

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 210711

CaSO4-B-Zn

Statistical Summary

Analytes: 32

Labs Reporting: 71

Issue Date : 08/31/2021

Analyte Code	Analyte Sample # 210711	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Analyte IA Ratio	Average Range (R-bar)	Horwitz %RSD
001	Ammoniacal N (%)	2	2	0.2992	0.0224								
002	Nitrate N (%)	1		0.0100									
005	Urea N (%)	1		0.0001									
010	Total N (%)	7	7	0.4705	0.0490	0.4802	0.4900	0.0305	0.0144	6.35%	0.14	0.0141	4.47%
020	Total P2O5 (%)	5	5	0.1261	0.1553	0.1261		0.1553	0.0868	123.16%		0.0123	5.46%
041	Direct Available P2O5 (%)	5	4	0.0806	0.0732	0.0758	0.6700	0.0836	0.0523	110.41%	0.29	0.0150	5.90%
050	Soluble K2O (%)	10	8	0.0882	0.0490	0.0681	0.4100	0.0179	0.0079	26.30%	0.10	0.0011	5.99%
060	Water (Free) (%)	2	2	0.5812	0.0300								
101	Acid Soluble Ca (18%)	62	60	18.43	3.306	19.04	1.0000	1.344	0.2168	7.06%	3.13	0.3004	2.29%
121	Acid Soluble Mg (%)	15	15	0.1053	0.0671	0.0921	0.2046	0.0151	0.0049	16.38%	0.17	0.0040	5.73%
143	Elemental S (%)	6	6	16.73	2.539	16.70		2.815	1.437	16.86%		0.2421	2.45%
145	Sulfate S, HCl soluble (%)	12	12	16.18	0.5400	16.20		0.5850	0.2111	3.61%		0.0717	2.48%
148	Total S (16%)	42	40	15.83	2.755	16.35	1.0000	0.5357	0.1059	3.28%	1.25	0.2633	2.47%
149	S - HNO3 soluble (%)	3	3	16.87	2.031	16.87		2.031	1.466	12.04%		0.9143	2.44%
151	Acid Soluble As (ppm)	14	10	2.024	2.352	1.305		0.5202	0.2056	39.88%		0.0627	15.37%
165	Acid Soluble B (0.5%)	51	50	0.9239	3.330	0.4604	0.0721	0.0319	0.0056	6.92%	1.03	0.0140	4.49%
171	Water Soluble B (%)	6	6	0.4750	0.0352	0.4650		0.0000	0.0000	0.00%		0.0200	4.49%
181	Acid Soluble Cd (ppm)	17	8	0.5695	1.185	0.1022		0.0350	0.0155	34.24%		0.0043	22.00%
190	Water Soluble Cl (%)	1		0.2700									
191	Acid Soluble Cr (ppm)	17	16	15.59	10.53	13.44		6.660	2.081	49.56%		0.5997	10.82%
202	Acid Soluble Co (ppm)	18	15	2.736	4.441	1.624	1.4872	0.7212	0.2328	44.41%	1.13	0.1645	14.87%
221	Acid Soluble Cu (%)	14	8	0.0079	0.0238	0.0002	0.0050	0.0001	0.0001	59.45%	0.05	0.0000	14.45%
241	Acid Soluble Fe (%)	15	14	0.0734	0.0505	0.0605	0.0111	0.0062	0.0021	10.27%	1.31	0.0023	6.10%
251	Acid Soluble Pb (ppm)	17	10	1.553	1.783	0.4425		0.1806	0.0714	40.81%		0.0430	18.09%
261	Acid Soluble Mn (%)	14	11	0.0129	0.0280	0.0051	0.0055	0.0004	0.0001	6.87%	0.15	0.0001	8.85%
281	Acid Soluble Hg (ppm)	9	6	0.1959	0.1294	0.1762		0.0134	0.0068	7.58%		0.0024	20.77%
289	Acid Soluble Mo (ppm)	13	8	8.863	27.42	0.8209	1.2463	0.4573	0.2021	55.71%	0.85	0.1343	16.48%
291	Acid Soluble Ni (ppm)	20	16	5.217	3.639	4.492		1.205	0.3767	26.83%		0.1411	12.76%
301	Acid Soluble Se (ppm)	12	7	1.387	1.020	1.806		0.9489	0.4483	52.54%		0.1619	14.63%
311	Sodium (%)	9	9	0.3280	0.0455	0.3225	0.0372	0.0374	0.0156	11.61%	2.34	0.0131	4.74%
321	Acid Soluble Zn (1.5%)	56	55	1.485	0.0931	1.483	0.1533	0.0728	0.0123	4.91%	1.11	0.0315	3.77%
325	Water Soluble Zn (%)	8	7	2.425	3.472	1.200		0.2780	0.1313	23.16%		0.0314	3.89%

The Analyte IA Ratio = 2.33 * Robust SD / IA at the Analyte Assigned Value. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates the IA ratio is

Analyte Code	Analyte Sample # 210711	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Analyte IA Ratio	Average Range (R-bar)	Horwitz %RSD
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significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting. The Horwitz %RSD is calculated usin the Thompson Modification, Analyst,2000,125,385-386.

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STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 210711

CaSO4-B-Zn

Lab Values

Analytes: 32

Labs Reporting: 71

Issue Date : 08/31/2021

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001	Ammoniacal N (%)	0524	0.2833	0.0364				2		001.99	0
001	Ammoniacal N (%)	0553	0.3150	0.0100				2		001.99	0
002	Nitrate N (%)	0553	< 0.01					0		002.99	5
005	Urea N (%)	0524	0.0001	0.0000				1		005.99	0
010	Total N (%)	0354	0.3670	0.0160	0.4802	0.0305	0.0141	7	-3.36	010.60	0
010	Total N (%)	0422	0.4640	0.0100	0.4802	0.0305	0.0141	7	-0.48	010.60	0
010	Total N (%)	0568	0.4710	0.0260	0.4802	0.0305	0.0141	7	-0.27	010.12	0
010	Total N (%)	0472	0.4800	0.0000	0.4802	0.0305	0.0141	7	0.00	010.60	0
010	Total N (%)	0389	0.4950	0.0100	0.4802	0.0305	0.0141	7	0.44	010.60	0
010	Total N (%)	0524	0.5017	0.0270	0.4802	0.0305	0.0141	7	0.64	010.99	0
010	Total N (%)	0325	0.5150	0.0100	0.4802	0.0305	0.0141	7	1.03	010.60	0
020	Total P2O5 (%)	0389	0.0100	0.0000	0.1261	0.1553	0.0123	5	-0.75	020.50	0
020	Total P2O5 (%)	0524	0.0132	0.0015	0.1261	0.1553	0.0123	5	-0.73	020.50	0
020	Total P2O5 (%)	0527	0.0172	0.0001	0.1261	0.1553	0.0123	5	-0.70	020.50	0
020	Total P2O5 (%)	0552	0.2700	0.0000	0.1261	0.1553	0.0123	5	0.93	020.50	0
020	Total P2O5 (%)	0472	0.3200	0.0600	0.1261	0.1553	0.0123	5	1.25	020.50	0
041	Direct Available P2O5 (%)	0568	0.0100	0.0000	0.0758	0.0836	0.0150	4	-0.79	041.21	0
041	Direct Available P2O5 (%)	0354	0.0240	0.0020	0.0758	0.0836	0.0150	4	-0.62	041.21	0
041	Direct Available P2O5 (%)	0472	0.0750	0.0500	0.0758	0.0836	0.0150	4	-0.01	041.21	0
041	Direct Available P2O5 (%)	0553	0.1940	0.0080	0.0758	0.0836	0.0150	4	1.41	041.20	0
041	Direct Available P2O5 (%)	0325	< 0.1		0.0758	0.0836	0.0150	4		041.50	5
050	Soluble K2O (%)	0553	0.0385	0.0010	0.0681	0.0179	0.0011	8	-1.51	050.99	0
050	Soluble K2O (%)	0354	0.0565	0.0010	0.0681	0.0179	0.0011	8	-0.59	050.52	0
050	Soluble K2O (%)	0368	0.0621	0.0022	0.0681	0.0179	0.0011	8	-0.31	050.51	0
050	Soluble K2O (%)	0389	0.0684	0.0009	0.0681	0.0179	0.0011	8	0.01	050.99	0
050	Soluble K2O (%)	0568	0.0700	0.0000	0.0681	0.0179	0.0011	8	0.10	050.51	0
050	Soluble K2O (%)	0527	0.0710	0.0005	0.0681	0.0179	0.0011	8	0.15	050.99	0
050	Soluble K2O (%)	0524	0.0806	0.0035	0.0681	0.0179	0.0011	8	0.64	050.99	0
050	Soluble K2O (%)	0552	0.2100	0.0000	0.0681	0.0179	0.0011	8	7.25	050.99	0
050	Soluble K2O (%)	0472	0.1250	0.0100	0.0681	0.0179	0.0011	8	2.91	050.31	1
050	Soluble K2O (%)	0325	< 0.1		0.0681	0.0179	0.0011	8		050.99	5
060	Water (Free) (%)	0419	0.5600	0.0400				2		060.10	0
060	Water (Free) (%)	0416	0.6024	0.0747				2		060.00	0
101	Acid Soluble Ca (18%)	0422	1.685†	0.1100	19.04	1.344	0.3004	60	-12.91	101.30	0
101	Acid Soluble Ca (18%)	0117	8.046†	0.2789	19.04	1.344	0.3004	60	-8.18	101.33	0
101	Acid Soluble Ca (18%)	0043	11.63†	0.8300	19.04	1.344	0.3004	60	-5.52	101.33	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
101	Acid Soluble Ca (18%)	0416	14.12†	0.0358	19.04	1.344	0.3004	60	-3.66	101.70	0
101	Acid Soluble Ca (18%)	0073	16.28†	0.3300	19.04	1.344	0.3004	60	-2.06	101.32	0
101	Acid Soluble Ca (18%)	0568	16.35†	0.9000	19.04	1.344	0.3004	60	-2.00	101.30	0
101	Acid Soluble Ca (18%)	0472	17.00†	0.2100	19.04	1.344	0.3004	60	-1.52	101.30	0
101	Acid Soluble Ca (18%)	0028	17.65†	0.1000	19.04	1.344	0.3004	60	-1.03	101.32	0
101	Acid Soluble Ca (18%)	0255	17.89†	1.010	19.04	1.344	0.3004	60	-0.86	101.30	0
101	Acid Soluble Ca (18%)	0534	17.90†	0.6000	19.04	1.344	0.3004	60	-0.85	101.00	0
101	Acid Soluble Ca (18%)	0540	17.96†	0.1300	19.04	1.344	0.3004	60	-0.81	101.99	0
101	Acid Soluble Ca (18%)	0476	17.98†	0.1795	19.04	1.344	0.3004	60	-0.78	101.99	0
101	Acid Soluble Ca (18%)	0034	18.02†	0.0000	19.04	1.344	0.3004	60	-0.76	101.33	0
101	Acid Soluble Ca (18%)	0389	18.08	0.1400	19.04	1.344	0.3004	60	-0.71	101.99	0
101	Acid Soluble Ca (18%)	0177	18.15	0.3726	19.04	1.344	0.3004	60	-0.66	101.33	0
101	Acid Soluble Ca (18%)	0234	18.22	0.4600	19.04	1.344	0.3004	60	-0.61	101.30	0
101	Acid Soluble Ca (18%)	0533	18.27	0.0800	19.04	1.344	0.3004	60	-0.57	101.00	0
101	Acid Soluble Ca (18%)	0493	18.30	0.1100	19.04	1.344	0.3004	60	-0.55	101.30	0
101	Acid Soluble Ca (18%)	0574	18.35	0.3000	19.04	1.344	0.3004	60	-0.51	101.70	0
101	Acid Soluble Ca (18%)	0559	18.36	0.0100	19.04	1.344	0.3004	60	-0.51	101.99	0
101	Acid Soluble Ca (18%)	0486	18.48	0.0700	19.04	1.344	0.3004	60	-0.42	101.33	0
101	Acid Soluble Ca (18%)	0055	18.50	0.0500	19.04	1.344	0.3004	60	-0.40	101.33	0
101	Acid Soluble Ca (18%)	0292	18.54	0.0300	19.04	1.344	0.3004	60	-0.37	101.33	0
101	Acid Soluble Ca (18%)	0481	18.63	0.0400	19.04	1.344	0.3004	60	-0.30	101.99	0
101	Acid Soluble Ca (18%)	0368	18.66	0.1216	19.04	1.344	0.3004	60	-0.28	101.99	0
101	Acid Soluble Ca (18%)	0169	18.72	0.1400	19.04	1.344	0.3004	60	-0.24	101.33	0
101	Acid Soluble Ca (18%)	0553	18.80	1.000	19.04	1.344	0.3004	60	-0.18	101.00	0
101	Acid Soluble Ca (18%)	0040	18.92	0.0100	19.04	1.344	0.3004	60	-0.09	101.33	0
101	Acid Soluble Ca (18%)	0544	19.02	0.1200	19.04	1.344	0.3004	60	-0.01	101.70	0
101	Acid Soluble Ca (18%)	0513	19.03	0.0900	19.04	1.344	0.3004	60	-0.01	101.00	0
101	Acid Soluble Ca (18%)	0552	19.06	0.0000	19.04	1.344	0.3004	60	0.02	101.99	0
101	Acid Soluble Ca (18%)	0231	19.11	0.2700	19.04	1.344	0.3004	60	0.05	101.30	0
101	Acid Soluble Ca (18%)	0521	19.27	0.0000	19.04	1.344	0.3004	60	0.17	101.32	0
101	Acid Soluble Ca (18%)	0049	19.30	0.2900	19.04	1.344	0.3004	60	0.19	101.30	0
101	Acid Soluble Ca (18%)	0561	19.32	0.0600	19.04	1.344	0.3004	60	0.21	101.99	0
101	Acid Soluble Ca (18%)	0136	19.40	0.6000	19.04	1.344	0.3004	60	0.27	101.33	0
101	Acid Soluble Ca (18%)	0444	19.50	0.0300	19.04	1.344	0.3004	60	0.34	101.30	0
101	Acid Soluble Ca (18%)	0527	19.63	0.3353	19.04	1.344	0.3004	60	0.44	101.33	0
101	Acid Soluble Ca (18%)	0547	19.65	0.3000	19.04	1.344	0.3004	60	0.46	101.99	0
101	Acid Soluble Ca (18%)	0324	19.70	0.0000	19.04	1.344	0.3004	60	0.49	101.30	0
101	Acid Soluble Ca (18%)	0451	19.70	0.1400	19.04	1.344	0.3004	60	0.49	101.30	0
101	Acid Soluble Ca (18%)	0390	19.70	0.6000	19.04	1.344	0.3004	60	0.49	101.99	0
101	Acid Soluble Ca (18%)	0419	19.76	0.0300	19.04	1.344	0.3004	60	0.53	101.33	0
101	Acid Soluble Ca (18%)	0433	19.77	0.5700	19.04	1.344	0.3004	60	0.54	101.30	0
101	Acid Soluble Ca (18%)	0564	19.86	0.0300	19.04	1.344	0.3004	60	0.61	101.70	0
101	Acid Soluble Ca (18%)	0565	19.87	0.0100	19.04	1.344	0.3004	60	0.62	101.70	0
101	Acid Soluble Ca (18%)	0572	19.99	0.0300	19.04	1.344	0.3004	60	0.71	101.99	0
101	Acid Soluble Ca (18%)	0220	19.99	0.0400	19.04	1.344	0.3004	60	0.71	101.32	0
101	Acid Soluble Ca (18%)	0423	20.00	0.2450	19.04	1.344	0.3004	60	0.72	101.32	0
101	Acid Soluble Ca (18%)	0494	20.16‡	1.530	19.04	1.344	0.3004	60	0.84	101.33	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
101	Acid Soluble Ca (18%)	0200	20.31‡	0.1600	19.04	1.344	0.3004	60	0.95	101.00	0
101	Acid Soluble Ca (18%)	0394	20.35‡	0.5780	19.04	1.344	0.3004	60	0.98	101.33	0
101	Acid Soluble Ca (18%)	0354	20.55‡	0.5000	19.04	1.344	0.3004	60	1.13	101.30	0
101	Acid Soluble Ca (18%)	0546	20.85‡	0.0604	19.04	1.344	0.3004	60	1.35	101.03	0
101	Acid Soluble Ca (18%)	0325	20.87‡	0.7100	19.04	1.344	0.3004	60	1.36	101.30	0
101	Acid Soluble Ca (18%)	0035	20.95‡	0.5000	19.04	1.344	0.3004	60	1.42	101.30	0
101	Acid Soluble Ca (18%)	0230	20.95‡	0.9000	19.04	1.344	0.3004	60	1.42	101.99	0
101	Acid Soluble Ca (18%)	0027	21.78‡	1.170	19.04	1.344	0.3004	60	2.04	101.99	0
101	Acid Soluble Ca (18%)	0452	21.95‡	0.0700	19.04	1.344	0.3004	60	2.16	101.30	0
101	Acid Soluble Ca (18%)	0095	22.49‡	0.4100	19.04	1.344	0.3004	60	2.57	101.32	0
101	Acid Soluble Ca (18%)	0042	9.540†	2.480	19.04	1.344	0.3004	60	-7.07	101.99	1
101	Acid Soluble Ca (18%)	0523	22.08‡	2.810	19.04	1.344	0.3004	60	2.26	101.99	1
121	Acid Soluble Mg (%)	0472	0.0400	0.0000	0.0921	0.0151	0.0040	15	-3.45	121.30	0
121	Acid Soluble Mg (%)	0524	0.0707	0.0063	0.0921	0.0151	0.0040	15	-1.42	121.99	0
121	Acid Soluble Mg (%)	0568	0.0764	0.0051	0.0921	0.0151	0.0040	15	-1.04	121.30	0
121	Acid Soluble Mg (%)	0307	0.0865	0.0010	0.0921	0.0151	0.0040	15	-0.37	121.99	0
121	Acid Soluble Mg (%)	0389	0.0877	0.0006	0.0921	0.0151	0.0040	15	-0.29	121.99	0
121	Acid Soluble Mg (%)	0368	0.0915	0.0025	0.0921	0.0151	0.0040	15	-0.04	121.99	0
121	Acid Soluble Mg (%)	0494	0.0917	0.0091	0.0921	0.0151	0.0040	15	-0.03	121.33	0
121	Acid Soluble Mg (%)	0049	0.0944	0.0023	0.0921	0.0151	0.0040	15	0.15	121.30	0
121	Acid Soluble Mg (%)	0035	0.0945	0.0090	0.0921	0.0151	0.0040	15	0.16	121.30	0
121	Acid Soluble Mg (%)	0354	0.0950	0.0100	0.0921	0.0151	0.0040	15	0.19	121.30	0
121	Acid Soluble Mg (%)	0423	0.0950	0.0100	0.0921	0.0151	0.0040	15	0.19	121.32	0
121	Acid Soluble Mg (%)	0553	0.0955	0.0010	0.0921	0.0151	0.0040	15	0.22	121.00	0
121	Acid Soluble Mg (%)	0527	0.1041	0.0019	0.0921	0.0151	0.0040	15	0.79	121.33	0
121	Acid Soluble Mg (%)	0563	0.1167	0.0011	0.0921	0.0151	0.0040	15	1.63	121.33	0
121	Acid Soluble Mg (%)	0552	0.3400	0.0000	0.0921	0.0151	0.0040	15	16.43	121.99	0
143	Elemental S (%)	0472	14.35	0.1100	16.70	2.815	0.2421	6	-0.75	143.99	0
143	Elemental S (%)	0255	14.69	0.4200	16.70	2.815	0.2421	6	-0.64	143.99	0
143	Elemental S (%)	0390	15.85	0.1000	16.70	2.815	0.2421	6	-0.27	143.99	0
143	Elemental S (%)	0368	16.16	0.0225	16.70	2.815	0.2421	6	-0.17	143.99	0
143	Elemental S (%)	0389	18.24	0.2000	16.70	2.815	0.2421	6	0.49	143.99	0
143	Elemental S (%)	0325	21.09	0.6000	16.70	2.815	0.2421	6	1.39	143.99	0
145	Sulfate S, HCl soluble (%)	0561	15.20	0.1000	16.20	0.5850	0.0717	12	-1.70	145.00	0
145	Sulfate S, HCl soluble (%)	0444	15.29	0.0700	16.20	0.5850	0.0717	12	-1.56	145.99	0
145	Sulfate S, HCl soluble (%)	0574	15.82	0.0300	16.20	0.5850	0.0717	12	-0.65	145.00	0
145	Sulfate S, HCl soluble (%)	0073	15.95	0.0600	16.20	0.5850	0.0717	12	-0.42	145.00	0
145	Sulfate S, HCl soluble (%)	0518	16.20	0.2000	16.20	0.5850	0.0717	12	0.01	145.99	0
145	Sulfate S, HCl soluble (%)	0553	16.25	0.1000	16.20	0.5850	0.0717	12	0.09	145.99	0
145	Sulfate S, HCl soluble (%)	0544	16.32	0.0800	16.20	0.5850	0.0717	12	0.21	145.00	0
145	Sulfate S, HCl soluble (%)	0405	16.48	0.0100	16.20	0.5850	0.0717	12	0.48	145.00	0
145	Sulfate S, HCl soluble (%)	0027	16.49	0.0700	16.20	0.5850	0.0717	12	0.49	145.00	0
145	Sulfate S, HCl soluble (%)	0029	16.56	0.0100	16.20	0.5850	0.0717	12	0.61	145.00	0
145	Sulfate S, HCl soluble (%)	0419	16.66	0.0100	16.20	0.5850	0.0717	12	0.78	145.99	0
145	Sulfate S, HCl soluble (%)	0220	17.01	0.1200	16.20	0.5850	0.0717	12	1.39	145.00	0
148	Total S (16%)	0117	7.011†	0.2176	16.35	0.5357	0.2633	40	-17.43	148.07	0
148	Total S (16%)	0307	15.25†	0.5000	16.35	0.5357	0.2633	40	-2.05	148.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
148	Total S (16%)	0394	15.72	0.1250	16.35	0.5357	0.2633	40	-1.17	148.07	0
148	Total S (16%)	0494	15.79	0.9087	16.35	0.5357	0.2633	40	-1.04	148.07	0
148	Total S (16%)	0563	15.82	0.0712	16.35	0.5357	0.2633	40	-0.99	148.07	0
148	Total S (16%)	0481	15.84	0.0300	16.35	0.5357	0.2633	40	-0.95	148.99	0
148	Total S (16%)	0049	15.84	0.0200	16.35	0.5357	0.2633	40	-0.94	148.00	0
148	Total S (16%)	0565	15.85	0.1000	16.35	0.5357	0.2633	40	-0.93	148.99	0
148	Total S (16%)	0564	15.86	0.0300	16.35	0.5357	0.2633	40	-0.92	148.01	0
148	Total S (16%)	0574	15.90	0.1000	16.35	0.5357	0.2633	40	-0.83	148.01	0
148	Total S (16%)	0534	15.99	0.0200	16.35	0.5357	0.2633	40	-0.66	148.01	0
148	Total S (16%)	0540	16.06	0.1000	16.35	0.5357	0.2633	40	-0.53	148.01	0
148	Total S (16%)	0533	16.09	0.0700	16.35	0.5357	0.2633	40	-0.49	148.99	0
148	Total S (16%)	0200	16.12	0.0200	16.35	0.5357	0.2633	40	-0.42	148.07	0
148	Total S (16%)	0231	16.15	0.1000	16.35	0.5357	0.2633	40	-0.37	148.01	0
148	Total S (16%)	0040	16.15	0.5000	16.35	0.5357	0.2633	40	-0.37	148.07	0
148	Total S (16%)	0572	16.17	0.9900	16.35	0.5357	0.2633	40	-0.34	148.99	0
148	Total S (16%)	0486	16.21	0.1000	16.35	0.5357	0.2633	40	-0.25	148.07	0
148	Total S (16%)	0157	16.25	0.1000	16.35	0.5357	0.2633	40	-0.18	148.01	0
148	Total S (16%)	0444	16.30	0.1900	16.35	0.5357	0.2633	40	-0.10	148.07	0
148	Total S (16%)	0513	16.30	0.0600	16.35	0.5357	0.2633	40	-0.09	148.01	0
148	Total S (16%)	0169	16.33	0.0500	16.35	0.5357	0.2633	40	-0.04	148.07	0
148	Total S (16%)	0177	16.33	0.0092	16.35	0.5357	0.2633	40	-0.04	148.07	0
148	Total S (16%)	0476	16.39	0.1309	16.35	0.5357	0.2633	40	0.07	148.01	0
148	Total S (16%)	0157	16.40	0.0000	16.35	0.5357	0.2633	40	0.10	148.00	0
148	Total S (16%)	0433	16.48	1.140	16.35	0.5357	0.2633	40	0.25	148.99	0
148	Total S (16%)	0559	16.50	0.1100	16.35	0.5357	0.2633	40	0.28	148.99	0
148	Total S (16%)	0043	16.60	1.430	16.35	0.5357	0.2633	40	0.46	148.07	0
148	Total S (16%)	0546	16.75	0.6193	16.35	0.5357	0.2633	40	0.75	148.07	0
148	Total S (16%)	0055	16.75	0.0000	16.35	0.5357	0.2633	40	0.75	148.01	0
148	Total S (16%)	0354	16.75	0.1000	16.35	0.5357	0.2633	40	0.75	148.99	0
148	Total S (16%)	0451	16.80	1.000	16.35	0.5357	0.2633	40	0.85	148.00	0
148	Total S (16%)	0547	16.85	0.1000	16.35	0.5357	0.2633	40	0.94	148.99	0
148	Total S (16%)	0324	16.95	0.5000	16.35	0.5357	0.2633	40	1.13	148.01	0
148	Total S (16%)	0523	16.97	0.3400	16.35	0.5357	0.2633	40	1.16	148.99	0
148	Total S (16%)	0292	17.00	0.0300	16.35	0.5357	0.2633	40	1.21	148.07	0
148	Total S (16%)	0527	17.11	0.0618	16.35	0.5357	0.2633	40	1.43	148.07	0
148	Total S (16%)	0220	17.18	0.0100	16.35	0.5357	0.2633	40	1.55	148.99	0
148	Total S (16%)	0452	17.24	0.0500	16.35	0.5357	0.2633	40	1.66	148.99	0
148	Total S (16%)	0136	17.35‡	0.5000	16.35	0.5357	0.2633	40	1.87	148.00	0
148	Total S (16%)	0114	17.94‡	2.080	16.35	0.5357	0.2633	40	2.98	148.00	1
148	Total S (16%)	0422	1.390†	0.0800	16.35	0.5357	0.2633	40	-27.92	148.99	2
149	S - HNO3 soluble (%)	0521	15.45	0.0000	16.87	2.031	0.9143	3	-0.70	149.04	0
149	S - HNO3 soluble (%)	0423	15.96	0.0900	16.87	2.031	0.9143	3	-0.45	149.04	0
149	S - HNO3 soluble (%)	0524	19.19	2.653	16.87	2.031	0.9143	3	1.15	149.04	0
151	Acid Soluble As (ppm)	0255	0.5600	0.0080	1.305	0.5202	0.0627	10	-1.43	151.30	0
151	Acid Soluble As (ppm)	0481	0.8100	0.0200	1.305	0.5202	0.0627	10	-0.95	151.99	0
151	Acid Soluble As (ppm)	0136	1.145	0.0100	1.305	0.5202	0.0627	10	-0.31	151.33	0
151	Acid Soluble As (ppm)	0572	1.170	0.1200	1.305	0.5202	0.0627	10	-0.26	151.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
151	Acid Soluble As (ppm)	0523	1.176	0.0555	1.305	0.5202	0.0627	10	-0.25	151.30	0
151	Acid Soluble As (ppm)	0563	1.269	0.0006	1.305	0.5202	0.0627	10	-0.07	151.33	0
151	Acid Soluble As (ppm)	0527	1.320	0.0360	1.305	0.5202	0.0627	10	0.03	151.33	0
151	Acid Soluble As (ppm)	0524	1.661	0.0608	1.305	0.5202	0.0627	10	0.69	151.30	0
151	Acid Soluble As (ppm)	0220	1.850	0.1000	1.305	0.5202	0.0627	10	1.05	151.32	0
151	Acid Soluble As (ppm)	0368	2.450	0.2160	1.305	0.5202	0.0627	10	2.20	151.34	0
151	Acid Soluble As (ppm)	0220	2.000	0.4000	1.305	0.5202	0.0627	10	1.34	151.99	1
151	Acid Soluble As (ppm)	0405	< 1		1.305	0.5202	0.0627	10		151.99	5
151	Acid Soluble As (ppm)	0494	< 1.93		1.305	0.5202	0.0627	10		151.33	5
151	Acid Soluble As (ppm)	0117	< 10		1.305	0.5202	0.0627	10		151.33	5
165	Acid Soluble B (0.5%)	0416	0.1320†	0.0032	0.4604	0.0319	0.0140	50	-10.31	165.00	0
165	Acid Soluble B (0.5%)	0055	0.3915	0.0070	0.4604	0.0319	0.0140	50	-2.16	165.00	0
165	Acid Soluble B (0.5%)	0423	0.4190	0.0020	0.4604	0.0319	0.0140	50	-1.30	165.99	0
165	Acid Soluble B (0.5%)	0472	0.4200	0.0000	0.4604	0.0319	0.0140	50	-1.27	165.99	0
165	Acid Soluble B (0.5%)	0389	0.4229	0.0010	0.4604	0.0319	0.0140	50	-1.18	165.30	0
165	Acid Soluble B (0.5%)	0307	0.4250	0.0060	0.4604	0.0319	0.0140	50	-1.11	165.99	0
165	Acid Soluble B (0.5%)	0481	0.4250	0.0100	0.4604	0.0319	0.0140	50	-1.11	165.99	0
165	Acid Soluble B (0.5%)	0513	0.4250	0.0100	0.4604	0.0319	0.0140	50	-1.11	165.99	0
165	Acid Soluble B (0.5%)	0043	0.4300	0.0200	0.4604	0.0319	0.0140	50	-0.95	165.30	0
165	Acid Soluble B (0.5%)	0234	0.4300	0.0000	0.4604	0.0319	0.0140	50	-0.95	165.30	0
165	Acid Soluble B (0.5%)	0451	0.4388	0.0037	0.4604	0.0319	0.0140	50	-0.68	165.30	0
165	Acid Soluble B (0.5%)	0553	0.4390	0.0080	0.4604	0.0319	0.0140	50	-0.67	165.00	0
165	Acid Soluble B (0.5%)	0572	0.4400	0.0600	0.4604	0.0319	0.0140	50	-0.64	165.99	0
165	Acid Soluble B (0.5%)	0117	0.4404	0.0089	0.4604	0.0319	0.0140	50	-0.63	165.99	0
165	Acid Soluble B (0.5%)	0324	0.4420	0.0580	0.4604	0.0319	0.0140	50	-0.58	165.30	0
165	Acid Soluble B (0.5%)	0523	0.4436	0.0068	0.4604	0.0319	0.0140	50	-0.53	165.99	0
165	Acid Soluble B (0.5%)	0231	0.4450	0.0100	0.4604	0.0319	0.0140	50	-0.48	165.99	0
165	Acid Soluble B (0.5%)	0561	0.4450	0.0300	0.4604	0.0319	0.0140	50	-0.48	165.99	0
165	Acid Soluble B (0.5%)	0494	0.4484	0.0105	0.4604	0.0319	0.0140	50	-0.38	165.99	0
165	Acid Soluble B (0.5%)	0368	0.4491	0.0115	0.4604	0.0319	0.0140	50	-0.36	165.99	0
165	Acid Soluble B (0.5%)	0419	0.4504	0.0023	0.4604	0.0319	0.0140	50	-0.32	165.30	0
165	Acid Soluble B (0.5%)	0524	0.4509	0.0412	0.4604	0.0319	0.0140	50	-0.30	165.99	0
165	Acid Soluble B (0.5%)	0255	0.4600	0.0200	0.4604	0.0319	0.0140	50	-0.01	165.99	0
165	Acid Soluble B (0.5%)	0405	0.4600	0.0000	0.4604	0.0319	0.0140	50	-0.01	165.00	0
165	Acid Soluble B (0.5%)	0493	0.4600	0.0100	0.4604	0.0319	0.0140	50	-0.01	165.30	0
165	Acid Soluble B (0.5%)	0136	0.4600	0.0000	0.4604	0.0319	0.0140	50	-0.01	165.99	0
165	Acid Soluble B (0.5%)	0394	0.4617	0.0028	0.4604	0.0319	0.0140	50	0.04	165.30	0
165	Acid Soluble B (0.5%)	0521	0.4624	0.0000	0.4604	0.0319	0.0140	50	0.06	165.99	0
165	Acid Soluble B (0.5%)	0200	0.4650	0.0100	0.4604	0.0319	0.0140	50	0.14	165.30	0
165	Acid Soluble B (0.5%)	0486	0.4650	0.0100	0.4604	0.0319	0.0140	50	0.14	165.99	0
165	Acid Soluble B (0.5%)	0559	0.4650	0.0100	0.4604	0.0319	0.0140	50	0.14	165.99	0
165	Acid Soluble B (0.5%)	0444	0.4700	0.0000	0.4604	0.0319	0.0140	50	0.30	165.30	0
165	Acid Soluble B (0.5%)	0169	0.4710	0.0220	0.4604	0.0319	0.0140	50	0.33	165.30	0
165	Acid Soluble B (0.5%)	0073	0.4715	0.0070	0.4604	0.0319	0.0140	50	0.35	165.99	0
165	Acid Soluble B (0.5%)	0547	0.4720	0.0100	0.4604	0.0319	0.0140	50	0.36	165.99	0
165	Acid Soluble B (0.5%)	0042	0.4750	0.0300	0.4604	0.0319	0.0140	50	0.46	165.99	0
165	Acid Soluble B (0.5%)	0354	0.4800	0.0800	0.4604	0.0319	0.0140	50	0.61	165.30	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
165	Acid Soluble B (0.5%)	0390	0.4805	0.0170	0.4604	0.0319	0.0140	50	0.63	165.99	0
165	Acid Soluble B (0.5%)	0546	0.4829	0.0028	0.4604	0.0319	0.0140	50	0.71	165.30	0
165	Acid Soluble B (0.5%)	0433	0.4850	0.0340	0.4604	0.0319	0.0140	50	0.77	165.30	0
165	Acid Soluble B (0.5%)	0527	0.4902	0.0014	0.4604	0.0319	0.0140	50	0.93	165.99	0
165	Acid Soluble B (0.5%)	0563	0.4909	0.0018	0.4604	0.0319	0.0140	50	0.96	165.99	0
165	Acid Soluble B (0.5%)	0220	0.4960	0.0100	0.4604	0.0319	0.0140	50	1.12	165.00	0
165	Acid Soluble B (0.5%)	0533	0.4965	0.0290	0.4604	0.0319	0.0140	50	1.13	165.00	0
165	Acid Soluble B (0.5%)	0518	0.5050	0.0300	0.4604	0.0319	0.0140	50	1.40	165.00	0
165	Acid Soluble B (0.5%)	0452	0.5100	0.0000	0.4604	0.0319	0.0140	50	1.56	165.99	0
165	Acid Soluble B (0.5%)	0552	0.5100	0.0000	0.4604	0.0319	0.0140	50	1.56	165.99	0
165	Acid Soluble B (0.5%)	0534	0.5350‡	0.0300	0.4604	0.0319	0.0140	50	2.34	165.00	0
165	Acid Soluble B (0.5%)	0540	0.5750‡	0.0100	0.4604	0.0319	0.0140	50	3.60	165.00	0
165	Acid Soluble B (0.5%)	0292	0.5750‡	0.0100	0.4604	0.0319	0.0140	50	3.60	165.30	0
165	Acid Soluble B (0.5%)	0574	24.24‡	47.53	0.4604	0.0319	0.0140	50	746.15	165.70	2
171	Water Soluble B (%)	0493	0.4450	0.0100	0.4650	0.0000	0.0200	6	0.00	171.99	0
171	Water Soluble B (%)	0551	0.4650	0.0300	0.4650	0.0000	0.0200	6	0.00	171.10	0
171	Water Soluble B (%)	0564	0.4650	0.0100	0.4650	0.0000	0.0200	6	0.00	171.10	0
171	Water Soluble B (%)	0565	0.4650	0.0100	0.4650	0.0000	0.0200	6	0.00	171.10	0
171	Water Soluble B (%)	0027	0.4650	0.0100	0.4650	0.0000	0.0200	6	0.00	171.99	0
171	Water Soluble B (%)	0540	0.5450	0.0500	0.4650	0.0000	0.0200	6	0.00	171.10	0
181	Acid Soluble Cd (ppm)	0255	0.0590	0.0020	0.1022	0.0350	0.0043	8	-1.23	181.30	0
181	Acid Soluble Cd (ppm)	0394	0.0750	0.0060	0.1022	0.0350	0.0043	8	-0.78	181.30	0
181	Acid Soluble Cd (ppm)	0389	0.0833	0.0015	0.1022	0.0350	0.0043	8	-0.54	181.30	0
181	Acid Soluble Cd (ppm)	0523	0.0949	0.0008	0.1022	0.0350	0.0043	8	-0.21	181.30	0
181	Acid Soluble Cd (ppm)	0524	0.1043	0.0023	0.1022	0.0350	0.0043	8	0.06	181.30	0
181	Acid Soluble Cd (ppm)	0563	0.1214	0.0010	0.1022	0.0350	0.0043	8	0.55	181.33	0
181	Acid Soluble Cd (ppm)	0405	0.1250	0.0100	0.1022	0.0350	0.0043	8	0.65	181.99	0
181	Acid Soluble Cd (ppm)	0419	0.5405	0.0110	0.1022	0.0350	0.0043	8	12.53	181.30	0
181	Acid Soluble Cd (ppm)	0368	0.1375	0.0610	0.1022	0.0350	0.0043	8	1.01	181.34	1
181	Acid Soluble Cd (ppm)	0527	< 0.0001		0.1022	0.0350	0.0043	8		181.33	5
181	Acid Soluble Cd (ppm)	0220	< 0.1		0.1022	0.0350	0.0043	8		181.32	5
181	Acid Soluble Cd (ppm)	0572	< 0.2		0.1022	0.0350	0.0043	8		181.99	5
181	Acid Soluble Cd (ppm)	0481	< 0.5		0.1022	0.0350	0.0043	8		181.99	5
181	Acid Soluble Cd (ppm)	0494	< 0.54		0.1022	0.0350	0.0043	8		181.33	5
181	Acid Soluble Cd (ppm)	0136	< 1		0.1022	0.0350	0.0043	8		181.33	5
181	Acid Soluble Cd (ppm)	0553	< 1		0.1022	0.0350	0.0043	8		181.99	5
181	Acid Soluble Cd (ppm)	0117	< 5		0.1022	0.0350	0.0043	8		181.33	5
190	Water Soluble Cl (%)	0553	0.2700	0.0200				1		190.00	0
191	Acid Soluble Cr (ppm)	0524	5.956	0.4019	13.44	6.660	0.5997	16	-1.12	191.30	0
191	Acid Soluble Cr (ppm)	0389	6.651	0.0010	13.44	6.660	0.5997	16	-1.02	191.30	0
191	Acid Soluble Cr (ppm)	0444	7.605	1.370	13.44	6.660	0.5997	16	-0.88	191.30	0
191	Acid Soluble Cr (ppm)	0136	7.815	0.4300	13.44	6.660	0.5997	16	-0.84	191.33	0
191	Acid Soluble Cr (ppm)	0368	8.248	0.2960	13.44	6.660	0.5997	16	-0.78	191.34	0
191	Acid Soluble Cr (ppm)	0572	8.790	0.1600	13.44	6.660	0.5997	16	-0.70	191.99	0
191	Acid Soluble Cr (ppm)	0419	10.19	2.199	13.44	6.660	0.5997	16	-0.49	191.30	0
191	Acid Soluble Cr (ppm)	0220	12.65	1.300	13.44	6.660	0.5997	16	-0.12	191.99	0
191	Acid Soluble Cr (ppm)	0405	13.00	0.0000	13.44	6.660	0.5997	16	-0.07	191.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
191	Acid Soluble Cr (ppm)	0220	13.50	1.000	13.44	6.660	0.5997	16	0.01	191.32	0
191	Acid Soluble Cr (ppm)	0035	18.00	1.200	13.44	6.660	0.5997	16	0.68	191.30	0
191	Acid Soluble Cr (ppm)	0394	18.37	0.2560	13.44	6.660	0.5997	16	0.74	191.30	0
191	Acid Soluble Cr (ppm)	0527	18.50	0.1124	13.44	6.660	0.5997	16	0.76	191.33	0
191	Acid Soluble Cr (ppm)	0563	20.41	0.3437	13.44	6.660	0.5997	16	1.05	191.33	0
191	Acid Soluble Cr (ppm)	0494	22.65	0.1000	13.44	6.660	0.5997	16	1.38	191.33	0
191	Acid Soluble Cr (ppm)	0523	22.68	0.4247	13.44	6.660	0.5997	16	1.39	191.30	0
191	Acid Soluble Cr (ppm)	0481	< 50		13.44	6.660	0.5997	16		191.99	5
202	Acid Soluble Co (ppm)	0389	0.3323	0.0075	1.624	0.7212	0.1645	15	-1.79	202.30	0
202	Acid Soluble Co (ppm)	0572	0.7500	0.1000	1.624	0.7212	0.1645	15	-1.21	202.99	0
202	Acid Soluble Co (ppm)	0419	0.9350	0.1180	1.624	0.7212	0.1645	15	-0.96	202.30	0
202	Acid Soluble Co (ppm)	0255	1.068	0.1910	1.624	0.7212	0.1645	15	-0.77	202.99	0
202	Acid Soluble Co (ppm)	0220	1.200	0.4000	1.624	0.7212	0.1645	15	-0.59	202.99	0
202	Acid Soluble Co (ppm)	0220	1.250	0.3000	1.624	0.7212	0.1645	15	-0.52	202.32	0
202	Acid Soluble Co (ppm)	0035	1.420	0.1600	1.624	0.7212	0.1645	15	-0.28	202.30	0
202	Acid Soluble Co (ppm)	0405	1.700	0.2000	1.624	0.7212	0.1645	15	0.11	202.99	0
202	Acid Soluble Co (ppm)	0524	2.008	0.1276	1.624	0.7212	0.1645	15	0.53	202.30	0
202	Acid Soluble Co (ppm)	0527	2.113	0.0515	1.624	0.7212	0.1645	15	0.68	202.33	0
202	Acid Soluble Co (ppm)	0423	2.130	0.0600	1.624	0.7212	0.1645	15	0.70	202.32	0
202	Acid Soluble Co (ppm)	0553	2.205	0.1900	1.624	0.7212	0.1645	15	0.81	202.99	0
202	Acid Soluble Co (ppm)	0494	2.225	0.4900	1.624	0.7212	0.1645	15	0.83	202.33	0
202	Acid Soluble Co (ppm)	0523	2.339	0.0566	1.624	0.7212	0.1645	15	0.99	202.30	0
202	Acid Soluble Co (ppm)	0563	2.475	0.0149	1.624	0.7212	0.1645	15	1.18	202.33	0
202	Acid Soluble Co (ppm)	0368	< 0.1		1.624	0.7212	0.1645	15		202.34	5
202	Acid Soluble Co (ppm)	0136	< 5		1.624	0.7212	0.1645	15		202.33	5
202	Acid Soluble Co (ppm)	0481	< 20		1.624	0.7212	0.1645	15		202.99	5
221	Acid Soluble Cu (%)	0394	0.0001	0.0000	0.0002	0.0001	0.0000	8	-0.83	221.33	0
221	Acid Soluble Cu (%)	0368	0.0001	0.0000	0.0002	0.0001	0.0000	8	-0.83	221.99	0
221	Acid Soluble Cu (%)	0405	0.0001	0.0000	0.0002	0.0001	0.0000	8	-0.83	221.99	0
221	Acid Soluble Cu (%)	0563	0.0002	0.0001	0.0002	0.0001	0.0000	8	-0.40	221.33	0
221	Acid Soluble Cu (%)	0527	0.0002	0.0000	0.0002	0.0001	0.0000	8	0.03	221.33	0
221	Acid Soluble Cu (%)	0572	0.0003	0.0001	0.0002	0.0001	0.0000	8	0.46	221.99	0
221	Acid Soluble Cu (%)	0524	0.0003	0.0000	0.0002	0.0001	0.0000	8	0.89	221.99	0
221	Acid Soluble Cu (%)	0307	0.0006	0.0001	0.0002	0.0001	0.0000	8	3.03	221.99	0
221	Acid Soluble Cu (%)	0552	0.0900	0.0200	0.0002	0.0001	0.0000	8	769.08	221.30	2
221	Acid Soluble Cu (%)	0255	0.0000	0.0000	0.0002	0.0001	0.0000	8		221.30	4
221	Acid Soluble Cu (%)	0481	< 0.001		0.0002	0.0001	0.0000	8		221.99	5
221	Acid Soluble Cu (%)	0136	< 0.0025		0.0002	0.0001	0.0000	8		221.33	5
221	Acid Soluble Cu (%)	0553	< 0.005		0.0002	0.0001	0.0000	8		221.00	5
221	Acid Soluble Cu (%)	0354	< 0.01		0.0002	0.0001	0.0000	8		221.30	5
241	Acid Soluble Fe (%)	0354	0.0500	0.0000	0.0605	0.0062	0.0023	14	-1.69	241.30	0
241	Acid Soluble Fe (%)	0389	0.0548	0.0000	0.0605	0.0062	0.0023	14	-0.92	241.99	0
241	Acid Soluble Fe (%)	0524	0.0557	0.0044	0.0605	0.0062	0.0023	14	-0.78	241.99	0
241	Acid Soluble Fe (%)	0307	0.0565	0.0030	0.0605	0.0062	0.0023	14	-0.65	241.99	0
241	Acid Soluble Fe (%)	0368	0.0575	0.0027	0.0605	0.0062	0.0023	14	-0.50	241.99	0
241	Acid Soluble Fe (%)	0553	0.0580	0.0000	0.0605	0.0062	0.0023	14	-0.41	241.00	0
241	Acid Soluble Fe (%)	0563	0.0583	0.0004	0.0605	0.0062	0.0023	14	-0.36	241.33	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
241	Acid Soluble Fe (%)	0472	0.0600	0.0000	0.0605	0.0062	0.0023	14	-0.09	241.30	0
241	Acid Soluble Fe (%)	0035	0.0620	0.0120	0.0605	0.0062	0.0023	14	0.24	241.30	0
241	Acid Soluble Fe (%)	0049	0.0641	0.0020	0.0605	0.0062	0.0023	14	0.57	241.30	0
241	Acid Soluble Fe (%)	0494	0.0656	0.0057	0.0605	0.0062	0.0023	14	0.81	241.33	0
241	Acid Soluble Fe (%)	0423	0.0665	0.0010	0.0605	0.0062	0.0023	14	0.96	241.32	0
241	Acid Soluble Fe (%)	0028	0.0679	0.0004	0.0605	0.0062	0.0023	14	1.18	241.32	0
241	Acid Soluble Fe (%)	0527	0.0695	0.0012	0.0605	0.0062	0.0023	14	1.44	241.33	0
241	Acid Soluble Fe (%)	0552	0.2550	0.0900	0.0605	0.0062	0.0023	14	31.27	241.30	2
251	Acid Soluble Pb (ppm)	0389	0.2265	0.0030	0.4425	0.1806	0.0430	10	-1.20	251.30	0
251	Acid Soluble Pb (ppm)	0394	0.3245	0.0410	0.4425	0.1806	0.0430	10	-0.65	251.30	0
251	Acid Soluble Pb (ppm)	0524	0.3596	0.0198	0.4425	0.1806	0.0430	10	-0.46	251.30	0
251	Acid Soluble Pb (ppm)	0255	0.3630	0.0100	0.4425	0.1806	0.0430	10	-0.44	251.30	0
251	Acid Soluble Pb (ppm)	0563	0.3847	0.0057	0.4425	0.1806	0.0430	10	-0.32	251.33	0
251	Acid Soluble Pb (ppm)	0523	0.4149	0.0003	0.4425	0.1806	0.0430	10	-0.15	251.30	0
251	Acid Soluble Pb (ppm)	0572	0.4250	0.0300	0.4425	0.1806	0.0430	10	-0.10	251.99	0
251	Acid Soluble Pb (ppm)	0405	0.5000	0.0000	0.4425	0.1806	0.0430	10	0.32	251.99	0
251	Acid Soluble Pb (ppm)	0220	3.900	0.0000	0.4425	0.1806	0.0430	10	19.15	251.32	0
251	Acid Soluble Pb (ppm)	0553	4.840	0.3200	0.4425	0.1806	0.0430	10	24.35	251.99	0
251	Acid Soluble Pb (ppm)	0220	3.900	0.4000	0.4425	0.1806	0.0430	10	19.15	251.99	1
251	Acid Soluble Pb (ppm)	0527	< 0.0001		0.4425	0.1806	0.0430	10		251.33	5
251	Acid Soluble Pb (ppm)	0368	< 0.5		0.4425	0.1806	0.0430	10		251.34	5
251	Acid Soluble Pb (ppm)	0481	< 1		0.4425	0.1806	0.0430	10		251.99	5
251	Acid Soluble Pb (ppm)	0494	< 1.27		0.4425	0.1806	0.0430	10		251.33	5
251	Acid Soluble Pb (ppm)	0136	< 3		0.4425	0.1806	0.0430	10		251.33	5
251	Acid Soluble Pb (ppm)	0117	< 5		0.4425	0.1806	0.0430	10		251.33	5
261	Acid Soluble Mn (%)	0389	0.0045	0.0000	0.0051	0.0004	0.0001	11	-1.71	261.99	0
261	Acid Soluble Mn (%)	0524	0.0046	0.0004	0.0051	0.0004	0.0001	11	-1.42	261.99	0
261	Acid Soluble Mn (%)	0035	0.0050	0.0003	0.0051	0.0004	0.0001	11	-0.42	261.30	0
261	Acid Soluble Mn (%)	0423	0.0050	0.0000	0.0051	0.0004	0.0001	11	-0.28	261.34	0
261	Acid Soluble Mn (%)	0419	0.0050	0.0000	0.0051	0.0004	0.0001	11	-0.28	261.35	0
261	Acid Soluble Mn (%)	0563	0.0052	0.0001	0.0051	0.0004	0.0001	11	0.15	261.35	0
261	Acid Soluble Mn (%)	0527	0.0053	0.0001	0.0051	0.0004	0.0001	11	0.44	261.35	0
261	Acid Soluble Mn (%)	0307	0.0053	0.0003	0.0051	0.0004	0.0001	11	0.44	261.99	0
261	Acid Soluble Mn (%)	0049	0.0054	0.0000	0.0051	0.0004	0.0001	11	0.86	261.32	0
261	Acid Soluble Mn (%)	0028	0.0055	0.0001	0.0051	0.0004	0.0001	11	1.01	261.34	0
261	Acid Soluble Mn (%)	0546	0.0055	0.0001	0.0051	0.0004	0.0001	11	1.01	261.35	0
261	Acid Soluble Mn (%)	0552	0.1100	0.0000	0.0051	0.0004	0.0001	11	299.69	261.32	2
261	Acid Soluble Mn (%)	0553	< 0.005		0.0051	0.0004	0.0001	11		261.00	5
261	Acid Soluble Mn (%)	0354	< 0.01		0.0051	0.0004	0.0001	11		261.30	5
281	Acid Soluble Hg (ppm)	0572	0.1580	0.0060	0.1762	0.0134	0.0024	6	-1.22	281.99	0
281	Acid Soluble Hg (ppm)	0563	0.1679	0.0025	0.1762	0.0134	0.0024	6	-0.56	281.30	0
281	Acid Soluble Hg (ppm)	0035	0.1760	0.0040	0.1762	0.0134	0.0024	6	-0.02	281.99	0
281	Acid Soluble Hg (ppm)	0220	0.1800	0.0000	0.1762	0.0134	0.0024	6	0.25	281.99	0
281	Acid Soluble Hg (ppm)	0368	0.1856	0.0020	0.1762	0.0134	0.0024	6	0.62	281.99	0
281	Acid Soluble Hg (ppm)	0405	0.1900	0.0000	0.1762	0.0134	0.0024	6	0.92	281.99	0
281	Acid Soluble Hg (ppm)	0524	0.2053	0.0191	0.1762	0.0134	0.0024	6	1.93	281.99	1
281	Acid Soluble Hg (ppm)	0527	< 0.0001		0.1762	0.0134	0.0024	6		281.30	5

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
281	Acid Soluble Hg (ppm)	0481	< 0.5		0.1762	0.0134	0.0024	6		281.99	5
289	Acid Soluble Mo (ppm)	0255	0.1555	0.1390	0.8209	0.4573	0.1343	8	-1.45	289.30	0
289	Acid Soluble Mo (ppm)	0220	0.5000	0.2000	0.8209	0.4573	0.1343	8	-0.70	289.99	0
289	Acid Soluble Mo (ppm)	0220	0.6500	0.5000	0.8209	0.4573	0.1343	8	-0.37	289.32	0
289	Acid Soluble Mo (ppm)	0524	0.8257	0.0415	0.8209	0.4573	0.1343	8	0.01	289.30	0
289	Acid Soluble Mo (ppm)	0572	0.8600	0.0200	0.8209	0.4573	0.1343	8	0.09	289.99	0
289	Acid Soluble Mo (ppm)	0563	1.024	0.0139	0.8209	0.4573	0.1343	8	0.44	289.33	0
289	Acid Soluble Mo (ppm)	0405	1.045	0.0300	0.8209	0.4573	0.1343	8	0.49	289.99	0
289	Acid Soluble Mo (ppm)	0035	3.555	0.1300	0.8209	0.4573	0.1343	8	5.98	289.30	0
289	Acid Soluble Mo (ppm)	0234	1.500	1.000	0.8209	0.4573	0.1343	8	1.49	289.30	1
289	Acid Soluble Mo (ppm)	0527	< 0.0001		0.8209	0.4573	0.1343	8		289.33	5
289	Acid Soluble Mo (ppm)	0368	< 0.1		0.8209	0.4573	0.1343	8		289.34	5
289	Acid Soluble Mo (ppm)	0136	< 5		0.8209	0.4573	0.1343	8		289.33	5
289	Acid Soluble Mo (ppm)	0481	< 100		0.8209	0.4573	0.1343	8		289.99	5
291	Acid Soluble Ni (ppm)	0255	2.352	0.0100	4.492	1.205	0.1411	16	-1.78	291.99	0
291	Acid Soluble Ni (ppm)	0389	2.956	0.0100	4.492	1.205	0.1411	16	-1.27	291.30	0
291	Acid Soluble Ni (ppm)	0368	3.183	0.0740	4.492	1.205	0.1411	16	-1.09	291.34	0
291	Acid Soluble Ni (ppm)	0524	3.441	0.1033	4.492	1.205	0.1411	16	-0.87	291.30	0
291	Acid Soluble Ni (ppm)	0572	3.755	0.1100	4.492	1.205	0.1411	16	-0.61	291.99	0
291	Acid Soluble Ni (ppm)	0220	4.050	0.1000	4.492	1.205	0.1411	16	-0.37	291.99	0
291	Acid Soluble Ni (ppm)	0394	4.390	0.0330	4.492	1.205	0.1411	16	-0.09	291.30	0
291	Acid Soluble Ni (ppm)	0527	4.618	0.0583	4.492	1.205	0.1411	16	0.10	291.33	0
291	Acid Soluble Ni (ppm)	0220	4.800	0.4000	4.492	1.205	0.1411	16	0.26	291.32	0
291	Acid Soluble Ni (ppm)	0494	4.843	0.1667	4.492	1.205	0.1411	16	0.29	291.33	0
291	Acid Soluble Ni (ppm)	0405	5.000	0.0000	4.492	1.205	0.1411	16	0.42	291.99	0
291	Acid Soluble Ni (ppm)	0523	5.107	0.0496	4.492	1.205	0.1411	16	0.51	291.30	0
291	Acid Soluble Ni (ppm)	0563	5.239	0.0331	4.492	1.205	0.1411	16	0.62	291.33	0
291	Acid Soluble Ni (ppm)	0419	5.799	0.5690	4.492	1.205	0.1411	16	1.08	291.30	0
291	Acid Soluble Ni (ppm)	0035	5.865	0.1900	4.492	1.205	0.1411	16	1.14	291.30	0
291	Acid Soluble Ni (ppm)	0553	6.145	0.3500	4.492	1.205	0.1411	16	1.37	291.99	0
291	Acid Soluble Ni (ppm)	0444	2.800	1.080	4.492	1.205	0.1411	16	-1.40	291.30	1
291	Acid Soluble Ni (ppm)	0117	< 5		4.492	1.205	0.1411	16		291.33	5
291	Acid Soluble Ni (ppm)	0136	< 5		4.492	1.205	0.1411	16		291.33	5
291	Acid Soluble Ni (ppm)	0481	< 20		4.492	1.205	0.1411	16		291.99	5
301	Acid Soluble Se (ppm)	0220	1.150	0.1000	1.806	0.9489	0.1619	7	-0.69	301.32	0
301	Acid Soluble Se (ppm)	0220	1.150	0.1000	1.806	0.9489	0.1619	7	-0.69	301.99	0
301	Acid Soluble Se (ppm)	0523	1.193	0.0604	1.806	0.9489	0.1619	7	-0.65	301.30	0
301	Acid Soluble Se (ppm)	0572	1.355	0.1300	1.806	0.9489	0.1619	7	-0.48	301.99	0
301	Acid Soluble Se (ppm)	0563	1.872	0.0044	1.806	0.9489	0.1619	7	0.07	301.33	0
301	Acid Soluble Se (ppm)	0524	2.753	0.3383	1.806	0.9489	0.1619	7	1.00	301.30	0
301	Acid Soluble Se (ppm)	0494	3.170	0.4000	1.806	0.9489	0.1619	7	1.44	301.33	0
301	Acid Soluble Se (ppm)	0405	2.500	1.000	1.806	0.9489	0.1619	7	0.73	301.99	1
301	Acid Soluble Se (ppm)	0255	0.0000	0.0000	1.806	0.9489	0.1619	7		301.99	4
301	Acid Soluble Se (ppm)	0527	< 0.001		1.806	0.9489	0.1619	7		301.33	5
301	Acid Soluble Se (ppm)	0481	< 0.5		1.806	0.9489	0.1619	7		301.99	5
301	Acid Soluble Se (ppm)	0368	< 1		1.806	0.9489	0.1619	7		301.34	5
311	Sodium (%)	0419	0.2703	0.0002	0.3225	0.0374	0.0131	9	-1.29	311.33	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
311	Sodium (%)	0553	0.2925	0.0050	0.3225	0.0374	0.0131	9	-0.74	311.00	0
311	Sodium (%)	0572	0.3050	0.0300	0.3225	0.0374	0.0131	9	-0.43	311.99	0
311	Sodium (%)	0368	0.3136	0.0107	0.3225	0.0374	0.0131	9	-0.22	311.99	0
311	Sodium (%)	0423	0.3200	0.0040	0.3225	0.0374	0.0131	9	-0.06	311.33	0
311	Sodium (%)	0035	0.3225	0.0250	0.3225	0.0374	0.0131	9	0.00	311.33	0
311	Sodium (%)	0354	0.3450	0.0300	0.3225	0.0374	0.0131	9	0.56	311.99	0
311	Sodium (%)	0527	0.3549	0.0089	0.3225	0.0374	0.0131	9	0.80	311.33	0
311	Sodium (%)	0563	0.4287	0.0042	0.3225	0.0374	0.0131	9	2.62	311.33	0
321	Acid Soluble Zn (1.5%)	0472	1.290†	0.0000	1.483	0.0728	0.0315	55	-2.66	321.30	0
321	Acid Soluble Zn (1.5%)	0324	1.340	0.1400	1.483	0.0728	0.0315	55	-1.97	321.30	0
321	Acid Soluble Zn (1.5%)	0307	1.360	0.0200	1.483	0.0728	0.0315	55	-1.69	321.99	0
321	Acid Soluble Zn (1.5%)	0117	1.361	0.0094	1.483	0.0728	0.0315	55	-1.68	321.33	0
321	Acid Soluble Zn (1.5%)	0451	1.362	0.0570	1.483	0.0728	0.0315	55	-1.67	321.30	0
321	Acid Soluble Zn (1.5%)	0157	1.370	0.0400	1.483	0.0728	0.0315	55	-1.56	321.30	0
321	Acid Soluble Zn (1.5%)	0042	1.385	0.1500	1.483	0.0728	0.0315	55	-1.35	321.99	0
321	Acid Soluble Zn (1.5%)	0493	1.410	0.0200	1.483	0.0728	0.0315	55	-1.01	321.30	0
321	Acid Soluble Zn (1.5%)	0255	1.413	0.0350	1.483	0.0728	0.0315	55	-0.97	321.30	0
321	Acid Soluble Zn (1.5%)	0561	1.420	0.0000	1.483	0.0728	0.0315	55	-0.87	321.33	0
321	Acid Soluble Zn (1.5%)	0481	1.430	0.0200	1.483	0.0728	0.0315	55	-0.73	321.99	0
321	Acid Soluble Zn (1.5%)	0444	1.435	0.0100	1.483	0.0728	0.0315	55	-0.66	321.30	0
321	Acid Soluble Zn (1.5%)	0390	1.450	0.0200	1.483	0.0728	0.0315	55	-0.46	321.30	0
321	Acid Soluble Zn (1.5%)	0073	1.450	0.0400	1.483	0.0728	0.0315	55	-0.46	321.32	0
321	Acid Soluble Zn (1.5%)	0055	1.450	0.0000	1.483	0.0728	0.0315	55	-0.46	321.33	0
321	Acid Soluble Zn (1.5%)	0027	1.450	0.0400	1.483	0.0728	0.0315	55	-0.46	321.99	0
321	Acid Soluble Zn (1.5%)	0513	1.455	0.0100	1.483	0.0728	0.0315	55	-0.39	321.00	0
321	Acid Soluble Zn (1.5%)	0486	1.455	0.0300	1.483	0.0728	0.0315	55	-0.39	321.33	0
321	Acid Soluble Zn (1.5%)	0389	1.456	0.0020	1.483	0.0728	0.0315	55	-0.37	321.99	0
321	Acid Soluble Zn (1.5%)	0551	1.460	0.0200	1.483	0.0728	0.0315	55	-0.32	321.00	0
321	Acid Soluble Zn (1.5%)	0559	1.460	0.0200	1.483	0.0728	0.0315	55	-0.32	321.99	0
321	Acid Soluble Zn (1.5%)	0494	1.465	0.0668	1.483	0.0728	0.0315	55	-0.25	321.33	0
321	Acid Soluble Zn (1.5%)	0043	1.465	0.0500	1.483	0.0728	0.0315	55	-0.25	321.33	0
321	Acid Soluble Zn (1.5%)	0521	1.469	0.0000	1.483	0.0728	0.0315	55	-0.19	321.32	0
321	Acid Soluble Zn (1.5%)	0433	1.470	0.0400	1.483	0.0728	0.0315	55	-0.18	321.30	0
321	Acid Soluble Zn (1.5%)	0049	1.479	0.0130	1.483	0.0728	0.0315	55	-0.06	321.30	0
321	Acid Soluble Zn (1.5%)	0028	1.480	0.0000	1.483	0.0728	0.0315	55	-0.04	321.32	0
321	Acid Soluble Zn (1.5%)	0572	1.480	0.0800	1.483	0.0728	0.0315	55	-0.04	321.99	0
321	Acid Soluble Zn (1.5%)	0040	1.481	0.0070	1.483	0.0728	0.0315	55	-0.04	321.00	0
321	Acid Soluble Zn (1.5%)	0547	1.485	0.0300	1.483	0.0728	0.0315	55	0.02	321.99	0
321	Acid Soluble Zn (1.5%)	0563	1.489	0.0003	1.483	0.0728	0.0315	55	0.08	321.33	0
321	Acid Soluble Zn (1.5%)	0534	1.490	0.0200	1.483	0.0728	0.0315	55	0.09	321.00	0
321	Acid Soluble Zn (1.5%)	0574	1.490	0.0800	1.483	0.0728	0.0315	55	0.09	321.99	0
321	Acid Soluble Zn (1.5%)	0553	1.498	0.0150	1.483	0.0728	0.0315	55	0.20	321.00	0
321	Acid Soluble Zn (1.5%)	0533	1.500	0.0600	1.483	0.0728	0.0315	55	0.23	321.00	0
321	Acid Soluble Zn (1.5%)	0231	1.500	0.0000	1.483	0.0728	0.0315	55	0.23	321.30	0
321	Acid Soluble Zn (1.5%)	0200	1.500	0.0200	1.483	0.0728	0.0315	55	0.23	321.33	0
321	Acid Soluble Zn (1.5%)	0177	1.500	0.0709	1.483	0.0728	0.0315	55	0.23	321.33	0
321	Acid Soluble Zn (1.5%)	0368	1.507	0.0035	1.483	0.0728	0.0315	55	0.32	321.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
321	Acid Soluble Zn (1.5%)	0527	1.513	0.0262	1.483	0.0728	0.0315	55	0.41	321.33	0
321	Acid Soluble Zn (1.5%)	0169	1.534	0.0650	1.483	0.0728	0.0315	55	0.69	321.33	0
321	Acid Soluble Zn (1.5%)	0136	1.535	0.0100	1.483	0.0728	0.0315	55	0.71	321.33	0
321	Acid Soluble Zn (1.5%)	0524	1.540	0.0188	1.483	0.0728	0.0315	55	0.78	321.99	0
321	Acid Soluble Zn (1.5%)	0354	1.545	0.0100	1.483	0.0728	0.0315	55	0.85	321.30	0
321	Acid Soluble Zn (1.5%)	0234	1.550	0.1000	1.483	0.0728	0.0315	55	0.92	321.30	0
321	Acid Soluble Zn (1.5%)	0292	1.560	0.0200	1.483	0.0728	0.0315	55	1.06	321.30	0
321	Acid Soluble Zn (1.5%)	0220	1.565	0.0300	1.483	0.0728	0.0315	55	1.12	321.32	0
321	Acid Soluble Zn (1.5%)	0546	1.566	0.0320	1.483	0.0728	0.0315	55	1.14	321.33	0
321	Acid Soluble Zn (1.5%)	0523	1.573	0.0160	1.483	0.0728	0.0315	55	1.23	321.99	0
321	Acid Soluble Zn (1.5%)	0394	1.579	0.0220	1.483	0.0728	0.0315	55	1.32	321.33	0
321	Acid Soluble Zn (1.5%)	0419	1.585	0.0250	1.483	0.0728	0.0315	55	1.39	321.33	0
321	Acid Soluble Zn (1.5%)	0095	1.585	0.0100	1.483	0.0728	0.0315	55	1.40	321.32	0
321	Acid Soluble Zn (1.5%)	0452	1.660‡	0.0000	1.483	0.0728	0.0315	55	2.43	321.30	0
321	Acid Soluble Zn (1.5%)	0552	1.760‡	0.1000	1.483	0.0728	0.0315	55	3.80	321.30	0
321	Acid Soluble Zn (1.5%)	0423	1.815‡	0.0050	1.483	0.0728	0.0315	55	4.55	321.32	0
321	Acid Soluble Zn (1.5%)	0035	1.315†	0.3100	1.483	0.0728	0.0315	55	-2.31	321.30	1
325	Water Soluble Zn (%)	0559	1.020	0.0200	1.200	0.2780	0.0314	7	-0.59	325.99	0
325	Water Soluble Zn (%)	0394	1.032	0.0597	1.200	0.2780	0.0314	7	-0.55	325.30	0
325	Water Soluble Zn (%)	0572	1.035	0.0500	1.200	0.2780	0.0314	7	-0.54	325.99	0
325	Water Soluble Zn (%)	0493	1.050	0.0200	1.200	0.2780	0.0314	7	-0.49	325.30	0
325	Water Soluble Zn (%)	0220	1.160	0.0600	1.200	0.2780	0.0314	7	-0.13	325.30	0
325	Water Soluble Zn (%)	0565	1.550	0.0000	1.200	0.2780	0.0314	7	1.14	325.99	0
325	Water Soluble Zn (%)	0564	1.555	0.0100	1.200	0.2780	0.0314	7	1.15	325.99	0
325	Water Soluble Zn (%)	0518	11.00	0.2000	1.200	0.2780	0.0314	7	31.87	325.99	1

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier, 3 = removed from stats, 4 = rejected due to 0s submitted and 5 = LOD. A 9 flag indicates a data problem - scores not calculated. Robust statistics not used if < 6 labs used in calculations, in this case the Z Scores are grey and included for information only. Your offset values are higher (‡) or lower (†) than the Robust Analyte value ± Investigational Allowance. Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.