0,1500	0,0000	35,3	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
20	0,0124	0,0125	0,0125	0,0001	-0,9	ICP-OES	ISO 17025	
21	0,0130	0,0180	0,0155	0,0035	-0,1	XRF (fusion)	ISO 17025	
23	0,0144	0,0143	0,0143	0,0001	-0,4	ICP-OES	ISO 17025	
25	0,0131	0,0133	0,0132	0,0001	-0,7	ICP-OES	no accreditation	
26	0,0169	0,0170	0,0170	0,0001	0,3	ICP-OES	no accreditation	
28	0,0240	0,0240	0,0240	0,0000	2,1	ICP-OES	ISO 17025	

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Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
29	0,0130	0,0130	0,0130	0,0000	-0,8	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean ± U(s*):** 0,0072 ± 0,0010 % **Reproducibility s_R:** 0,0010 % **Mean - 2*s_R:** 0,0051 % (2 z-score)
Measurand: S **Lab. display/calculation:** 12 / 11 **Repeatability s_r:** 0,0003 % **Mean + 2*s_R:** 0,0092 % (2 z-score)



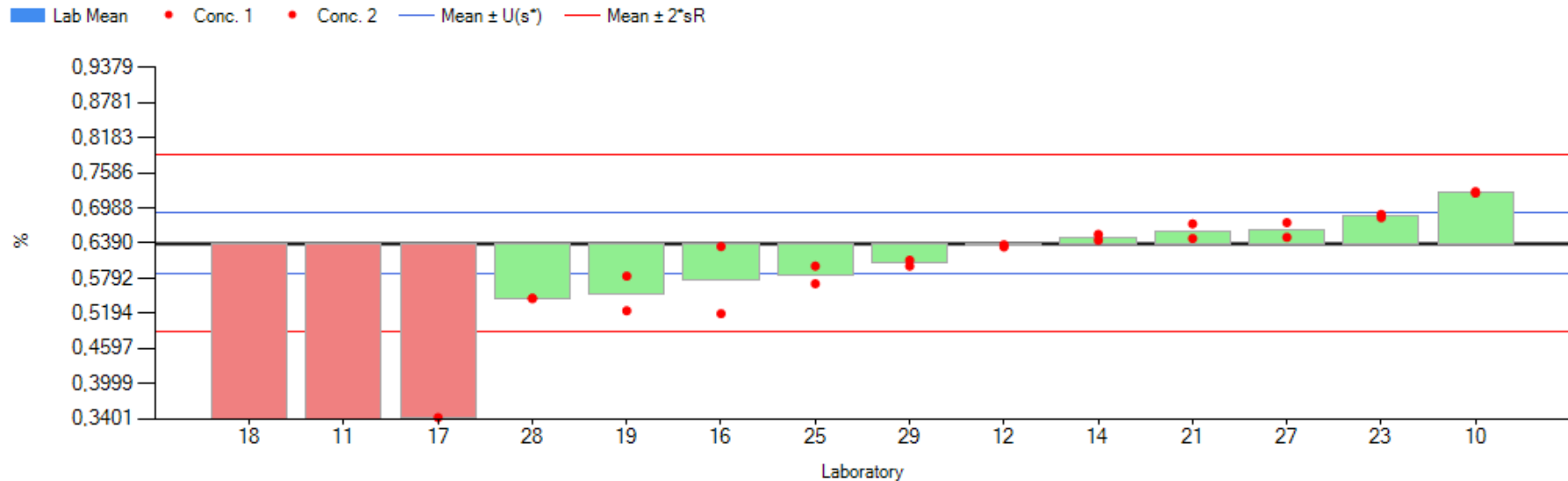
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,0127	0,0127	0,0127	0,0000	5,5	Combustion	no accreditation	
12	0,0063	0,0067	0,0065	0,0003	-0,7	Combustion	ISO 17025	
14	0,0071	0,0072	0,0071	0,0001	-0,1	Combustion	no accreditation	
18	0,0009	0,0009	0,0009	0,0000	-6,3	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
20	0,0072	0,0072	0,0072	0,0000	0,0	Combustion	ISO 17025	
21	0,0073	0,0073	0,0073	0,0000	0,1	Combustion	ISO 17025	
23	0,0078	0,0081	0,0079	0,0002	0,7	Combustion	ISO 17025	IR
24	0,0125	0,0130	0,0128	0,0004	5,6	Combustion	no accreditation	
25	0,0152	0,0144	0,0148	0,0006	7,6	ICP-OES	no accreditation	
26	0,0075	0,0068	0,0071	0,0005	-0,1	Combustion	no accreditation	

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Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
27	0,0069	0,0073	0,0071	0,0003	-0,1	Combustion	no accreditation	
28	0,0130	0,0130	0,0130	0,0000	5,8	ICP-OES	ISO 17025	

Sample: FLX-3001 **Mean ± U(s*):** 0,6389 ± 0,0522 % **Reproducibility s_R:** 0,0747 % **Mean - 2*s_R:** 0,4895 % (2 z-score)
Measurand: Si **Lab. display/calculation:** 14 / 9 **Repeatability s_r:** 0,0092 % **Mean + 2*s_R:** 0,7884 % (2 z-score)



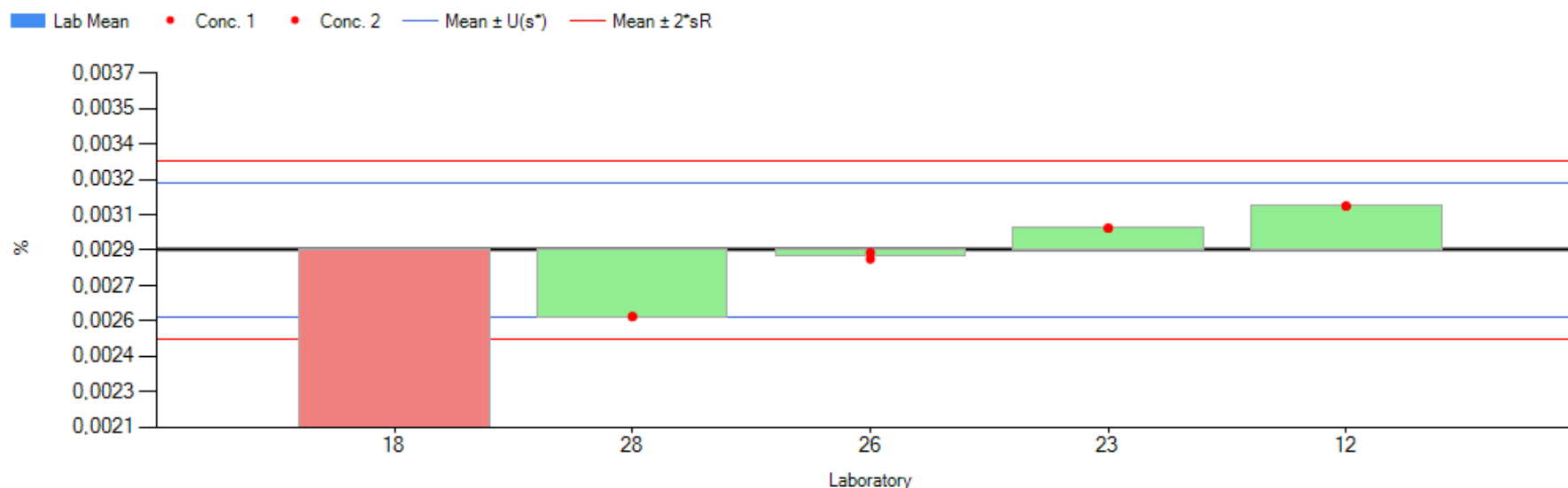
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,7268	0,7243	0,7256	0,0018	1,2	XRF (fusion)	no accreditation	
11	0,3207	0,3155	0,3181	0,0037	-4,3	Other Method	no accreditation	standardless, powder; Info only
12	0,6327	0,6364	0,6346	0,0026	-0,1	XRF (fusion)	no accreditation	
14	0,6540	0,6440	0,6490	0,0071	0,1	XRF (fusion)	ISO 17025	
16	0,5190	0,6334	0,5762	0,0809	-0,8	XRF (pressed pellet)	no accreditation	In PP cup under Helium; Info only
17	0,3421	0,3389	0,3405	0,0023	-4,0	XRF (pressed pellet)	no accreditation	Info only
18	0,1600	0,1700	0,1650	0,0071	-6,3	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	0,5830	0,5240	0,5535	0,0417	-1,1	Other Method	no accreditation	XRF, standardless; Info only
21	0,6470	0,6720	0,6595	0,0177	0,3	XRF (fusion)	ISO 17025	
23	0,6880	0,6826	0,6853	0,0038	0,6	ICP-OES	ISO 17025	

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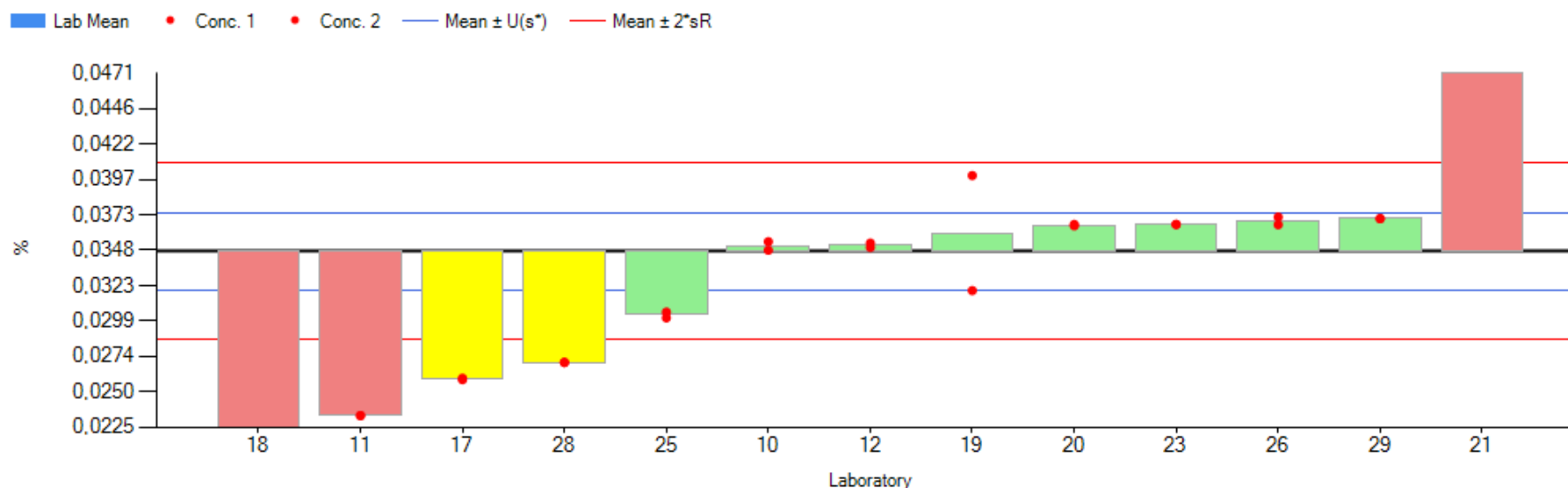
Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
25	0,5700	0,6000	0,5850	0,0212	-0,7	ICP-OES	no accreditation	
27	0,6740	0,6490	0,6615	0,0177	0,3	XRF (fusion)	ISO 17025	
28	0,5450	0,5450	0,5450	0,0000	-1,3	ICP-OES	ISO 17025	
29	0,6000	0,6100	0,6050	0,0071	-0,5	ICP-OES	ISO 17025	DIN EN ISO 11885

Sample: FLX-3001 **Mean ± U(s*):** 0,0029 ± 0,0003 % **Reproducibility s_R:** 0,0002 % **Mean - 2*s_R:** 0,0025 % (2 z-score)
Measurand: Sn **Lab. display/calculation:** 5 / 4 **Repeatability s_r:** 0,0000 % **Mean + 2*s_R:** 0,0033 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
12	0,0031	0,0031	0,0031	0,0000	1,0	ICP-OES	ISO 17025	Semi quantitative SQX; Info only
18	0,0015	0,0015	0,0015	0,0000	-7,0	XRF (pressed pellet)	no accreditation	
23	0,0030	0,0030	0,0030	0,0000	0,5	ICP-MS	no accreditation	
26	0,0029	0,0029	0,0029	0,0000	-0,1	ICP-OES	no accreditation	
28	0,0026	0,0026	0,0026	0,0000	-1,5	ICP-OES	ISO 17025	

Sample: FLX-3001 **Mean ± U(s*):** 0,0347 ± 0,0027 % **Reproducibility s_R:** 0,0031 % **Mean - 2*s_R:** 0,0286 % (2 z-score)
Measurand: V **Lab. display/calculation:** 13 / 9 **Repeatability s_r:** 0,0003 % **Mean + 2*s_R:** 0,0409 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
10	0,0354	0,0348	0,0351	0,0004	0,1	XRF (fusion)	no accreditation	
11	0,0233	0,0233	0,0233	0,0000	-3,7	Other Method	no accreditation	standardless, powder; Info only
12	0,0350	0,0353	0,0352	0,0002	0,1	ICP-OES	ISO 17025	
17	0,0258	0,0259	0,0259	0,0001	-2,9	XRF (pressed pellet)	no accreditation	Info only
18	0,0200	0,0200	0,0200	0,0000	-4,7	XRF (pressed pellet)	no accreditation	Semi quantitative SQX; Info only
19	0,0400	0,0320	0,0360	0,0057	0,4	Other Method	no accreditation	XRF, standardless; Info only
20	0,0366	0,0365	0,0366	0,0001	0,6	ICP-OES	ISO 17025	
21	0,0830	0,0820	0,0825	0,0007	15,4	XRF (fusion)	ISO 17025	
23	0,0366	0,0366	0,0366	0,0000	0,6	ICP-OES	ISO 17025	
25	0,0301	0,0305	0,0303	0,0003	-1,4	ICP-OES	no accreditation	

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Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
26	0,0366	0,0371	0,0368	0,0004	0,7	ICP-OES	no accreditation	
28	0,0270	0,0270	0,0270	0,0000	-2,5	ICP-OES	ISO 17025	
29	0,0370	0,0370	0,0370	0,0000	0,7	ICP-OES	ISO 17025	DIN EN ISO 11885

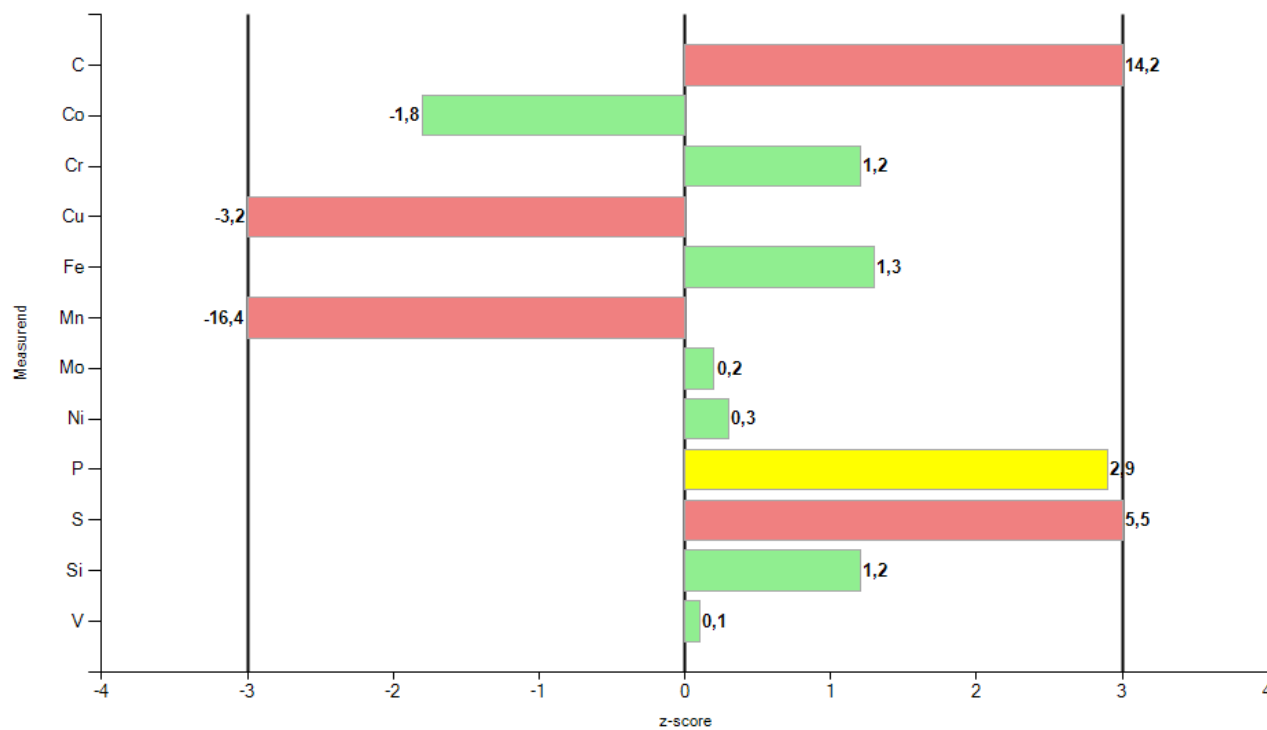
z-scores (per sample)

Sample: FLX-3001

Lab code	As	C	Co	Cr	Cu	Fe	Mn	Mo	N	Ni	O	P	S	Si	Sn	V
10		14,2	-1,8	1,2	-3,2	1,3	-16,4	0,2		0,3		2,9	5,5	1,2		0,1
11				-20,5	-2,9	10,4	-8,0	-2,1		-9,9				-4,3		-3,7
12	-0,5	-0,5	0,3	0,1	0,0	0,2	0,3	-0,5	-0,5	0,1	-0,3	-0,2	-0,7	-0,1	1,0	0,1
14		-0,3		0,2	-1,0	0,1	0,4	-1,3	0,1	-0,3	-0,1		-0,1	0,1		
16		-0,3	0,2	-2,6	0,4	-0,1	0,9	4,4		-3,5		-0,6		-0,8		
17			4,8	-16,4	-0,1	4,3	-3,1	6,9		1,4				-4,0		-2,9
18	-5,7		-2,2	-5,9	-4,8	-18,9	-4,7	-6,7		-15,3		35,3	-6,3	-6,3	-7,0	-4,7
19				2,1	1,7	0,1	-0,4	3,2		-0,7				-1,1		0,4
20		0,0		-0,6	0,8		-0,5	1,4	-0,5	0,2	-0,5	-0,9	0,0			0,6
21		0,6		22,5	1,7	-1,0	-10,3	1,0	-0,5	-3,0	0,5	-0,1	0,1	0,3		15,4
23	-0,2	-0,7	0,6	-0,2	0,5		0,4	0,3	-1,1	0,1	0,2	-0,4	0,7	0,6	0,5	0,6
24		18,5											5,6			
25				-1,9	0,0	-0,9	-1,3	-0,2		-0,8		-0,7	7,6	-0,7		-1,4
26		0,0	1,0	0,2	0,5	0,4	0,3	0,2		0,4		0,3	-0,1		-0,1	0,7
27		-0,6		0,1	-1,4	-0,6	0,5	-0,8	1,0	-0,5	-0,9		-0,1	0,3		
28	0,7	1,7	-0,3	0,8	0,2	-0,1	-0,4	-0,6		1,4		2,1	5,8	-1,3	-1,5	-2,5
29		0,3	-0,1	-0,3	0,2	0,6	0,4	0,3	2,3	0,6	1,1	-0,8		-0,5		0,7

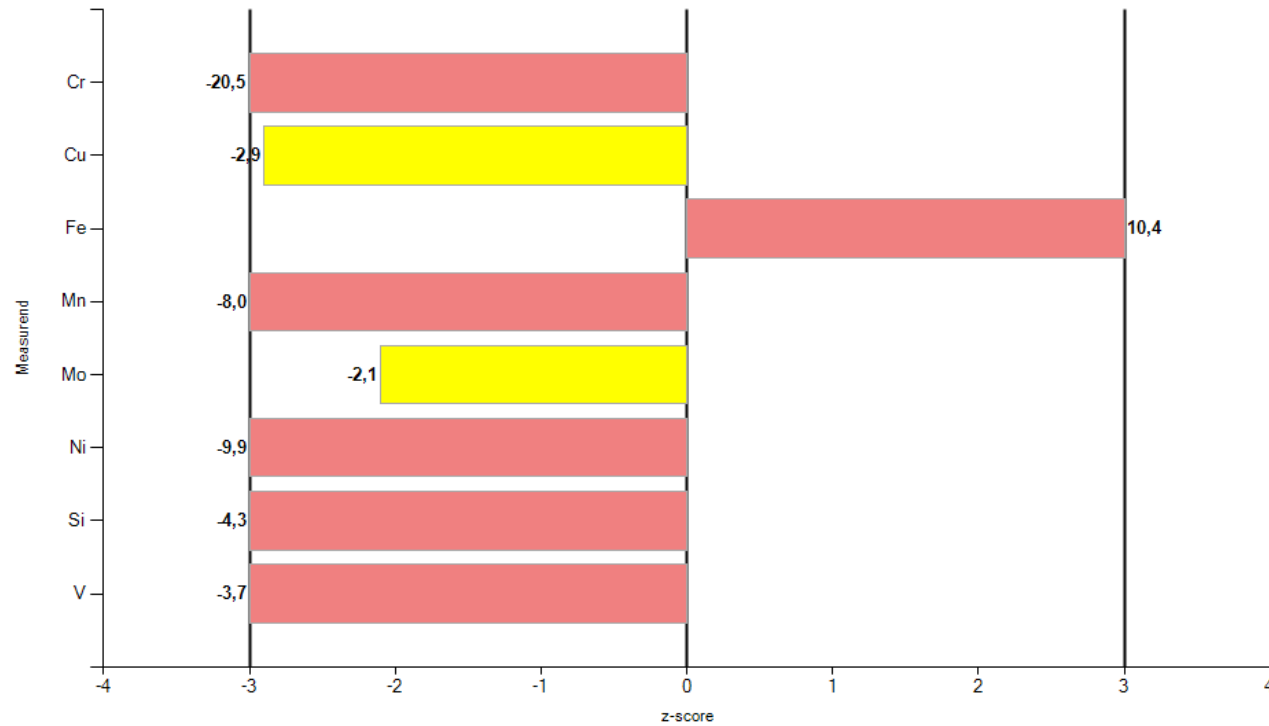
Laboratory chart of z-scores

Laboratory: 10



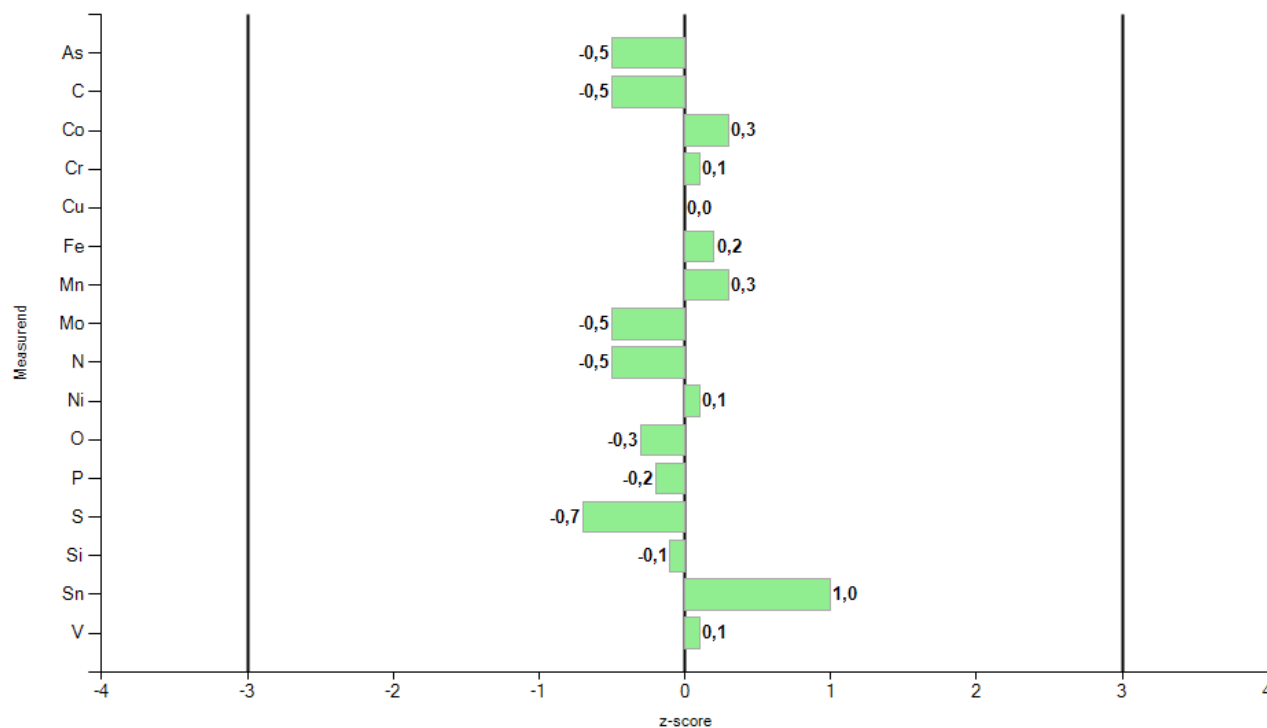
Laboratory chart of z-scores

Laboratory: 11



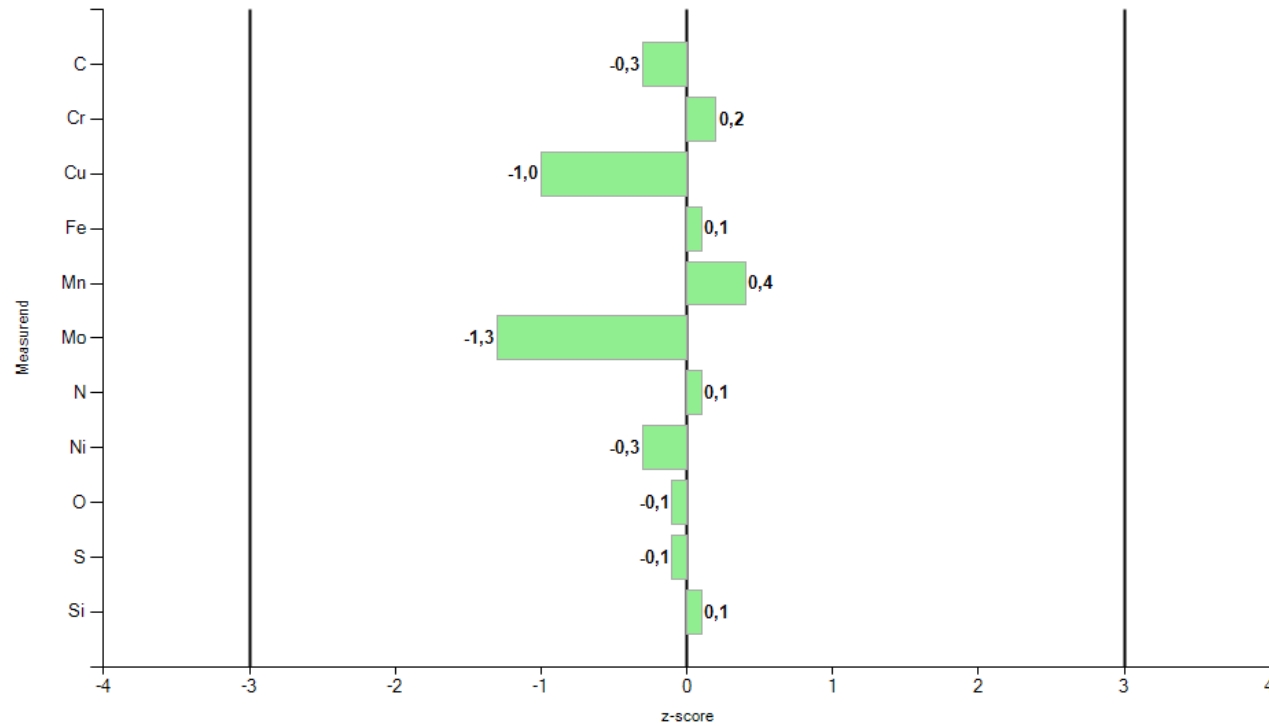
Laboratory chart of z-scores

Laboratory: 12



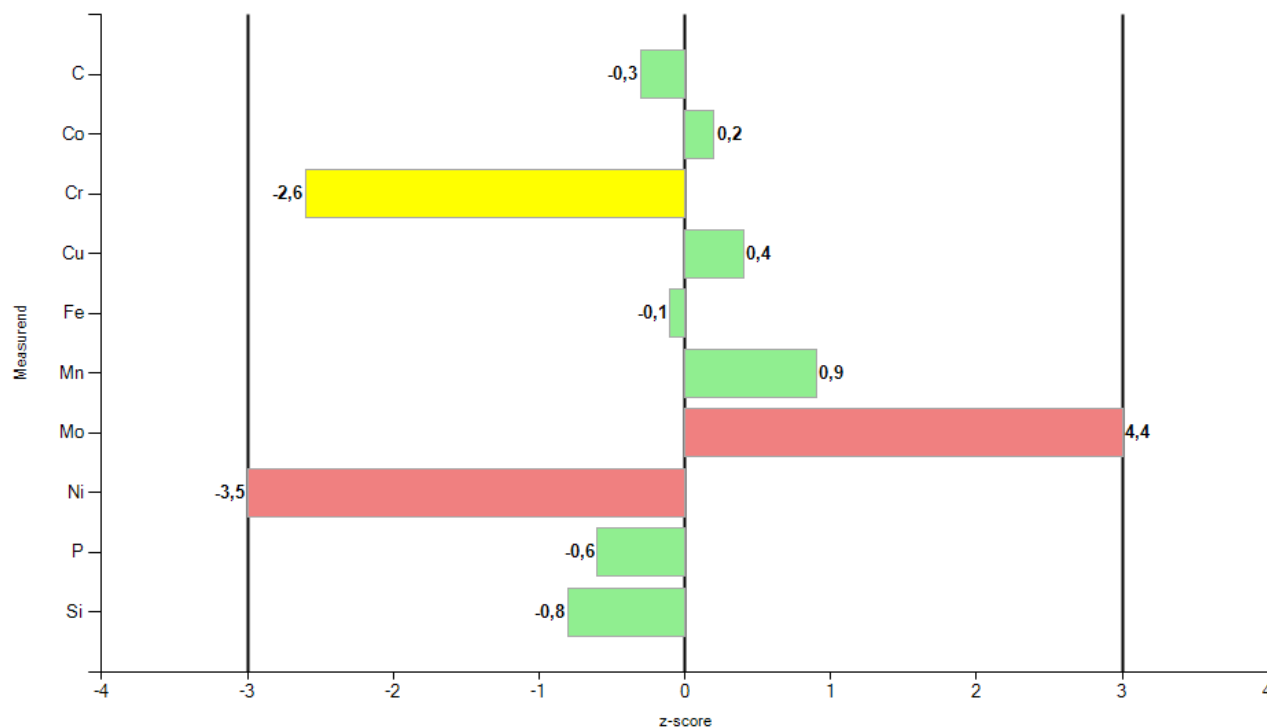
Laboratory chart of z-scores

Laboratory: 14



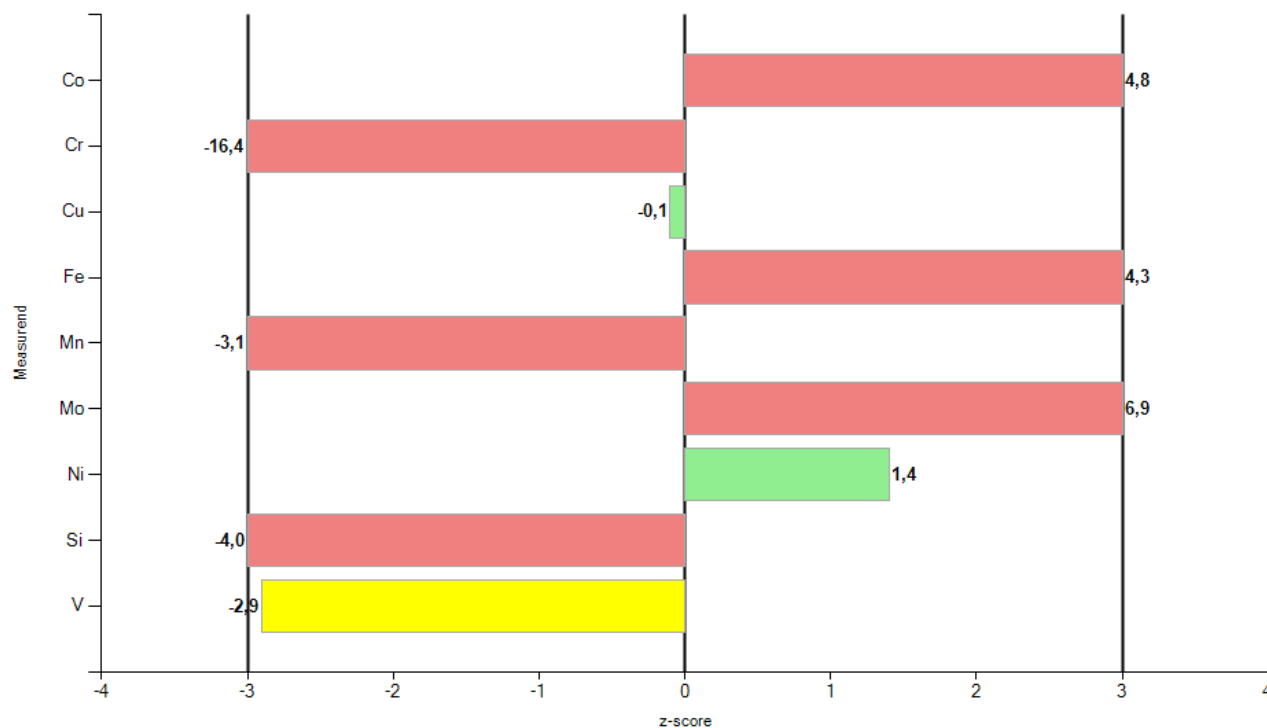
Laboratory chart of z-scores

Laboratory: 16



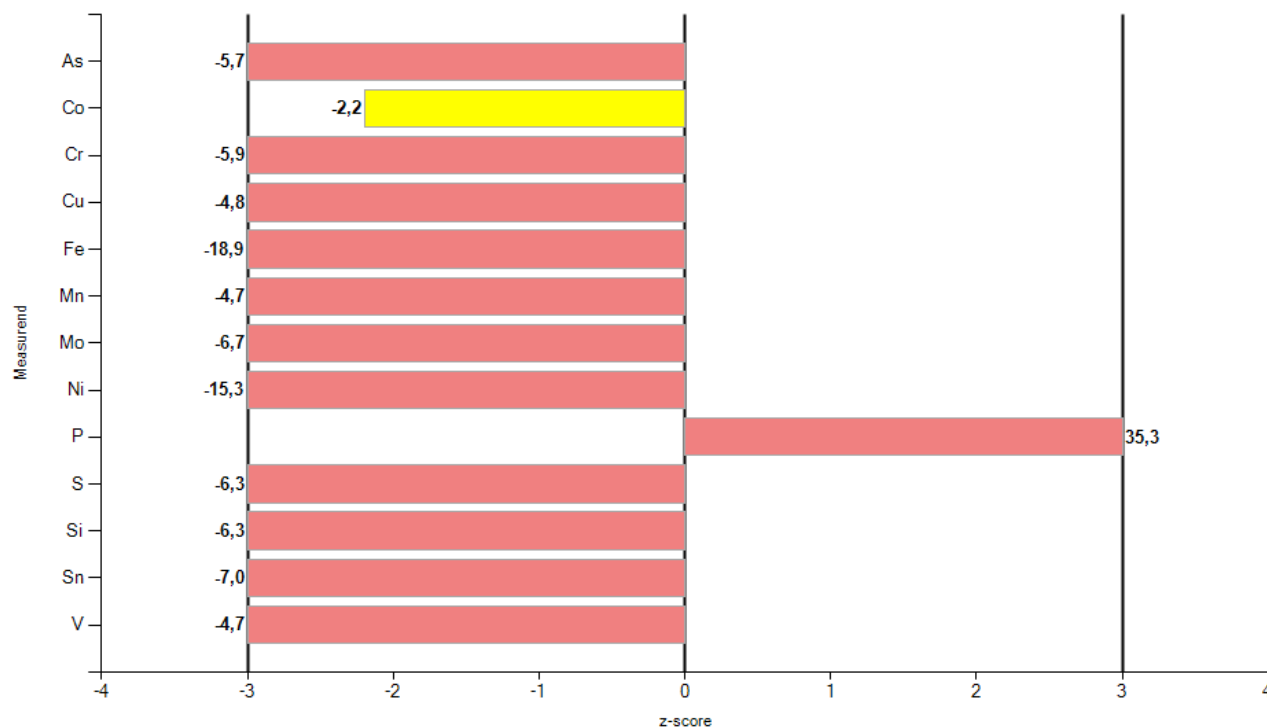
Laboratory chart of z-scores

Laboratory: 17



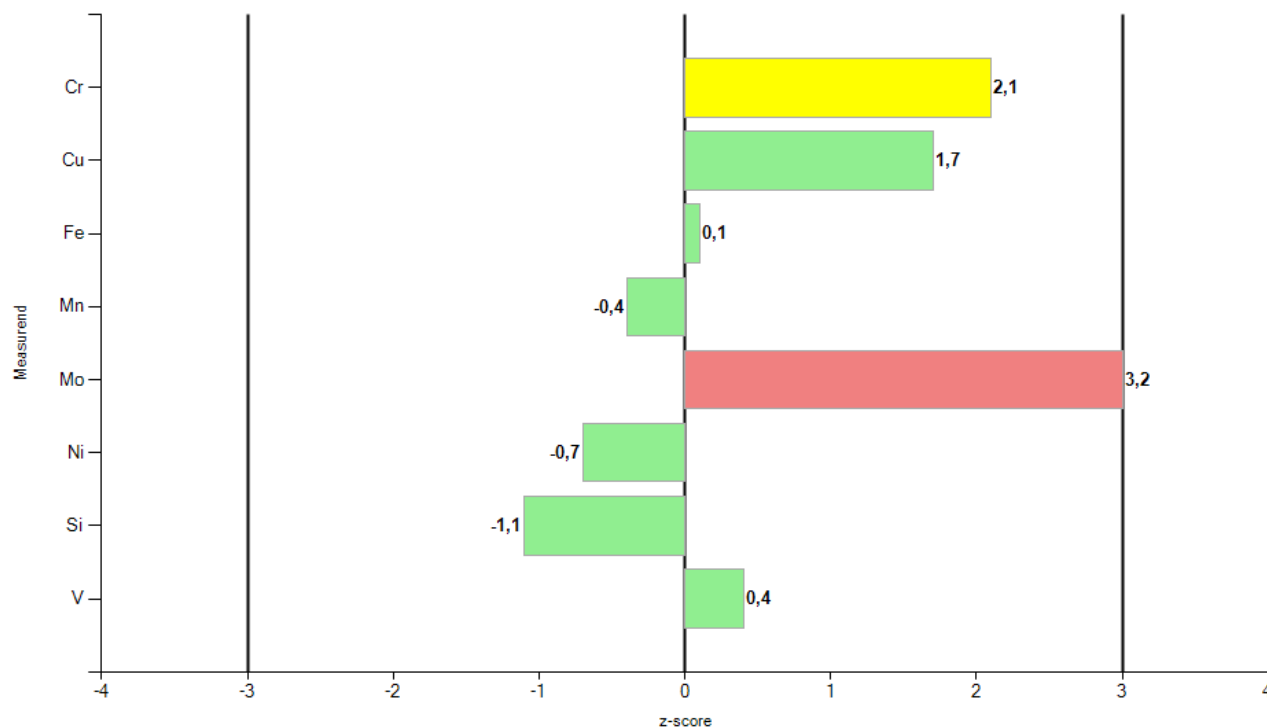
Laboratory chart of z-scores

Laboratory: 18



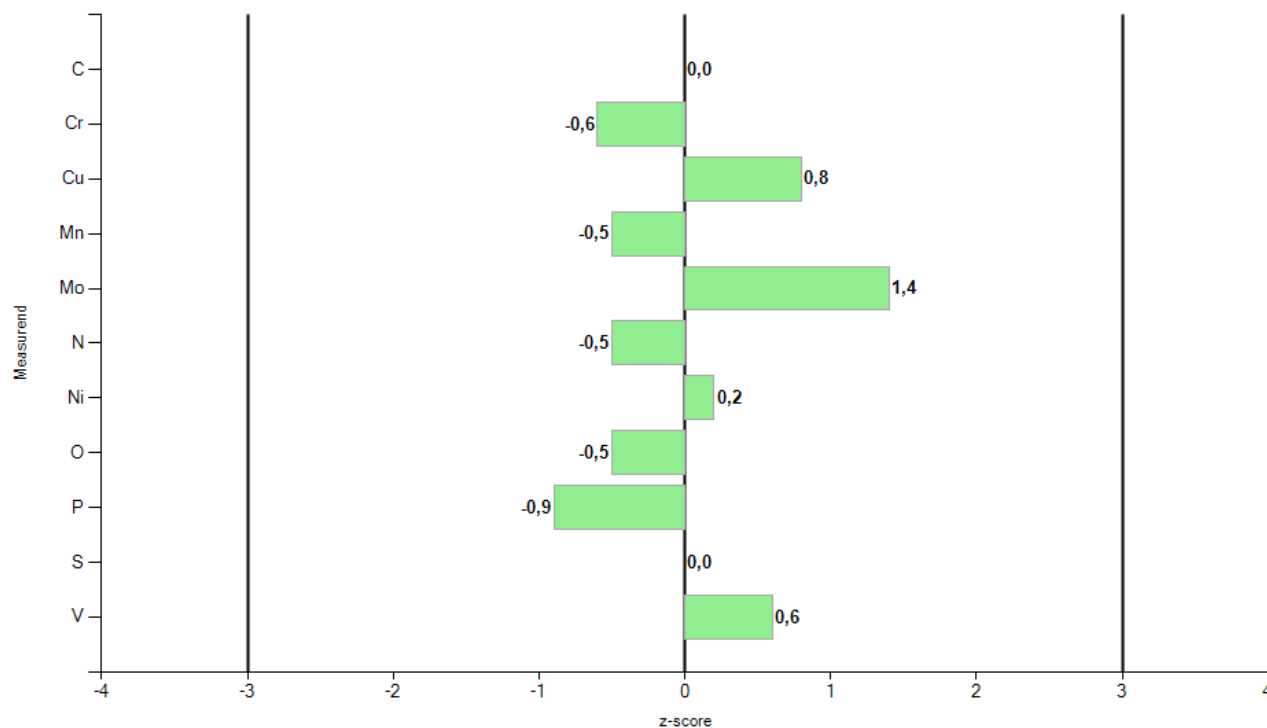
Laboratory chart of z-scores

Laboratory: 19



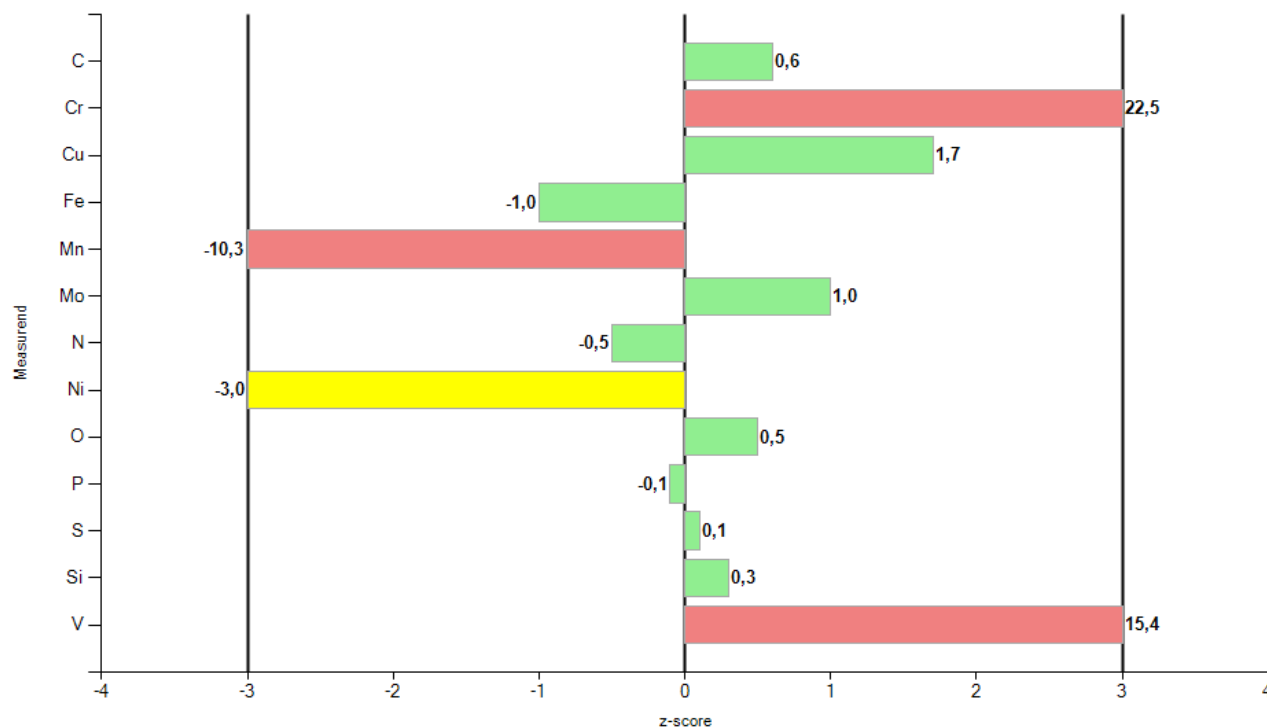
Laboratory chart of z-scores

Laboratory: 20



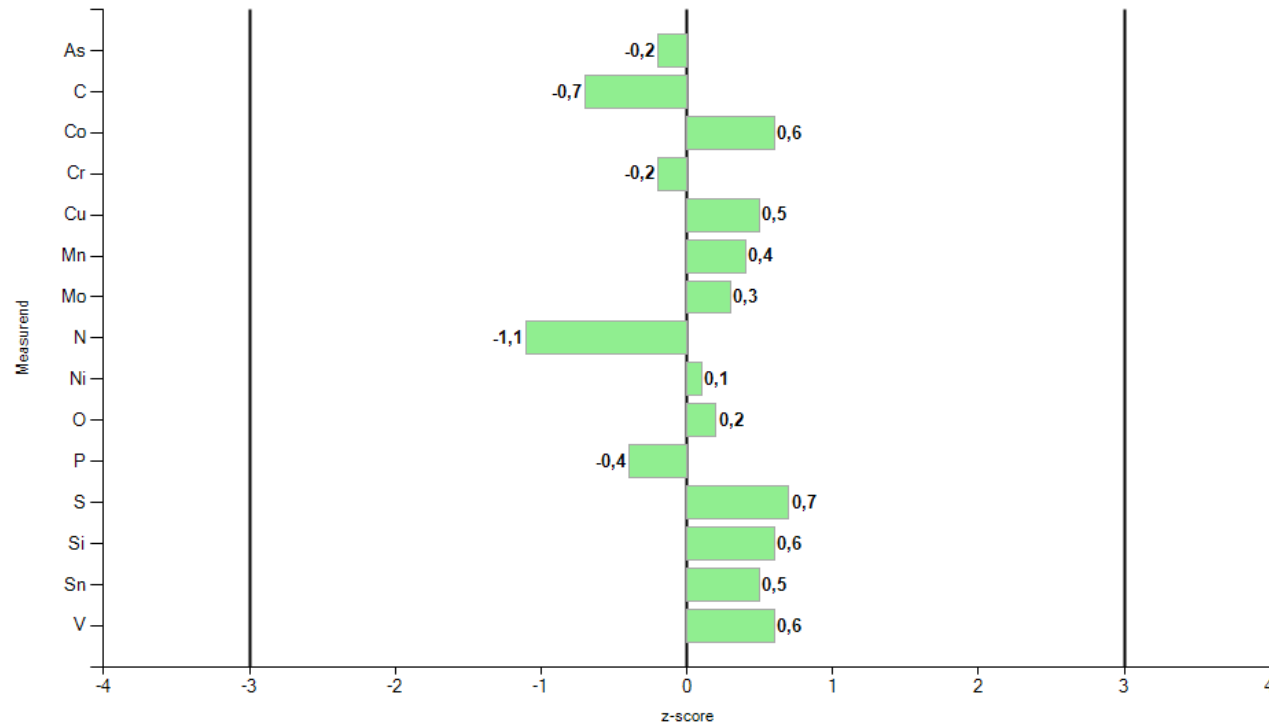
Laboratory chart of z-scores

Laboratory: 21



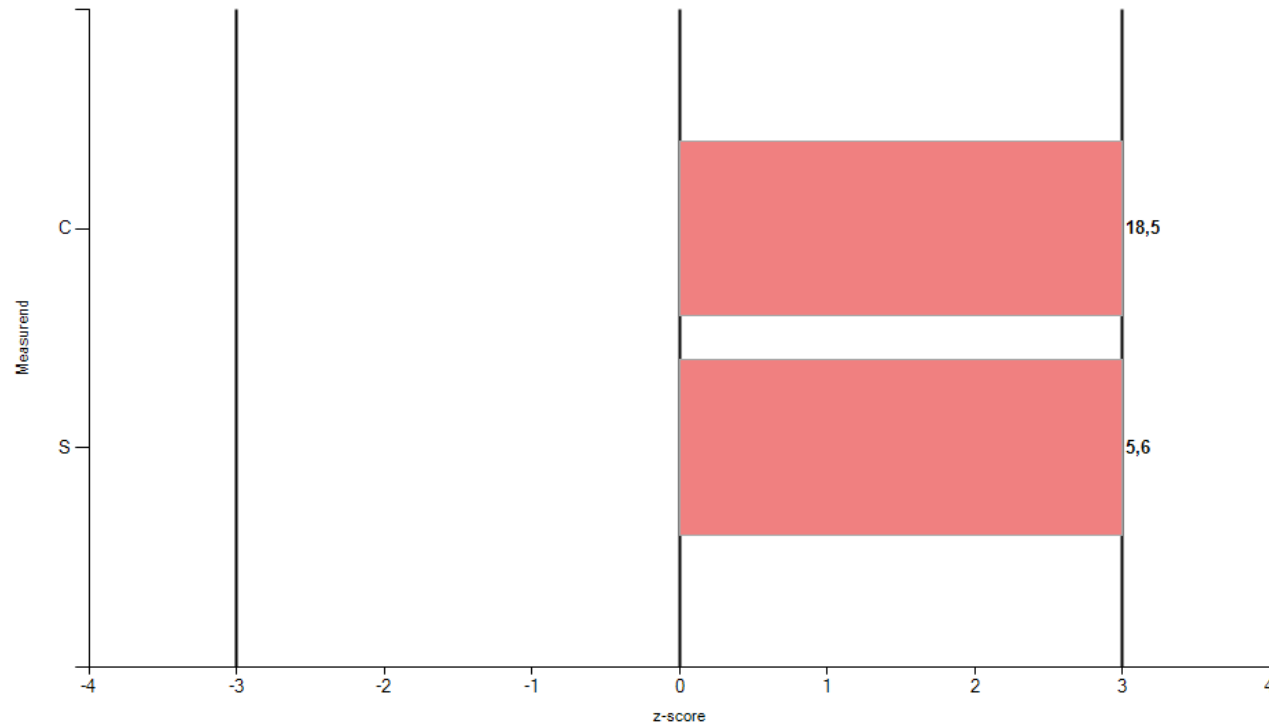
Laboratory chart of z-scores

Laboratory: 23



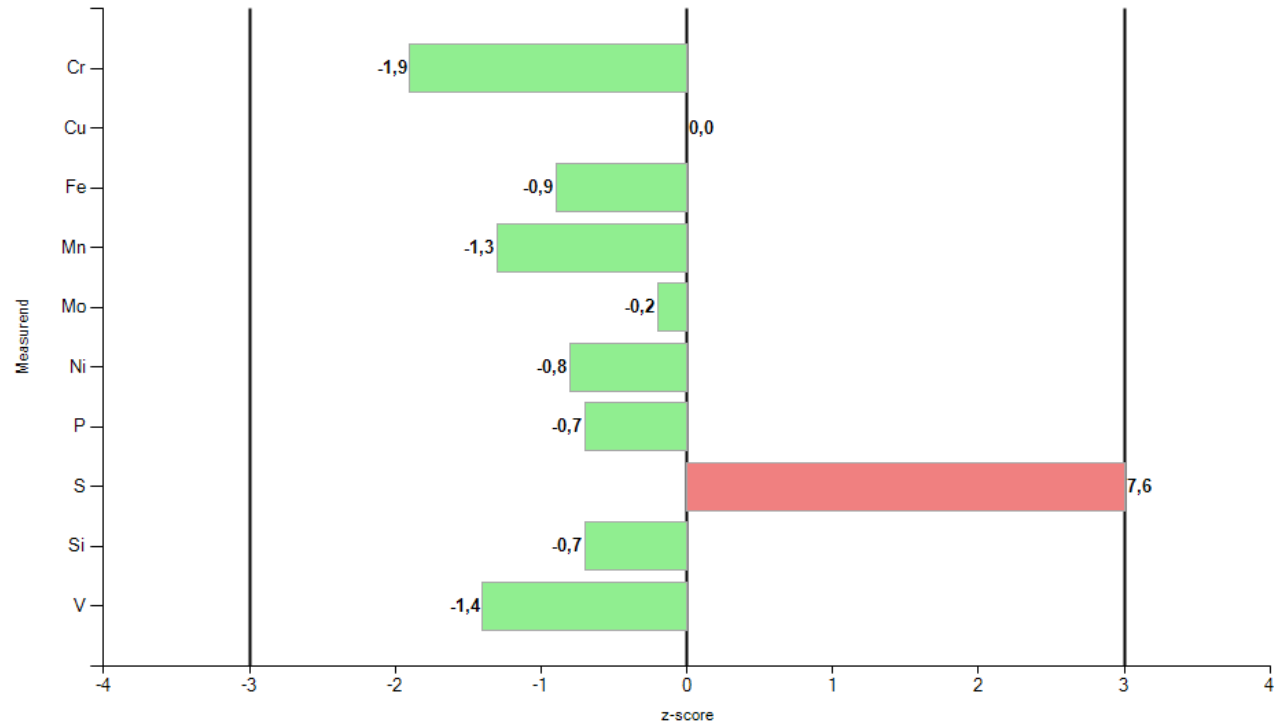
Laboratory chart of z-scores

Laboratory: 24



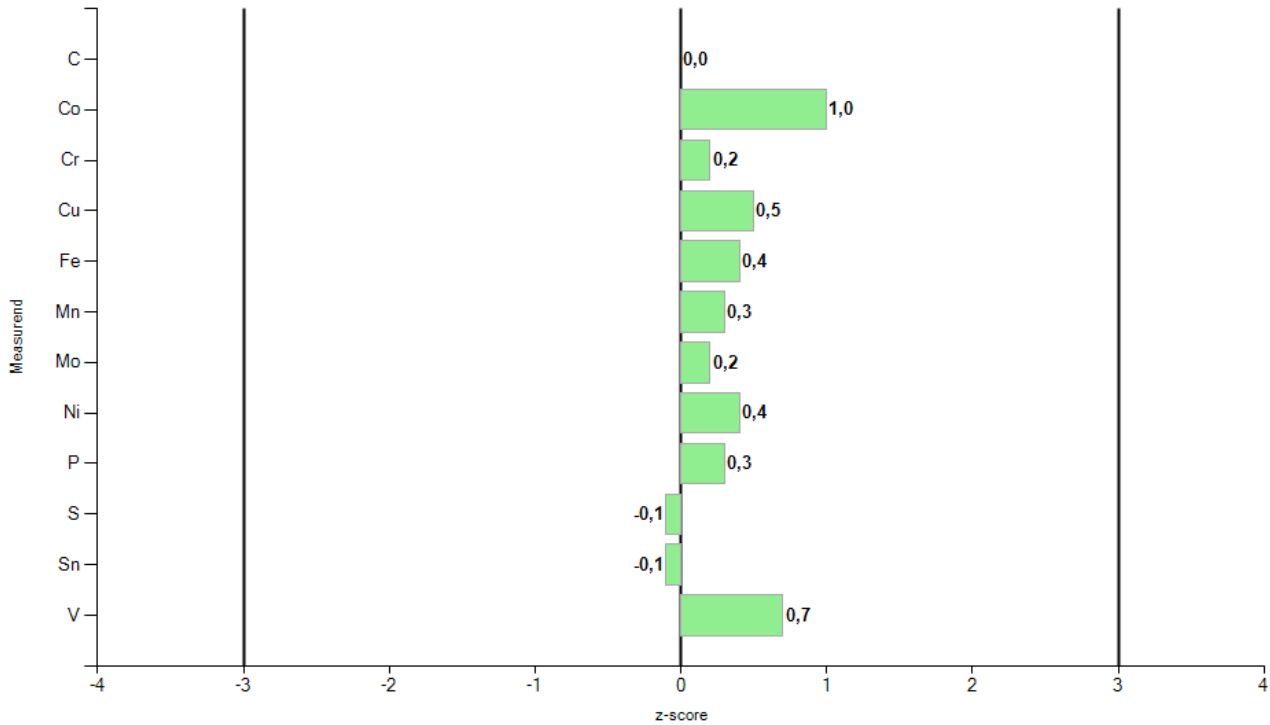
Laboratory chart of z-scores

Laboratory: 25



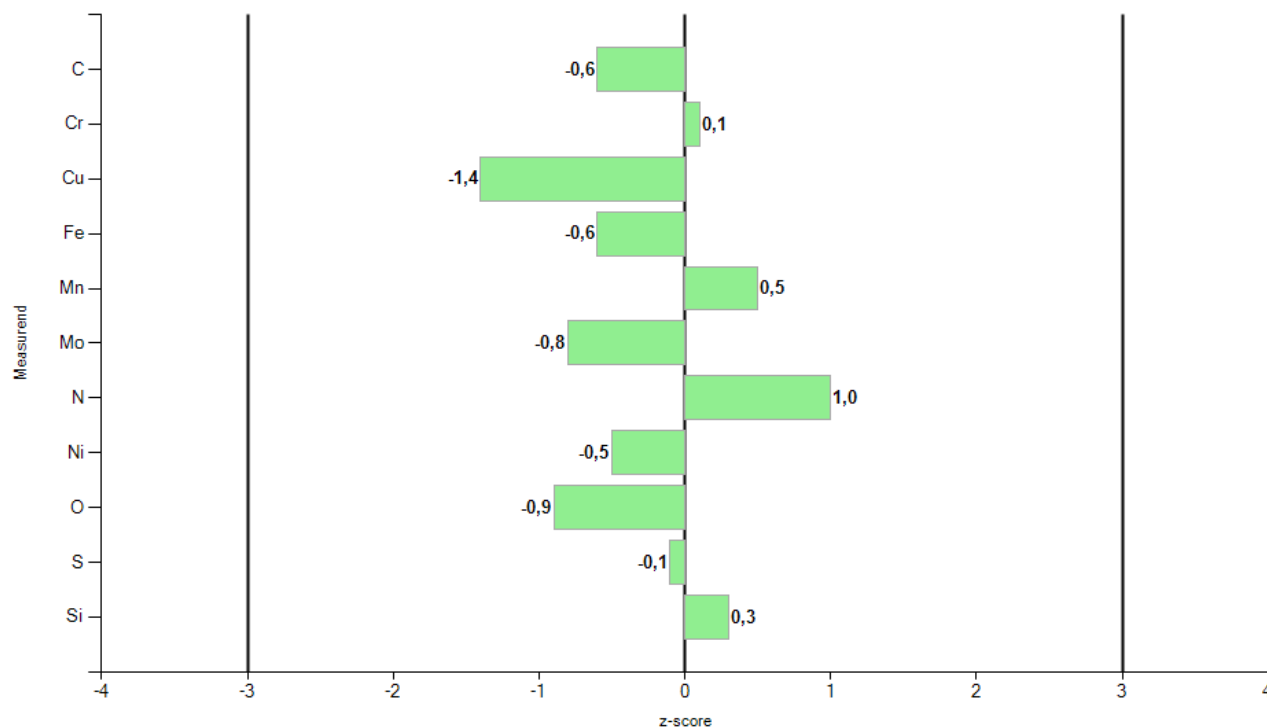
Laboratory chart of z-scores

Laboratory: 26



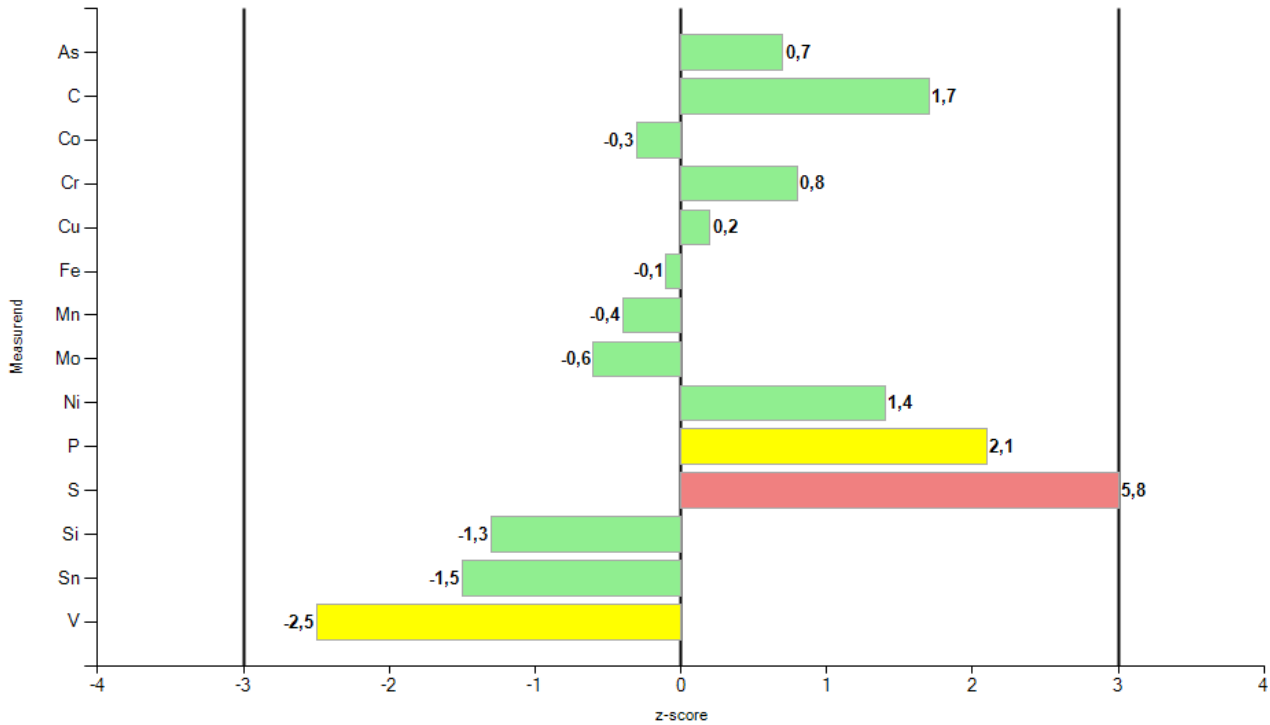
Laboratory chart of z-scores

Laboratory: 27



Laboratory chart of z-scores

Laboratory: 28



Laboratory chart of z-scores

Laboratory: 29

