

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 201012

Grade 0-0-0-4Mg-10S

Statistical Summary

Analytes: 30

Labs Reporting: 77

Issue Date : 11/30/2020

Analyte Code	Analyte Sample # 201012	# 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 (%)	1		0.0008									
002	Nitrate N (%)	1		0.0042									
005	Urea N (%)	1		0.0061									
010	Total N (%)	3	2	0.1183	0.0746	0.1183	0.4900	0.0746	0.0660	63.10%	0.35	0.0153	5.52%
020	Total P2O5 (%)	3	3	0.0470	0.0810	0.0470		0.0810	0.0585	172.47%		0.0051	6.34%
041	Direct Available P2O5 (%)	1		0.0300									
050	Soluble K2O (%)	4	3	0.2526	0.3530	0.2526	0.4100	0.3530	0.2548	139.77%	2.01	0.0224	4.92%
101	Acid Soluble Ca (%)	6	5	0.1968	0.1920	0.1968	0.2098	0.1920	0.1073	97.55%	2.13	0.0007	5.11%
121	Acid Soluble Mg (4%)	62	61	4.197	0.5023	4.107	0.4054	0.2304	0.0369	5.61%	1.32	0.1089	3.23%
131	Water Soluble Mg (%)	18	18	4.095	0.1574	4.081		0.1423	0.0419	3.49%		0.0700	3.24%
143	Elemental S (%)	4	4	10.23	1.004	10.23		1.004	0.6273	9.81%		0.1490	2.82%
145	Sulfate S, HCl soluble (%)	4	4	10.67	0.5761	10.67		0.5761	0.3601	5.40%		0.2400	2.80%
146	Total S in Liquid (10%)	11	11	10.06	0.2305	10.01	0.7004	0.1055	0.0398	1.05%	0.35	0.0645	2.83%
148	Total S (10%)	40	39	10.53	0.4524	10.53	0.7266	0.4423	0.0885	4.20%	1.42	0.2082	2.81%
149	S - HNO3 soluble (%)	3	3	9.760	1.099	9.760		1.099	0.7930	11.26%		0.0782	2.84%
151	Acid Soluble As (ppm)	12	5	0.3725	0.4502	0.3725		0.4502	0.2517	120.87%		0.2296	18.56%
165	Acid Soluble B (%)	5	4	0.0016	0.0010	0.0016	0.0032	0.0010	0.0006	62.93%	0.71	0.0002	10.56%
181	Acid Soluble Cd (ppm)	13	3	0.1052	0.1718	0.1052		0.1718	0.1240	163.43%		0.0986	22.45%
191	Acid Soluble Cr (ppm)	12	4	2.260	2.729	2.260		2.729	1.706	120.74%		1.234	14.15%
202	Acid Soluble Co (ppm)	10	4	1.119	1.107	1.119	1.3358	1.107	0.6919	98.92%	1.93	0.2478	15.73%
221	Acid Soluble Cu (%)	19	5	0.0041	0.0083	0.0041	0.0054	0.0083	0.0047	202.64%	3.59	0.0001	9.14%
241	Acid Soluble Fe (%)	6	2	0.0066	0.0091	0.0066	0.0057	0.0091	0.0080	137.14%	3.73	0.0010	8.52%
251	Acid Soluble Pb (ppm)	10	3	2.660	3.997	2.660		3.997	2.885	150.29%		0.3745	13.81%
261	Acid Soluble Mn (%)	8	4	0.0011	0.0013	0.0011	0.0051	0.0013	0.0008	124.54%	0.60	0.0001	11.23%
281	Acid Soluble Hg (ppm)	6	2	338.9	443.6	338.9		443.6	392.1	130.88%		17.36	6.66%
289	Acid Soluble Mo (ppm)	11	4	3.192	5.239	3.192	1.9575	5.239	3.275	164.16%	6.24	0.2873	13.43%
291	Acid Soluble Ni (ppm)	13	2	0.5917	0.7832	0.5917		0.7832	0.6923	132.37%		0.0214	17.31%
301	Acid Soluble Se (ppm)	9	4	34.77	69.16	34.77		69.16	43.22	198.92%		2.823	9.38%
311	Sodium (%)	4	4	0.0172	0.0088	0.0172	0.0067	0.0088	0.0055	51.02%	3.04	0.0029	7.37%
321	Acid Soluble Zn (%)	18	5	0.0825	0.1196	0.0825	0.0133	0.1196	0.0668	144.89%	21.02	0.0634	5.82%

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 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.

Horwitz %RSD	
Average Range (R-bar)	
Analyte IA Ratio	
Robust % RSD	
Robust Uncertainty (U)	
Robust sd	
IA at Analyte Value	
Assigned Value Robust Mean	
Raw SD	
Raw Mean	
# Tests in Robust Calculations	
# Tests Submitted	
Analyte Sample # 201012	
Analyte Code	

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Sample # 201012

Grade 0-0-0-4Mg-10S

Lab Values

Analytes: 30

Labs Reporting: 77

Issue Date : 11/30/2020

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 (%)	0553	< 0.0008					0	001.99	5	
002	Nitrate N (%)	0553	0.0042	0.0003				1	002.99	0	
005	Urea N (%)	0524	0.0061	0.0002				1	005.99	0	
010	Total N (%)	0354	0.0655	0.0250				2	010.60	0	
010	Total N (%)	0524	0.1711	0.0055				2	010.99	0	
010	Total N (%)	0516	0.0000	0.0000				2	010.60	4	
020	Total P2O5 (%)	0524	0.0002	0.0002	0.0470	0.0810	0.0051	3	-0.58	020.50	0
020	Total P2O5 (%)	0515	0.0002	0.0000	0.0470	0.0810	0.0051	3	-0.58	020.99	0
020	Total P2O5 (%)	0516	0.1405	0.0150	0.0470	0.0810	0.0051	3	1.15	020.50	0
041	Direct Available P2O5 (%)	0354	0.0300	0.0040				1	041.21	0	
050	Soluble K2O (%)	0354	0.0175	0.0030	0.2526	0.3530	0.0224	3	-0.67	050.52	0
050	Soluble K2O (%)	0524	0.0817	0.0332	0.2526	0.3530	0.0224	3	-0.48	050.99	0
050	Soluble K2O (%)	0516	0.6585	0.0310	0.2526	0.3530	0.0224	3	1.15	050.99	0
050	Soluble K2O (%)	0553	< 0.006		0.2526	0.3530	0.0224	3		050.99	5
101	Acid Soluble Ca (%)	0025	0.1035	0.0010	0.1968	0.1920	0.0007	5	-0.42	101.33	0
101	Acid Soluble Ca (%)	0419	0.1087	0.0005	0.1968	0.1920	0.0007	5	-0.40	101.33	0
101	Acid Soluble Ca (%)	0494	0.1118	0.0021	0.1968	0.1920	0.0007	5	-0.39	101.33	0
101	Acid Soluble Ca (%)	0096	0.1200	0.0000	0.1968	0.1920	0.0007	5	-0.35	101.30	0
101	Acid Soluble Ca (%)	0553	0.5400	0.0000	0.1968	0.1920	0.0007	5	1.56	101.00	0
101	Acid Soluble Ca (%)	0354	0.1550	0.0100	0.1968	0.1920	0.0007	5	-0.19	101.30	1
121	Acid Soluble Mg (4%)	0390	3.420†	0.3800	4.107	0.2304	0.1089	61	-2.98	121.30	0
121	Acid Soluble Mg (4%)	0561	3.640†	0.0200	4.107	0.2304	0.1089	61	-2.03	121.33	0
121	Acid Soluble Mg (4%)	0106	3.653†	0.6998	4.107	0.2304	0.1089	61	-1.97	121.33	0
121	Acid Soluble Mg (4%)	0506	3.775	0.0500	4.107	0.2304	0.1089	61	-1.44	121.99	0
121	Acid Soluble Mg (4%)	0524	3.780	0.1494	4.107	0.2304	0.1089	61	-1.42	121.99	0
121	Acid Soluble Mg (4%)	0117	3.801	0.1016	4.107	0.2304	0.1089	61	-1.33	121.33	0
121	Acid Soluble Mg (4%)	0516	3.829	0.0180	4.107	0.2304	0.1089	61	-1.21	121.99	0
121	Acid Soluble Mg (4%)	0043	3.830	0.2600	4.107	0.2304	0.1089	61	-1.20	121.33	0
121	Acid Soluble Mg (4%)	0096	3.920	0.1600	4.107	0.2304	0.1089	61	-0.81	121.30	0
121	Acid Soluble Mg (4%)	0419	3.930	0.0116	4.107	0.2304	0.1089	61	-0.77	121.33	0
121	Acid Soluble Mg (4%)	0035	3.935	0.0500	4.107	0.2304	0.1089	61	-0.75	121.30	0
121	Acid Soluble Mg (4%)	0169	3.945	0.0500	4.107	0.2304	0.1089	61	-0.70	121.00	0
121	Acid Soluble Mg (4%)	0534	3.945	0.0500	4.107	0.2304	0.1089	61	-0.70	121.00	0
121	Acid Soluble Mg (4%)	0169	3.945	0.0500	4.107	0.2304	0.1089	61	-0.70	121.33	0
121	Acid Soluble Mg (4%)	0040	3.955	0.0300	4.107	0.2304	0.1089	61	-0.66	121.00	0
121	Acid Soluble Mg (4%)	0029	3.969	0.0260	4.107	0.2304	0.1089	61	-0.60	121.00	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				
121	Acid Soluble Mg (4%)	0558	3.970	0.0000	4.107	0.2304	0.1089	61	-0.60	121.99	0
121	Acid Soluble Mg (4%)	0537	4.000	0.2000	4.107	0.2304	0.1089	61	-0.47	121.00	0
121	Acid Soluble Mg (4%)	0177	4.001	0.0188	4.107	0.2304	0.1089	61	-0.46	121.33	0
121	Acid Soluble Mg (4%)	0234	4.010	0.0400	4.107	0.2304	0.1089	61	-0.42	121.30	0
121	Acid Soluble Mg (4%)	0371	4.010	0.0800	4.107	0.2304	0.1089	61	-0.42	121.30	0
121	Acid Soluble Mg (4%)	0360	4.015	0.0500	4.107	0.2304	0.1089	61	-0.40	121.30	0
121	Acid Soluble Mg (4%)	0481	4.020	0.0000	4.107	0.2304	0.1089	61	-0.38	121.99	0
121	Acid Soluble Mg (4%)	0535	4.050	0.1000	4.107	0.2304	0.1089	61	-0.25	121.00	0
121	Acid Soluble Mg (4%)	0539	4.050	0.1000	4.107	0.2304	0.1089	61	-0.25	121.00	0
121	Acid Soluble Mg (4%)	0547	4.056	0.0380	4.107	0.2304	0.1089	61	-0.22	121.99	0
121	Acid Soluble Mg (4%)	0037	4.058	0.0190	4.107	0.2304	0.1089	61	-0.22	121.33	0
121	Acid Soluble Mg (4%)	0420	4.069	0.1330	4.107	0.2304	0.1089	61	-0.17	121.30	0
121	Acid Soluble Mg (4%)	0095	4.070	0.0200	4.107	0.2304	0.1089	61	-0.16	121.32	0
121	Acid Soluble Mg (4%)	0394	4.089	0.0730	4.107	0.2304	0.1089	61	-0.08	121.32	0
121	Acid Soluble Mg (4%)	0025	4.090	0.0400	4.107	0.2304	0.1089	61	-0.08	121.33	0
121	Acid Soluble Mg (4%)	0513	4.095	0.0100	4.107	0.2304	0.1089	61	-0.05	121.00	0
121	Acid Soluble Mg (4%)	0536	4.100	0.1000	4.107	0.2304	0.1089	61	-0.03	121.00	0
121	Acid Soluble Mg (4%)	0498	4.100	0.0000	4.107	0.2304	0.1089	61	-0.03	121.02	0
121	Acid Soluble Mg (4%)	0291	4.105	0.0100	4.107	0.2304	0.1089	61	-0.01	121.30	0
121	Acid Soluble Mg (4%)	0553	4.120	0.1200	4.107	0.2304	0.1089	61	0.05	121.00	0
121	Acid Soluble Mg (4%)	0231	4.130	0.1400	4.107	0.2304	0.1089	61	0.10	121.30	0
121	Acid Soluble Mg (4%)	0354	4.140	0.0400	4.107	0.2304	0.1089	61	0.14	121.30	0
121	Acid Soluble Mg (4%)	0136	4.150	0.3000	4.107	0.2304	0.1089	61	0.18	121.33	0
121	Acid Soluble Mg (4%)	0157	4.175	0.1900	4.107	0.2304	0.1089	61	0.29	121.00	0
121	Acid Soluble Mg (4%)	0494	4.190	0.1968	4.107	0.2304	0.1089	61	0.36	121.33	0
121	Acid Soluble Mg (4%)	0377	4.195	0.1100	4.107	0.2304	0.1089	61	0.38	121.30	0
121	Acid Soluble Mg (4%)	0422	4.200	0.2000	4.107	0.2304	0.1089	61	0.40	121.03	0
121	Acid Soluble Mg (4%)	0423	4.210	0.0800	4.107	0.2304	0.1089	61	0.45	121.32	0
121	Acid Soluble Mg (4%)	0200	4.220	0.1600	4.107	0.2304	0.1089	61	0.49	121.00	0
121	Acid Soluble Mg (4%)	0433	4.225	0.0300	4.107	0.2304	0.1089	61	0.51	121.30	0
121	Acid Soluble Mg (4%)	0255	4.257	0.1010	4.107	0.2304	0.1089	61	0.65	121.30	0
121	Acid Soluble Mg (4%)	0027	4.259	0.3990	4.107	0.2304	0.1089	61	0.66	121.99	0
121	Acid Soluble Mg (4%)	0421	4.260	0.0240	4.107	0.2304	0.1089	61	0.66	121.33	0
121	Acid Soluble Mg (4%)	0444	4.295	0.0300	4.107	0.2304	0.1089	61	0.81	121.30	0
121	Acid Soluble Mg (4%)	0324	4.300	0.2400	4.107	0.2304	0.1089	61	0.84	121.30	0
121	Acid Soluble Mg (4%)	0023	4.350	0.1000	4.107	0.2304	0.1089	61	1.05	121.33	0
121	Acid Soluble Mg (4%)	0450	4.500	0.1000	4.107	0.2304	0.1089	61	1.70	121.30	0
121	Acid Soluble Mg (4%)	0527	4.543‡	0.0530	4.107	0.2304	0.1089	61	1.89	121.33	0
121	Acid Soluble Mg (4%)	0042	4.575‡	0.1300	4.107	0.2304	0.1089	61	2.03	121.99	0
121	Acid Soluble Mg (4%)	0472	4.820‡	0.0200	4.107	0.2304	0.1089	61	3.09	121.30	0
121	Acid Soluble Mg (4%)	0405	4.860‡	0.0600	4.107	0.2304	0.1089	61	3.27	121.99	0
121	Acid Soluble Mg (4%)	0486	5.070‡	0.0600	4.107	0.2304	0.1089	61	4.18	121.33	0
121	Acid Soluble Mg (4%)	0515	5.317‡	0.0812	4.107	0.2304	0.1089	61	5.25	121.33	0
121	Acid Soluble Mg (4%)	0073	5.570‡	0.2400	4.107	0.2304	0.1089	61	6.35	121.30	0
121	Acid Soluble Mg (4%)	0550	6.850‡	0.3000	4.107	0.2304	0.1089	61	11.90	121.00	0
121	Acid Soluble Mg (4%)	0515	5.407‡	1.287	4.107	0.2304	0.1089	61	5.64	121.99	1
131	Water Soluble Mg (%)	0535	3.950	0.1000	4.081	0.1423	0.0700	18	-0.92	131.00	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				
131	Water Soluble Mg (%)	0539	3.950	0.1000	4.081	0.1423	0.0700	18	-0.92	131.00	0
131	Water Soluble Mg (%)	0533	3.955	0.1100	4.081	0.1423	0.0700	18	-0.89	131.70	0
131	Water Soluble Mg (%)	0559	3.955	0.0100	4.081	0.1423	0.0700	18	-0.89	131.99	0
131	Water Soluble Mg (%)	0536	3.975	0.0500	4.081	0.1423	0.0700	18	-0.75	131.00	0
131	Water Soluble Mg (%)	0560	3.975	0.0100	4.081	0.1423	0.0700	18	-0.75	131.99	0
131	Water Soluble Mg (%)	0535	4.000	0.0000	4.081	0.1423	0.0700	18	-0.57	131.70	0
131	Water Soluble Mg (%)	0532	4.020	0.1600	4.081	0.1423	0.0700	18	-0.43	131.99	0
131	Water Soluble Mg (%)	0536	4.050	0.1000	4.081	0.1423	0.0700	18	-0.22	131.70	0
131	Water Soluble Mg (%)	0531	4.075	0.0500	4.081	0.1423	0.0700	18	-0.04	131.00	0
131	Water Soluble Mg (%)	0444	4.080	0.0400	4.081	0.1423	0.0700	18	-0.01	131.30	0
131	Water Soluble Mg (%)	0564	4.085	0.1100	4.081	0.1423	0.0700	18	0.03	131.70	0
131	Water Soluble Mg (%)	0565	4.105	0.0500	4.081	0.1423	0.0700	18	0.17	131.70	0
131	Water Soluble Mg (%)	0518	4.170	0.0800	4.081	0.1423	0.0700	18	0.63	131.70	0
131	Water Soluble Mg (%)	0510	4.231	0.0478	4.081	0.1423	0.0700	18	1.05	131.70	0
131	Water Soluble Mg (%)	0556	4.300	0.2000	4.081	0.1423	0.0700	18	1.54	131.00	0
131	Water Soluble Mg (%)	0546	4.334	0.0280	4.081	0.1423	0.0700	18	1.78	131.30	0
131	Water Soluble Mg (%)	0027	4.508	0.0150	4.081	0.1423	0.0700	18	3.00	131.30	0
143	Elemental S (%)	0390	8.875	0.3700	10.23	1.004	0.1490	4	-1.35	143.99	0
143	Elemental S (%)	0472	10.11	0.0100	10.23	1.004	0.1490	4	-0.13	143.99	0
143	Elemental S (%)	0291	10.82	0.0100	10.23	1.004	0.1490	4	0.58	143.99	0
143	Elemental S (%)	0255	11.14	0.2060	10.23	1.004	0.1490	4	0.90	143.99	0
145	Sulfate S, HCl soluble (%)	0518	10.20	0.2000	10.67	0.5761	0.2400	4	-0.82	145.00	0
145	Sulfate S, HCl soluble (%)	0106	10.47	0.4900	10.67	0.5761	0.2400	4	-0.36	145.00	0
145	Sulfate S, HCl soluble (%)	0561	10.51	0.1700	10.67	0.5761	0.2400	4	-0.29	145.00	0
145	Sulfate S, HCl soluble (%)	0550	11.51	0.1000	10.67	0.5761	0.2400	4	1.46	145.00	0
146	Total S in Liquid (10%)	0536	9.900	0.1000	10.01	0.1055	0.0645	11	-0.95	146.99	0
146	Total S in Liquid (10%)	0531	9.915	0.1300	10.01	0.1055	0.0645	11	-0.82	146.99	0
146	Total S in Liquid (10%)	0532	9.915	0.0500	10.01	0.1055	0.0645	11	-0.82	146.99	0
146	Total S in Liquid (10%)	0535	9.950	0.1000	10.01	0.1055	0.0645	11	-0.51	146.00	0
146	Total S in Liquid (10%)	0533	9.985	0.0700	10.01	0.1055	0.0645	11	-0.20	146.99	0
146	Total S in Liquid (10%)	0540	9.990	0.0400	10.01	0.1055	0.0645	11	-0.15	146.99	0
146	Total S in Liquid (10%)	0538	9.995	0.0100	10.01	0.1055	0.0645	11	-0.11	146.99	0
146	Total S in Liquid (10%)	0535	10.05	0.1000	10.01	0.1055	0.0645	11	0.38	146.99	0
146	Total S in Liquid (10%)	0539	10.05	0.1000	10.01	0.1055	0.0645	11	0.38	146.99	0
146	Total S in Liquid (10%)	0559	10.23	0.0100	10.01	0.1055	0.0645	11	1.93	146.99	0
146	Total S in Liquid (10%)	0231	10.70	0.0000	10.01	0.1055	0.0645	11	6.14	146.00	0
148	Total S (10%)	0450	9.275†	0.0300	10.53	0.4423	0.2082	39	-2.84	148.99	0
148	Total S (10%)	0114	9.870	0.0600	10.53	0.4423	0.2082	39	-1.50	148.00	0
148	Total S (10%)	0117	9.886	0.2931	10.53	0.4423	0.2082	39	-1.46	148.07	0
148	Total S (10%)	0035	10.03	0.3400	10.53	0.4423	0.2082	39	-1.13	148.99	0
148	Total S (10%)	0534	10.04	0.0100	10.53	0.4423	0.2082	39	-1.12	148.01	0
148	Total S (10%)	0560	10.05	0.1500	10.53	0.4423	0.2082	39	-1.10	148.99	0
148	Total S (10%)	0564	10.10	0.1000	10.53	0.4423	0.2082	39	-0.98	148.01	0
148	Total S (10%)	0565	10.11	0.0600	10.53	0.4423	0.2082	39	-0.95	148.01	0
148	Total S (10%)	0049	10.16	0.0200	10.53	0.4423	0.2082	39	-0.84	148.00	0
148	Total S (10%)	0444	10.18	0.0900	10.53	0.4423	0.2082	39	-0.81	148.07	0
148	Total S (10%)	0516	10.19	0.1990	10.53	0.4423	0.2082	39	-0.78	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 (10%)	0029	10.24	0.0700	10.53	0.4423	0.2082	39	-0.67	148.00	0
148	Total S (10%)	0073	10.28	0.4100	10.53	0.4423	0.2082	39	-0.58	148.01	0
148	Total S (10%)	0547	10.39	0.0300	10.53	0.4423	0.2082	39	-0.33	148.99	0
148	Total S (10%)	0025	10.41	0.0900	10.53	0.4423	0.2082	39	-0.29	148.00	0
148	Total S (10%)	0136	10.44	0.9300	10.53	0.4423	0.2082	39	-0.22	148.99	0
148	Total S (10%)	0433	10.53	0.0300	10.53	0.4423	0.2082	39	-0.01	148.99	0
148	Total S (10%)	0037	10.53	0.0840	10.53	0.4423	0.2082	39	-0.01	148.07	0
148	Total S (10%)	0230	10.55	0.5000	10.53	0.4423	0.2082	39	0.04	148.01	0
148	Total S (10%)	0177	10.56	0.1634	10.53	0.4423	0.2082	39	0.06	148.07	0
148	Total S (10%)	0546	10.58	0.1741	10.53	0.4423	0.2082	39	0.11	148.07	0
148	Total S (10%)	0157	10.60	0.0000	10.53	0.4423	0.2082	39	0.16	148.01	0
148	Total S (10%)	0040	10.60	0.0000	10.53	0.4423	0.2082	39	0.16	148.07	0
148	Total S (10%)	0485	10.65	0.1042	10.53	0.4423	0.2082	39	0.26	148.01	0
148	Total S (10%)	0421	10.65	0.0119	10.53	0.4423	0.2082	39	0.27	148.07	0
148	Total S (10%)	0029	10.73	0.0500	10.53	0.4423	0.2082	39	0.44	148.01	0
148	Total S (10%)	0354	10.75	0.1000	10.53	0.4423	0.2082	39	0.49	148.99	0
148	Total S (10%)	0371	10.75	0.1000	10.53	0.4423	0.2082	39	0.49	148.99	0
148	Total S (10%)	0481	10.88	0.5300	10.53	0.4423	0.2082	39	0.78	148.01	0
148	Total S (10%)	0043	10.88	1.350	10.53	0.4423	0.2082	39	0.78	148.07	0
148	Total S (10%)	0486	10.88	0.1300	10.53	0.4423	0.2082	39	0.78	148.07	0
148	Total S (10%)	0422	10.90	0.2000	10.53	0.4423	0.2082	39	0.83	148.99	0
148	Total S (10%)	0515	10.91	0.5540	10.53	0.4423	0.2082	39	0.86	148.07	0
148	Total S (10%)	0394	11.00	0.0000	10.53	0.4423	0.2082	39	1.06	148.07	0
148	Total S (10%)	0506	11.05	0.3200	10.53	0.4423	0.2082	39	1.17	148.99	0
148	Total S (10%)	0444	11.08	0.1100	10.53	0.4423	0.2082	39	1.23	148.00	0
148	Total S (10%)	0494	11.11	0.0556	10.53	0.4423	0.2082	39	1.30	148.07	0
148	Total S (10%)	0324	11.40‡	0.0000	10.53	0.4423	0.2082	39	1.96	148.01	0
148	Total S (10%)	0527	11.52‡	0.6691	10.53	0.4423	0.2082	39	2.25	148.07	0
148	Total S (10%)	0023	15.10‡	8.800	10.53	0.4423	0.2082	39	10.33	148.07	2
149	S - HNO3 soluble (%)	0524	8.496	0.1047	9.760	1.099	0.0782	3	-1.15	149.04	0
149	S - HNO3 soluble (%)	0556	10.30	0.1000	9.760	1.099	0.0782	3	0.49	149.03	0
149	S - HNO3 soluble (%)	0423	10.49	0.0300	9.760	1.099	0.0782	3	0.66	149.04	0
151	Acid Soluble As (ppm)	0255	0.0600	0.0080	0.3725	0.4502	0.2296	5	-0.69	151.30	0
151	Acid Soluble As (ppm)	0515	0.1395	0.2159	0.3725	0.4502	0.2296	5	-0.52	151.33	0
151	Acid Soluble As (ppm)	0524	0.2005	0.0070	0.3725	0.4502	0.2296	5	-0.38	151.30	0
151	Acid Soluble As (ppm)	0550	0.3000	0.0000	0.3725	0.4502	0.2296	5	-0.16	151.00	0
151	Acid Soluble As (ppm)	0515	1.162	0.9173	0.3725	0.4502	0.2296	5	1.75	151.34	0
151	Acid Soluble As (ppm)	0450	< 0.5		0.3725	0.4502	0.2296	5		151.30	5
151	Acid Soluble As (ppm)	0481	< 0.5		0.3725	0.4502	0.2296	5		151.99	5
151	Acid Soluble As (ppm)	0096	< 1		0.3725	0.4502	0.2296	5		151.32	5
151	Acid Soluble As (ppm)	0136	< 1		0.3725	0.4502	0.2296	5		151.33	5
151	Acid Soluble As (ppm)	0494	< 1.93		0.3725	0.4502	0.2296	5		151.33	5
151	Acid Soluble As (ppm)	0405	< 3		0.3725	0.4502	0.2296	5		151.99	5
151	Acid Soluble As (ppm)	0117	< 10		0.3725	0.4502	0.2296	5		151.33	5
165	Acid Soluble B (%)	0524	0.0007	0.0000	0.0016	0.0010	0.0002	4	-0.88	165.99	0
165	Acid Soluble B (%)	0553	0.0013	0.0000	0.0016	0.0010	0.0002	4	-0.28	165.00	0
165	Acid Soluble B (%)	0515	0.0013	0.0006	0.0016	0.0010	0.0002	4	-0.28	165.99	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				
165	Acid Soluble B (%)	0516	0.0030	0.0000	0.0016	0.0010	0.0002	4	1.44	165.99	0
165	Acid Soluble B (%)	0354	< 0.01		0.0016	0.0010	0.0002	4		165.30	5
181	Acid Soluble Cd (ppm)	0255	0.0030	0.0000	0.1052	0.1718	0.0986	3	-0.59	181.30	0
181	Acid Soluble Cd (ppm)	0524	0.0089	0.0052	0.1052	0.1718	0.0986	3	-0.56	181.30	0
181	Acid Soluble Cd (ppm)	0515	0.3036	0.2905	0.1052	0.1718	0.0986	3	1.15	181.33	0
181	Acid Soluble Cd (ppm)	0515	0.2764	0.5527	0.1052	0.1718	0.0986	3		181.34	4
181	Acid Soluble Cd (ppm)	0550	< 0.08		0.1052	0.1718	0.0986	3		181.00	5
181	Acid Soluble Cd (ppm)	0405	< 0.09		0.1052	0.1718	0.0986	3		181.99	5
181	Acid Soluble Cd (ppm)	0394	< 0.111		0.1052	0.1718	0.0986	3		181.30	5
181	Acid Soluble Cd (ppm)	0450	< 0.5		0.1052	0.1718	0.0986	3		181.30	5
181	Acid Soluble Cd (ppm)	0481	< 0.5		0.1052	0.1718	0.0986	3		181.99	5
181	Acid Soluble Cd (ppm)	0494	< 0.54		0.1052	0.1718	0.0986	3		181.33	5
181	Acid Soluble Cd (ppm)	0096	< 1		0.1052	0.1718	0.0986	3		181.32	5
181	Acid Soluble Cd (ppm)	0136	< 1		0.1052	0.1718	0.0986	3		181.33	5
181	Acid Soluble Cd (ppm)	0117	< 5		0.1052	0.1718	0.0986	3		181.33	5
191	Acid Soluble Cr (ppm)	0524	0.0515	0.0057	2.260	2.729	1.234	4	-0.81	191.30	0
191	Acid Soluble Cr (ppm)	0515	0.6836	0.9049	2.260	2.729	1.234	4	-0.58	191.34	0
191	Acid Soluble Cr (ppm)	0515	2.176	3.972	2.260	2.729	1.234	4	-0.03	191.33	0
191	Acid Soluble Cr (ppm)	0037	6.129	0.0520	2.260	2.729	1.234	4	1.42	191.33	0
191	Acid Soluble Cr (ppm)	0394	< 0.071		2.260	2.729	1.234	4		191.30	5
191	Acid Soluble Cr (ppm)	0405	< 0.1		2.260	2.729	1.234	4		191.99	5
191	Acid Soluble Cr (ppm)	0550	< 0.25		2.260	2.729	1.234	4		191.00	5
191	Acid Soluble Cr (ppm)	0450	< 0.5		2.260	2.729	1.234	4		191.30	5
191	Acid Soluble Cr (ppm)	0096	< 1		2.260	2.729	1.234	4		191.32	5
191	Acid Soluble Cr (ppm)	0494	< 1.23		2.260	2.729	1.234	4		191.33	5
191	Acid Soluble Cr (ppm)	0136	< 2.5		2.260	2.729	1.234	4		191.33	5
191	Acid Soluble Cr (ppm)	0481	< 20		2.260	2.729	1.234	4		191.99	5
202	Acid Soluble Co (ppm)	0255	0.0065	0.0110	1.119	1.107	0.2478	4	-0.85	202.99	0
202	Acid Soluble Co (ppm)	0515	0.3327	0.4534	1.119	1.107	0.2478	4	-0.60	202.34	0
202	Acid Soluble Co (ppm)	0524	1.978	0.5266	1.119	1.107	0.2478	4	0.66	202.30	0
202	Acid Soluble Co (ppm)	0550	2.160	0.0000	1.119	1.107	0.2478	4	0.80	202.33	0
202	Acid Soluble Co (ppm)	0515	0.0000	0.0000	1.119	1.107	0.2478	4		202.33	4
202	Acid Soluble Co (ppm)	0405	< 0.3		1.119	1.107	0.2478	4		202.99	5
202	Acid Soluble Co (ppm)	0494	< 0.41		1.119	1.107	0.2478	4		202.33	5
202	Acid Soluble Co (ppm)	0096	< 1		1.119	1.107	0.2478	4		202.30	5
202	Acid Soluble Co (ppm)	0136	< 2.5		1.119	1.107	0.2478	4		202.33	5
202	Acid Soluble Co (ppm)	0481	< 10		1.119	1.107	0.2478	4		202.99	5
221	Acid Soluble Cu (%)	0095	0.0001	0.0000	0.0041	0.0083	0.0001	5	-0.48	221.32	0
221	Acid Soluble Cu (%)	0515	0.0003	0.0001	0.0041	0.0083	0.0001	5	-0.46	221.33	0
221	Acid Soluble Cu (%)	0546	0.0004	0.0001	0.0041	0.0083	0.0001	5	-0.45	221.33	0
221	Acid Soluble Cu (%)	0394	0.0009	0.0001	0.0041	0.0083	0.0001	5	-0.39	221.32	0
221	Acid Soluble Cu (%)	0516	0.0190	0.0000	0.0041	0.0083	0.0001	5	1.79	221.99	0
221	Acid Soluble Cu (%)	0515	0.0008	0.0010	0.0041	0.0083	0.0001	5	-0.40	221.99	1
221	Acid Soluble Cu (%)	0255	0.0000	0.0000	0.0041	0.0083	0.0001	5		221.30	4
221	Acid Soluble Cu (%)	0106	0.0000	0.0000	0.0041	0.0083	0.0001	5		221.33	4
221	Acid Soluble Cu (%)	0405	0.0000	0.0000	0.0041	0.0083	0.0001	5		221.99	4
221	Acid Soluble Cu (%)	0524	0.0001	0.0001	0.0041	0.0083	0.0001	5		221.99	4

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
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221	Acid Soluble Cu (%)	0550	< 0.0001		0.0041	0.0083	0.0001	5		221.00	5
221	Acid Soluble Cu (%)	0494	< 0.0002		0.0041	0.0083	0.0001	5		221.33	5
221	Acid Soluble Cu (%)	0481	< 0.001		0.0041	0.0083	0.0001	5		221.99	5
221	Acid Soluble Cu (%)	0421	< 0.0015		0.0041	0.0083	0.0001	5		221.33	5
221	Acid Soluble Cu (%)	0498	< 0.002		0.0041	0.0083	0.0001	5		221.02	5
221	Acid Soluble Cu (%)	0553	< 0.005		0.0041	0.0083	0.0001	5		221.00	5
221	Acid Soluble Cu (%)	0354	< 0.01		0.0041	0.0083	0.0001	5		221.30	5
221	Acid Soluble Cu (%)	0096	< 1		0.0041	0.0083	0.0001	5		221.30	5
221	Acid Soluble Cu (%)	0136	< 5		0.0041	0.0083	0.0001	5		221.33	5
241	Acid Soluble Fe (%)	0524	0.0002	0.0000				2		241.99	0
241	Acid Soluble Fe (%)	0516	0.0130	0.0020				2		241.99	0
241	Acid Soluble Fe (%)	0494	< 0.0014					2		241.33	5
241	Acid Soluble Fe (%)	0553	< 0.005					2		241.00	5
241	Acid Soluble Fe (%)	0096	< 0.01					2		241.30	5
241	Acid Soluble Fe (%)	0354	< 0.01					2		241.30	5
251	Acid Soluble Pb (ppm)	0524	0.1547	0.0394	2.660	3.997	0.3745	3	-0.51	251.30	0
251	Acid Soluble Pb (ppm)	0255	0.5550	0.2040	2.660	3.997	0.3745	3	-0.43	251.30	0
251	Acid Soluble Pb (ppm)	0550	7.270	0.8800	2.660	3.997	0.3745	3	0.94	251.00	0
251	Acid Soluble Pb (ppm)	0450	< 0.5		2.660	3.997	0.3745	3		251.30	5
251	Acid Soluble Pb (ppm)	0481	< 0.5		2.660	3.997	0.3745	3		251.99	5
251	Acid Soluble Pb (ppm)	0394	< 0.556		2.660	3.997	0.3745	3		251.30	5
251	Acid Soluble Pb (ppm)	0494	< 1.27		2.660	3.997	0.3745	3		251.33	5
251	Acid Soluble Pb (ppm)	0405	< 2		2.660	3.997	0.3745	3		251.99	5
251	Acid Soluble Pb (ppm)	0136	< 3		2.660	3.997	0.3745	3		251.33	5
251	Acid Soluble Pb (ppm)	0117	< 5		2.660	3.997	0.3745	3		251.33	5
261	Acid Soluble Mn (%)	0096	0.0003	0.0000	0.0011	0.0013	0.0001	4	-0.49	261.30	0
261	Acid Soluble Mn (%)	0524	0.0003	0.0000	0.0011	0.0013	0.0001	4	-0.49	261.99	0
261	Acid Soluble Mn (%)	0515	0.0006	0.0002	0.0011	0.0013	0.0001	4	-0.29	261.99	0
261	Acid Soluble Mn (%)	0516	0.0030	0.0000	0.0011	0.0013	0.0001	4	1.26	261.99	0
261	Acid Soluble Mn (%)	0515	0.0000	0.0000	0.0011	0.0013	0.0001	4		261.35	4
261	Acid Soluble Mn (%)	0494	< 0.0004		0.0011	0.0013	0.0001	4		261.35	5
261	Acid Soluble Mn (%)	0553	< 0.005		0.0011	0.0013	0.0001	4		261.11	5
261	Acid Soluble Mn (%)	0354	< 0.01		0.0011	0.0013	0.0001	4		261.30	5
281	Acid Soluble Hg (ppm)	0550	25.25	1.300				2		281.00	0
281	Acid Soluble Hg (ppm)	0524	652.5	33.42				2		281.30	0
281	Acid Soluble Hg (ppm)	0515	0.0000	0.0000				2		281.30	4
281	Acid Soluble Hg (ppm)	0117	< 0.2					2		281.00	5
281	Acid Soluble Hg (ppm)	0481	< 0.5					2		281.00	5
281	Acid Soluble Hg (ppm)	0450	< 0.5					2		281.30	5
289	Acid Soluble Mo (ppm)	0524	0.0961	0.0044	3.192	5.239	0.2873	4	-0.50	289.30	0
289	Acid Soluble Mo (ppm)	0515	0.2445	0.0986	3.192	5.239	0.2873	4	-0.48	289.33	0
289	Acid Soluble Mo (ppm)	0255	1.426	1.046	3.192	5.239	0.2873	4	-0.29	289.30	0
289	Acid Soluble Mo (ppm)	0516	11.00	0.0000	3.192	5.239	0.2873	4	1.26	289.30	0
289	Acid Soluble Mo (ppm)	0106	0.0000	0.0000	3.192	5.239	0.2873	4		289.33	4
289	Acid Soluble Mo (ppm)	0515	0.3515	0.7030	3.192	5.239	0.2873	4		289.34	4
289	Acid Soluble Mo (ppm)	0494	< 0.34		3.192	5.239	0.2873	4		289.33	5
289	Acid Soluble Mo (ppm)	0405	< 0.6		3.192	5.239	0.2873	4		289.99	5

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289	Acid Soluble Mo (ppm)	0550	< 1		3.192	5.239	0.2873	4		289.00	5
289	Acid Soluble Mo (ppm)	0136	< 5		3.192	5.239	0.2873	4		289.33	5
289	Acid Soluble Mo (ppm)	0481	< 50		3.192	5.239	0.2873	4		289.99	5
291	Acid Soluble Ni (ppm)	0524	0.0379	0.0137				2		291.30	0
291	Acid Soluble Ni (ppm)	0255	1.146	0.0290				2		291.99	0
291	Acid Soluble Ni (ppm)	0515	0.0524	0.1048				2		291.33	4
291	Acid Soluble Ni (ppm)	0515	0.5665	1.133				2		291.34	4
291	Acid Soluble Ni (ppm)	0394	< 0.318					2		291.30	5
291	Acid Soluble Ni (ppm)	0450	< 0.5					2		291.30	5
291	Acid Soluble Ni (ppm)	0550	< 0.6					2		291.00	5
291	Acid Soluble Ni (ppm)	0405	< 0.6					2		291.99	5
291	Acid Soluble Ni (ppm)	0494	< 0.65					2		291.33	5
291	Acid Soluble Ni (ppm)	0096	< 1					2		291.30	5
291	Acid Soluble Ni (ppm)	0136	< 2.5					2		291.33	5
291	Acid Soluble Ni (ppm)	0117	< 5					2		291.33	5
291	Acid Soluble Ni (ppm)	0481	< 5					2		291.99	5
301	Acid Soluble Se (ppm)	0524	0.0150	0.0100	34.77	69.16	2.823	4	-0.43	301.30	0
301	Acid Soluble Se (ppm)	0550	0.2550	0.0500	34.77	69.16	2.823	4	-0.42	301.00	0
301	Acid Soluble Se (ppm)	0515	0.2928	0.2318	34.77	69.16	2.823	4	-0.42	301.33	0
301	Acid Soluble Se (ppm)	0506	138.5	11.00	34.77	69.16	2.823	4	1.27	301.99	0
301	Acid Soluble Se (ppm)	0255	0.0000	0.0000	34.77	69.16	2.823	4		301.99	4
301	Acid Soluble Se (ppm)	0515	0.6005	1.201	34.77	69.16	2.823	4		301.34	4
301	Acid Soluble Se (ppm)	0481	< 0.5		34.77	69.16	2.823	4		301.99	5
301	Acid Soluble Se (ppm)	0494	< 0.95		34.77	69.16	2.823	4		301.33	5
301	Acid Soluble Se (ppm)	0405	< 3		34.77	69.16	2.823	4		301.99	5
311	Sodium (%)	0494	0.0103	0.0007	0.0172	0.0088	0.0029	4	-0.79	311.33	0
311	Sodium (%)	0553	0.0135	0.0010	0.0172	0.0088	0.0029	4	-0.42	311.00	0
311	Sodium (%)	0096	0.0150	0.0100	0.0172	0.0088	0.0029	4	-0.25	311.99	0
311	Sodium (%)	0354	0.0300	0.0000	0.0172	0.0088	0.0029	4	1.46	311.99	0
321	Acid Soluble Zn (%)	0394	0.0003	0.0000	0.0825	0.1196	0.0634	5	-0.69	321.32	0
321	Acid Soluble Zn (%)	0096	0.0040	0.0000	0.0825	0.1196	0.0634	5	-0.66	321.30	0
321	Acid Soluble Zn (%)	0516	0.0280	0.0000	0.0825	0.1196	0.0634	5	-0.46	321.99	0
321	Acid Soluble Zn (%)	0536	0.0950	0.0100	0.0825	0.1196	0.0634	5	0.10	321.00	0
321	Acid Soluble Zn (%)	0515	0.2854	0.3071	0.0825	0.1196	0.0634	5	1.70	321.33	0
321	Acid Soluble Zn (%)	0515	2.235	1.606	0.0825	0.1196	0.0634	5	18.00	321.99	1
321	Acid Soluble Zn (%)	0255	0.0000	0.0000	0.0825	0.1196	0.0634	5		321.30	4
321	Acid Soluble Zn (%)	0106	0.0000	0.0000	0.0825	0.1196	0.0634	5		321.33	4
321	Acid Soluble Zn (%)	0405	0.0000	0.0000	0.0825	0.1196	0.0634	5		321.99	4
321	Acid Soluble Zn (%)	0524	0.0002	0.0004	0.0825	0.1196	0.0634	5		321.99	4
321	Acid Soluble Zn (%)	0421	< 0.0006		0.0825	0.1196	0.0634	5		321.33	5
321	Acid Soluble Zn (%)	0494	< 0.0008		0.0825	0.1196	0.0634	5		321.33	5
321	Acid Soluble Zn (%)	0481	< 0.001		0.0825	0.1196	0.0634	5		321.99	5
321	Acid Soluble Zn (%)	0095	< 0.0013		0.0825	0.1196	0.0634	5		321.32	5
321	Acid Soluble Zn (%)	0553	< 0.002		0.0825	0.1196	0.0634	5		321.00	5
321	Acid Soluble Zn (%)	0498	< 0.01		0.0825	0.1196	0.0634	5		321.02	5
321	Acid Soluble Zn (%)	0354	< 0.01		0.0825	0.1196	0.0634	5		321.30	5
321	Acid Soluble Zn (%)	0136	< 5		0.0825	0.1196	0.0634	5		321.33	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				

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.