FXRV-2025-03

FLUXANA®
XRF Application Solutions

Final Proficiency Test Report for Blackmass (FXRV-2025-03)

FLX-4001

Bedburg-Hau, May 07th 2026

Coordinator of PT
Charlotte Winkels-Herding

Statistics and Report
Dr. Rainer Schramm

FXRV-2025-03

FLUXANA®
XRF Application Solutions

	Al	C	Co	Cu	F	Fe	Li	Mn	Ni	P	S
Unit	%	%	%	%	%	%	%	%	%	%	%
Labs	29	18	28	29	16	27	25	29	28	26	21
Mean m	1,204	35,40	3,274	1,067	1,912	0,3355	3,959	0,7976	27,71	0,5936	0,1042
Repro. s_R	0,124	1,18	0,110	0,132	0,397	0,0654	0,135	0,0548	1,07	0,0495	0,0283
Repeat. s_r	0,034	0,17	0,025	0,049	0,043	0,0177	0,026	0,0107	0,18	0,0091	0,0025
Repro. s*	0,130	1,19	0,107	0,122	0,439	0,0638	0,135	0,0519	0,99	0,0496	0,0300
U (s*)	0,060	0,70	0,051	0,057	0,274	0,0307	0,067	0,0241	0,47	0,0243	0,0163
U (s_R)	0,058	0,69	0,052	0,061	0,248	0,0315	0,067	0,0254	0,51	0,0243	0,0154
Mean-2*s_R	0,956	33,04	3,054	0,803	1,117	0,2047	3,690	0,6880	25,56	0,4947	0,0476
Mean+2*s_R	1,452	37,75	3,493	1,330	2,706	0,4663	4,228	0,9073	29,85	0,6925	0,1608

	Si
Unit	%
Labs	22
Mean m	0,9514
Repro. s_R	0,3564
Repeat. s_r	0,0241
Repro. s*	0,3413
U (s*)	0,1819
U (s_R)	0,1900
Mean-2*s_R	0,2386
Mean+2*s_R	1,6642

All values are in mass % and 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**

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Info Only Elements

	N	O
Unit	%	%
Labs	5	7
Mean m	0,0709	20,41
Repro. s_R	0,0140	1,31
Repeat. s_r	0,0039	0,30
Repro. s*	0,0095	1,27
U (s*)	0,0107	1,20
U (s_R)	0,0156	1,24
Mean-2*s_R	0,0429	17,79
Mean+2*s_R	0,0988	23,03

All values are in mass % and 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

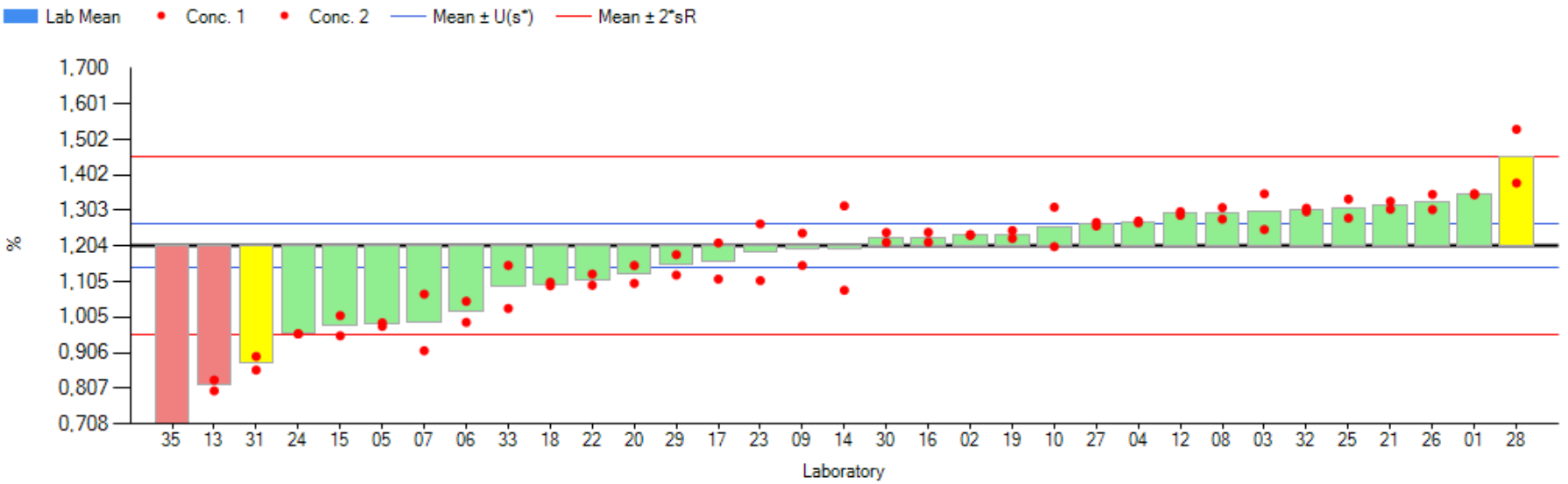
Umicore Olen n.v.	Belgium
Umicore SA	Belgium
IC2MP - UMR CNRS 7285	France
BAM (Bundesanstalt für Materialforschung und -prüfung)	Germany
Bruker AXS GmbH	Germany
Chemad GmbH	Germany
ChemiLytics GmbH & Co. KG	Germany
Currenta GmbH & Co. OHG	Germany
cylib GmbH	Germany
Duesenfeld GmbH	Germany
FLUXANA GmbH & Co. KG	Germany
Horn & Co. Analytics GmbH (HUK)	Germany
IME - Metallurgische Prozesstechnik und Metallrecycling	Germany
Indikator GmbH	Germany
Institut für Materialprüfung Glörfeld GmbH	Germany
Revierlabor	Germany
revomet GmbH	Germany
Rigaku Europe SE	Germany
SGS Institut Fresenius GmbH	Germany
Spectro Analytical Instruments GmbH	Germany
TU Clausthal - Institut für Anorganische und Analytische Chemie	Germany
TU Clausthal IGMR/RPT	Germany
Umicore AG & Co. KG	Germany
WRC World Resources Company GmbH	Germany
Rigaku Corporation	Japan
Eurofins EAG Materials Science Netherlands BV	Netherlands
LMA B.V.	Netherlands
Bruker Singapore Pte. Ltd.	Singapore
Suisse Technology Partners AG	Switzerland
Alfred H Knight International	United Kingdom
Alfred H Knight North America LTD	United States

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Summary results

Sample:	FLX-4001	**Mean ± U(s*):**	1,204 ± 0,060 %	**Reproducibility s_R:**	0,124 %	**Mean - 2*s_R:**	0,956 % (2 z-score)
Measurand:	**Al**	**Lab. display/calculation:**	33 / 29	**Repeatability s_r:**	0,034 %	**Mean + 2*s_R:**	1,452 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	1,347	1,351	1,349	0,002	1,2	XRF (fusion)	no accreditation	
02	1,234	1,236	1,235	0,001	0,3	ICP-OES	no accreditation	
03	1,350	1,250	1,300	0,071	0,8	ICP-OES	ISO 17025	
04	1,269	1,274	1,272	0,004	0,5	ICP-OES	no accreditation	Pyrosulphate fusion
05	0,990	0,980	0,985	0,007	-1,8	ICP-MS	ISO 17025	
06	0,991	1,050	1,021	0,042	-1,5	ICP-OES	ISO 17025	

FXRV-2025-03

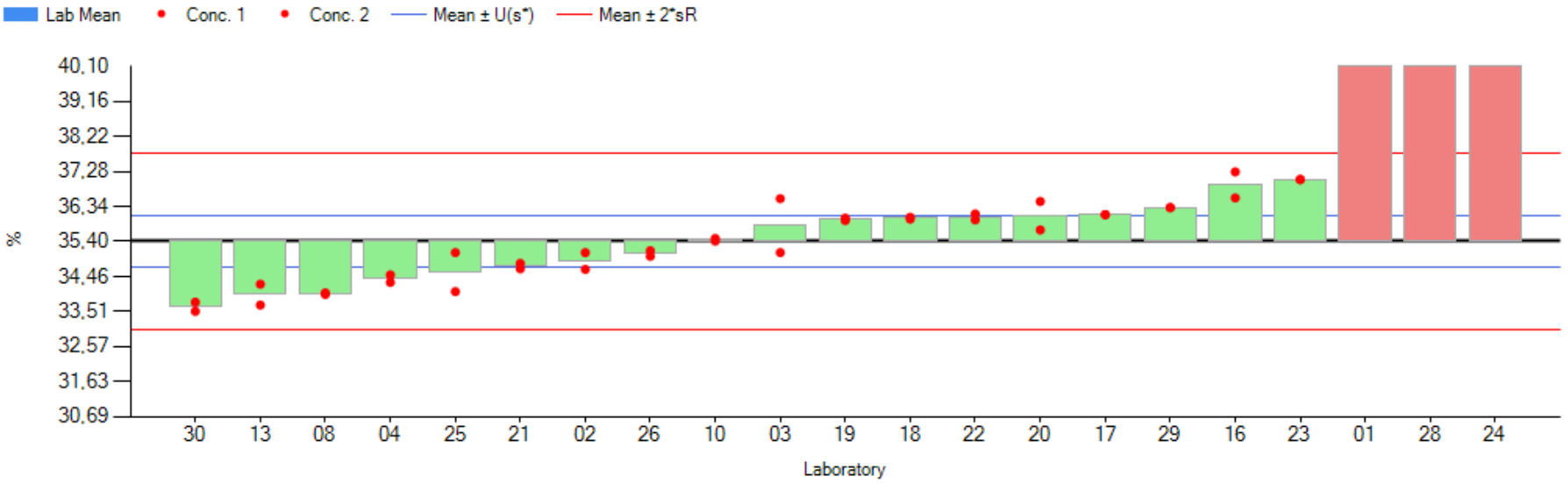
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
07	0,912	1,070	0,991	0,112	-1,7	ICP-OES	no accreditation	Aqua regia
08	1,279	1,312	1,295	0,023	0,7	ICP-OES	ISO 17025	
09	1,150	1,240	1,195	0,064	-0,1	ICP-OES	no accreditation	
10	1,313	1,202	1,257	0,078	0,4	ICP-OES	no accreditation	
12	1,290	1,300	1,295	0,007	0,7	ICP-OES	no accreditation	
13	0,830	0,800	0,815	0,021	-3,1	ICP-MS	no accreditation	
14	1,081	1,316	1,198	0,167	0,0	ICP-OES	no accreditation	
15	1,010	0,954	0,982	0,040	-1,8	ICP-OES	no accreditation	
16	1,242	1,215	1,229	0,019	0,2	ICP-OES	ISO 17025	
17	1,213	1,112	1,163	0,071	-0,3	XRF (fusion)	no accreditation	
18	1,093	1,103	1,098	0,007	-0,9	ICP-OES	no accreditation	
19	1,225	1,248	1,236	0,016	0,3	XRF (fusion)	no accreditation	
20	1,150	1,100	1,125	0,035	-0,6	XRF (pressed pellet)	no accreditation	Info only
21	1,307	1,329	1,318	0,016	0,9	XRF (fusion)	no accreditation	
22	1,126	1,095	1,110	0,022	-0,8	ICP-OES	ISO 17025	
23	1,108	1,266	1,187	0,112	-0,1	ICP-OES	no accreditation	
24	0,959	0,959	0,959	0,000	-2,0	XRF (pressed pellet)	no accreditation	Info only
25	1,282	1,335	1,309	0,038	0,8	XRF (fusion)	ISO 17025	
26	1,306	1,348	1,327	0,030	1,0	ICP-OES	ISO 17025	
27	1,270	1,260	1,265	0,007	0,5	ICP-OES	no accreditation	
28	1,530	1,380	1,455	0,106	2,0	XRF (fusion)	no accreditation	
29	1,123	1,180	1,152	0,040	-0,4	ICP-OES	no accreditation	
30	1,242	1,214	1,228	0,019	0,2	ICP-OES	no accreditation	
31	0,896	0,858	0,877	0,027	-2,6	XRF (pressed pellet)	ISO 17025	Info only
32	1,300	1,310	1,305	0,007	0,8	XRF (fusion)	ISO 17025	
33	1,030	1,150	1,090	0,085	-0,9	ICP-OES	no accreditation	Fusion digestion KOH
35	0,571	0,577	0,574	0,004	-5,1	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 35,40 ± 0,70 % **Reproducibility s_R:** 1,18 % **Mean - 2*s_R:** 33,04 % (2 z-score)
Measurand: C **Lab. display/calculation:** 21 / 18 **Repeatability s_r:** 0,17 % **Mean + 2*s_R:** 37,75 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	40,87	40,85	40,86	0,01	4,6	Other Method	no accreditation	700°C for 4 h, Info only
02	34,65	35,10	34,88	0,32	-0,4	Combustion	no accreditation	
03	36,55	35,10	35,83	1,03	0,4	Combustion	no accreditation	
04	34,30	34,50	34,40	0,14	-0,8	Combustion	no accreditation	IR
08	33,98	34,02	34,00	0,03	-1,2	Combustion	ISO 17025	
10	35,48	35,41	35,45	0,05	0,0	Combustion	no accreditation	
13	33,69	34,25	33,97	0,40	-1,2	Combustion	no accreditation	
16	36,57	37,27	36,92	0,50	1,3	Combustion	no accreditation	
17	36,12	36,12	36,12	0,00	0,6	Combustion	no accreditation	
18	36,05	36,00	36,03	0,04	0,5	Combustion	no accreditation	

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
19	36,03	35,96	36,00	0,05	0,5	Combustion	no accreditation	
20	36,47	35,71	36,09	0,54	0,6	Combustion	no accreditation	
21	34,67	34,81	34,74	0,10	-0,6	Combustion	no accreditation	
22	36,14	35,98	36,06	0,11	0,6	Combustion	ISO 17025	WLD
23	37,07	37,06	37,07	0,00	1,4	Combustion	no accreditation	
24	63,40	63,40	63,40	0,00	23,8	Other Method	no accreditation	Calculated; Info only
25	35,10	34,05	34,58	0,74	-0,7	Combustion	no accreditation	
26	35,15	35,00	35,08	0,11	-0,3	Combustion	ISO 17025	
28	41,30	41,30	41,30	0,00	5,0	Other Method	no accreditation	At 600 deg C; Info only
29	36,31	36,31	36,31	0,00	0,8	Combustion	no accreditation	
30	33,77	33,52	33,64	0,17	-1,5	Combustion	no accreditation	

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 3,274 ± 0,051 % **Reproducibility s_R:** 0,110 % **Mean - 2*s_R:** 3,054 % (2 z-score)
Measurand: Co **Lab. display/calculation:** 33 / 28 **Repeatability s_r:** 0,025 % **Mean + 2*s_R:** 3,493 % (2 z-score)

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	3,266	3,265	3,266	0,001	-0,1	XRF (fusion)	no accreditation	
02	3,289	3,285	3,287	0,003	0,1	ICP-OES	no accreditation	
03	3,319	3,309	3,314	0,007	0,4	ICP-OES	ISO 17025	
04	3,170	3,190	3,180	0,014	-0,9	ICP-OES	no accreditation	Aqua regia
05	3,370	3,320	3,345	0,035	0,7	ICP-MS	ISO 17025	
06	3,115	3,111	3,113	0,003	-1,5	ICP-OES	ISO 17025	
07	3,170	3,300	3,235	0,092	-0,4	ICP-OES	no accreditation	Aqua regia
08	3,408	3,296	3,352	0,079	0,7	ICP-OES	ISO 17025	
09	3,210	3,200	3,205	0,007	-0,6	ICP-OES	no accreditation	
10	3,243	3,268	3,255	0,018	-0,2	ICP-OES	no accreditation	

FXRV-2025-03

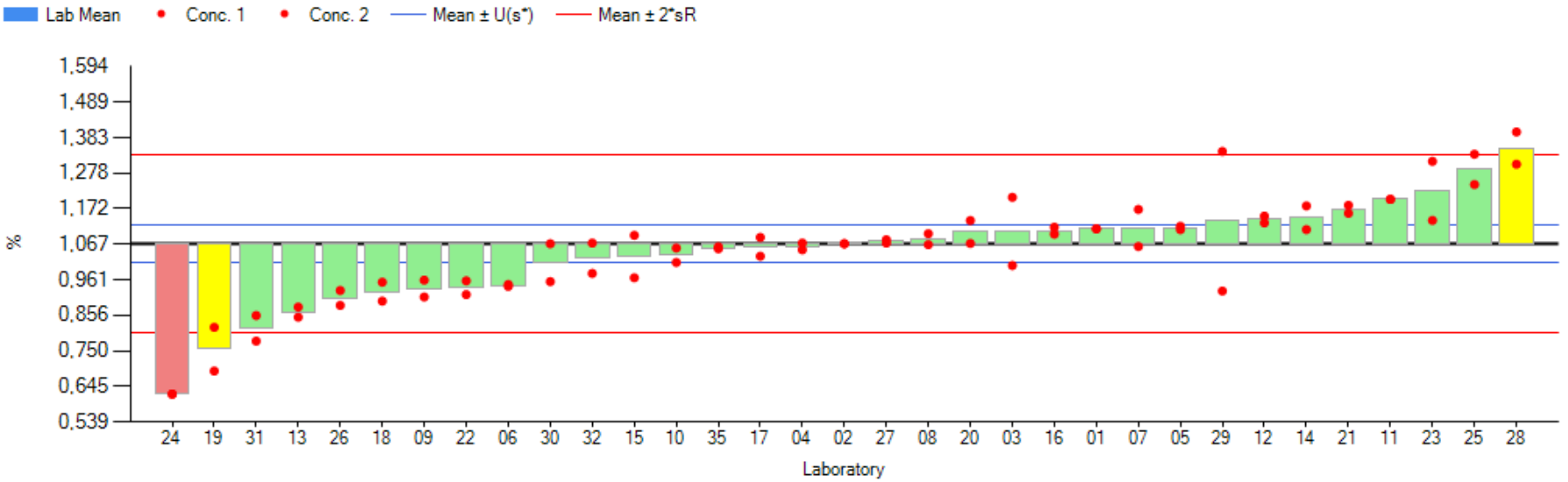
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
11	3,270	3,240	3,255	0,021	-0,2	ICP-OES	no accreditation	Peroxide digestion
12	3,250	3,250	3,250	0,000	-0,2	ICP-OES	no accreditation	
13	3,030	3,110	3,070	0,057	-1,9	ICP-MS	no accreditation	
14	3,513	3,419	3,466	0,067	1,8	ICP-OES	no accreditation	
15	3,280	3,299	3,290	0,013	0,1	ICP-OES	no accreditation	
16	3,539	3,373	3,456	0,118	1,7	ICP-OES	ISO 17025	
17	3,307	3,299	3,303	0,006	0,3	XRF (pressed pellet)	no accreditation	Info only
18	3,304	3,269	3,287	0,025	0,1	ICP-OES	no accreditation	
19	3,270	3,190	3,230	0,057	-0,4	ICP-OES	no accreditation	
20	3,941	3,893	3,917	0,034	5,9	XRF (pressed pellet)	no accreditation	Info only
21	3,419	3,399	3,409	0,014	1,2	XRF (fusion)	no accreditation	
22	3,277	3,169	3,223	0,077	-0,5	ICP-OES	ISO 17025	
23	3,212	3,190	3,201	0,016	-0,7	ICP-OES	no accreditation	
24	3,308	3,307	3,307	0,000	0,3	XRF (pressed pellet)	no accreditation	Info only
25	3,366	3,357	3,362	0,006	0,8	XRF (fusion)	ISO 17025	
26	3,192	3,180	3,186	0,009	-0,8	ICP-OES	ISO 17025	
27	3,220	3,200	3,210	0,014	-0,6	ICP-OES	no accreditation	
28	3,670	3,780	3,725	0,078	4,1	XRF (fusion)	no accreditation	
29	3,442	3,595	3,519	0,109	2,2	ICP-OES	no accreditation	
30	3,269	3,263	3,266	0,004	-0,1	ICP-OES	no accreditation	
31	3,542	3,520	3,531	0,016	2,3	XRF (pressed pellet)	ISO 17025	Info only
32	3,150	3,250	3,200	0,071	-0,7	XRF (fusion)	ISO 17025	
35	3,289	3,305	3,297	0,011	0,2	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 1,067 ± 0,057 % **Reproducibility s_R:** 0,132 % **Mean - 2*s_R:** 0,803 % (2 z-score)
Measurand: Cu **Lab. display/calculation:** 33 / 29 **Repeatability s_r:** 0,049 % **Mean + 2*s_R:** 1,330 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	1,112	1,112	1,112	0,000	0,3	XRF (fusion)	no accreditation	
02	1,068	1,068	1,068	0,000	0,0	ICP-OES	no accreditation	
03	1,004	1,206	1,105	0,143	0,3	ICP-OES	ISO 17025	
04	1,070	1,050	1,060	0,014	-0,1	ICP-OES	no accreditation	Aqua regia
05	1,120	1,110	1,115	0,007	0,4	ICP-MS	ISO 17025	
06	0,947	0,942	0,944	0,004	-0,9	ICP-OES	ISO 17025	
07	1,170	1,060	1,115	0,078	0,4	ICP-OES	no accreditation	Aqua regia
08	1,065	1,098	1,082	0,023	0,1	ICP-OES	ISO 17025	
09	0,960	0,910	0,935	0,035	-1,0	ICP-OES	no accreditation	
10	1,055	1,013	1,034	0,030	-0,2	ICP-OES	no accreditation	

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
11	1,200	1,200	1,200	0,000	1,0	ICP-OES	no accreditation	Peroxide digestion
12	1,150	1,130	1,140	0,014	0,6	ICP-OES	no accreditation	
13	0,880	0,850	0,865	0,021	-1,5	ICP-MS	no accreditation	
14	1,181	1,110	1,145	0,050	0,6	ICP-OES	no accreditation	
15	0,967	1,093	1,030	0,089	-0,3	ICP-OES	no accreditation	
16	1,117	1,097	1,107	0,015	0,3	ICP-OES	ISO 17025	
17	1,031	1,087	1,059	0,040	-0,1	ICP-OES	no accreditation	
18	0,898	0,954	0,926	0,040	-1,1	ICP-OES	no accreditation	
19	0,820	0,690	0,755	0,092	-2,4	ICP-OES	no accreditation	
20	1,069	1,137	1,103	0,048	0,3	XRF (pressed pellet)	no accreditation	Info only
21	1,182	1,159	1,170	0,017	0,8	XRF (fusion)	no accreditation	
22	0,917	0,958	0,938	0,029	-1,0	ICP-OES	ISO 17025	
23	1,137	1,313	1,225	0,124	1,2	ICP-OES	no accreditation	
24	0,622	0,622	0,622	0,000	-3,4	XRF (pressed pellet)	no accreditation	Info only
25	1,334	1,244	1,289	0,064	1,7	XRF (fusion)	ISO 17025	
26	0,929	0,885	0,907	0,031	-1,2	ICP-OES	ISO 17025	
27	1,070	1,080	1,075	0,007	0,1	ICP-OES	no accreditation	
28	1,304	1,400	1,352	0,068	2,2	XRF (fusion)	no accreditation	
29	0,928	1,342	1,135	0,293	0,5	ICP-OES	no accreditation	
30	0,956	1,068	1,012	0,079	-0,4	ICP-OES	no accreditation	
31	0,855	0,779	0,817	0,054	-1,9	XRF (pressed pellet)	ISO 17025	Info only
32	1,070	0,980	1,025	0,064	-0,3	XRF (fusion)	ISO 17025	
35	1,053	1,059	1,056	0,004	-0,1	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 1,912 ± 0,274 % **Reproducibility s_R:** 0,397 % **Mean - 2*s_R:** 1,117 % (2 z-score)
Measurand: F **Lab. display/calculation:** 22 / 16 **Repeatability s_r:** 0,043 % **Mean + 2*s_R:** 2,706 % (2 z-score)

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
02	2,190	2,170	2,180	0,014	0,7	IC	no accreditation	
04	1,377	1,359	1,368	0,013	-1,4	IC	no accreditation	HNO3/H2O2
07	0,983	0,942	0,963	0,029	-2,4	IC	no accreditation	IC after water elution
08	2,393	2,487	2,440	0,067	1,3	IC	ISO 17025	Combustion IC
09	0,811	0,822	0,816	0,007	-2,8	IC	no accreditation	
10	2,192	2,220	2,206	0,020	0,7	ISE	no accreditation	
16	1,479	1,458	1,469	0,015	-1,1	ISE	ISO 17025	Info only (<2,00 %)
17	2,218	2,137	2,178	0,057	0,7	IC	no accreditation	
18	2,150	2,050	2,100	0,071	0,5	IC	no accreditation	
19	3,318	3,265	3,292	0,038	3,5	IC	no accreditation	

FXRV-2025-03

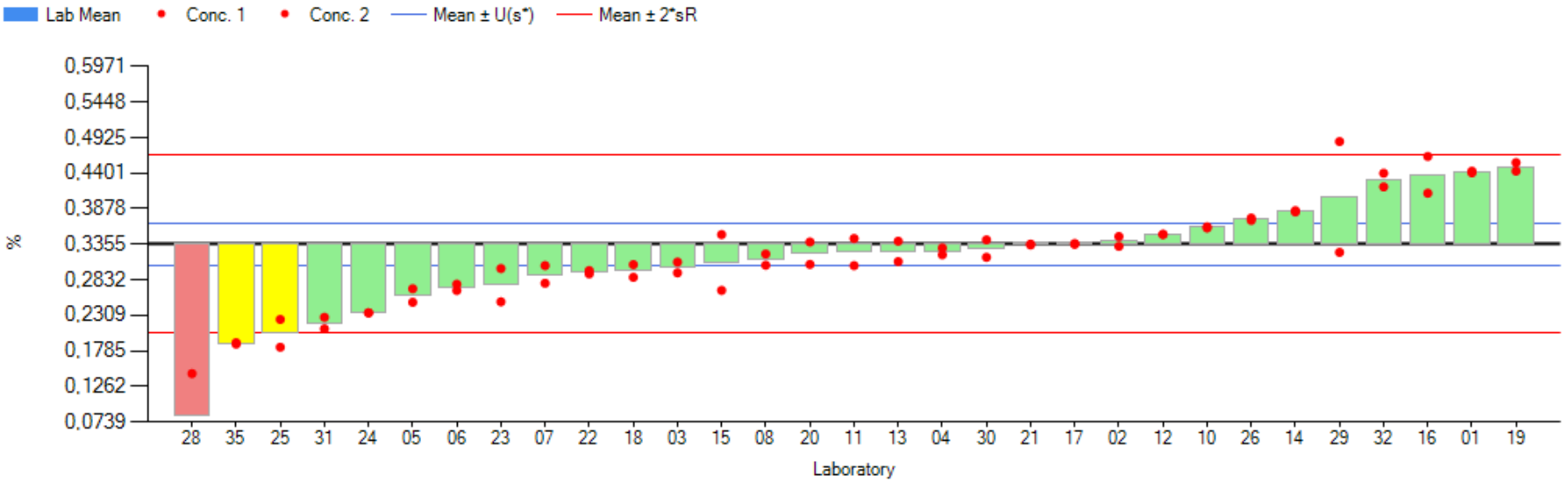
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
20	2,730	2,840	2,785	0,078	2,2	XRF (pressed pellet)	no accreditation	Info only
21	2,205	2,260	2,233	0,039	0,8	Wet chemistry	no accreditation	Method is direct potentiometry after pyrohydrolytic separation.
22	1,370	1,510	1,440	0,099	-1,2	Combustion	ISO 17025	followed by F-ISE
23	2,110	2,111	2,111	0,001	0,5	IC	no accreditation	
24	1,790	1,780	1,785	0,007	-0,3	XRF (pressed pellet)	no accreditation	Info only
25	2,164	2,235	2,200	0,050	0,7	IC	no accreditation	after Peroxide fusion
26	1,851	1,892	1,872	0,029	-0,1	Other Method	ISO 17025	HDB. F. EISENHÜTT.LAB. BD3,TL1
28	1,540	1,600	1,570	0,042	-0,9	XRF (fusion)	no accreditation	Info only
29	0,875	0,902	0,889	0,019	-2,6	IC	no accreditation	
30	1,996	1,988	1,992	0,006	0,2	IC	no accreditation	
31	4,561	4,690	4,626	0,091	6,8	XRF (pressed pellet)	ISO 17025	Info only
35	2,407	2,449	2,428	0,030	1,3	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 0,3355 ± 0,0307 % **Reproducibility s_R:** 0,0654 % **Mean - 2*s_R:** 0,2047 % (2 z-score)
Measurand: Fe **Lab. display/calculation:** 31 / 27 **Repeatability s_r:** 0,0177 % **Mean + 2*s_R:** 0,4663 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	0,4431	0,4406	0,4419	0,0018	1,6	XRF (fusion)	no accreditation	
02	0,3325	0,3468	0,3397	0,0101	0,1	ICP-OES	no accreditation	
03	0,2934	0,3092	0,3013	0,0112	-0,5	ICP-OES	ISO 17025	
04	0,3300	0,3200	0,3250	0,0071	-0,2	ICP-OES	no accreditation	Aqua regia
05	0,2500	0,2700	0,2600	0,0141	-1,2	ICP-MS	ISO 17025	
06	0,2767	0,2674	0,2720	0,0066	-1,0	ICP-OES	ISO 17025	
07	0,2780	0,3040	0,2910	0,0184	-0,7	ICP-OES	no accreditation	Aqua regia
08	0,3046	0,3212	0,3129	0,0117	-0,3	ICP-OES	ISO 17025	
10	0,3594	0,3612	0,3603	0,0013	0,4	ICP-OES	no accreditation	
11	0,3040	0,3440	0,3240	0,0283	-0,2	ICP-OES	no accreditation	Peroxide digestion

FXRV-2025-03

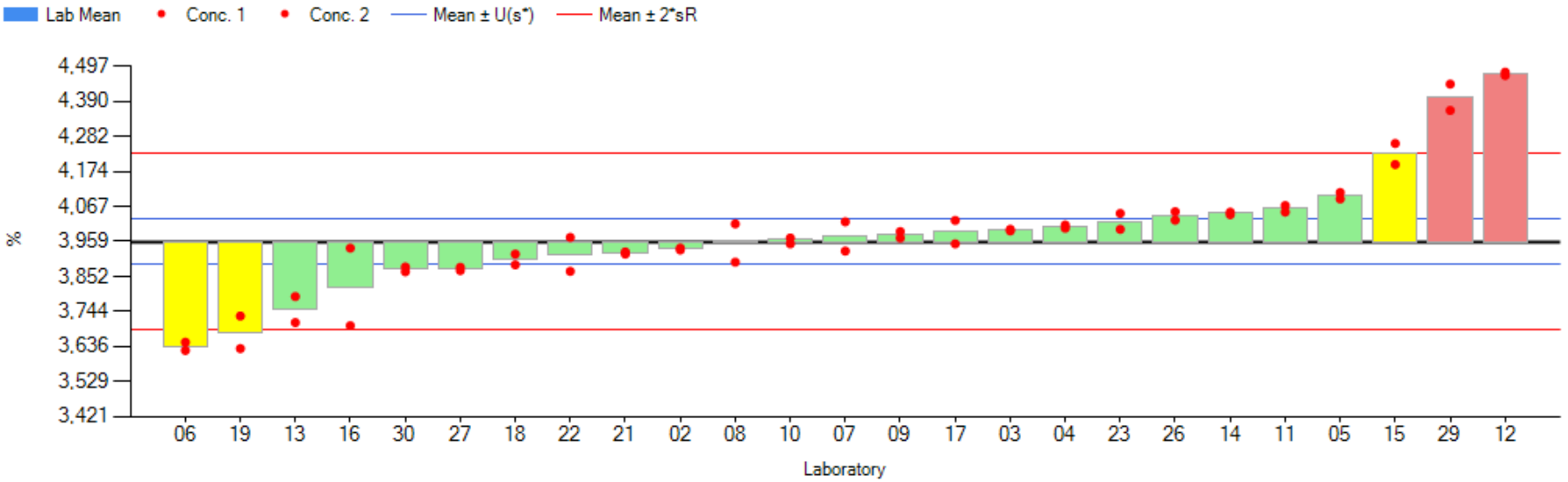
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
12	0,3500	0,3500	0,3500	0,0000	0,2	ICP-OES	no accreditation	
13	0,3100	0,3400	0,3250	0,0212	-0,2	ICP-MS	no accreditation	
14	0,3850	0,3830	0,3840	0,0014	0,7	ICP-OES	no accreditation	
15	0,2676	0,3497	0,3087	0,0581	-0,4	ICP-OES	no accreditation	
16	0,4648	0,4106	0,4377	0,0383	1,6	ICP-OES	ISO 17025	
17	0,3365	0,3354	0,3359	0,0008	0,0	ICP-OES	no accreditation	
18	0,2868	0,3055	0,2961	0,0132	-0,6	ICP-OES	no accreditation	
19	0,4557	0,4432	0,4495	0,0088	1,7	XRF (fusion)	no accreditation	
20	0,3058	0,3388	0,3223	0,0233	-0,2	XRF (pressed pellet)	no accreditation	Info only
21	0,3356	0,3345	0,3351	0,0008	0,0	ICP-OES	no accreditation	
22	0,2918	0,2968	0,2943	0,0035	-0,6	ICP-OES	ISO 17025	
23	0,2508	0,2997	0,2753	0,0346	-0,9	ICP-OES	no accreditation	
24	0,2346	0,2345	0,2345	0,0001	-1,5	XRF (pressed pellet)	no accreditation	Info only
25	0,2248	0,1839	0,2044	0,0289	-2,0	XRF (fusion)	ISO 17025	
26	0,3742	0,3706	0,3724	0,0025	0,6	ICP-OES	ISO 17025	
28	0,1451	0,0230	0,0840	0,0863	-3,8	XRF (fusion)	no accreditation	
29	0,4868	0,3236	0,4052	0,1154	1,1	ICP-OES	no accreditation	
30	0,3163	0,3420	0,3292	0,0182	-0,1	ICP-OES	no accreditation	
31	0,2110	0,2280	0,2195	0,0120	-1,8	XRF (pressed pellet)	ISO 17025	Info only
32	0,4200	0,4400	0,4300	0,0141	1,4	XRF (fusion)	ISO 17025	
35	0,1885	0,1905	0,1895	0,0014	-2,2	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 3,959 ± 0,067 % **Reproducibility s_R:** 0,135 % **Mean - 2*s_R:** 3,690 % (2 z-score)
Measurand: Li **Lab. display/calculation:** 25 / 25 **Repeatability s_r:** 0,026 % **Mean + 2*s_R:** 4,228 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
02	3,933	3,939	3,936	0,004	-0,2	ICP-OES	no accreditation	
03	3,992	3,997	3,994	0,003	0,3	ICP-OES	ISO 17025	
04	4,010	4,000	4,005	0,007	0,3	ICP-OES	no accreditation	Aqua regia
05	4,090	4,110	4,100	0,014	1,0	ICP-MS	ISO 17025	
06	3,649	3,624	3,637	0,018	-2,4	ICP-OES	ISO 17025	
07	3,930	4,020	3,975	0,064	0,1	ICP-OES	no accreditation	Aqua regia
08	4,014	3,896	3,955	0,083	0,0	ICP-OES	ISO 17025	
09	3,970	3,990	3,980	0,014	0,2	ICP-OES	no accreditation	
10	3,970	3,952	3,961	0,013	0,0	ICP-OES	no accreditation	
11	4,050	4,070	4,060	0,014	0,8	ICP-OES	no accreditation	Peroxide digestion

FXRV-2025-03

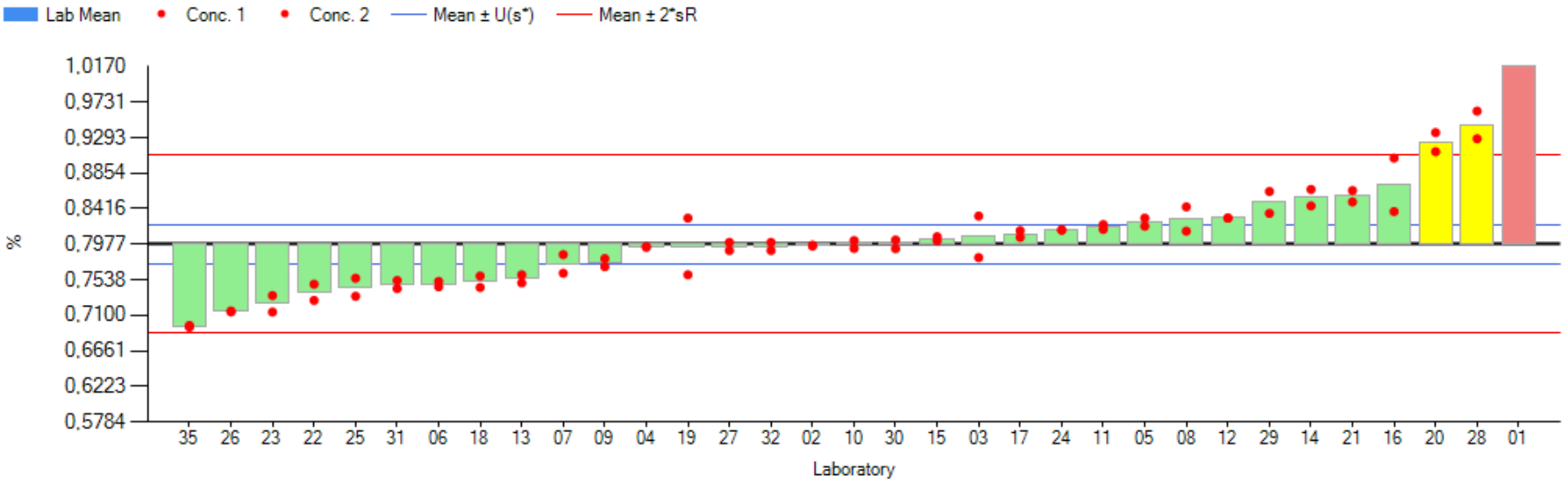
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
12	4,470	4,480	4,475	0,007	3,8	ICP-OES	no accreditation	
13	3,710	3,790	3,750	0,057	-1,6	ICP-MS	no accreditation	
14	4,050	4,042	4,046	0,006	0,6	ICP-OES	no accreditation	
15	4,196	4,261	4,228	0,046	2,0	ICP-OES	no accreditation	
16	3,939	3,701	3,820	0,169	-1,0	ICP-OES	ISO 17025	
17	3,952	4,024	3,988	0,051	0,2	ICP-OES	no accreditation	
18	3,888	3,921	3,904	0,023	-0,4	ICP-OES	no accreditation	
19	3,730	3,630	3,680	0,071	-2,1	ICP-OES	no accreditation	
21	3,927	3,921	3,924	0,005	-0,3	ICP-OES	no accreditation	
22	3,972	3,868	3,920	0,074	-0,3	ICP-OES	ISO 17025	
23	4,046	3,997	4,021	0,035	0,5	ICP-OES	no accreditation	
26	4,025	4,051	4,038	0,019	0,6	ICP-OES	ISO 17025	
27	3,880	3,870	3,875	0,007	-0,6	ICP-OES	no accreditation	
29	4,443	4,362	4,403	0,057	3,3	ICP-OES	no accreditation	
30	3,881	3,866	3,874	0,010	-0,6	ICP-OES	no accreditation	

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 0,7976 ± 0,0241 % **Reproducibility s_R:** 0,0548 % **Mean - 2*s_R:** 0,6880 % (2 z-score)
Measurand: Mn **Lab. display/calculation:** 33 / 29 **Repeatability s_r:** 0,0107 % **Mean + 2*s_R:** 0,9073 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	1,0697	1,0733	1,0715	0,0025	5,0	XRF (fusion)	no accreditation	
02	0,7966	0,7956	0,7961	0,0007	0,0	ICP-OES	no accreditation	
03	0,7812	0,8325	0,8068	0,0363	0,2	ICP-OES	ISO 17025	
04	0,7950	0,7940	0,7945	0,0007	-0,1	ICP-OES	no accreditation	Aqua regia
05	0,8300	0,8200	0,8250	0,0071	0,5	ICP-MS	ISO 17025	
06	0,7519	0,7452	0,7485	0,0047	-0,9	ICP-OES	ISO 17025	
07	0,7620	0,7850	0,7735	0,0163	-0,4	ICP-OES	no accreditation	Aqua regia
08	0,8438	0,8138	0,8288	0,0212	0,6	ICP-OES	ISO 17025	
09	0,7700	0,7800	0,7750	0,0071	-0,4	ICP-OES	no accreditation	
10	0,7925	0,8023	0,7974	0,0069	0,0	ICP-OES	no accreditation	

FXRV-2025-03

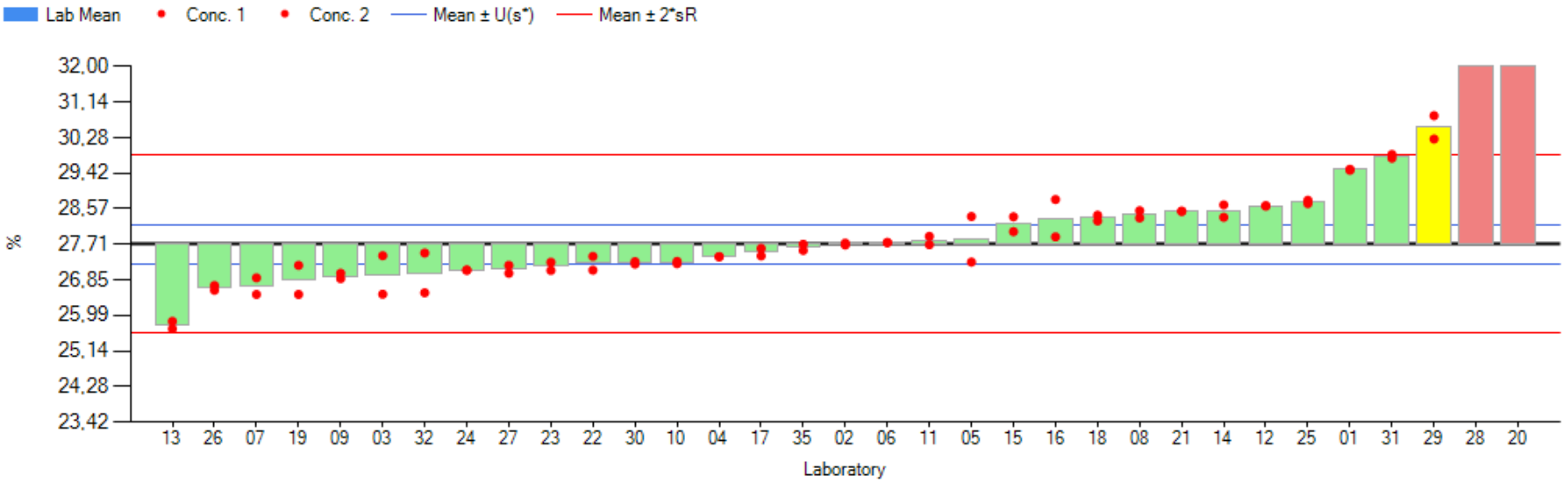
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
11	0,8160	0,8220	0,8190	0,0042	0,4	ICP-OES	no accreditation	Peroxide digestion
12	0,8300	0,8300	0,8300	0,0000	0,6	ICP-OES	no accreditation	
13	0,7600	0,7500	0,7550	0,0071	-0,8	ICP-MS	no accreditation	
14	0,8654	0,8450	0,8552	0,0144	1,1	ICP-OES	no accreditation	
15	0,8019	0,8070	0,8045	0,0036	0,1	ICP-OES	no accreditation	
16	0,9040	0,8380	0,8710	0,0467	1,3	ICP-OES	ISO 17025	
17	0,8144	0,8063	0,8104	0,0057	0,2	ICP-OES	no accreditation	
18	0,7444	0,7585	0,7515	0,0100	-0,8	ICP-OES	no accreditation	
19	0,8300	0,7600	0,7950	0,0495	0,0	ICP-OES	no accreditation	
20	0,9120	0,9356	0,9238	0,0167	2,3	XRF (pressed pellet)	no accreditation	Info only
21	0,8640	0,8500	0,8570	0,0099	1,1	XRF (fusion)	no accreditation	
22	0,7284	0,7484	0,7384	0,0141	-1,1	ICP-OES	ISO 17025	
23	0,7140	0,7344	0,7242	0,0144	-1,3	ICP-OES	no accreditation	
24	0,8152	0,8155	0,8153	0,0002	0,3	XRF (pressed pellet)	no accreditation	Info only
25	0,7557	0,7336	0,7447	0,0156	-1,0	XRF (fusion)	ISO 17025	
26	0,7154	0,7142	0,7148	0,0008	-1,5	ICP-OES	ISO 17025	
27	0,8000	0,7900	0,7950	0,0071	0,0	ICP-OES	no accreditation	
28	0,9620	0,9280	0,9450	0,0240	2,7	XRF (fusion)	no accreditation	
29	0,8358	0,8629	0,8494	0,0192	0,9	ICP-OES	no accreditation	
30	0,7922	0,8030	0,7976	0,0076	0,0	ICP-OES	no accreditation	
31	0,7430	0,7530	0,7480	0,0071	-0,9	XRF (pressed pellet)	ISO 17025	Info only
32	0,8000	0,7900	0,7950	0,0071	0,0	XRF (fusion)	ISO 17025	
35	0,6953	0,6975	0,6964	0,0016	-1,8	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 27,71 ± 0,47 % **Reproducibility s_R:** 1,07 % **Mean - 2*s_R:** 25,56 % (2 z-score)
Measurand: Ni **Lab. display/calculation:** 33 / 28 **Repeatability s_r:** 0,18 % **Mean + 2*s_R:** 29,85 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	29,50	29,52	29,51	0,02	1,7	XRF (fusion)	no accreditation	
02	27,69	27,74	27,71	0,03	0,0	ICP-OES	no accreditation	
03	26,51	27,43	26,97	0,66	-0,7	ICP-OES	ISO 17025	
04	27,41	27,41	27,41	0,00	-0,3	ICP-OES	no accreditation	Aqua regia
05	28,38	27,28	27,83	0,78	0,1	ICP-MS	ISO 17025	
06	27,75	27,75	27,75	0,00	0,0	ICP-OES	ISO 17025	
07	26,50	26,90	26,70	0,28	-0,9	ICP-OES	no accreditation	Aqua regia
08	28,52	28,34	28,43	0,12	0,7	ICP-OES	ISO 17025	
09	27,01	26,88	26,95	0,09	-0,7	ICP-OES	no accreditation	
10	27,30	27,24	27,27	0,04	-0,4	Wet chemistry	no accreditation	Acid digestion with determination of Ni by titration

FXRV-2025-03

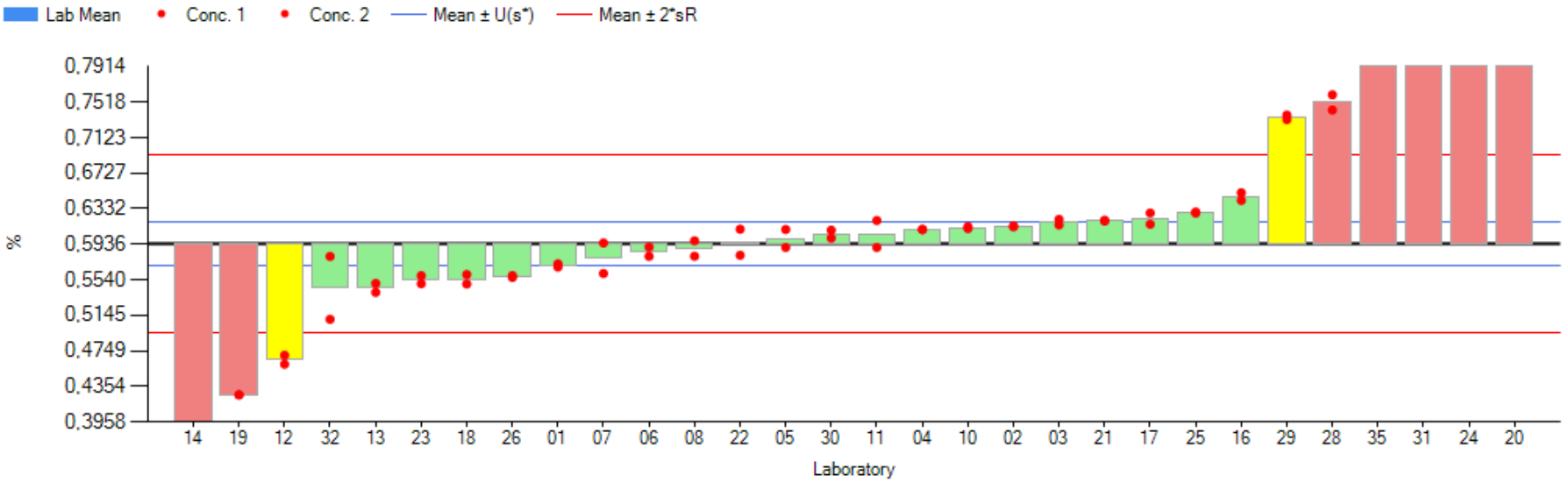
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
11	27,70	27,90	27,80	0,14	0,1	ICP-OES	no accreditation	Peroxide digestion
12	28,64	28,63	28,64	0,01	0,9	ICP-OES	no accreditation	
13	25,85	25,67	25,76	0,13	-1,8	ICP-MS	no accreditation	
14	28,66	28,36	28,51	0,21	0,7	ICP-OES	no accreditation	
15	28,01	28,37	28,19	0,25	0,5	ICP-OES	no accreditation	
16	27,89	28,79	28,34	0,64	0,6	ICP-OES	ISO 17025	
17	27,43	27,61	27,52	0,13	-0,2	XRF (pressed pellet)	no accreditation	Info only
18	28,41	28,27	28,34	0,10	0,6	ICP-OES	no accreditation	
19	26,50	27,20	26,85	0,50	-0,8	ICP-OES	no accreditation	
20	33,28	33,48	33,38	0,14	5,3	XRF (pressed pellet)	no accreditation	Info only
21	28,51	28,50	28,51	0,00	0,7	XRF (fusion)	no accreditation	
22	27,42	27,08	27,25	0,24	-0,4	ICP-OES	ISO 17025	
23	27,08	27,28	27,18	0,14	-0,5	ICP-OES	no accreditation	
24	27,08	27,09	27,09	0,01	-0,6	XRF (pressed pellet)	no accreditation	Info only
25	28,77	28,69	28,73	0,06	1,0	XRF (fusion)	ISO 17025	
26	26,60	26,71	26,66	0,08	-1,0	ICP-OES	ISO 17025	
27	27,20	27,01	27,11	0,13	-0,6	ICP-OES	no accreditation	
28	33,12	33,24	33,18	0,08	5,1	XRF (fusion)	no accreditation	
29	30,25	30,81	30,53	0,40	2,6	ICP-OES	no accreditation	
30	27,29	27,23	27,26	0,04	-0,4	ICP-OES	no accreditation	
31	29,88	29,79	29,83	0,06	2,0	XRF (pressed pellet)	ISO 17025	Info only
32	26,54	27,50	27,02	0,68	-0,6	XRF (fusion)	ISO 17025	
35	27,56	27,71	27,64	0,11	-0,1	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 0,5936 ± 0,0243 % **Reproducibility s_R:** 0,0495 % **Mean - 2*s_R:** 0,4947 % (2 z-score)
Measurand: P **Lab. display/calculation:** 30 / 26 **Repeatability s_r:** 0,0091 % **Mean + 2*s_R:** 0,6925 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	0,5718	0,5682	0,5700	0,0025	-0,5	XRF (fusion)	no accreditation	
02	0,6130	0,6140	0,6135	0,0007	0,4	ICP-OES	no accreditation	
03	0,6213	0,6151	0,6182	0,0044	0,5	ICP-OES	ISO 17025	
04	0,6100	0,6100	0,6100	0,0000	0,3	ICP-OES	no accreditation	Aqua regia
05	0,6100	0,5900	0,6000	0,0141	0,1	ICP-MS	ISO 17025	
06	0,5905	0,5801	0,5853	0,0074	-0,2	ICP-OES	ISO 17025	
07	0,5610	0,5950	0,5780	0,0240	-0,3	ICP-OES	no accreditation	Aqua regia
08	0,5803	0,5974	0,5888	0,0121	-0,1	ICP-OES	ISO 17025	
10	0,6132	0,6111	0,6122	0,0015	0,4	ICP-OES	no accreditation	
11	0,5900	0,6200	0,6050	0,0212	0,2	ICP-OES	no accreditation	Peroxide digestion

FXRV-2025-03

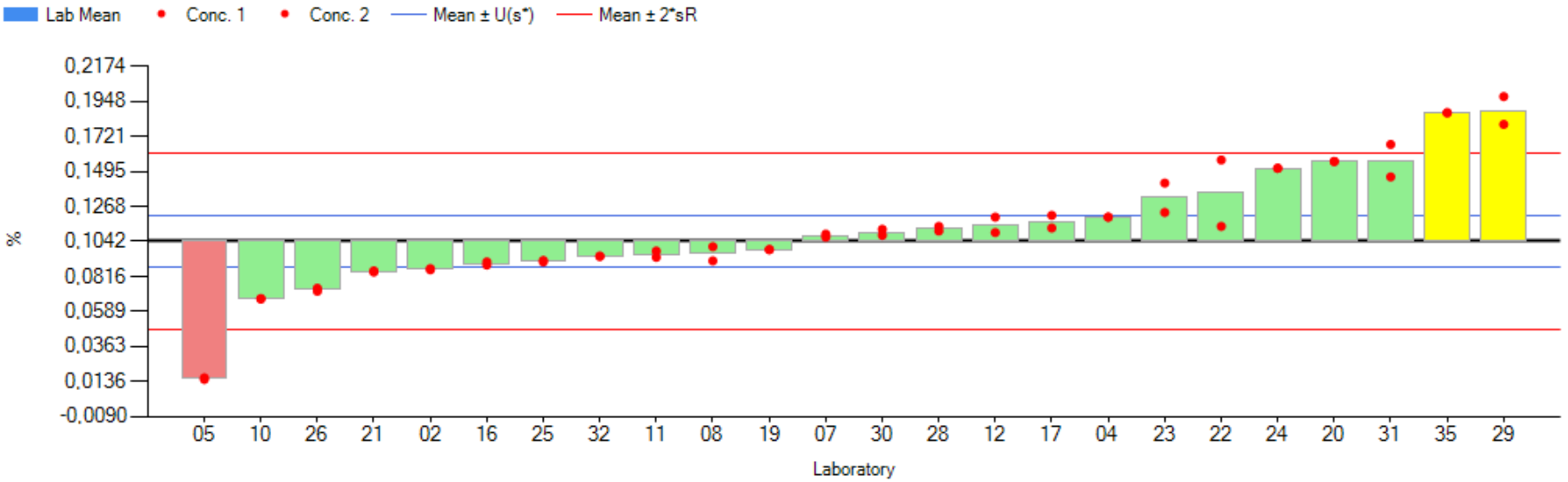
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
12	0,4700	0,4600	0,4650	0,0071	-2,6	ICP-OES	no accreditation	
13	0,5400	0,5500	0,5450	0,0071	-1,0	ICP-MS	no accreditation	
14	0,0662	0,0693	0,0678	0,0022	-10,6	ICP-OES	no accreditation	
16	0,6509	0,6424	0,6467	0,0060	1,1	ICP-OES	ISO 17025	
17	0,6159	0,6284	0,6222	0,0088	0,6	ICP-OES	no accreditation	
18	0,5600	0,5493	0,5547	0,0076	-0,8	ICP-OES	no accreditation	
19	0,4260	0,4260	0,4260	0,0000	-3,4	XRF (fusion)	no accreditation	
20	1,1800	1,0870	1,1335	0,0658	10,9	XRF (pressed pellet)	no accreditation	Info only
21	0,6203	0,6193	0,6198	0,0007	0,5	ICP-OES	no accreditation	
22	0,5813	0,6103	0,5958	0,0205	0,0	ICP-OES	ISO 17025	
23	0,5586	0,5496	0,5541	0,0064	-0,8	ICP-OES	no accreditation	
24	0,9800	0,9840	0,9820	0,0028	7,8	XRF (pressed pellet)	no accreditation	Info only
25	0,6283	0,6295	0,6289	0,0008	0,7	XRF (fusion)	ISO 17025	
26	0,5588	0,5566	0,5577	0,0016	-0,7	ICP-OES	ISO 17025	
28	0,7600	0,7430	0,7515	0,0120	3,2	XRF (fusion)	no accreditation	
29	0,7324	0,7374	0,7349	0,0035	2,9	ICP-OES	no accreditation	
30	0,6005	0,6092	0,6048	0,0062	0,2	ICP-OES	no accreditation	
31	0,9510	0,9680	0,9595	0,0120	7,4	XRF (pressed pellet)	ISO 17025	Info only
32	0,5800	0,5100	0,5450	0,0495	-1,0	XRF (fusion)	ISO 17025	
35	0,8072	0,8099	0,8086	0,0019	4,3	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample: FLX-4001 **Mean ± U(s*):** 0,1042 ± 0,0163 % **Reproducibility s_R:** 0,0283 % **Mean - 2*s_R:** 0,0476 % (2 z-score)
Measurand: S **Lab. display/calculation:** 24 / 21 **Repeatability s_r:** 0,0025 % **Mean + 2*s_R:** 0,1608 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
02	0,0867	0,0859	0,0863	0,0006	-0,6	ICP-OES	no accreditation	
04	0,1200	0,1200	0,1200	0,0000	0,6	ICP-OES	no accreditation	Aqua regia
05	0,0160	0,0150	0,0155	0,0007	-3,1	XRF (fusion)	ISO 17025	
07	0,1070	0,1090	0,1080	0,0014	0,1	ICP-OES	no accreditation	Aqua regia
08	0,1009	0,0917	0,0963	0,0065	-0,3	Combustion	ISO 17025	
10	0,0673	0,0670	0,0672	0,0002	-1,3	ICP-OES	no accreditation	
11	0,0940	0,0980	0,0960	0,0028	-0,3	ICP-OES	no accreditation	Peroxide digestion
12	0,1100	0,1200	0,1150	0,0071	0,4	ICP-OES	no accreditation	
16	0,0910	0,0890	0,0900	0,0014	-0,5	Combustion	no accreditation	
17	0,1211	0,1129	0,1170	0,0058	0,5	Combustion	no accreditation	

FXRV-2025-03

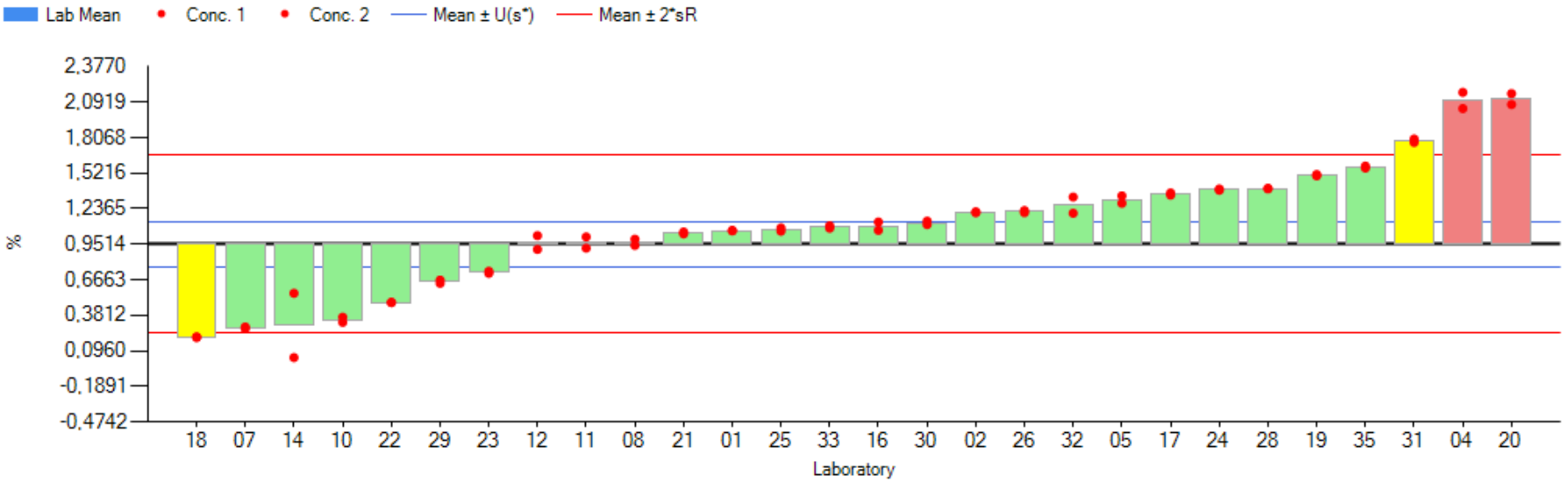
FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
19	0,0990	0,0990	0,0990	0,0000	-0,2	Combustion	no accreditation	
20	0,1560	0,1560	0,1560	0,0000	1,8	Other Method	no accreditation	Combustion, UV detection
21	0,0844	0,0852	0,0848	0,0006	-0,7	Combustion	no accreditation	
22	0,1140	0,1570	0,1355	0,0304	1,1	Combustion	ISO 17025	IR
23	0,1420	0,1230	0,1325	0,0134	1,0	Combustion	no accreditation	
24	0,1516	0,1516	0,1516	0,0000	1,7	XRF (pressed pellet)	no accreditation	Info only
25	0,0920	0,0910	0,0915	0,0007	-0,4	Combustion	no accreditation	
26	0,0720	0,0740	0,0730	0,0014	-1,1	Combustion	ISO 17025	
28	0,1110	0,1140	0,1125	0,0021	0,3	XRF (fusion)	no accreditation	
29	0,1800	0,1980	0,1890	0,0127	3,0	Combustion	no accreditation	
30	0,1121	0,1082	0,1101	0,0028	0,2	Combustion	no accreditation	
31	0,1460	0,1670	0,1565	0,0148	1,8	XRF (pressed pellet)	ISO 17025	Info only
32	0,0946	0,0947	0,0947	0,0001	-0,3	ICP-OES	ISO 17025	
35	0,1875	0,1875	0,1875	0,0000	2,9	XRF (pressed pellet)	no accreditation	Info only

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Sample:	FLX-4001	**Mean ± U(s*):**	0,9514 ± 0,1819 %	**Reproducibility s_R:**	0,3564 %	**Mean - 2*s_R:**	0,2386 % (2 z-score)
Measurand:	Si	**Lab. display/calculation:**	28 / 22	**Repeatability s_r:**	0,0241 %	**Mean + 2*s_R:**	1,6642 % (2 z-score)



Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
01	1,0623	1,0587	1,0605	0,0025	0,3	XRF (fusion)	no accreditation	
02	1,2118	1,2046	1,2082	0,0051	0,7	ICP-OES	no accreditation	
04	2,1700	2,0400	2,1050	0,0919	3,2	XRF (pressed pellet)	no accreditation	Info only
05	1,2800	1,3400	1,3100	0,0424	1,0	ICP-MS	ISO 17025	
07	0,2880	0,2730	0,2805	0,0106	-1,9	ICP-OES	no accreditation	Aqua regia
08	0,9924	0,9422	0,9673	0,0355	0,0	ICP-OES	ISO 17025	
10	0,3250	0,3661	0,3456	0,0291	-1,7	ICP-OES	no accreditation	
11	1,0100	0,9200	0,9650	0,0636	0,0	ICP-OES	no accreditation	Peroxide digestion
12	1,0200	0,9100	0,9650	0,0778	0,0	Other Method	no accreditation	Gravimetric
14	0,0417	0,5582	0,3000	0,3652	-1,8	ICP-OES	no accreditation	

FXRV-2025-03

FLUXANA®
XRF Application Solutions

Lab code	Conc1	Conc2	Mean	s.d.	z-score	Analytical method	Accreditation	Comment
16	1,0631	1,1299	1,0965	0,0472	0,4	ICP-OES	ISO 17025	
17	1,3460	1,3630	1,3545	0,0120	1,1	XRF (fusion)	no accreditation	
18	0,2085	0,2028	0,2057	0,0040	-2,1	ICP-OES	no accreditation	
19	1,5001	1,5109	1,5055	0,0076	1,6	XRF (fusion)	no accreditation	
20	2,1600	2,0730	2,1165	0,0615	3,3	XRF (pressed pellet)	no accreditation	Info only
21	1,0348	1,0500	1,0424	0,0107	0,3	XRF (fusion)	no accreditation	
22	0,4839	0,4846	0,4843	0,0005	-1,3	ICP-OES	ISO 17025	
23	0,7182	0,7344	0,7263	0,0115	-0,6	ICP-OES	no accreditation	
24	1,3850	1,3950	1,3900	0,0071	1,2	XRF (pressed pellet)	no accreditation	Info only
25	1,0820	1,0560	1,0690	0,0184	0,3	XRF (fusion)	ISO 17025	
26	1,2220	1,2050	1,2135	0,0120	0,7	XRF (pressed pellet)	ISO 17025	Info only
28	1,3960	1,4000	1,3980	0,0028	1,3	XRF (fusion)	no accreditation	
29	0,6637	0,6376	0,6506	0,0185	-0,8	ICP-OES	no accreditation	
30	1,1093	1,1370	1,1231	0,0196	0,5	ICP-OES	no accreditation	
31	1,7680	1,7960	1,7820	0,0198	2,3	XRF (pressed pellet)	ISO 17025	Info only
32	1,3300	1,2000	1,2650	0,0919	0,9	XRF (fusion)	ISO 17025	
33	1,1000	1,0800	1,0900	0,0141	0,4	ICP-OES	no accreditation	Fusion digestion KOH
35	1,5630	1,5780	1,5705	0,0106	1,7	XRF (pressed pellet)	no accreditation	Info only

FLUXANA®
XRF Application Solutions

z-scores (per sample)

Sample: FLX-4001

Lab code	Al	C	Co	Cu	F	Fe	Li	Mn	Ni	P	S	Si
01	1,2	4,6	-0,1	0,3		1,6		5,0	1,7	-0,5		0,3
02	0,3	-0,4	0,1	0,0	0,7	0,1	-0,2	0,0	0,0	0,4	-0,6	0,7
03	0,8	0,4	0,4	0,3		-0,5	0,3	0,2	-0,7	0,5		
04	0,5	-0,8	-0,9	-0,1	-1,4	-0,2	0,3	-0,1	-0,3	0,3	0,6	3,2
05	-1,8		0,7	0,4		-1,2	1,0	0,5	0,1	0,1	-3,1	1,0
06	-1,5		-1,5	-0,9		-1,0	-2,4	-0,9	0,0	-0,2		
07	-1,7		-0,4	0,4	-2,4	-0,7	0,1	-0,4	-0,9	-0,3	0,1	-1,9
08	0,7	-1,2	0,7	0,1	1,3	-0,3	0,0	0,6	0,7	-0,1	-0,3	0,0
09	-0,1		-0,6	-1,0	-2,8		0,2	-0,4	-0,7			
10	0,4	0,0	-0,2	-0,2	0,7	0,4	0,0	0,0	-0,4	0,4	-1,3	-1,7
11			-0,2	1,0		-0,2	0,8	0,4	0,1	0,2	-0,3	0,0
12	0,7		-0,2	0,6		0,2	3,8	0,6	0,9	-2,6	0,4	0,0
13	-3,1	-1,2	-1,9	-1,5		-0,2	-1,6	-0,8	-1,8	-1,0		
14	0,0		1,8	0,6		0,7	0,6	1,1	0,7	-10,6		-1,8
15	-1,8		0,1	-0,3		-0,4	2,0	0,1	0,5			
16	0,2	1,3	1,7	0,3	-1,1	1,6	-1,0	1,3	0,6	1,1	-0,5	0,4
17	-0,3	0,6	0,3	-0,1	0,7	0,0	0,2	0,2	-0,2	0,6	0,5	1,1
18	-0,9	0,5	0,1	-1,1	0,5	-0,6	-0,4	-0,8	0,6	-0,8		-2,1
19	0,3	0,5	-0,4	-2,4	3,5	1,7	-2,1	0,0	-0,8	-3,4	-0,2	1,6
20	-0,6	0,6	5,9	0,3	2,2	-0,2		2,3	5,3	10,9	1,8	3,3
21	0,9	-0,6	1,2	0,8	0,8	0,0	-0,3	1,1	0,7	0,5	-0,7	0,3
22	-0,8	0,6	-0,5	-1,0	-1,2	-0,6	-0,3	-1,1	-0,4	0,0	1,1	-1,3
23	-0,1	1,4	-0,7	1,2	0,5	-0,9	0,5	-1,3	-0,5	-0,8	1,0	-0,6
24	-2,0	23,8	0,3	-3,4	-0,3	-1,5		0,3	-0,6	7,8	1,7	1,2
25	0,8	-0,7	0,8	1,7	0,7	-2,0		-1,0	1,0	0,7	-0,4	0,3
26	1,0	-0,3	-0,8	-1,2	-0,1	0,6	0,6	-1,5	-1,0	-0,7	-1,1	0,7
27	0,5		-0,6	0,1			-0,6	0,0	-0,6			
28	2,0	5,0	4,1	2,2	-0,9	-3,8		2,7	5,1	3,2	0,3	1,3
29	-0,4	0,8	2,2	0,5	-2,6	1,1	3,3	0,9	2,6	2,9	3,0	-0,8
30	0,2	-1,5	-0,1	-0,4	0,2	-0,1	-0,6	0,0	-0,4	0,2	0,2	0,5

FXRV-2025-03

FLUXANA®
XRF Application Solutions

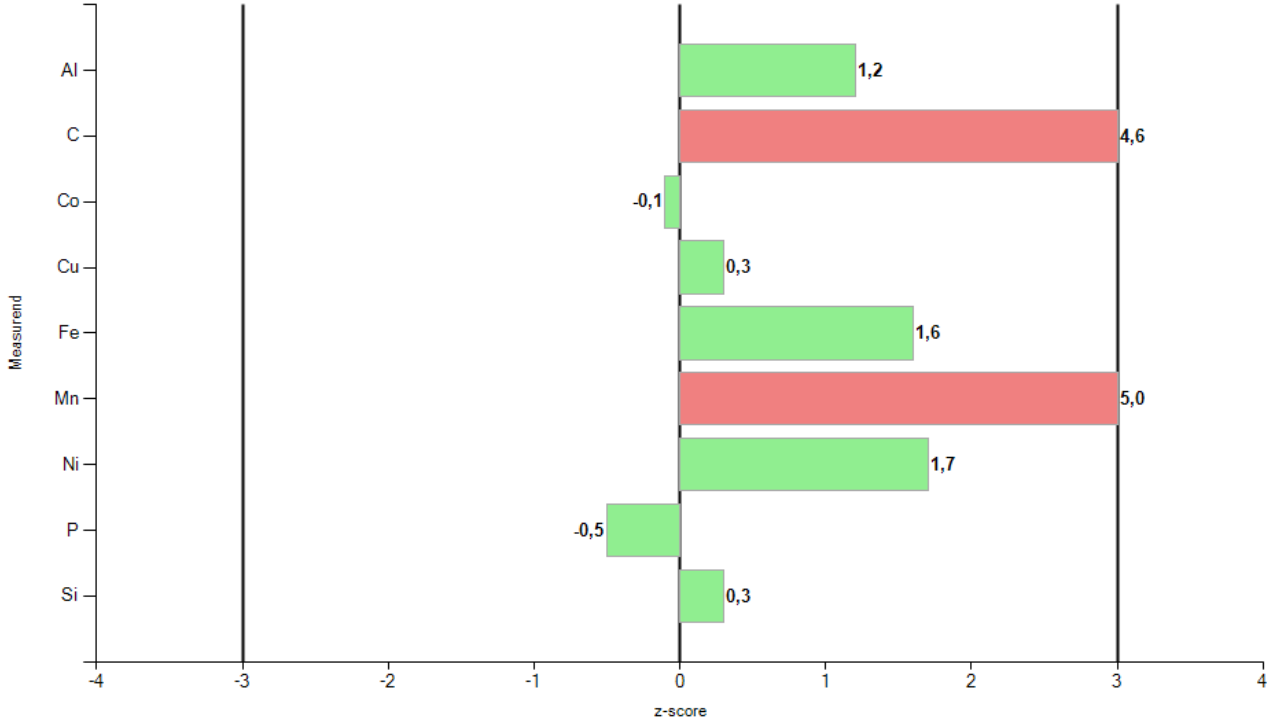
Lab code	Al	C	Co	Cu	F	Fe	Li	Mn	Ni	P	S	Si
31	-2,6		2,3	-1,9	6,8	-1,8		-0,9	2,0	7,4	1,8	2,3
32	0,8		-0,7	-0,3		1,4		0,0	-0,6	-1,0	-0,3	0,9
33	-0,9											0,4
35	-5,1		0,2	-0,1	1,3	-2,2		-1,8	-0,1	4,3	2,9	1,7

FXRV-2025-03

FLUXANA®
XRF Application Solutions

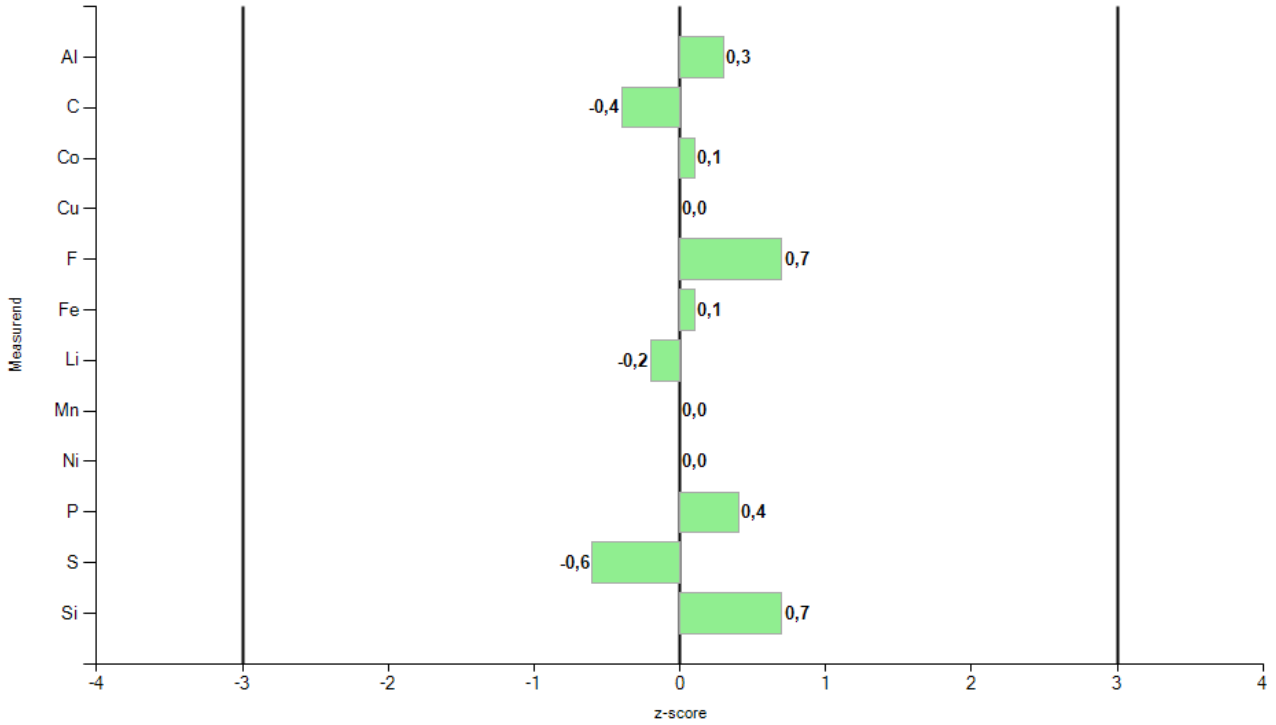
Laboratory chart of z-scores

Laboratory: 01



Laboratory chart of z-scores

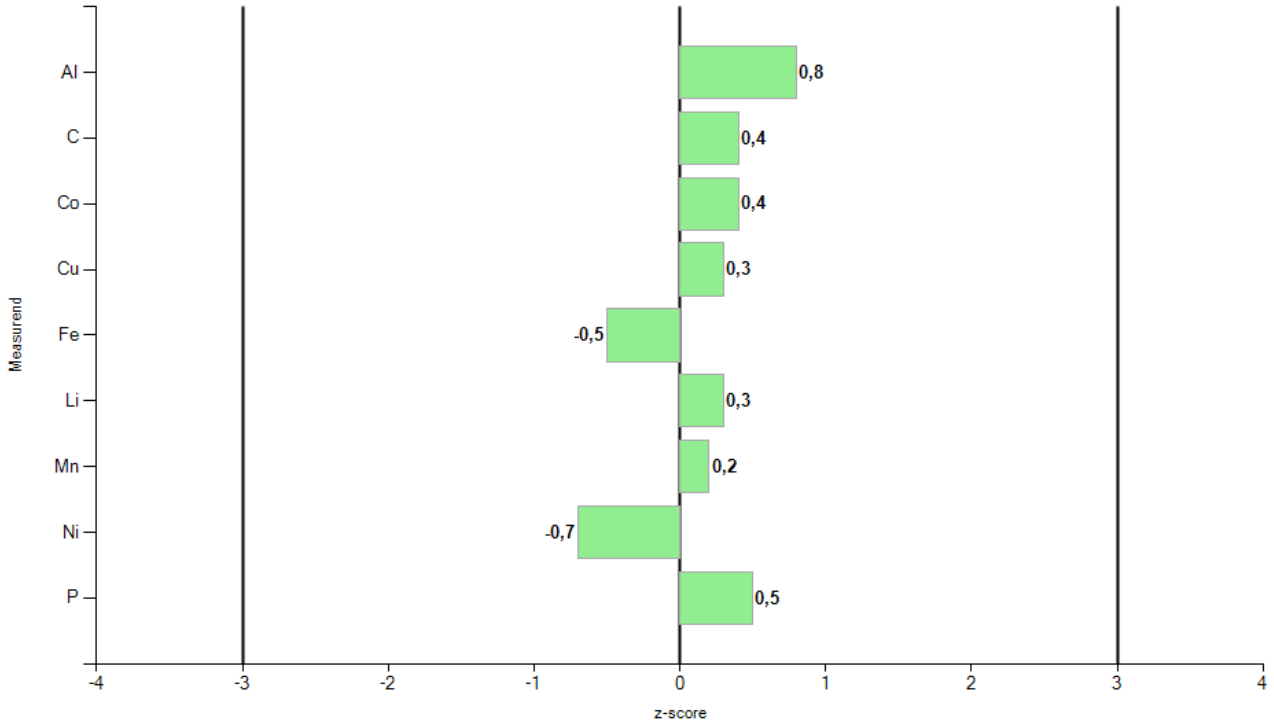
Laboratory: 02



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

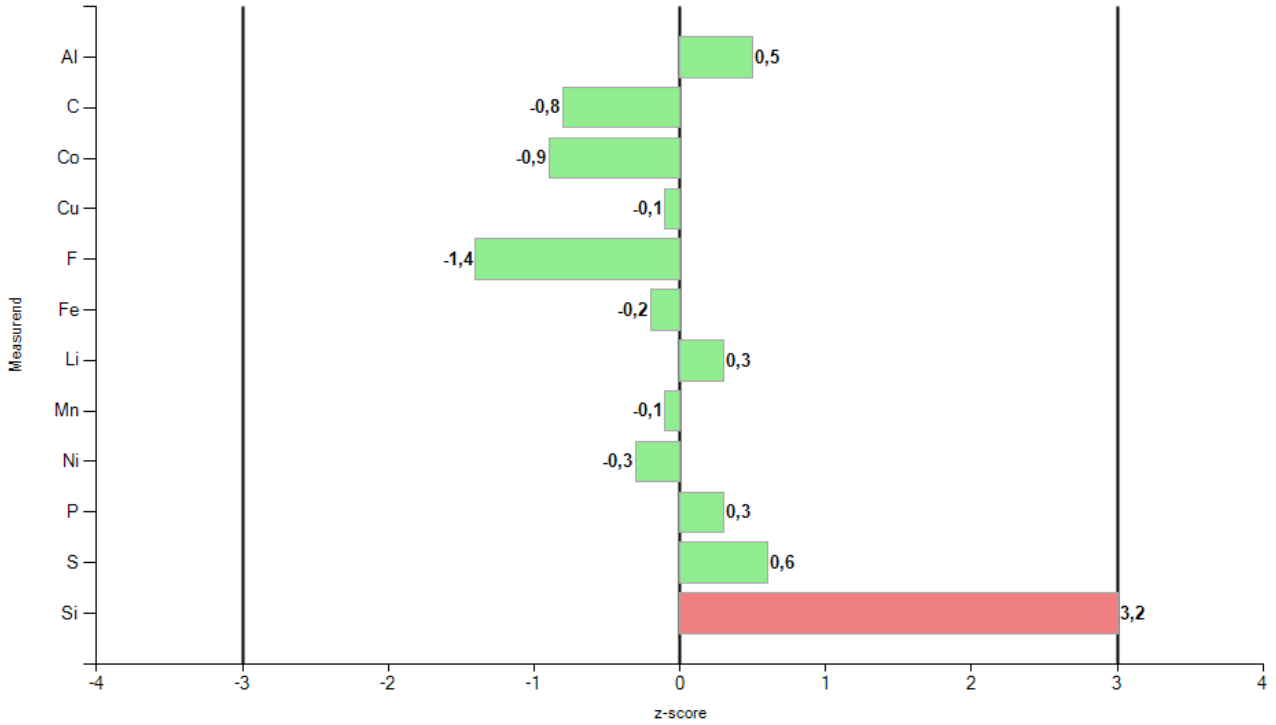
Laboratory: 03



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

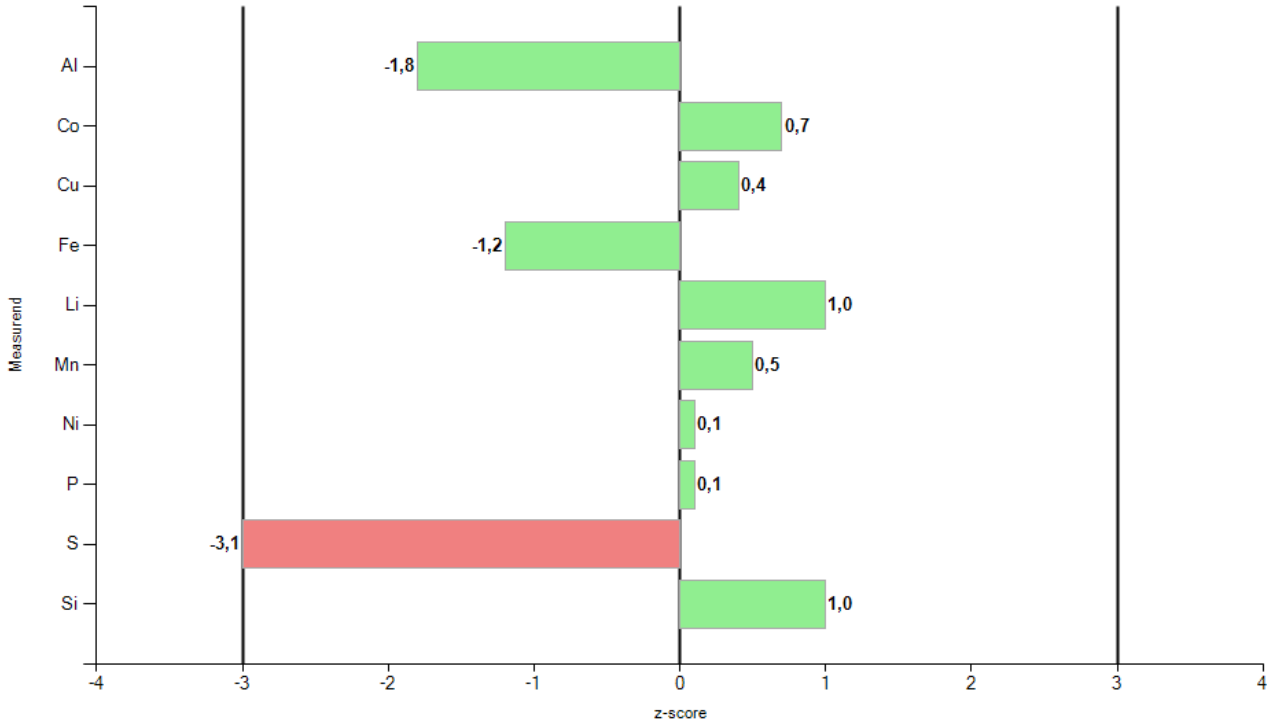
Laboratory: 04



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

Laboratory: 05

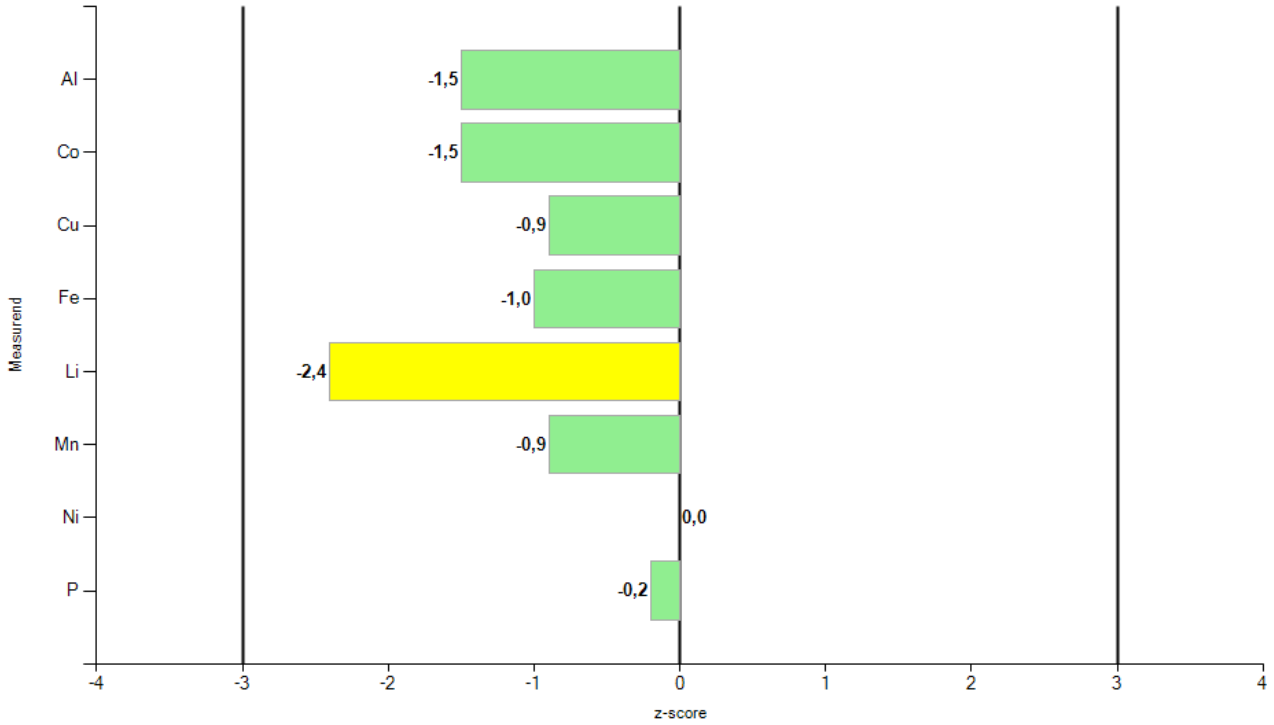


FXRV-2025-03

FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

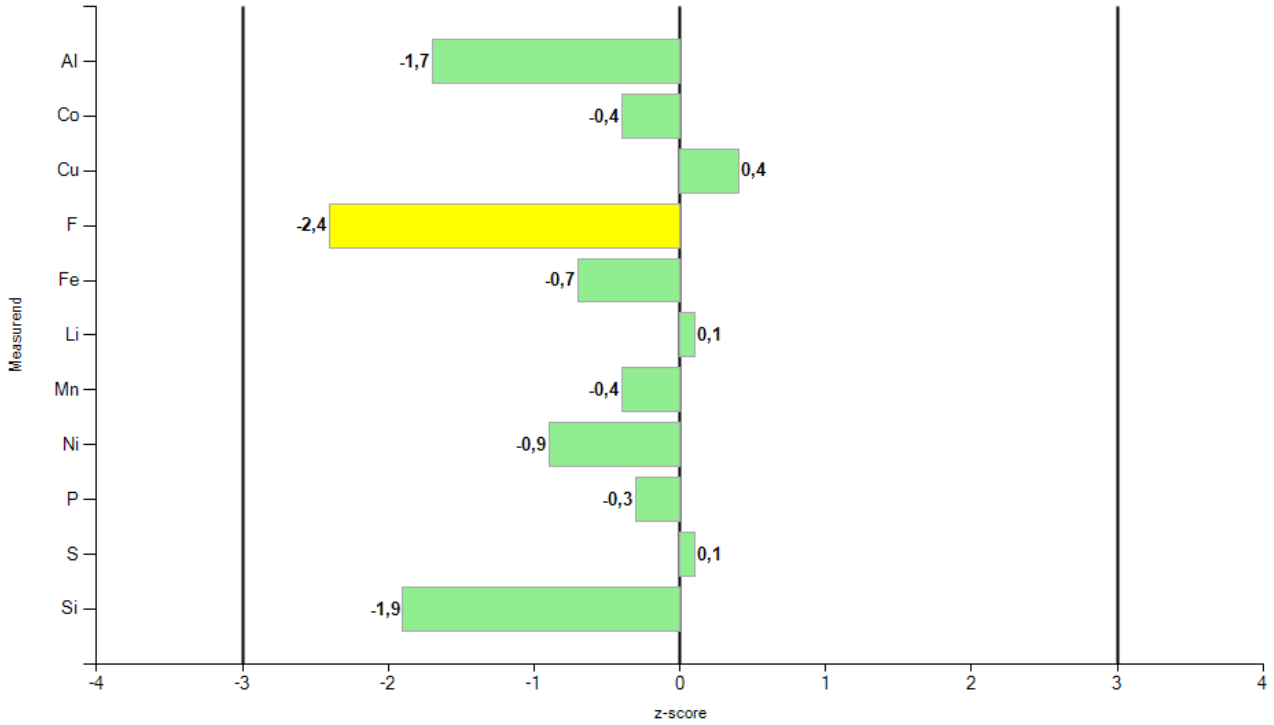
Laboratory: 06



FLUXANA®
XRF Application Solutions

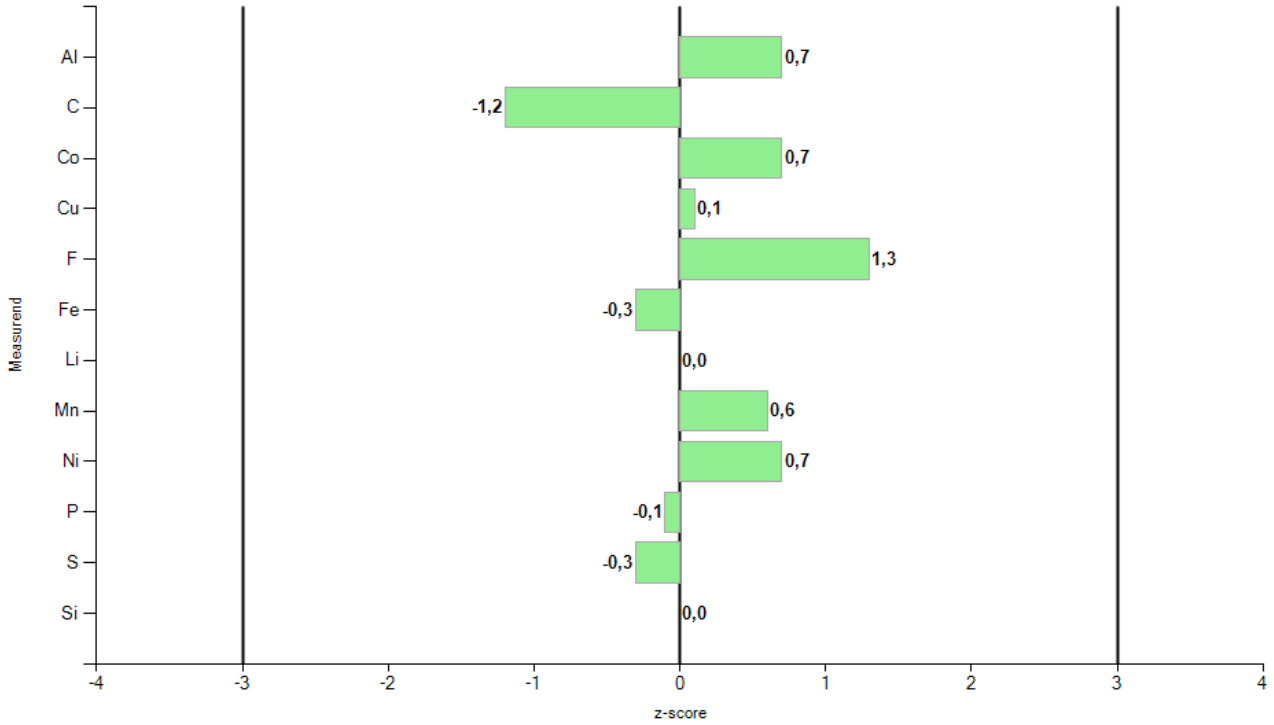
Laboratory chart of z-scores

Laboratory: 07



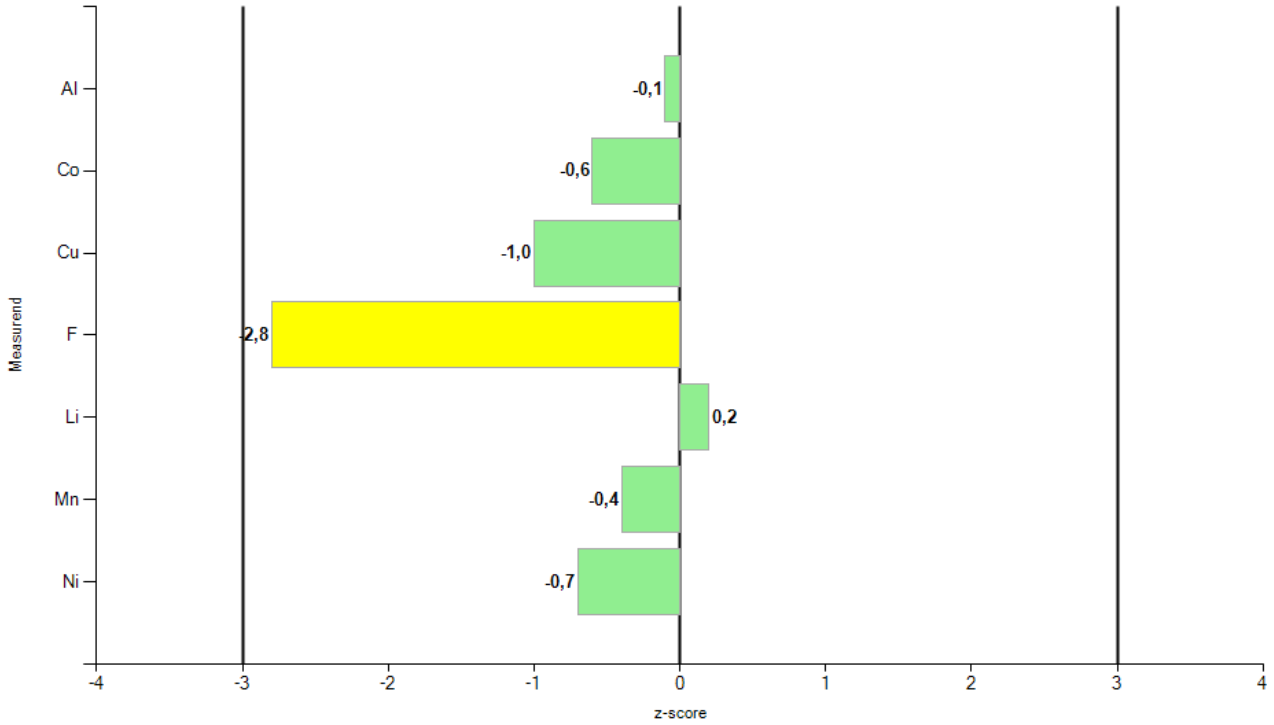
Laboratory chart of z-scores

Laboratory: 08



Laboratory chart of z-scores

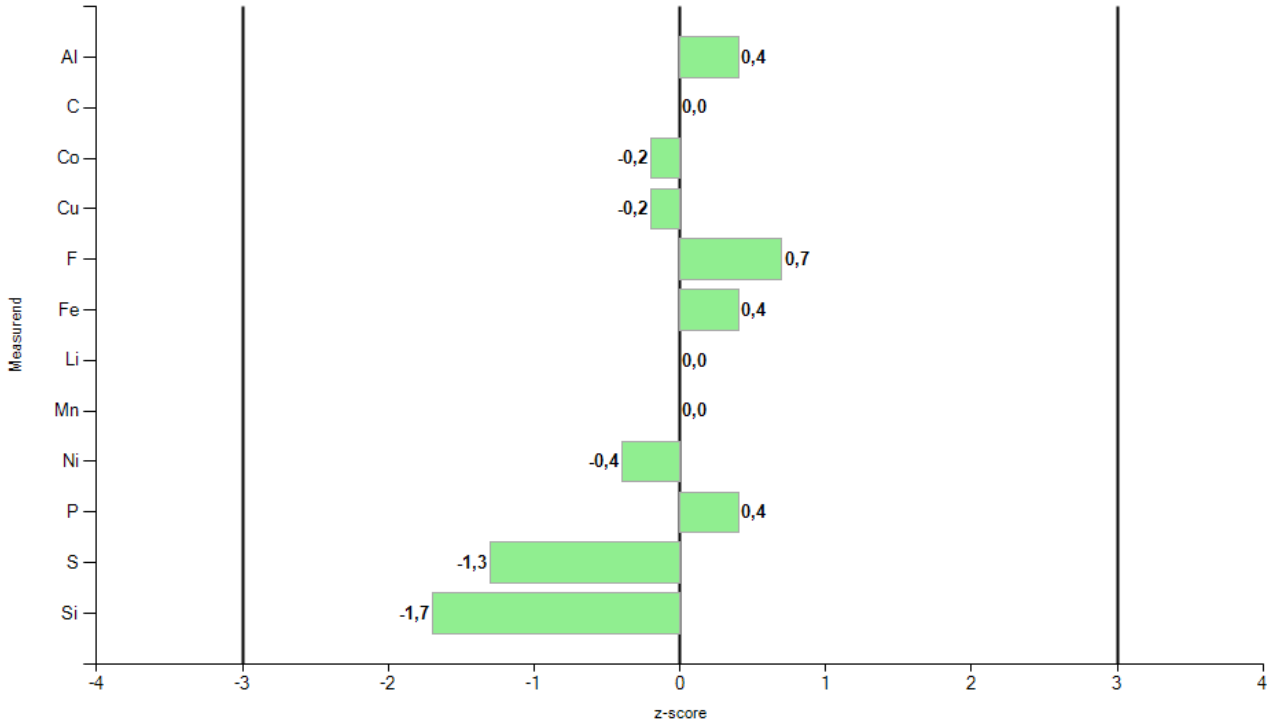
Laboratory: 09



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

Laboratory: 10

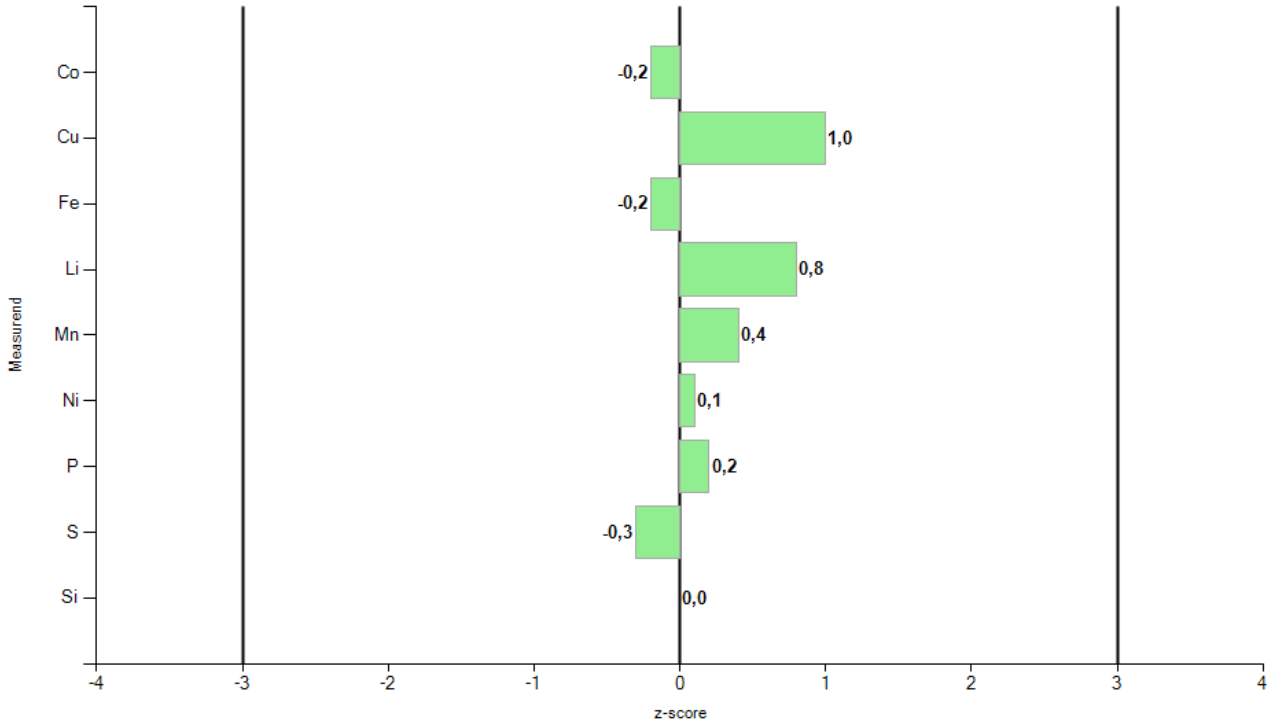


FXRV-2025-03

FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

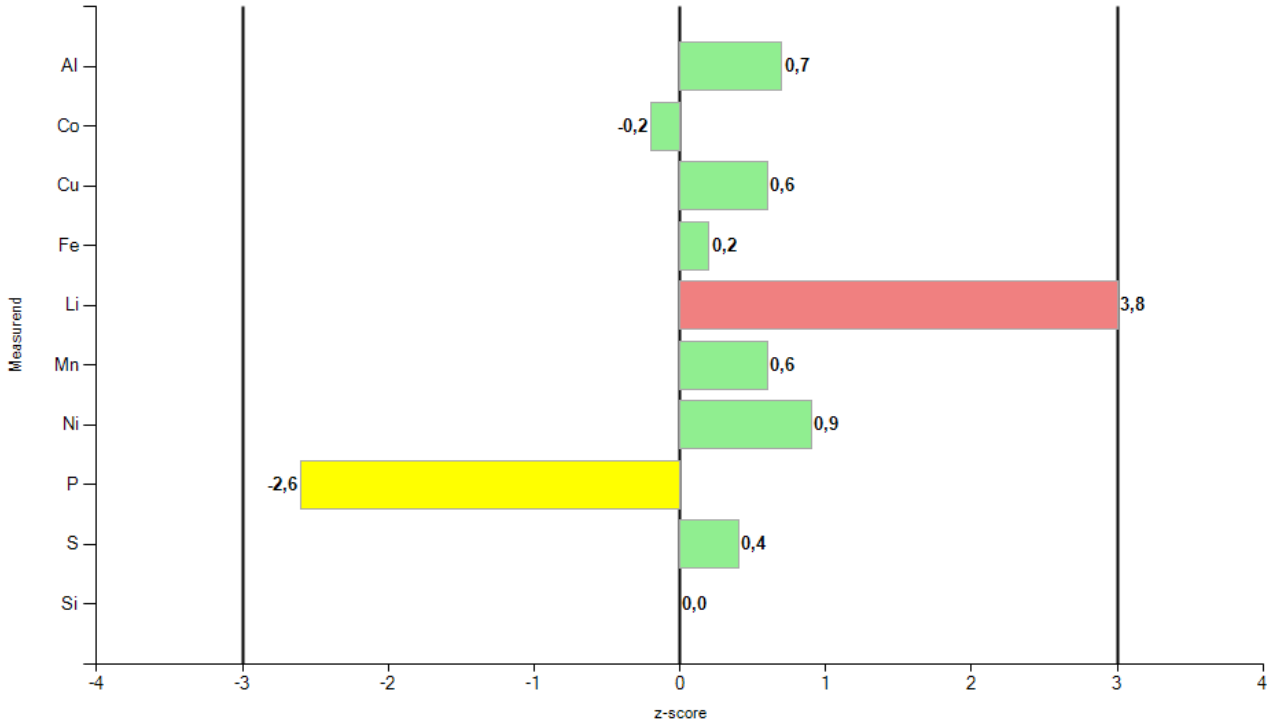
Laboratory: 11



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

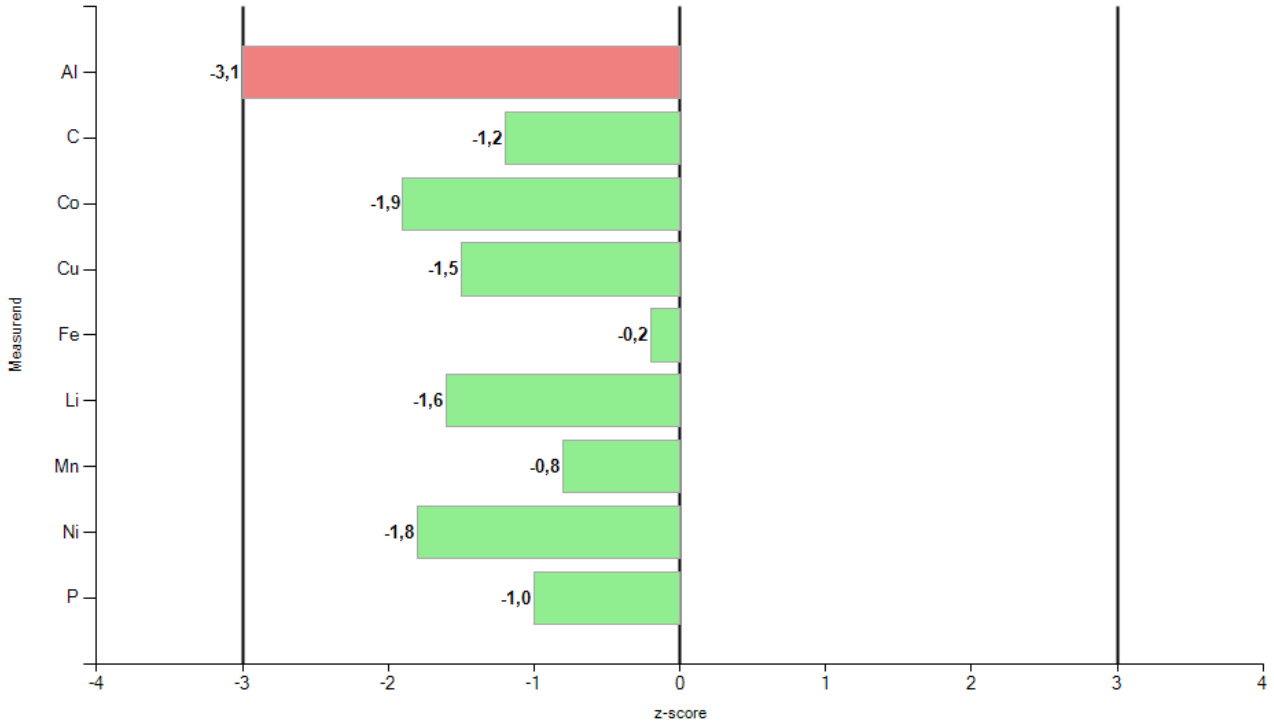
Laboratory: 12



FLUXANA®
XRF Application Solutions

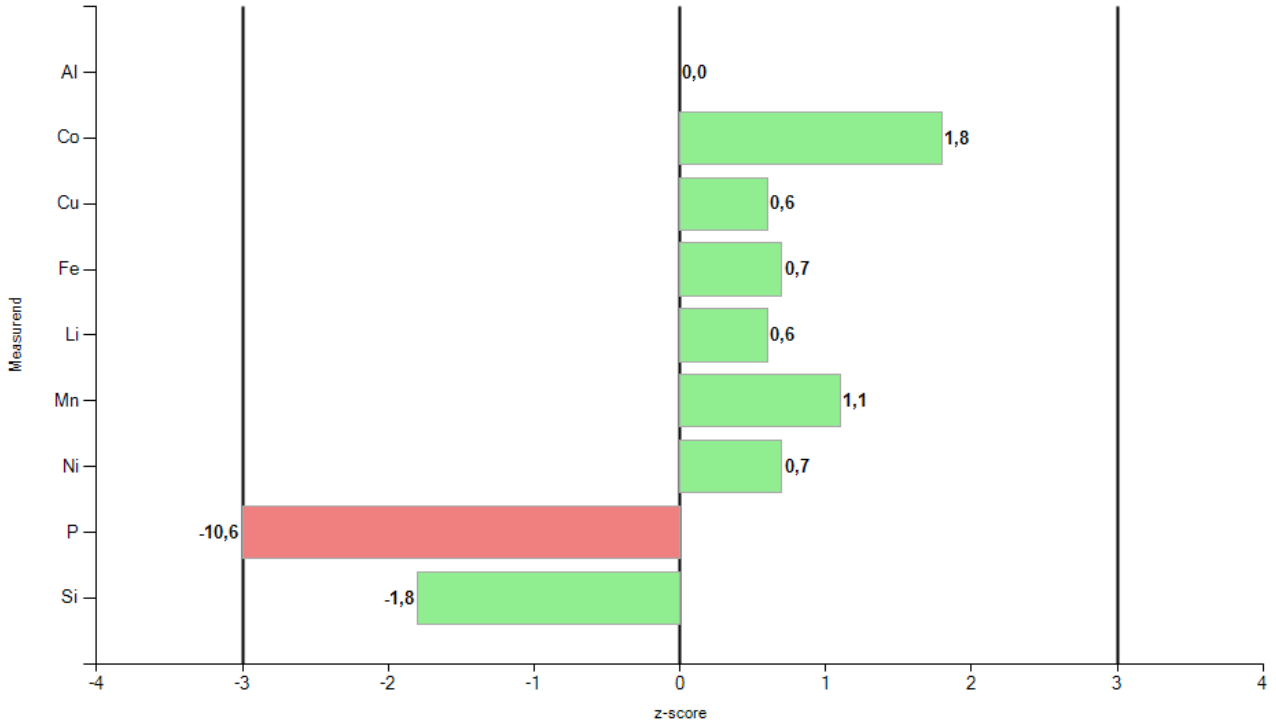
Laboratory chart of z-scores

Laboratory: 13



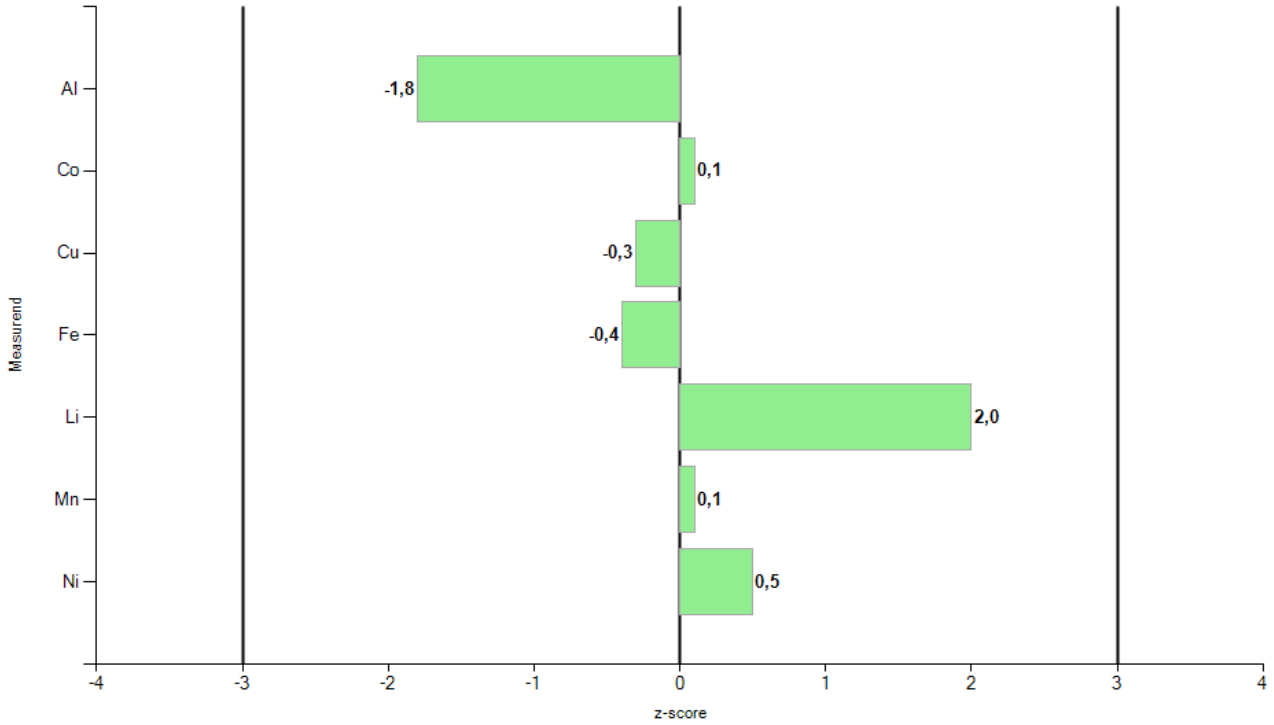
Laboratory chart of z-scores

Laboratory: 14



Laboratory chart of z-scores

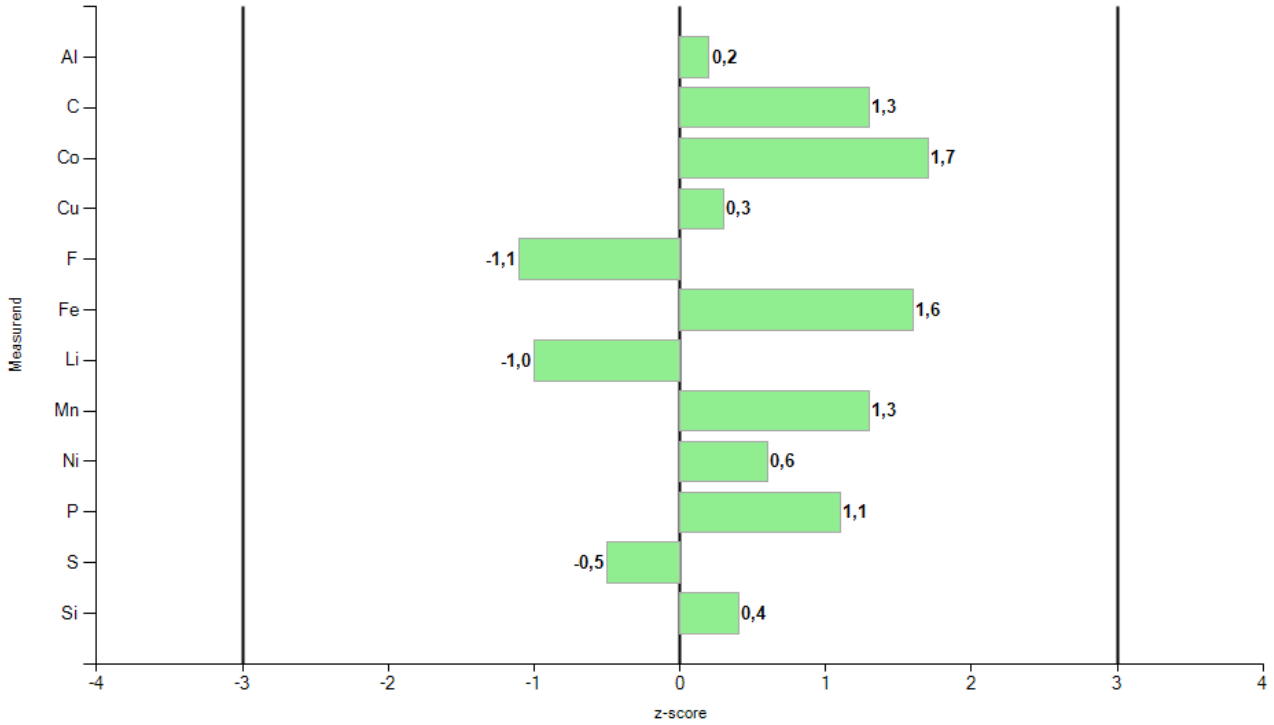
Laboratory: 15



FLUXANA®
XRF Application Solutions

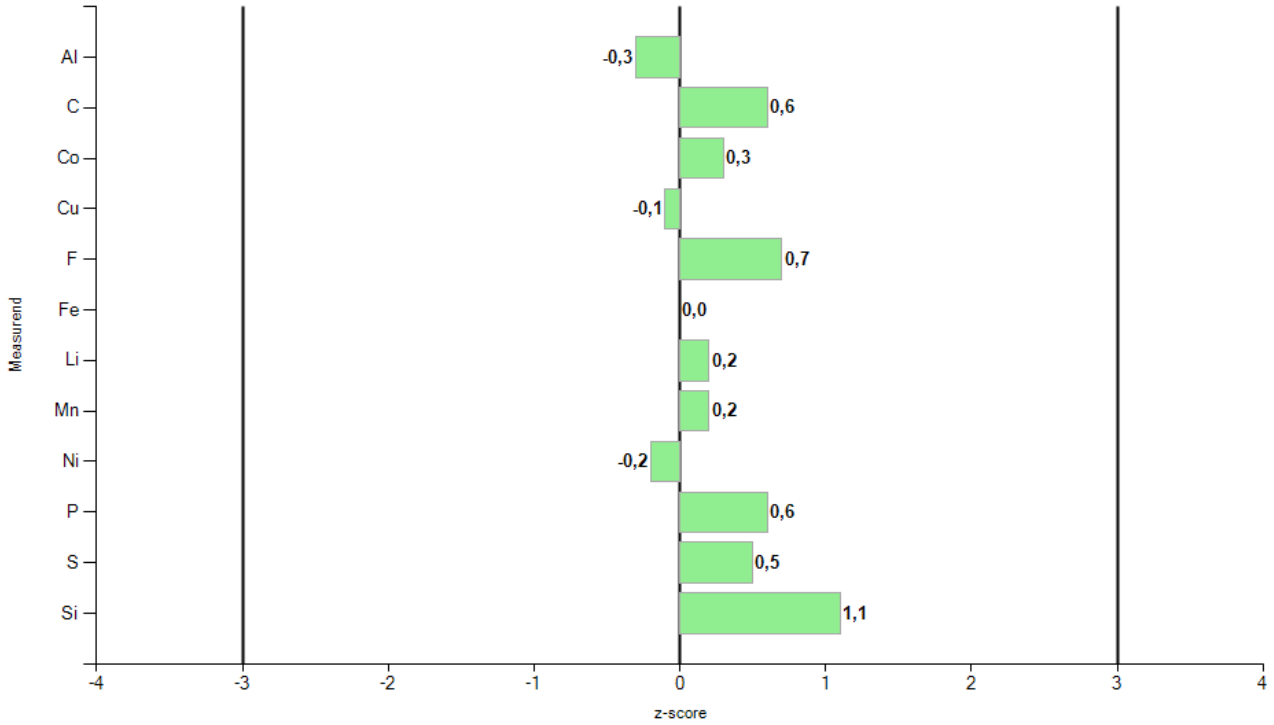
Laboratory chart of z-scores

Laboratory: 16



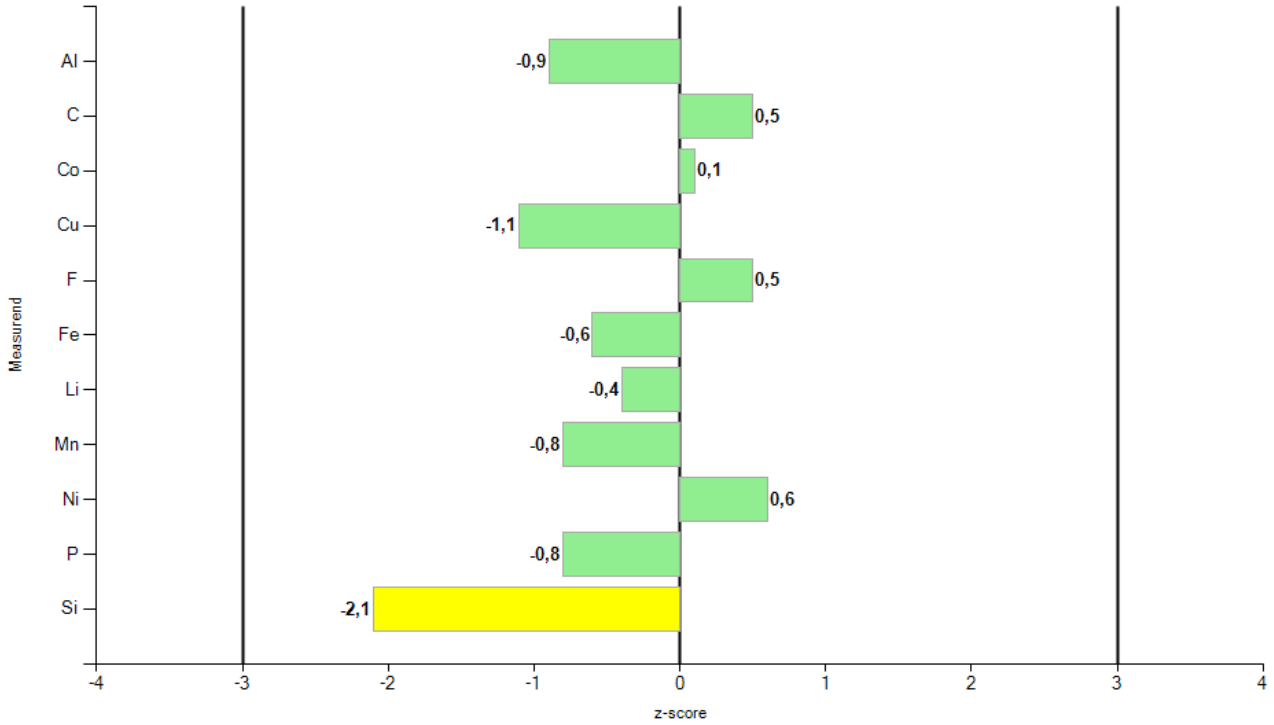
Laboratory chart of z-scores

Laboratory: 17



Laboratory chart of z-scores

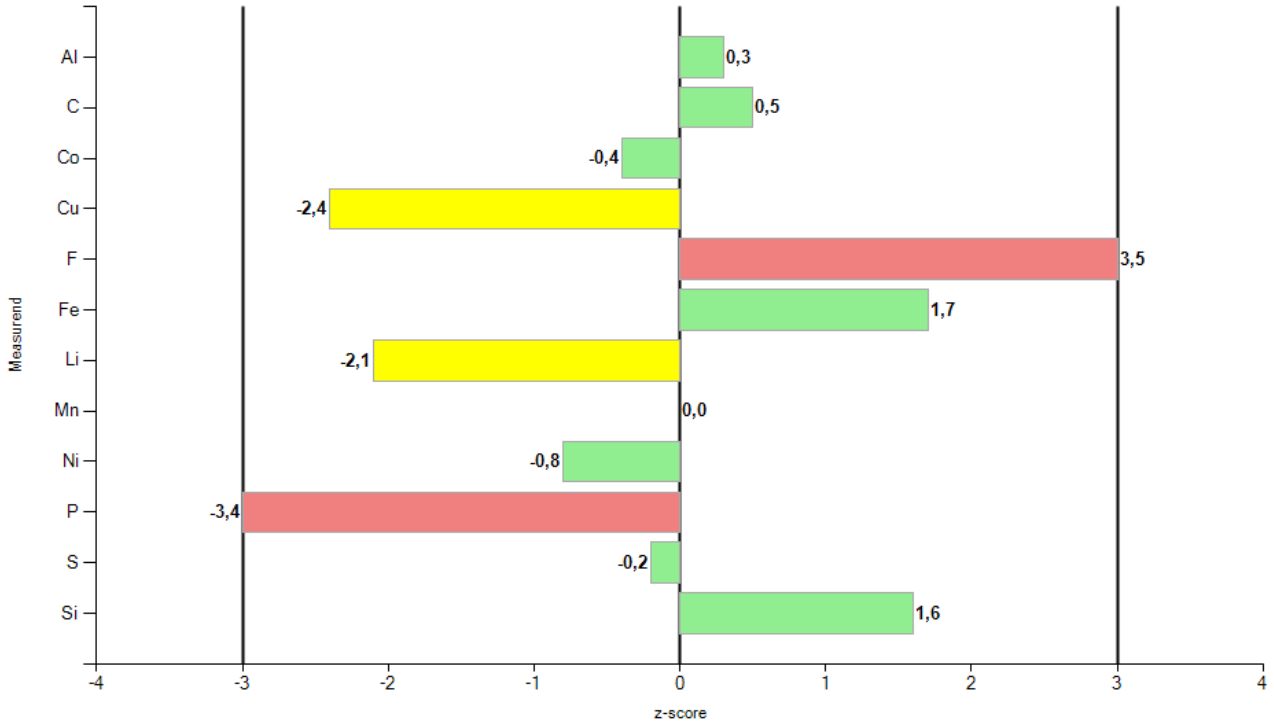
Laboratory: 18



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

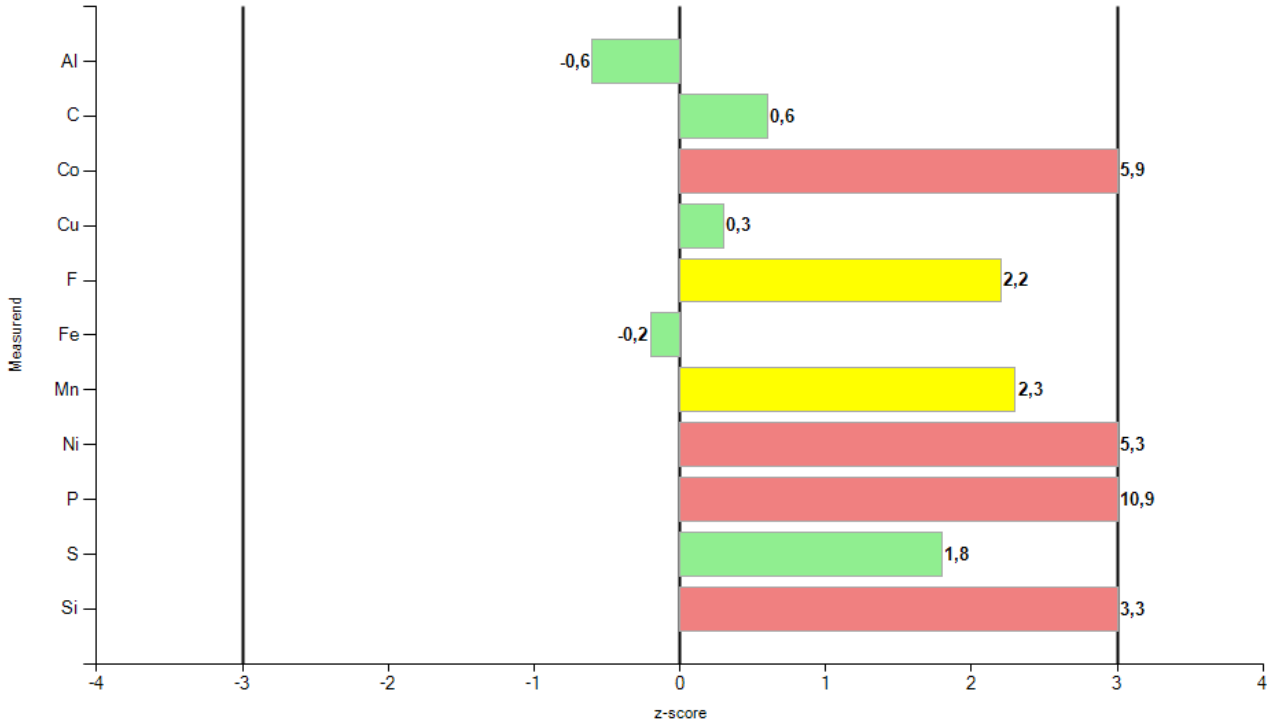
Laboratory: 19



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

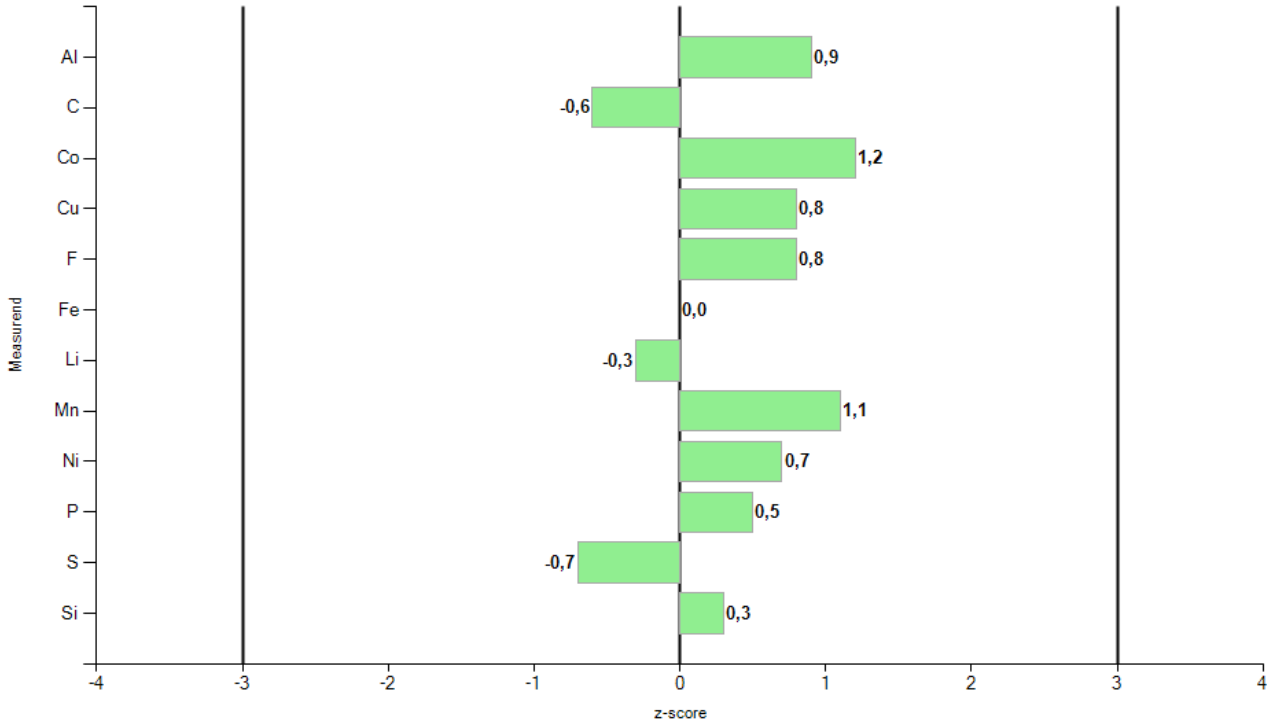
Laboratory: 20



FLUXANA®
XRF Application Solutions

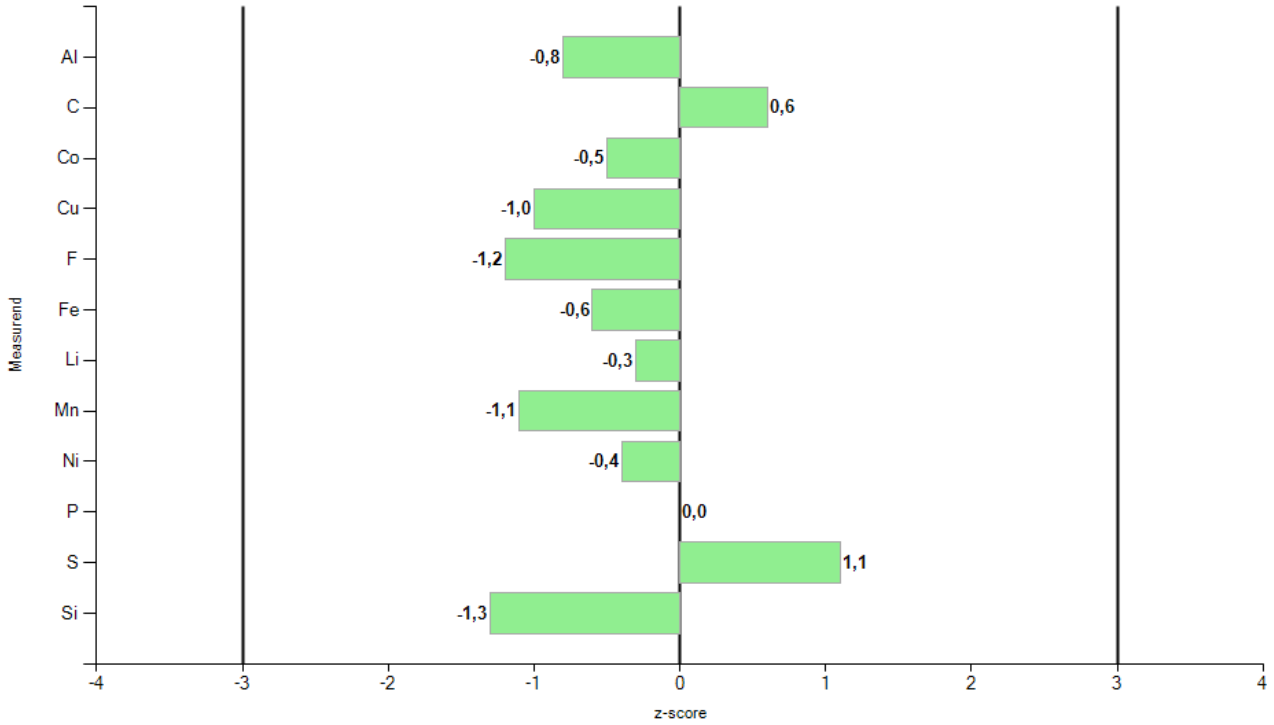
Laboratory chart of z-scores

Laboratory: 21



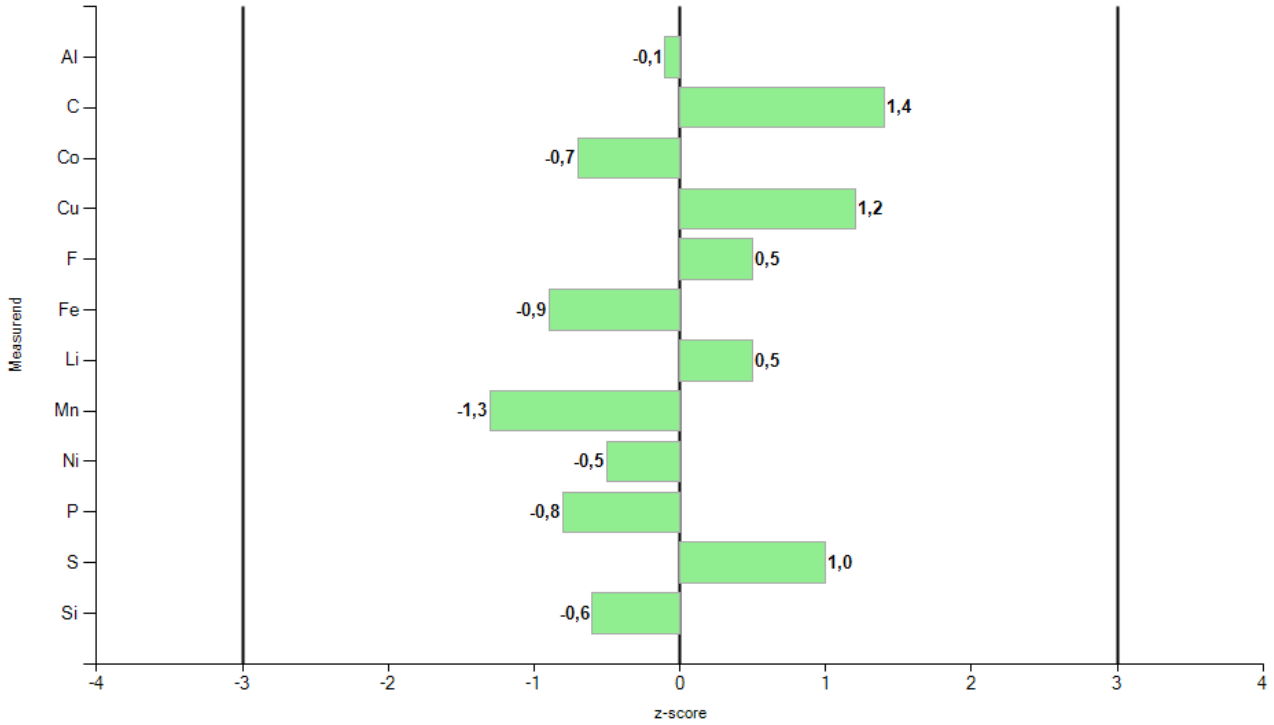
Laboratory chart of z-scores

Laboratory: 22



Laboratory chart of z-scores

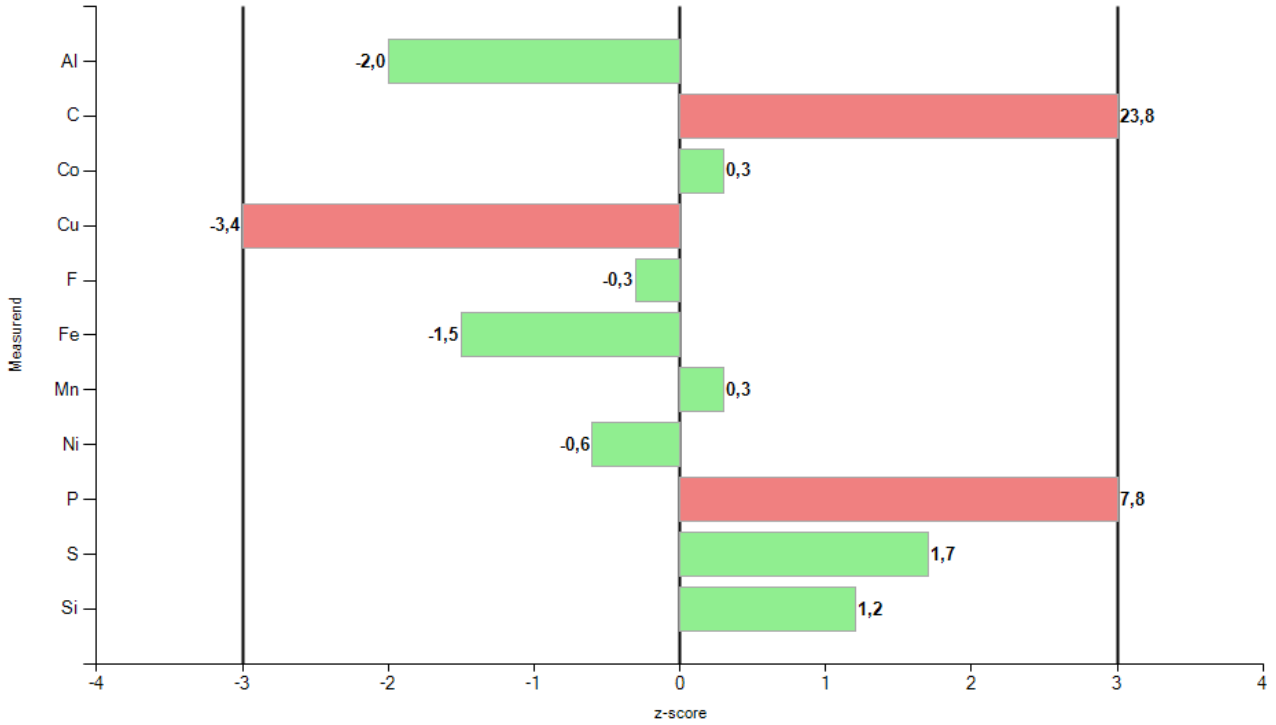
Laboratory: 23



FLUXANA®
XRF Application Solutions

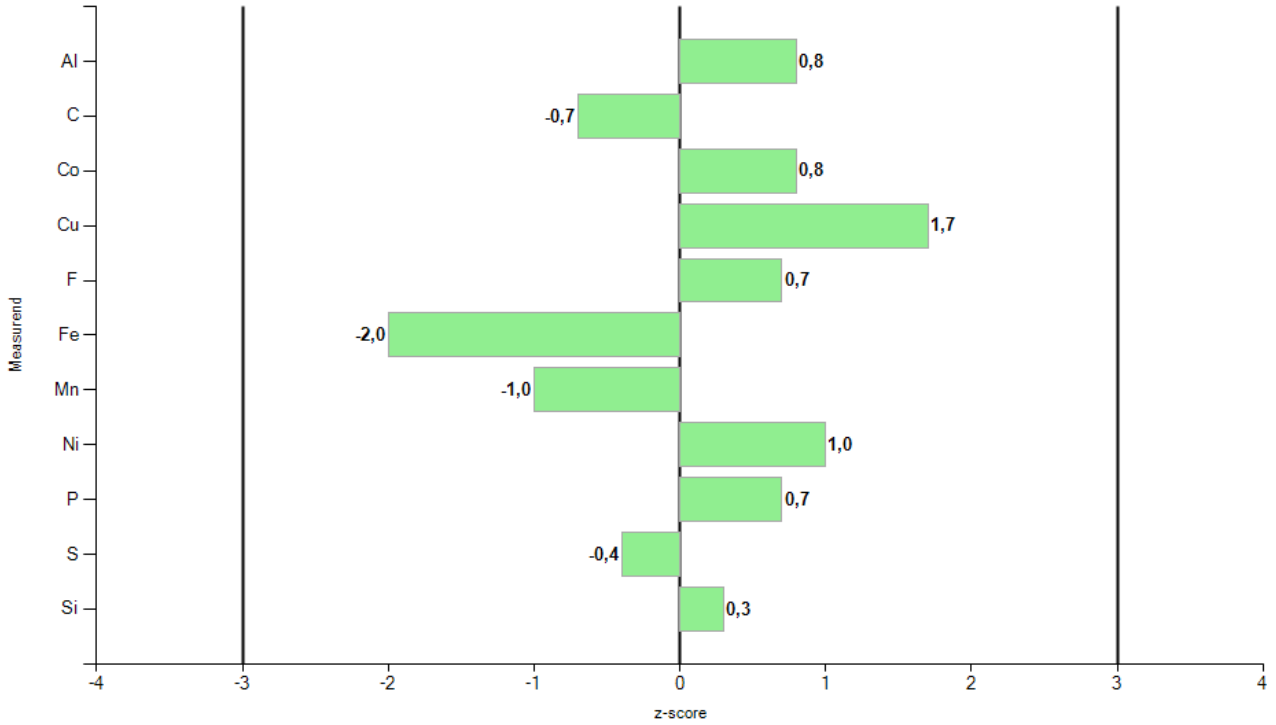
Laboratory chart of z-scores

Laboratory: 24



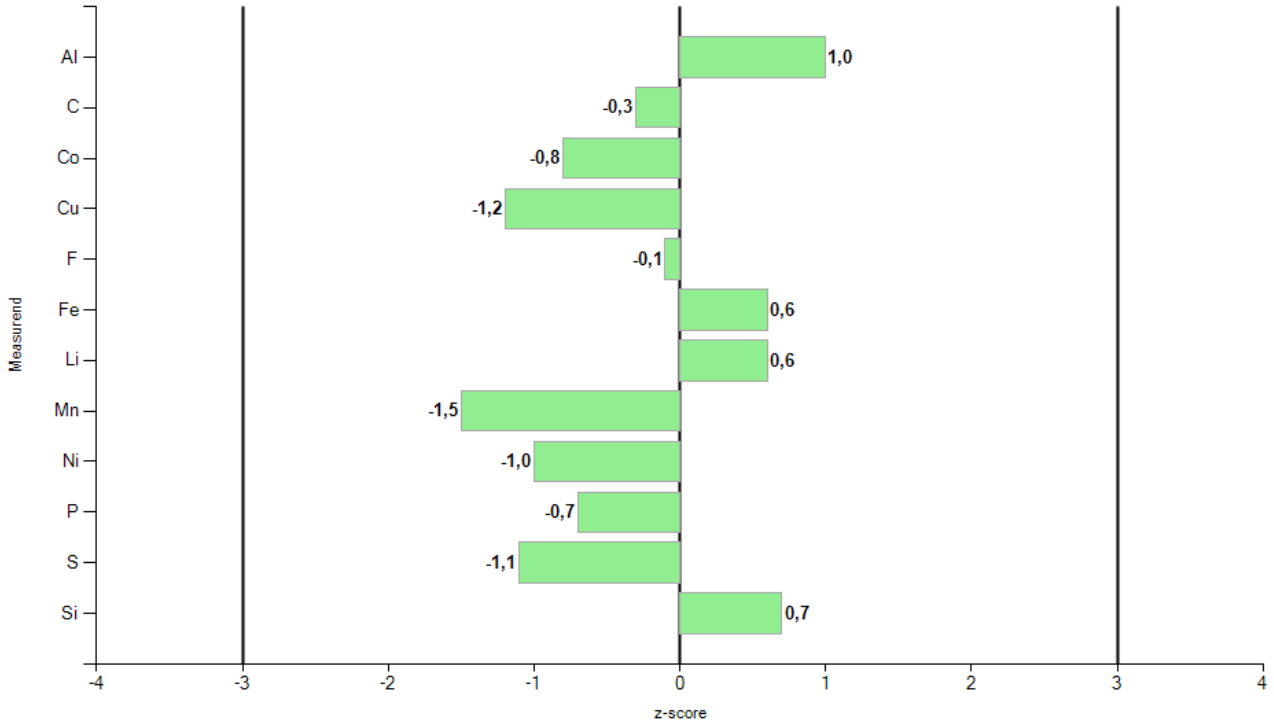
Laboratory chart of z-scores

Laboratory: 25



Laboratory chart of z-scores

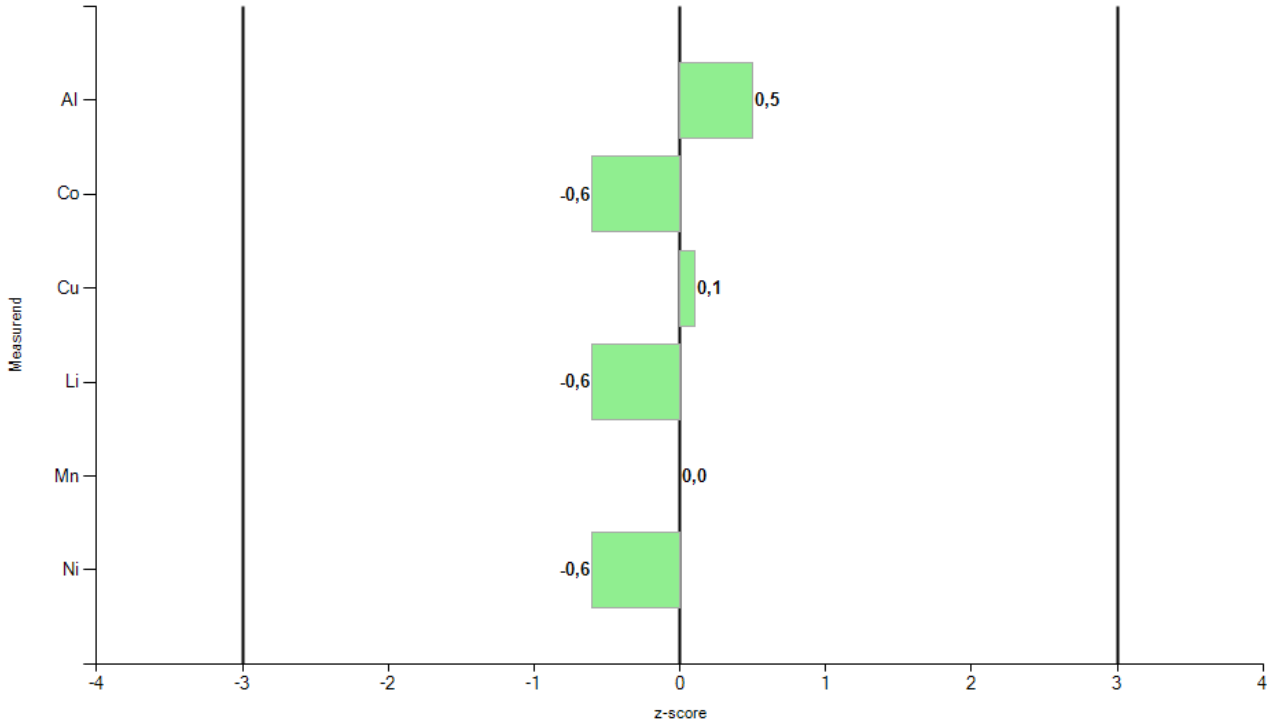
Laboratory: 26



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

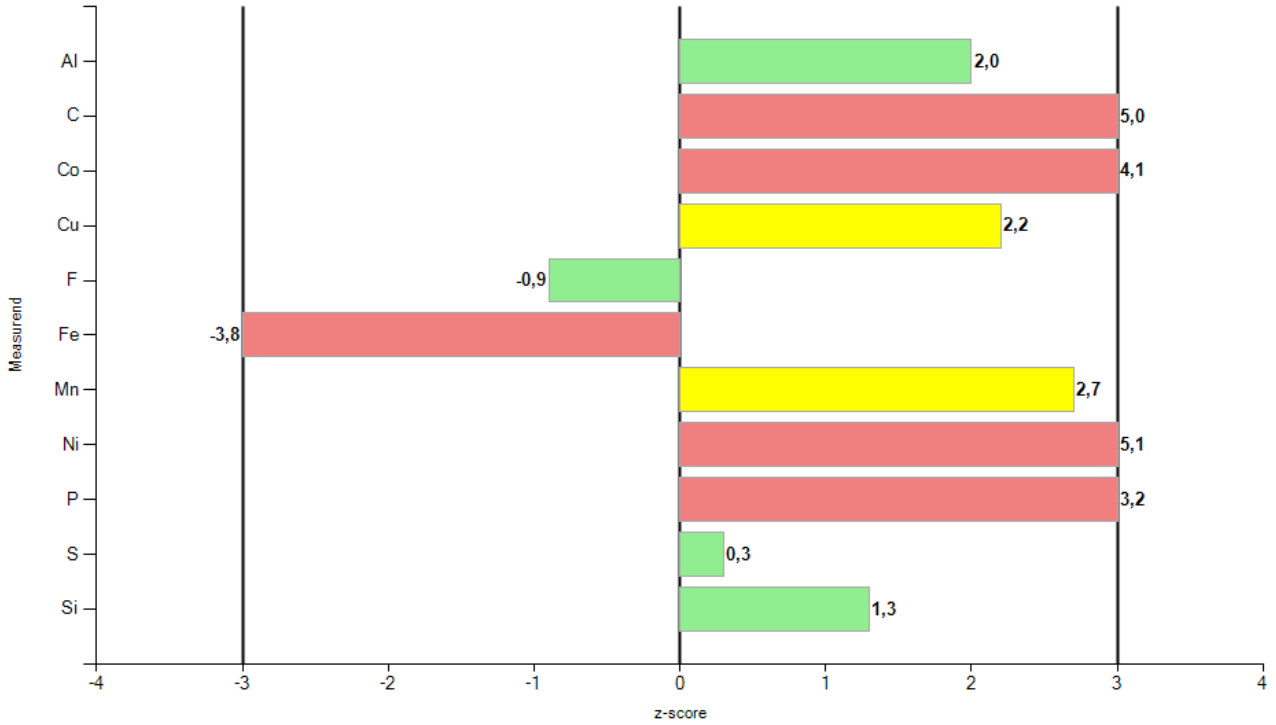
Laboratory: 27



FLUXANA®
XRF Application Solutions

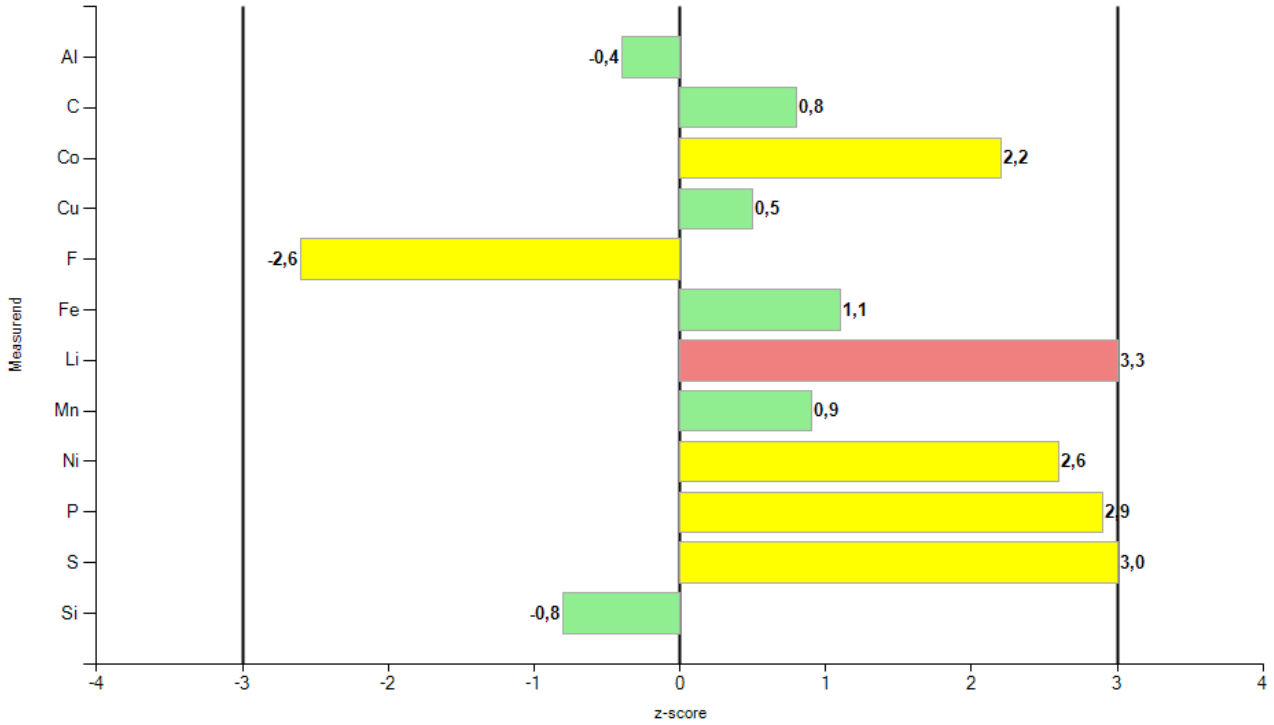
Laboratory chart of z-scores

Laboratory: 28



Laboratory chart of z-scores

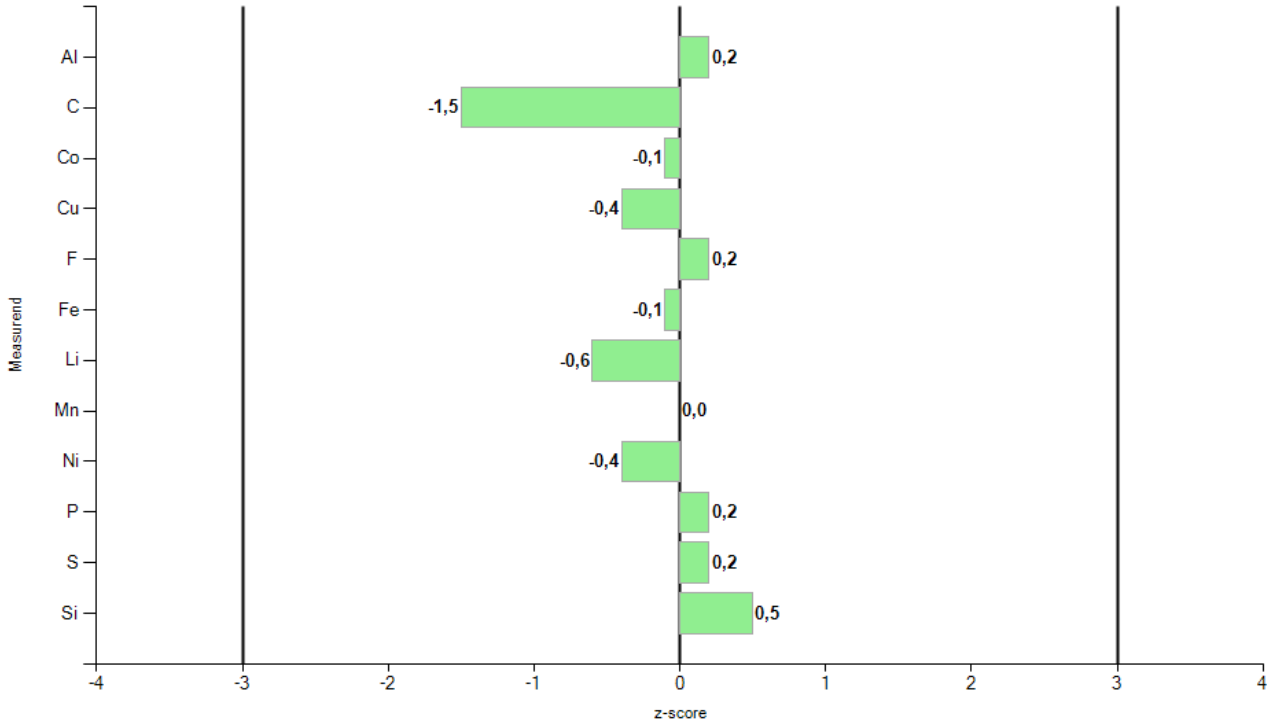
Laboratory: 29



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

Laboratory: 30

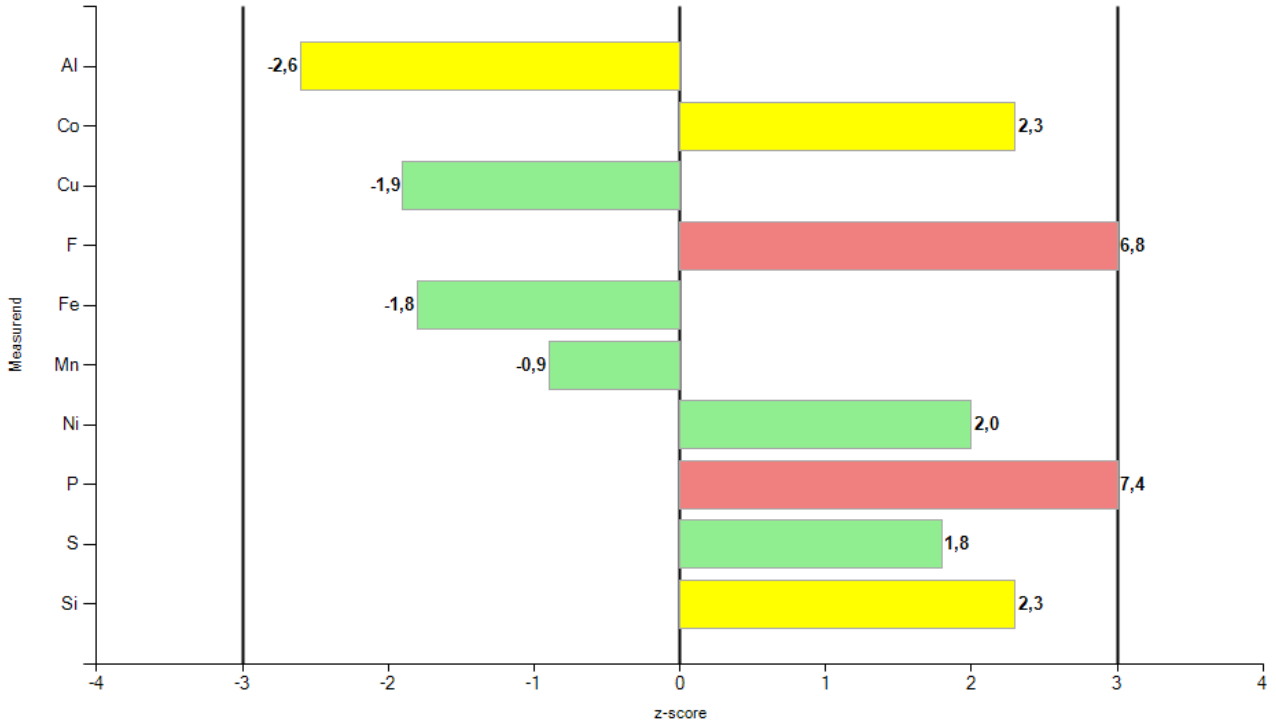


FXRV-2025-03

FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

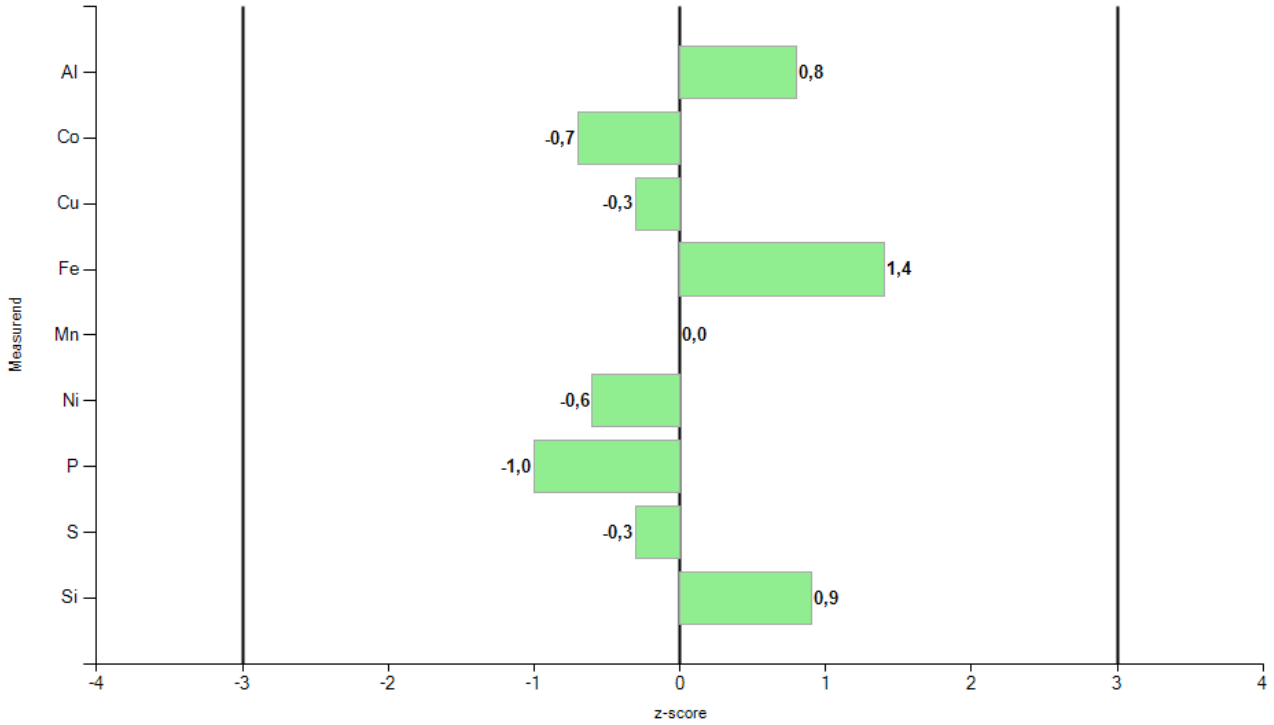
Laboratory: 31



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

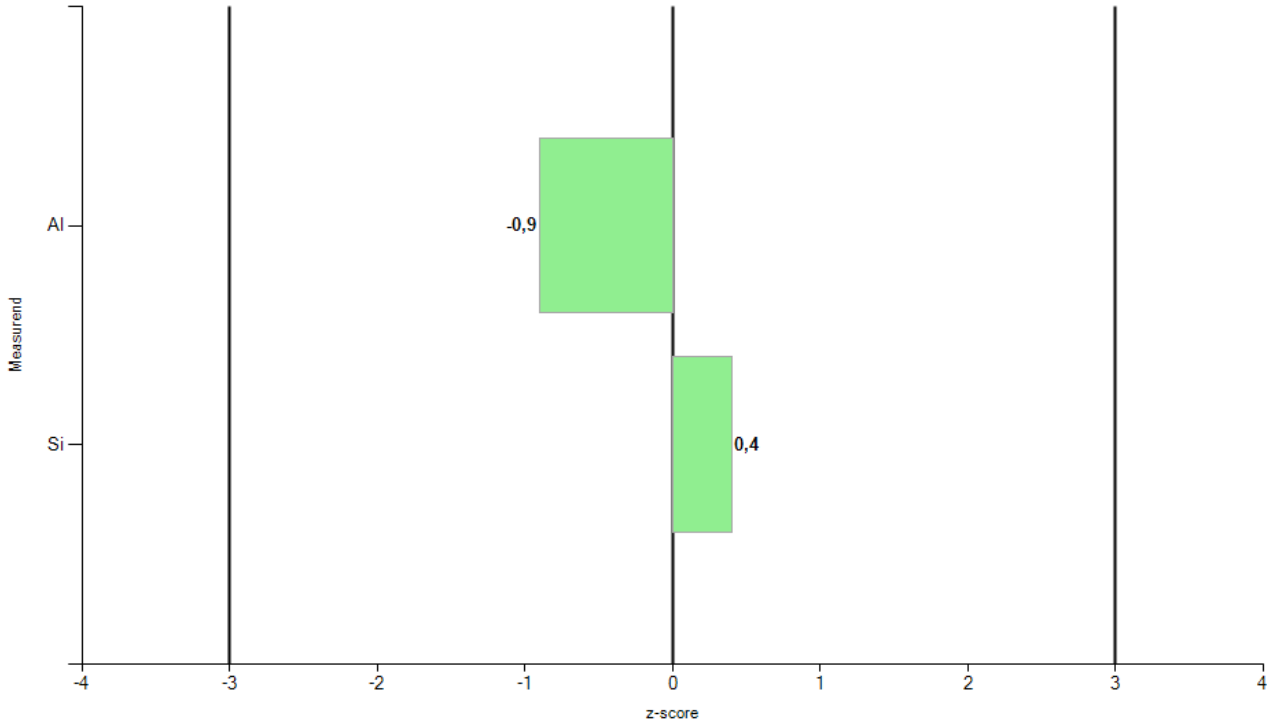
Laboratory: 32



FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

Laboratory: 33



FXRV-2025-03

FLUXANA®
XRF Application Solutions

Laboratory chart of z-scores

Laboratory: 35