

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 160411

Liquid Thio S

Statistical Summary

Analytes: 26

Labs Reporting: 81

Issue Date : 05/31/2016

Analyte Code	Analyte	# 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	IA %RSD	Average Range (R-bar)	Horwitz %RSD
010	Total Nitrogen (%)	5	4	6.666	13.17	6.666		13.17	6.583	197.52%		0.0780	3.01%
020	Total Phosphorus as P2O5 (%)	2	1	0.0100									
041	Direct Available Phosphorus as P2O5 (%)	2	2	0.0353	0.0209								
050	Soluble Potassium as K2O (25%)	84	81	25.19	0.9318	25.10	1.2430	0.6491	0.0721	2.59%	2.48%	0.2813	2.46%
101	Acid Soluble Calcium (%)	6	6	0.0143	0.0183	0.0115		0.0139	0.0057	121.26%		0.0030	7.83%
121	Acid Soluble Magnesium (%)	4	3	0.0049	0.0075	0.0049		0.0075	0.0043	154.53%		0.0006	8.92%
143	Elemental Sulfur (%)	2	2	15.65	1.131								
145	Sulfate Sulfur, HCl soluble (%)	4	4	17.12	0.5143	17.12		0.5143	0.2571	3.00%		0.1750	2.61%
146	Total Sulfur in Liquid (%)	13	12	17.18	0.6576	17.29		0.3880	0.1120	2.24%		0.1085	2.60%
148	Total Sulfur (17%)	41	40	16.93	1.549	17.04	1.0000	0.6430	0.1017	3.77%	2.94%	0.3585	2.61%
149	Sulfur - HNO3 soluble (%)	3	3	19.11	3.876	19.11		3.876	2.238	20.28%		0.5313	2.57%
151	Acid Soluble Arsenic (ppm)	8	5	0.0228	0.0229	0.0228		0.0229	0.0102	100.46%		0.0122	28.26%
165	Acid Soluble Boron (%)	3	1	0.0060		0.0228		0.0229	0.0229	100.46%		0.0000	7.07%
181	Acid Soluble Cadmium (ppm)	6	5	0.0348	0.0372	0.0348		0.0372	0.0167	106.99%		0.0296	26.52%
191	Acid Soluble Chromium (ppm)	8	5	0.1726	0.2276	0.1726		0.2276	0.1018	131.84%		0.0464	20.84%
202	Acid Soluble Cobalt (ppm)	6	4	0.0078	0.0045	0.0078		0.0045	0.0023	58.06%		0.0000	33.24%
221	Acid Soluble Copper (%)	9	6	0.1463	0.3509	0.0055		0.0081	0.0033	146.41%		0.0332	8.75%
241	Acid Soluble Iron (%)	3	2	0.0061	0.0077	0.0061		0.0077	0.0054	126.29%		0.0006	8.62%
251	Acid Soluble Lead (ppm)	7	5	0.4326	0.8212	0.4326		0.8212	0.3672	189.82%		0.0920	18.15%
261	Acid Soluble Manganese (%)	2	0	0.0000									
281	Acid Soluble Mercury (ppm)	6	5	0.0310	0.0399	0.0310		0.0399	0.0178	128.75%		0.0044	26.98%
289	Acid Soluble Molybdenum (ppm)	7	4	2.095	3.872	2.095		3.872	1.936	184.78%		0.0328	14.31%
291	Acid Soluble Nickel (ppm)	8	5	0.3296	0.5280	0.3296		0.5280	0.2361	160.20%		0.1464	18.90%
301	Acid Soluble Selenium (ppm)	4	2	0.0480	0.0453	0.0480		0.0453	0.0320	94.28%		0.0230	25.26%
311	Sodium (%)	6	5	0.0250	0.0216	0.0250		0.0216	0.0096	86.26%		0.0021	6.97%
321	Acid Soluble Zinc (%)	10	5	0.0031	0.0040	0.0031		0.0040	0.0018	128.58%		0.0005	9.54%

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Analyte Proficiency From All Labs

Analytes: 26

Sample # 160411

Lab Values

Labs Reporting: 81

Liquid Thio S

Issue Date : 05/31/2016

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				
010	Total Nitrogen (%)	0292	0.0200	0.0000	6.666	13.17	0.0780	4	-0.50	010.60	0
010	Total Nitrogen (%)	0472	0.0680	0.0020	6.666	13.17	0.0780	4	-0.50	010.60	0
010	Total Nitrogen (%)	0325	0.1600	0.0600	6.666	13.17	0.0780	4	-0.49	010.60	0
010	Total Nitrogen (%)	0422	26.42	0.2500	6.666	13.17	0.0780	4	1.50	010.60	0
010	Total Nitrogen (%)	0354	0.0000	0.0000	6.666	13.17	0.0780	4		010.60	4
020	Total Phosphorus as P2O5 (%)	0292	0.0100	0.0000				1		020.20	0
020	Total Phosphorus as P2O5 (%)	0521	0.0000	0.0000				1		020.50	4
041	Direct Available Phosphorus as P2O5 (%)	0354	0.0205	0.0010				2		041.60	0
041	Direct Available Phosphorus as P2O5 (%)	0325	0.0500	0.0000				2		041.50	0
050	Soluble Potassium as K2O (25%)	0472	22.65*	0.1000	25.10	0.6491	0.2813	81	-3.77	050.31	0
050	Soluble Potassium as K2O (25%)	0096	23.47*	0.3200	25.10	0.6491	0.2813	81	-2.51	050.99	0
050	Soluble Potassium as K2O (25%)	0377	23.51*	0.5700	25.10	0.6491	0.2813	81	-2.46	050.52	0
050	Soluble Potassium as K2O (25%)	0433	24.06	0.3800	25.10	0.6491	0.2813	81	-1.60	050.99	0
050	Soluble Potassium as K2O (25%)	0456	24.22	0.2700	25.10	0.6491	0.2813	81	-1.36	050.61	0
050	Soluble Potassium as K2O (25%)	0397	24.23	0.0130	25.10	0.6491	0.2813	81	-1.34	050.50	0
050	Soluble Potassium as K2O (25%)	0390	24.27	0.8400	25.10	0.6491	0.2813	81	-1.28	050.50	0
050	Soluble Potassium as K2O (25%)	0292	24.28	0.2300	25.10	0.6491	0.2813	81	-1.27	050.50	0
050	Soluble Potassium as K2O (25%)	0394	24.29	0.3490	25.10	0.6491	0.2813	81	-1.25	050.99	0
050	Soluble Potassium as K2O (25%)	0072	24.38	0.0100	25.10	0.6491	0.2813	81	-1.12	050.51	0
050	Soluble Potassium as K2O (25%)	0498	24.40	0.2000	25.10	0.6491	0.2813	81	-1.08	050.31	0
050	Soluble Potassium as K2O (25%)	0483	24.51	0.1200	25.10	0.6491	0.2813	81	-0.91	050.51	0
050	Soluble Potassium as K2O (25%)	0035	24.52	0.2500	25.10	0.6491	0.2813	81	-0.90	050.61	0
050	Soluble Potassium as K2O (25%)	0455	24.55	0.1000	25.10	0.6491	0.2813	81	-0.85	050.99	0
050	Soluble Potassium as K2O (25%)	0519	24.56	0.3000	25.10	0.6491	0.2813	81	-0.83	050.61	0
050	Soluble Potassium as K2O (25%)	0029	24.57	0.0900	25.10	0.6491	0.2813	81	-0.82	050.62	0
050	Soluble Potassium as K2O (25%)	0233	24.65	0.1400	25.10	0.6491	0.2813	81	-0.69	050.52	0
050	Soluble Potassium as K2O (25%)	0356	24.66	0.0000	25.10	0.6491	0.2813	81	-0.68	050.30	0
050	Soluble Potassium as K2O (25%)	0072	24.67	0.1900	25.10	0.6491	0.2813	81	-0.67	050.00	0
050	Soluble Potassium as K2O (25%)	0095	24.67	0.8500	25.10	0.6491	0.2813	81	-0.67	050.62	0
050	Soluble Potassium as K2O (25%)	0055	24.67	0.0400	25.10	0.6491	0.2813	81	-0.66	050.50	0
050	Soluble Potassium as K2O (25%)	0482	24.70	1.000	25.10	0.6491	0.2813	81	-0.62	050.99	0
050	Soluble Potassium as K2O (25%)	0042	24.71	0.3300	25.10	0.6491	0.2813	81	-0.61	050.99	0
050	Soluble Potassium as K2O (25%)	0025	24.74	0.1940	25.10	0.6491	0.2813	81	-0.56	050.52	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				
050	Soluble Potassium as K2O (25%)	0307	24.75	0.3770	25.10	0.6491	0.2813	81	-0.54	050.99	0
050	Soluble Potassium as K2O (25%)	0049	24.79	0.7200	25.10	0.6491	0.2813	81	-0.48	050.00	0
050	Soluble Potassium as K2O (25%)	0043	24.87	0.1000	25.10	0.6491	0.2813	81	-0.35	050.99	0
050	Soluble Potassium as K2O (25%)	0231	24.89	0.1100	25.10	0.6491	0.2813	81	-0.33	050.00	0
050	Soluble Potassium as K2O (25%)	0211	24.90	0.0500	25.10	0.6491	0.2813	81	-0.32	050.00	0
050	Soluble Potassium as K2O (25%)	0169	24.90	0.0500	25.10	0.6491	0.2813	81	-0.32	050.60	0
050	Soluble Potassium as K2O (25%)	0090	24.92	0.1600	25.10	0.6491	0.2813	81	-0.28	050.00	0
050	Soluble Potassium as K2O (25%)	0043	24.93	0.1300	25.10	0.6491	0.2813	81	-0.27	050.51	0
050	Soluble Potassium as K2O (25%)	0518	24.93	0.0600	25.10	0.6491	0.2813	81	-0.26	050.99	0
050	Soluble Potassium as K2O (25%)	0416	24.94	0.1000	25.10	0.6491	0.2813	81	-0.25	050.00	0
050	Soluble Potassium as K2O (25%)	0177	24.97	0.0992	25.10	0.6491	0.2813	81	-0.20	050.99	0
050	Soluble Potassium as K2O (25%)	0102	25.00	0.0000	25.10	0.6491	0.2813	81	-0.15	050.00	0
050	Soluble Potassium as K2O (25%)	0007	25.00	0.2000	25.10	0.6491	0.2813	81	-0.15	050.51	0
050	Soluble Potassium as K2O (25%)	0136	25.03	0.0300	25.10	0.6491	0.2813	81	-0.11	050.30	0
050	Soluble Potassium as K2O (25%)	0220	25.04	0.0000	25.10	0.6491	0.2813	81	-0.09	050.00	0
050	Soluble Potassium as K2O (25%)	0105	25.04	0.3200	25.10	0.6491	0.2813	81	-0.09	050.99	0
050	Soluble Potassium as K2O (25%)	0405	25.05	0.0100	25.10	0.6491	0.2813	81	-0.08	050.00	0
050	Soluble Potassium as K2O (25%)	0105	25.10	0.3100	25.10	0.6491	0.2813	81	-0.01	050.60	0
050	Soluble Potassium as K2O (25%)	0360	25.10	0.0800	25.10	0.6491	0.2813	81	0.00	050.52	0
050	Soluble Potassium as K2O (25%)	0485	25.10	0.5000	25.10	0.6491	0.2813	81	0.00	050.52	0
050	Soluble Potassium as K2O (25%)	0234	25.12	0.4300	25.10	0.6491	0.2813	81	0.02	050.99	0
050	Soluble Potassium as K2O (25%)	0023	25.12	0.0200	25.10	0.6491	0.2813	81	0.03	050.52	0
050	Soluble Potassium as K2O (25%)	0481	25.14	0.5200	25.10	0.6491	0.2813	81	0.06	050.99	0
050	Soluble Potassium as K2O (25%)	0513	25.18	0.1900	25.10	0.6491	0.2813	81	0.12	050.61	0
050	Soluble Potassium as K2O (25%)	0105	25.18	0.1300	25.10	0.6491	0.2813	81	0.12	050.62	0
050	Soluble Potassium as K2O (25%)	0421	25.20	0.4000	25.10	0.6491	0.2813	81	0.15	050.99	0
050	Soluble Potassium as K2O (25%)	0493	25.20	0.1000	25.10	0.6491	0.2813	81	0.15	050.99	0
050	Soluble Potassium as K2O (25%)	0055	25.22	0.1600	25.10	0.6491	0.2813	81	0.19	050.00	0
050	Soluble Potassium as K2O (25%)	0450	25.22	0.0000	25.10	0.6491	0.2813	81	0.19	050.99	0
050	Soluble Potassium as K2O (25%)	0420	25.25	0.1720	25.10	0.6491	0.2813	81	0.23	050.50	0
050	Soluble Potassium as K2O (25%)	0444	25.26	0.2000	25.10	0.6491	0.2813	81	0.25	050.50	0
050	Soluble Potassium as K2O (25%)	0486	25.27	0.0200	25.10	0.6491	0.2813	81	0.26	050.52	0
050	Soluble Potassium as K2O (25%)	0324	25.30	1.200	25.10	0.6491	0.2813	81	0.31	050.50	0
050	Soluble Potassium as K2O (25%)	0040	25.35	0.7000	25.10	0.6491	0.2813	81	0.39	050.30	0
050	Soluble Potassium as K2O (25%)	0444	25.38	0.1100	25.10	0.6491	0.2813	81	0.42	050.99	0
050	Soluble Potassium as K2O (25%)	0457	25.40	0.2100	25.10	0.6491	0.2813	81	0.46	050.99	0
050	Soluble Potassium as K2O (25%)	0117	25.43	0.0000	25.10	0.6491	0.2813	81	0.50	050.60	0
050	Soluble Potassium as K2O (25%)	0428	25.43	0.0129	25.10	0.6491	0.2813	81	0.52	050.30	0
050	Soluble Potassium as K2O (25%)	0309	25.45	0.4300	25.10	0.6491	0.2813	81	0.53	050.60	0
050	Soluble Potassium as K2O (25%)	0114	25.50	0.1800	25.10	0.6491	0.2813	81	0.62	050.00	0
050	Soluble Potassium as K2O (25%)	0354	25.58	0.1100	25.10	0.6491	0.2813	81	0.74	050.52	0
050	Soluble Potassium as K2O (25%)	0041	25.72	0.7000	25.10	0.6491	0.2813	81	0.96	050.60	0
050	Soluble Potassium as K2O (25%)	0389	25.80	0.4000	25.10	0.6491	0.2813	81	1.08	050.99	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				
050	Soluble Potassium as K2O (25%)	0510	25.89	0.0000	25.10	0.6491	0.2813	81	1.22	050.60	0
050	Soluble Potassium as K2O (25%)	0157	25.90	1.800	25.10	0.6491	0.2813	81	1.23	050.50	0
050	Soluble Potassium as K2O (25%)	0451	25.93	0.2800	25.10	0.6491	0.2813	81	1.28	050.99	0
050	Soluble Potassium as K2O (25%)	0027	26.02	0.0790	25.10	0.6491	0.2813	81	1.42	050.99	0
050	Soluble Potassium as K2O (25%)	0157	26.20	0.2000	25.10	0.6491	0.2813	81	1.70	050.30	0
050	Soluble Potassium as K2O (25%)	0230	26.30	1.200	25.10	0.6491	0.2813	81	1.85	050.50	0
050	Soluble Potassium as K2O (25%)	0506	26.30	0.8000	25.10	0.6491	0.2813	81	1.85	050.99	0
050	Soluble Potassium as K2O (25%)	0520	26.69	0.1600	25.10	0.6491	0.2813	81	2.45	050.60	0
050	Soluble Potassium as K2O (25%)	0086	26.91	0.9773	25.10	0.6491	0.2813	81	2.78	050.50	0
050	Soluble Potassium as K2O (25%)	0300	27.17	0.0200	25.10	0.6491	0.2813	81	3.19	050.99	0
050	Soluble Potassium as K2O (25%)	0131	27.24	0.3300	25.10	0.6491	0.2813	81	3.29	050.61	0
050	Soluble Potassium as K2O (25%)	0073	27.64	0.0700	25.10	0.6491	0.2813	81	3.91	050.30	0
050	Soluble Potassium as K2O (25%)	0487	27.70	0.0000	25.10	0.6491	0.2813	81	4.01	050.99	0
050	Soluble Potassium as K2O (25%)	0423	28.70	0.1800	25.10	0.6491	0.2813	81	5.55	050.52	0
050	Soluble Potassium as K2O (25%)	0521	24.92	3.714	25.10	0.6491	0.2813	81	-0.27	050.99	1
050	Soluble Potassium as K2O (25%)	0325	25.20	4.600	25.10	0.6491	0.2813	81	0.15	050.99	1
050	Soluble Potassium as K2O (25%)	0516	33.55	0.1000	25.10	0.6491	0.2813	81	13.02	050.30	2
101	Acid Soluble Calcium (%)	0105	0.0014	0.0016	0.0115	0.0139	0.0030	6	-0.67	101.00	0
101	Acid Soluble Calcium (%)	0086	0.0018	0.0002	0.0115	0.0139	0.0030	6	-0.64	101.33	0
101	Acid Soluble Calcium (%)	0521	0.0054	0.0021	0.0115	0.0139	0.0030	6	-0.41	101.32	0
101	Acid Soluble Calcium (%)	0096	0.0080	0.0040	0.0115	0.0139	0.0030	6	-0.23	101.30	0
101	Acid Soluble Calcium (%)	0049	0.0200	0.0060	0.0115	0.0139	0.0030	6	0.57	101.30	0
101	Acid Soluble Calcium (%)	0354	0.0490	0.0040	0.0115	0.0139	0.0030	6	2.49	101.30	0
121	Acid Soluble Magnesium (%)	0086	0.0003	0.0000	0.0049	0.0075	0.0006	3	-0.61	121.33	0
121	Acid Soluble Magnesium (%)	0105	0.0008	0.0007	0.0049	0.0075	0.0006	3	-0.55	121.00	0
121	Acid Soluble Magnesium (%)	0354	0.0135	0.0010	0.0049	0.0075	0.0006	3	1.15	121.30	0
121	Acid Soluble Magnesium (%)	0521	0.0000	0.0000	0.0049	0.0075	0.0006	3		121.32	4
143	Elemental Sulfur (%)	0389	14.85	0.3000				2		143.99	0
143	Elemental Sulfur (%)	0472	16.45	0.1000				2		143.99	0
145	Sulfate Sulfur, HCl soluble (%)	0027	16.61	0.0600	17.12	0.5143	0.1750	4	-0.99	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0518	16.89	0.0300	17.12	0.5143	0.1750	4	-0.45	145.99	0
145	Sulfate Sulfur, HCl soluble (%)	0233	17.17	0.1900	17.12	0.5143	0.1750	4	0.09	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0043	17.81	0.4200	17.12	0.5143	0.1750	4	1.35	145.00	0
146	Total Sulfur in Liquid (%)	0131	15.33	0.0000	17.29	0.3880	0.1085	12	-5.04	146.99	0
146	Total Sulfur in Liquid (%)	0444	16.76	0.0900	17.29	0.3880	0.1085	12	-1.37	146.00	0
146	Total Sulfur in Liquid (%)	0508	17.15	0.1000	17.29	0.3880	0.1085	12	-0.35	146.99	0
146	Total Sulfur in Liquid (%)	0211	17.17	0.0700	17.29	0.3880	0.1085	12	-0.31	146.00	0
146	Total Sulfur in Liquid (%)	0520	17.18	0.0300	17.29	0.3880	0.1085	12	-0.29	146.00	0
146	Total Sulfur in Liquid (%)	0324	17.25	0.1000	17.29	0.3880	0.1085	12	-0.10	146.00	0
146	Total Sulfur in Liquid (%)	0397	17.27	0.0300	17.29	0.3880	0.1085	12	-0.06	146.00	0
146	Total Sulfur in Liquid (%)	0485	17.39	0.1700	17.29	0.3880	0.1085	12	0.25	146.00	0
146	Total Sulfur in Liquid (%)	0114	17.46	0.1200	17.29	0.3880	0.1085	12	0.45	146.00	0
146	Total Sulfur in Liquid (%)	0028	17.61	0.2300	17.29	0.3880	0.1085	12	0.82	146.00	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				
146	Total Sulfur in Liquid (%)	0405	17.66	0.2025	17.29	0.3880	0.1085	12	0.96	146.00	0
146	Total Sulfur in Liquid (%)	0055	17.96	0.1600	17.29	0.3880	0.1085	12	1.73	146.00	0
146	Total Sulfur in Liquid (%)	0521	31.16	1.927	17.29	0.3880	0.1085	12	35.76	146.99	1
148	Total Sulfur (17%)	0307	9.294*	1.283	17.04	0.6430	0.3585	40	-12.04	148.99	0
148	Total Sulfur (17%)	0450	14.76*	0.0000	17.04	0.6430	0.3585	40	-3.54	148.99	0
148	Total Sulfur (17%)	0230	15.90*	2.600	17.04	0.6430	0.3585	40	-1.77	148.01	0
148	Total Sulfur (17%)	0377	16.00*	0.0000	17.04	0.6430	0.3585	40	-1.61	148.00	0
148	Total Sulfur (17%)	0421	16.15	0.7000	17.04	0.6430	0.3585	40	-1.38	148.07	0
148	Total Sulfur (17%)	0157	16.25	0.3000	17.04	0.6430	0.3585	40	-1.22	148.00	0
148	Total Sulfur (17%)	0360	16.28	0.0000	17.04	0.6430	0.3585	40	-1.18	148.00	0
148	Total Sulfur (17%)	0096	16.47	0.2400	17.04	0.6430	0.3585	40	-0.88	148.99	0
148	Total Sulfur (17%)	0025	16.74	0.1400	17.04	0.6430	0.3585	40	-0.46	148.00	0
148	Total Sulfur (17%)	0482	16.75	1.100	17.04	0.6430	0.3585	40	-0.44	148.99	0
148	Total Sulfur (17%)	0072	16.76	0.1100	17.04	0.6430	0.3585	40	-0.44	148.99	0
148	Total Sulfur (17%)	0457	16.81	0.1900	17.04	0.6430	0.3585	40	-0.36	148.01	0
148	Total Sulfur (17%)	0394	16.85	0.0000	17.04	0.6430	0.3585	40	-0.29	148.04	0
148	Total Sulfur (17%)	0231	16.90	0.0000	17.04	0.6430	0.3585	40	-0.21	148.00	0
148	Total Sulfur (17%)	0040	16.90	0.0000	17.04	0.6430	0.3585	40	-0.21	148.01	0
148	Total Sulfur (17%)	0481	16.91	0.2200	17.04	0.6430	0.3585	40	-0.20	148.01	0
148	Total Sulfur (17%)	0029	16.99	0.3000	17.04	0.6430	0.3585	40	-0.07	148.01	0
148	Total Sulfur (17%)	0073	17.00	0.0400	17.04	0.6430	0.3585	40	-0.06	148.01	0
148	Total Sulfur (17%)	0157	17.00	0.0000	17.04	0.6430	0.3585	40	-0.06	148.01	0
148	Total Sulfur (17%)	0136	17.01	0.0200	17.04	0.6430	0.3585	40	-0.04	148.00	0
148	Total Sulfur (17%)	0049	17.04	0.4000	17.04	0.6430	0.3585	40	0.01	148.00	0
148	Total Sulfur (17%)	0023	17.07	0.0000	17.04	0.6430	0.3585	40	0.05	148.07	0
148	Total Sulfur (17%)	0510	17.11	0.0000	17.04	0.6430	0.3585	40	0.12	148.01	0
148	Total Sulfur (17%)	0102	17.12	0.0426	17.04	0.6430	0.3585	40	0.13	148.01	0
148	Total Sulfur (17%)	0095	17.15	0.0200	17.04	0.6430	0.3585	40	0.18	148.01	0
148	Total Sulfur (17%)	0493	17.15	0.1000	17.04	0.6430	0.3585	40	0.18	148.99	0
148	Total Sulfur (17%)	0029	17.18	0.4200	17.04	0.6430	0.3585	40	0.22	148.00	0
148	Total Sulfur (17%)	0354	17.24	0.0220	17.04	0.6430	0.3585	40	0.32	148.99	0
148	Total Sulfur (17%)	0519	17.28	0.3000	17.04	0.6430	0.3585	40	0.38	148.07	0
148	Total Sulfur (17%)	0177	17.32	0.1407	17.04	0.6430	0.3585	40	0.44	148.07	0
148	Total Sulfur (17%)	0422	17.39	0.3100	17.04	0.6430	0.3585	40	0.54	148.99	0
148	Total Sulfur (17%)	0506	17.40	0.6000	17.04	0.6430	0.3585	40	0.57	148.99	0
148	Total Sulfur (17%)	0292	17.67	0.0200	17.04	0.6430	0.3585	40	0.99	148.07	0
148	Total Sulfur (17%)	0486	17.80	0.0300	17.04	0.6430	0.3585	40	1.18	148.07	0
148	Total Sulfur (17%)	0325	17.80	2.200	17.04	0.6430	0.3585	40	1.19	148.07	0
148	Total Sulfur (17%)	0451	17.80	0.4000	17.04	0.6430	0.3585	40	1.19	148.00	0
148	Total Sulfur (17%)	0220	17.87	0.0400	17.04	0.6430	0.3585	40	1.30	148.99	0
148	Total Sulfur (17%)	0483	18.25	0.3000	17.04	0.6430	0.3585	40	1.89	148.07	0
148	Total Sulfur (17%)	0086	19.19	0.4760	17.04	0.6430	0.3585	40	3.35	148.07	0
148	Total Sulfur (17%)	0515	20.83	1.277	17.04	0.6430	0.3585	40	5.90	148.07	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 Sulfur (17%)	0390	13.35*	4.500	17.04	0.6430	0.3585	40	-5.73	148.99	1
149	Sulfur - HNO3 soluble (%)	0040	16.83	0.0100	19.11	3.876	0.5313	3	-0.59	149.04	0
149	Sulfur - HNO3 soluble (%)	0423	16.93	0.1500	19.11	3.876	0.5313	3	-0.56	149.04	0
149	Sulfur - HNO3 soluble (%)	0521	23.59	1.434	19.11	3.876	0.5313	3	1.15	149.04	0
151	Acid Soluble Arsenic (ppm)	0394	0.0080	0.0000	0.0228	0.0229	0.0122	5	-0.59	151.30	0
151	Acid Soluble Arsenic (ppm)	0220	0.0100	0.0000	0.0228	0.0229	0.0122	5	-0.51	151.99	0
151	Acid Soluble Arsenic (ppm)	0042	0.0130	0.0040	0.0228	0.0229	0.0122	5	-0.39	151.99	0
151	Acid Soluble Arsenic (ppm)	0450	0.0200	0.0000	0.0228	0.0229	0.0122	5	-0.11	151.30	0
151	Acid Soluble Arsenic (ppm)	0521	0.0629	0.0570	0.0228	0.0229	0.0122	5	1.60	151.99	0
151	Acid Soluble Arsenic (ppm)	0519	0.2750	0.4500	0.0228	0.0229	0.0122	5	10.06	151.30	1
151	Acid Soluble Arsenic (ppm)	0515	0.0000	0.0000	0.0228	0.0229	0.0122	5		151.34	4
151	Acid Soluble Arsenic (ppm)	0515	0.0177	0.0353	0.0228	0.0229	0.0122	5		151.33	4
165	Acid Soluble Boron (%)	0354	0.0060	0.0000				1		165.30	0
165	Acid Soluble Boron (%)	0521	0.0000	0.0000				1		165.30	4
165	Acid Soluble Boron (%)	0086	0.0001	0.0001				1		165.30	4
181	Acid Soluble Cadmium (ppm)	0450	0.0100	0.0000	0.0348	0.0372	0.0296	5	-0.61	181.30	0
181	Acid Soluble Cadmium (ppm)	0220	0.0100	0.0000	0.0348	0.0372	0.0296	5	-0.61	181.99	0
181	Acid Soluble Cadmium (ppm)	0520	0.0245	0.0010	0.0348	0.0372	0.0296	5	-0.25	181.30	0
181	Acid Soluble Cadmium (ppm)	0519	0.0300	0.0000	0.0348	0.0372	0.0296	5	-0.12	181.30	0
181	Acid Soluble Cadmium (ppm)	0515	0.0995	0.1470	0.0348	0.0372	0.0296	5	1.59	181.33	0
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	0.0348	0.0372	0.0296	5		181.34	4
191	Acid Soluble Chromium (ppm)	0042	0.0215	0.0190	0.1726	0.2276	0.0464	5	-0.61	191.99	0
191	Acid Soluble Chromium (ppm)	0520	0.0490	0.0020	0.1726	0.2276	0.0464	5	-0.50	191.30	0
191	Acid Soluble Chromium (ppm)	0450	0.0500	0.0000	0.1726	0.2276	0.0464	5	-0.49	191.30	0
191	Acid Soluble Chromium (ppm)	0394	0.1775	0.0210	0.1726	0.2276	0.0464	5	0.02	191.30	0
191	Acid Soluble Chromium (ppm)	0519	0.5650	0.1900	0.1726	0.2276	0.0464	5	1.57	191.30	0
191	Acid Soluble Chromium (ppm)	0220	2.300	0.4000	0.1726	0.2276	0.0464	5	8.53	191.99	1
191	Acid Soluble Chromium (ppm)	0515	0.0056	0.0112	0.1726	0.2276	0.0464	5		191.33	4
191	Acid Soluble Chromium (ppm)	0515	0.0118	0.0235	0.1726	0.2276	0.0464	5		191.34	4
202	Acid Soluble Cobalt (ppm)	0520	0.0010	0.0000	0.0078	0.0045	0.0000	4	-1.34	202.30	0
202	Acid Soluble Cobalt (ppm)	0450	0.0100	0.0000	0.0078	0.0045	0.0000	4	0.45	202.30	0
202	Acid Soluble Cobalt (ppm)	0519	0.0100	0.0000	0.0078	0.0045	0.0000	4	0.45	202.30	0
202	Acid Soluble Cobalt (ppm)	0220	0.0100	0.0000	0.0078	0.0045	0.0000	4	0.45	202.99	0
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000	0.0078	0.0045	0.0000	4		202.33	4
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000	0.0078	0.0045	0.0000	4		202.34	4
221	Acid Soluble Copper (%)	0220	0.0001	0.0000	0.0055	0.0081	0.0332	6	-0.62	221.99	0
221	Acid Soluble Copper (%)	0433	0.0002	0.0001	0.0055	0.0081	0.0332	6	-0.62	221.30	0
221	Acid Soluble Copper (%)	0450	0.0002	0.0000	0.0055	0.0081	0.0332	6	-0.61	221.30	0
221	Acid Soluble Copper (%)	0354	0.0050	0.0020	0.0055	0.0081	0.0332	6	-0.06	221.30	0
221	Acid Soluble Copper (%)	0519	0.0100	0.0000	0.0055	0.0081	0.0332	6	0.52	221.30	0
221	Acid Soluble Copper (%)	0394	0.8625	0.1970	0.0055	0.0081	0.0332	6	98.35	221.32	0
221	Acid Soluble Copper (%)	0521	0.0000	0.0000	0.0055	0.0081	0.0332	6		221.32	4
221	Acid Soluble Copper (%)	0515	0.0000	0.0000	0.0055	0.0081	0.0332	6		221.33	4

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				
221	Acid Soluble Copper (%)	0515	0.2538	0.5075	0.0055	0.0081	0.0332	6		221.99	4
241	Acid Soluble Iron (%)	0035	0.0007	0.0001				2		241.30	0
241	Acid Soluble Iron (%)	0354	0.0115	0.0010				2		241.30	0
241	Acid Soluble Iron (%)	0521	0.0000	0.0000				2		241.32	4
251	Acid Soluble Lead (ppm)	0520	0.0030	0.0000	0.4326	0.8212	0.0920	5	-0.48	251.30	0
251	Acid Soluble Lead (ppm)	0450	0.0700	0.0000	0.4326	0.8212	0.0920	5	-0.40	251.30	0
251	Acid Soluble Lead (ppm)	0394	0.0950	0.0300	0.4326	0.8212	0.0920	5	-0.38	251.30	0
251	Acid Soluble Lead (ppm)	0519	0.0950	0.0300	0.4326	0.8212	0.0920	5	-0.38	251.30	0
251	Acid Soluble Lead (ppm)	0220	1.900	0.4000	0.4326	0.8212	0.0920	5	1.63	251.99	0
251	Acid Soluble Lead (ppm)	0515	0.0344	0.0688	0.4326	0.8212	0.0920	5		251.33	4
251	Acid Soluble Lead (ppm)	0515	0.0432	0.0864	0.4326	0.8212	0.0920	5		251.34	4
261	Acid Soluble Manganese (%)	0354	0.0000	0.0000				0		261.30	4
261	Acid Soluble Manganese (%)	0521	0.0000	0.0000				0		261.34	4
281	Acid Soluble Mercury (ppm)	0394	0.0040	0.0040	0.0310	0.0399	0.0044	5	-0.62	281.30	0
281	Acid Soluble Mercury (ppm)	0450	0.0100	0.0000	0.0310	0.0399	0.0044	5	-0.48	281.30	0
281	Acid Soluble Mercury (ppm)	0519	0.0100	0.0000	0.0310	0.0399	0.0044	5	-0.48	281.30	0
281	Acid Soluble Mercury (ppm)	0042	0.0310	0.0120	0.0310	0.0399	0.0044	5	0.00	281.99	0
281	Acid Soluble Mercury (ppm)	0520	0.1000	0.0060	0.0310	0.0399	0.0044	5	1.58	281.30	0
281	Acid Soluble Mercury (ppm)	0515	0.0000	0.0000	0.0310	0.0399	0.0044	5		281.30	4
289	Acid Soluble Molybdenum (ppm)	0042	0.0405	0.0190	2.095	3.872	0.0328	4	-0.47	289.99	0
289	Acid Soluble Molybdenum (ppm)	0433	0.0962	0.0020	2.095	3.872	0.0328	4	-0.46	289.30	0
289	Acid Soluble Molybdenum (ppm)	0519	0.3450	0.1100	2.095	3.872	0.0328	4	-0.40	289.30	0
289	Acid Soluble Molybdenum (ppm)	0450	7.900	0.0000	2.095	3.872	0.0328	4	1.34	289.30	0
289	Acid Soluble Molybdenum (ppm)	0521	0.0000	0.0000	2.095	3.872	0.0328	4		289.30	4
289	Acid Soluble Molybdenum (ppm)	0515	0.0000	0.0000	2.095	3.872	0.0328	4		289.33	4
289	Acid Soluble Molybdenum (ppm)	0515	0.0000	0.0000	2.095	3.872	0.0328	4		289.34	4
291	Acid Soluble Nickel (ppm)	0394	0.0060	0.0000	0.3296	0.5280	0.1464	5	-0.56	291.30	0
291	Acid Soluble Nickel (ppm)	0042	0.0170	0.0020	0.3296	0.5280	0.1464	5	-0.54	291.99	0
291	Acid Soluble Nickel (ppm)	0519	0.0750	0.0300	0.3296	0.5280	0.1464	5	-0.44	291.30	0
291	Acid Soluble Nickel (ppm)	0450	0.3000	0.0000	0.3296	0.5280	0.1464	5	-0.05	291.30	0
291	Acid Soluble Nickel (ppm)	0220	1.250	0.7000	0.3296	0.5280	0.1464	5	1.59	291.99	0
291	Acid Soluble Nickel (ppm)	0521	0.0000	0.0000	0.3296	0.5280	0.1464	5		291.30	4
291	Acid Soluble Nickel (ppm)	0515	0.0000	0.0000	0.3296	0.5280	0.1464	5		291.33	4
291	Acid Soluble Nickel (ppm)	0515	0.0000	0.0000	0.3296	0.5280	0.1464	5		291.34	4
301	Acid Soluble Selenium (ppm)	0042	0.0160	0.0060				2		301.99	0
301	Acid Soluble Selenium (ppm)	0519	0.0800	0.0400				2		301.30	0
301	Acid Soluble Selenium (ppm)	0515	0.0127	0.0253				2		301.33	4
301	Acid Soluble Selenium (ppm)	0515	0.0723	0.1445				2		301.34	4
311	Sodium (%)	0096	0.0100	0.0000	0.0250	0.0216	0.0021	5	-0.63	311.99	0
311	Sodium (%)	0025	0.0142	0.0018	0.0250	0.0216	0.0021	5	-0.46	311.32	0
311	Sodium (%)	0521	0.0188	0.0048	0.0250	0.0216	0.0021	5	-0.26	311.32	0
311	Sodium (%)	0423	0.0190	0.0020	0.0250	0.0216	0.0021	5	-0.25	311.33	0
311	Sodium (%)	0354	0.0630	0.0020	0.0250	0.0216	0.0021	5	1.61	311.99	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				
311	Sodium (%)	0521	0.0506	0.0158	0.0250	0.0216	0.0021	5	1.08	311.99	1
321	Acid Soluble Zinc (%)	0450	0.0001	0.0000	0.0031	0.0040	0.0005	5	-0.69	321.30	0
321	Acid Soluble Zinc (%)	0433	0.0006	0.0001	0.0031	0.0040	0.0005	5	-0.58	321.30	0
321	Acid Soluble Zinc (%)	0096	0.0024	0.0012	0.0031	0.0040	0.0005	5	-0.16	321.30	0
321	Acid Soluble Zinc (%)	0354	0.0025	0.0010	0.0031	0.0040	0.0005	5	-0.14	321.30	0
321	Acid Soluble Zinc (%)	0519	0.0100	0.0000	0.0031	0.0040	0.0005	5	1.57	321.30	0
321	Acid Soluble Zinc (%)	0394	1.233	0.7540	0.0031	0.0040	0.0005	5	280.77	321.32	2
321	Acid Soluble Zinc (%)	0292	0.0000	0.0000	0.0031	0.0040	0.0005	5		321.30	4
321	Acid Soluble Zinc (%)	0521	0.0000	0.0000	0.0031	0.0040	0.0005	5		321.32	4
321	Acid Soluble Zinc (%)	0515	0.0000	0.0000	0.0031	0.0040	0.0005	5		321.33	4
321	Acid Soluble Zinc (%)	0515	0.0000	0.0000	0.0031	0.0040	0.0005	5		321.99	4

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 and a 4 flag indicates rejected due to 0 value submitted. Robust statistics not used if < 6 labs used in calculations, in this case the Z Scores are included for information only (Grey). An offset lab value with an astrix indicates that the value is lower than the Analyte value less the IA. Method or 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.