

Analyte PT For All Labs
 Sample # 231215
 K2SO4/polihalide

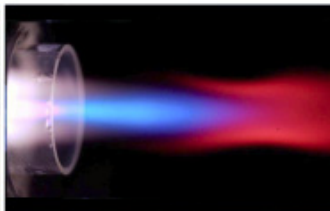
Magruder Fertilizer Proficiency Testing Program
 Regular PT Scheme Sample Doubles with K Scheme
 Statistical Summary

Analytes: 34
 # Labs Reporting: 68
 Issue Date : 01/31/2024

Analyte Code	Analyte Sample # 231215	# 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		0.0664									
005	Urea N (%)	1		0.1261									
010	Total N (%)	4	3	0.0387	0.0278	0.0516	0.4900	0.0126	0.0091	24.52%	0.06	0.0057	6.25%
020	Total P2O5 (%)	6	4	8.288	20.22	12.41		24.77	15.48	199.67%		0.2707	2.74%
041	Direct Available P2O5 (%)	2	2	25.18	35.60								
048	Water Soluble P2O5 (%)	1		0.0082									
050	Soluble K2O (50%)	70	67	50.98	1.713	50.97	1.6697	1.261	0.1925	2.47%	1.76	0.3899	1.40%
060	Water (Free) (%)	1		0.0445									
101	Acid Soluble Ca (%)	6	5	0.1251	0.0552	0.1301	0.2065	0.0602	0.0337	46.27%	0.68	0.0083	5.44%
121	Acid Soluble Mg (%)	8	8	0.3206	0.0210	0.3180	0.2159	0.0171	0.0076	5.38%	0.18	0.0075	4.75%
131	Water Soluble Mg (%)	1		0.3092									
143	Elemental S (%)	4	4	17.76	0.3138	17.76		0.3138	0.1962	1.77%		0.1881	2.37%
145	Sulfate S, HCl soluble (%)	8	7	17.49	0.8819	17.78		0.2951	0.1394	1.66%		0.0786	2.37%
148	Total S (17.5%)	42	40	17.86	0.7151	17.80	1.0000	0.5665	0.1120	3.18%	1.32	0.1597	2.37%
149	S - HNO3 soluble (%)	2	2	16.79	0.4632								
151	Acid Soluble As (ppm)	12	5	1.166	1.788	0.4149		0.1277	0.0714	30.77%		0.0507	18.26%
165	Acid Soluble B (%)	6	4	0.0066	0.0048	0.0046	0.0037	0.0048	0.0030	103.52%	3.02	0.0008	8.98%
171	Water Soluble B (%)	1		0.0110									
181	Acid Soluble Cd (ppm)	12	3	0.6093	0.9254	0.9807		1.659	1.197	169.20%		1.170	16.04%
190	Water Soluble Cl (0.8%)	17	16	0.3737	0.2972	0.3658	0.0416	0.3459	0.1081	94.57%	19.39	0.0391	4.65%
191	Acid Soluble Cr (ppm)	11	9	7.824	3.041	8.490		2.993	1.247	35.25%		0.2976	11.59%
202	Acid Soluble Co (ppm)	13	7	1.786	4.023	0.4393	1.1318	0.0793	0.0375	18.06%	0.16	0.0705	18.10%
221	Acid Soluble Cu (%)	11	3	0.0029	0.0090	0.0102	0.0060	0.0171	0.0124	167.71%	6.63	0.0009	7.97%
241	Acid Soluble Fe (%)	7	7	0.0538	0.0134	0.0523	0.0102	0.0115	0.0054	21.92%	2.61	0.0010	6.24%
251	Acid Soluble Pb (ppm)	12	5	1.419	1.643	0.6233		0.1282	0.0716	20.56%		0.0402	17.18%
261	Acid Soluble Mn (%)	6	5	0.0023	0.0038	0.0027	0.0053	0.0041	0.0023	148.90%	1.80	0.0001	9.72%
281	Acid Soluble Hg (ppm)	6	1	0.5450	0.8695	0.0027		0.0041	0.0051	148.90%		0.0000	22.00%
289	Acid Soluble Mo (ppm)	11	5	0.6268	0.8788	0.2590	1.0777	0.1115	0.0623	43.06%	0.24	0.0833	19.60%
291	Acid Soluble Ni (ppm)	11	5	3.188	6.441	1.010		0.6247	0.3492	61.87%		0.5440	15.97%

Analyte Code	Analyte Sample # 231215	# 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
301	Acid Soluble Se (ppm)	10	1	1.525	3.033	1.010		0.6247	0.7809	61.87%		0.0080	15.97%
311	Sodium (%)	6	6	0.1160	0.0296	0.1160	0.0166	0.0336	0.0171	28.96%	4.71	0.0062	5.53%
321	Acid Soluble Zn (%)	11	5	0.0023	0.0042	0.0023	0.0052	0.0043	0.0024	188.33%	1.92	0.0002	9.99%
325	Water Soluble Zn (%)	2	2	0.0005	0.0001								
431	Soluble Si in nonliquids (%)	1		0.0209									

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. The Horwitz %RSD is calculated using the Thompson Modification, Analyst,2000,125,385-386.



Analyte PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Analytes: 34

Sample # 231215

Regular PT Scheme Sample Doubles with K Scheme

Labs Reporting: 68

K2SO4/polihalide

Lab Values

Issue Date : 01/31/2024

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
001	Ammoniacal N (%)	0524	0.0664	0.0167				1		001.99	0
005	Urea N (%)	0524	0.1261	0.0062				1		005.99	0
010	Total N (%)	0524	0.0372	0.0002	0.0516	0.0126	0.0057	3	-1.14	010.99	0
010	Total N (%)	0354	0.0565	0.0050	0.0516	0.0126	0.0057	3	0.39	010.60	0
010	Total N (%)	0588	0.0610	0.0120	0.0516	0.0126	0.0057	3	0.75	010.60	0
010	Total N (%)	0422	0.0000	0.0000	0.0516	0.0126	0.0057	3		010.60	4
020	Total P2O5 (%)	0524	0.0084	0.0008	12.41	24.77	0.2707	4	-0.42	020.50	0
020	Total P2O5 (%)	0572	0.0090	0.0010	12.41	24.77	0.2707	4	-0.42	020.99	0
020	Total P2O5 (%)	0588	0.0435	0.0090	12.41	24.77	0.2707	4	-0.42	020.50	0
020	Total P2O5 (%)	0543	49.57	1.072	12.41	24.77	0.2707	4	1.27	020.50	0
020	Total P2O5 (%)	0422	0.0000	0.0000	12.41	24.77	0.2707	4		020.50	4
020	Total P2O5 (%)	0527	< 0.1		12.41	24.77	0.2707	4		020.50	5
041	Direct Available P2O5 (%)	0354	0.0110	0.0020				2		041.21	0
041	Direct Available P2O5 (%)	0095	50.35	2.120				2		041.21	0
048	Water Soluble P2O5 (%)	0572	0.0082	0.0018				1		048.99	0
050	Soluble K2O (50%)	0472	46.50†	0.0000	50.97	1.261	0.3899	67	-3.54	050.32	0
050	Soluble K2O (50%)	0510	46.66†	0.5609	50.97	1.261	0.3899	67	-3.42	050.60	0
050	Soluble K2O (50%)	0389	47.00†	0.2000	50.97	1.261	0.3899	67	-3.15	050.99	0
050	Soluble K2O (50%)	0485	48.35†	0.5000	50.97	1.261	0.3899	67	-2.08	050.52	0
050	Soluble K2O (50%)	0534	49.25†	0.5000	50.97	1.261	0.3899	67	-1.36	050.99	0
050	Soluble K2O (50%)	0615	49.40	0.4000	50.97	1.261	0.3899	67	-1.24	050.99	0
050	Soluble K2O (50%)	0354	49.45	0.3000	50.97	1.261	0.3899	67	-1.20	050.52	0
050	Soluble K2O (50%)	0485	49.75	1.100	50.97	1.261	0.3899	67	-0.97	050.00	0
050	Soluble K2O (50%)	0023	49.75	0.0010	50.97	1.261	0.3899	67	-0.96	050.52	0
050	Soluble K2O (50%)	0025	49.85	0.1000	50.97	1.261	0.3899	67	-0.89	050.52	0
050	Soluble K2O (50%)	0368	49.88	0.1718	50.97	1.261	0.3899	67	-0.86	050.51	0
050	Soluble K2O (50%)	0423	49.90	0.1630	50.97	1.261	0.3899	67	-0.85	050.52	0
050	Soluble K2O (50%)	0433	49.95	0.4600	50.97	1.261	0.3899	67	-0.81	050.99	0
050	Soluble K2O (50%)	0451	49.98	0.5200	50.97	1.261	0.3899	67	-0.78	050.99	0
050	Soluble K2O (50%)	0177	49.98	0.0610	50.97	1.261	0.3899	67	-0.78	050.99	0
050	Soluble K2O (50%)	0538	50.00	0.2000	50.97	1.261	0.3899	67	-0.77	050.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
050	Soluble K2O (50%)	0255	50.00	0.1200	50.97	1.261	0.3899	67	-0.77	050.99	0
050	Soluble K2O (50%)	0584	50.07	0.2200	50.97	1.261	0.3899	67	-0.71	050.99	0
050	Soluble K2O (50%)	0043	50.17	0.4700	50.97	1.261	0.3899	67	-0.64	050.52	0
050	Soluble K2O (50%)	0558	50.21	0.1520	50.97	1.261	0.3899	67	-0.60	050.30	0
050	Soluble K2O (50%)	0577	50.38	0.1100	50.97	1.261	0.3899	67	-0.47	050.99	0
050	Soluble K2O (50%)	0106	50.48	1.260	50.97	1.261	0.3899	67	-0.39	050.50	0
050	Soluble K2O (50%)	0619	50.50	0.6000	50.97	1.261	0.3899	67	-0.37	050.00	0
050	Soluble K2O (50%)	0619	50.50	0.6000	50.97	1.261	0.3899	67	-0.37	050.99	0
050	Soluble K2O (50%)	0029	50.51	1.110	50.97	1.261	0.3899	67	-0.37	050.62	0
050	Soluble K2O (50%)	0234	50.55	0.3000	50.97	1.261	0.3899	67	-0.33	050.99	0
050	Soluble K2O (50%)	0533	50.63	0.6200	50.97	1.261	0.3899	67	-0.27	050.99	0
050	Soluble K2O (50%)	0136	50.65	1.030	50.97	1.261	0.3899	67	-0.26	050.52	0
050	Soluble K2O (50%)	0600	50.70	0.2000	50.97	1.261	0.3899	67	-0.21	050.99	0
050	Soluble K2O (50%)	0220	50.73	0.0200	50.97	1.261	0.3899	67	-0.19	050.00	0
050	Soluble K2O (50%)	0405	50.73	0.0400	50.97	1.261	0.3899	67	-0.19	050.00	0
050	Soluble K2O (50%)	0535	50.75	0.5000	50.97	1.261	0.3899	67	-0.17	050.99	0
050	Soluble K2O (50%)	0055	50.86	0.3450	50.97	1.261	0.3899	67	-0.09	050.50	0
050	Soluble K2O (50%)	0231	50.87	0.1100	50.97	1.261	0.3899	67	-0.08	050.00	0
050	Soluble K2O (50%)	0494	50.99	0.1500	50.97	1.261	0.3899	67	0.01	050.00	0
050	Soluble K2O (50%)	0498	51.05	0.7000	50.97	1.261	0.3899	67	0.06	050.99	0
050	Soluble K2O (50%)	0055	51.10	0.3000	50.97	1.261	0.3899	67	0.10	050.00	0
050	Soluble K2O (50%)	0535	51.10	0.2000	50.97	1.261	0.3899	67	0.10	050.62	0
050	Soluble K2O (50%)	0049	51.12	0.0900	50.97	1.261	0.3899	67	0.12	050.00	0
050	Soluble K2O (50%)	0612	51.14	1.110	50.97	1.261	0.3899	67	0.13	050.99	0
050	Soluble K2O (50%)	0535	51.15	0.3000	50.97	1.261	0.3899	67	0.14	050.61	0
050	Soluble K2O (50%)	0007	51.15	1.100	50.97	1.261	0.3899	67	0.14	050.51	0
050	Soluble K2O (50%)	0614	51.15	0.1000	50.97	1.261	0.3899	67	0.14	050.99	0
050	Soluble K2O (50%)	0561	51.16	0.3600	50.97	1.261	0.3899	67	0.15	050.99	0
050	Soluble K2O (50%)	0524	51.21	0.1409	50.97	1.261	0.3899	67	0.19	050.99	0
050	Soluble K2O (50%)	0494	51.28	0.1100	50.97	1.261	0.3899	67	0.24	050.52	0
050	Soluble K2O (50%)	0102	51.44	0.6000	50.97	1.261	0.3899	67	0.37	050.00	0
050	Soluble K2O (50%)	0114	51.60	0.5300	50.97	1.261	0.3899	67	0.50	050.00	0
050	Soluble K2O (50%)	0137	51.69	0.7100	50.97	1.261	0.3899	67	0.57	050.52	0
050	Soluble K2O (50%)	0324	51.75	0.5000	50.97	1.261	0.3899	67	0.62	050.50	0
050	Soluble K2O (50%)	0563	51.80	0.8000	50.97	1.261	0.3899	67	0.66	050.99	0
050	Soluble K2O (50%)	0360	51.81	0.5300	50.97	1.261	0.3899	67	0.66	050.52	0
050	Soluble K2O (50%)	0532	51.81	0.1700	50.97	1.261	0.3899	67	0.66	050.99	0
050	Soluble K2O (50%)	0587	51.87	0.2200	50.97	1.261	0.3899	67	0.72	050.99	0
050	Soluble K2O (50%)	0049	51.89	1.680	50.97	1.261	0.3899	67	0.73	050.52	0
050	Soluble K2O (50%)	0073	52.31	0.0900	50.97	1.261	0.3899	67	1.06	050.30	0
050	Soluble K2O (50%)	0291	52.43	0.0600	50.97	1.261	0.3899	67	1.16	050.51	0
050	Soluble K2O (50%)	0035	52.50	0.6000	50.97	1.261	0.3899	67	1.21	050.61	0
050	Soluble K2O (50%)	0527	52.84‡	0.0085	50.97	1.261	0.3899	67	1.48	050.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
050	Soluble K2O (50%)	0605	52.86‡	0.4800	50.97	1.261	0.3899	67	1.50	050.99	0
050	Soluble K2O (50%)	0292	53.18‡	0.1500	50.97	1.261	0.3899	67	1.75	050.50	0
050	Soluble K2O (50%)	0422	53.48‡	0.4217	50.97	1.261	0.3899	67	1.99	050.50	0
050	Soluble K2O (50%)	0185	53.51‡	0.5800	50.97	1.261	0.3899	67	2.02	050.32	0
050	Soluble K2O (50%)	0521	53.87‡	0.0000	50.97	1.261	0.3899	67	2.30	050.51	0
050	Soluble K2O (50%)	0588	54.26‡	0.8500	50.97	1.261	0.3899	67	2.61	050.99	0
050	Soluble K2O (50%)	0580	55.05‡	0.1900	50.97	1.261	0.3899	67	3.23	050.30	0
050	Soluble K2O (50%)	0572	56.25‡	2.119	50.97	1.261	0.3899	67	4.19	050.99	0
050	Soluble K2O (50%)	0042	47.21†	8.660	50.97	1.261	0.3899	67	-2.98	050.99	1
050	Soluble K2O (50%)	0307	51.70	5.000	50.97	1.261	0.3899	67	0.58	050.99	1
050	Soluble K2O (50%)	0260	52.73‡	5.070	50.97	1.261	0.3899	67	1.39	050.99	1
060	Water (Free) (%)	0510	0.0445	0.0070				1		060.99	0
101	Acid Soluble Ca (%)	0472	0.0450	0.0100	0.1301	0.0602	0.0083	5	-1.23	101.33	0
101	Acid Soluble Ca (%)	0494	0.1252	0.0003	0.1301	0.0602	0.0083	5	-0.07	101.33	0
101	Acid Soluble Ca (%)	0630	0.1303	0.0010	0.1301	0.0602	0.0083	5	0.00	101.33	0
101	Acid Soluble Ca (%)	0572	0.1353	0.0003	0.1301	0.0602	0.0083	5	0.07	101.99	0
101	Acid Soluble Ca (%)	0354	0.2150	0.0300	0.1301	0.0602	0.0083	5	1.23	101.30	0
101	Acid Soluble Ca (%)	0527	< 0.1		0.1301	0.0602	0.0083	5		101.33	5
121	Acid Soluble Mg (%)	0524	0.3028	0.0102	0.3180	0.0171	0.0075	8	-0.81	121.99	0
121	Acid Soluble Mg (%)	0494	0.3036	0.0014	0.3180	0.0171	0.0075	8	-0.77	121.33	0
121	Acid Soluble Mg (%)	0423	0.3065	0.0010	0.3180	0.0171	0.0075	8	-0.61	121.32	0
121	Acid Soluble Mg (%)	0572	0.3093	0.0124	0.3180	0.0171	0.0075	8	-0.46	121.99	0
121	Acid Soluble Mg (%)	0630	0.3194	0.0038	0.3180	0.0171	0.0075	8	0.08	121.33	0
121	Acid Soluble Mg (%)	0354	0.3250	0.0300	0.3180	0.0171	0.0075	8	0.38	121.30	0
121	Acid Soluble Mg (%)	0527	0.3335	0.0032	0.3180	0.0171	0.0075	8	0.83	121.33	0
121	Acid Soluble Mg (%)	0472	0.3650	0.0100	0.3180	0.0171	0.0075	8	2.51	121.33	0
131	Water Soluble Mg (%)	0572	0.3092	0.0153				1		131.99	0
143	Elemental S (%)	0368	17.46	0.4644	17.76	0.3138	0.1881	4	-0.95	143.99	0
143	Elemental S (%)	0255	17.53	0.0700	17.76	0.3138	0.1881	4	-0.74	143.99	0
143	Elemental S (%)	0291	17.95	0.0300	17.76	0.3138	0.1881	4	0.60	143.99	0
143	Elemental S (%)	0389	18.10	0.0000	17.76	0.3138	0.1881	4	1.09	143.99	0
145	Sulfate S, HCl soluble (%)	0106	17.37	0.0900	17.78	0.2951	0.0786	7	-1.27	145.00	0
145	Sulfate S, HCl soluble (%)	0600	17.63	0.1400	17.78	0.2951	0.0786	7	-0.46	145.99	0
145	Sulfate S, HCl soluble (%)	0535	17.75	0.1000	17.78	0.2951	0.0786	7	-0.09	145.00	0
145	Sulfate S, HCl soluble (%)	0532	17.77	0.1200	17.78	0.2951	0.0786	7	-0.03	145.99	0
145	Sulfate S, HCl soluble (%)	0405	17.85	0.0100	17.78	0.2951	0.0786	7	0.20	145.00	0
145	Sulfate S, HCl soluble (%)	0584	17.88	0.0600	17.78	0.2951	0.0786	7	0.31	145.00	0
145	Sulfate S, HCl soluble (%)	0561	18.28	0.0300	17.78	0.2951	0.0786	7	1.52	145.00	0
145	Sulfate S, HCl soluble (%)	0498	15.40	0.8000	17.78	0.2951	0.0786	7	-7.29	145.00	1
148	Total S (17.5%)	0472	16.04†	0.0600	17.80	0.5665	0.1597	40	-3.11	148.07	0
148	Total S (17.5%)	0521	16.50†	0.0000	17.80	0.5665	0.1597	40	-2.30	148.00	0
148	Total S (17.5%)	0035	17.00	0.2000	17.80	0.5665	0.1597	40	-1.41	148.99	0
148	Total S (17.5%)	0580	17.09	0.4300	17.80	0.5665	0.1597	40	-1.26	148.01	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
148	Total S (17.5%)	0049	17.10	0.0600	17.80	0.5665	0.1597	40	-1.24	148.00	0
148	Total S (17.5%)	0494	17.10	0.0834	17.80	0.5665	0.1597	40	-1.23	148.07	0
148	Total S (17.5%)	0073	17.29	0.4600	17.80	0.5665	0.1597	40	-0.90	148.00	0
148	Total S (17.5%)	0025	17.37	1.001	17.80	0.5665	0.1597	40	-0.76	148.00	0
148	Total S (17.5%)	0577	17.47	0.2500	17.80	0.5665	0.1597	40	-0.59	148.99	0
148	Total S (17.5%)	0029	17.47	0.1400	17.80	0.5665	0.1597	40	-0.58	148.00	0
148	Total S (17.5%)	0538	17.50	0.1000	17.80	0.5665	0.1597	40	-0.53	148.01	0
148	Total S (17.5%)	0533	17.53	0.4300	17.80	0.5665	0.1597	40	-0.49	148.00	0
148	Total S (17.5%)	0527	17.58	0.0144	17.80	0.5665	0.1597	40	-0.39	148.07	0
148	Total S (17.5%)	0136	17.63	0.0900	17.80	0.5665	0.1597	40	-0.31	148.07	0
148	Total S (17.5%)	0354	17.65	0.1000	17.80	0.5665	0.1597	40	-0.27	148.99	0
148	Total S (17.5%)	0177	17.65	0.1462	17.80	0.5665	0.1597	40	-0.26	148.07	0
148	Total S (17.5%)	0558	17.66	0.0641	17.80	0.5665	0.1597	40	-0.25	148.99	0
148	Total S (17.5%)	0292	17.67	0.0900	17.80	0.5665	0.1597	40	-0.24	148.07	0
148	Total S (17.5%)	0535	17.75	0.1000	17.80	0.5665	0.1597	40	-0.09	148.99	0
148	Total S (17.5%)	0534	17.76	0.0500	17.80	0.5665	0.1597	40	-0.08	148.01	0
148	Total S (17.5%)	0102	17.80	0.0800	17.80	0.5665	0.1597	40	0.00	148.01	0
148	Total S (17.5%)	0231	17.83	0.0600	17.80	0.5665	0.1597	40	0.05	148.01	0
148	Total S (17.5%)	0612	17.84	0.2200	17.80	0.5665	0.1597	40	0.07	148.07	0
148	Total S (17.5%)	0597	17.85	0.5100	17.80	0.5665	0.1597	40	0.08	148.99	0
148	Total S (17.5%)	0605	17.90	0.0300	17.80	0.5665	0.1597	40	0.17	148.99	0
148	Total S (17.5%)	0114	17.90	0.2300	17.80	0.5665	0.1597	40	0.17	148.00	0
148	Total S (17.5%)	0040	17.90	0.4000	17.80	0.5665	0.1597	40	0.18	148.07	0
148	Total S (17.5%)	0563	17.96	0.1100	17.80	0.5665	0.1597	40	0.27	148.07	0
148	Total S (17.5%)	0055	18.07	0.2750	17.80	0.5665	0.1597	40	0.48	148.01	0
148	Total S (17.5%)	0485	18.10	0.2000	17.80	0.5665	0.1597	40	0.53	148.01	0
148	Total S (17.5%)	0023	18.11	0.0320	17.80	0.5665	0.1597	40	0.55	148.99	0
148	Total S (17.5%)	0433	18.14	0.1100	17.80	0.5665	0.1597	40	0.59	148.99	0
148	Total S (17.5%)	0451	18.45	0.3000	17.80	0.5665	0.1597	40	1.15	148.00	0
148	Total S (17.5%)	0543	18.46	0.1770	17.80	0.5665	0.1597	40	1.17	148.07	0
148	Total S (17.5%)	0619	18.50	0.2000	17.80	0.5665	0.1597	40	1.23	148.07	0
148	Total S (17.5%)	0619	18.50	0.2000	17.80	0.5665	0.1597	40	1.23	148.99	0
148	Total S (17.5%)	0043	18.87‡	0.2100	17.80	0.5665	0.1597	40	1.88	148.07	0
148	Total S (17.5%)	0220	19.33‡	0.0300	17.80	0.5665	0.1597	40	2.69	148.99	0
148	Total S (17.5%)	0422	19.51‡	0.1000	17.80	0.5665	0.1597	40	3.02	148.99	0
148	Total S (17.5%)	0572	19.73‡	0.0863	17.80	0.5665	0.1597	40	3.40	148.99	0
148	Total S (17.5%)	0260	17.97	1.380	17.80	0.5665	0.1597	40	0.30	148.07	1
148	Total S (17.5%)	0324	18.70	1.200	17.80	0.5665	0.1597	40	1.59	148.01	1
149	S - HNO3 soluble (%)	0524	16.46	0.5093				2		149.04	0
149	S - HNO3 soluble (%)	0423	17.12	0.0660				2		149.04	0
151	Acid Soluble As (ppm)	0524	0.3394	0.0260	0.4149	0.1277	0.0507	5	-0.59	151.30	0
151	Acid Soluble As (ppm)	0220	0.3500	0.1000	0.4149	0.1277	0.0507	5	-0.51	151.32	0
151	Acid Soluble As (ppm)	0220	0.3500	0.1000	0.4149	0.1277	0.0507	5	-0.51	151.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
151	Acid Soluble As (ppm)	0572	0.3951	0.0076	0.4149	0.1277	0.0507	5	-0.16	151.99	0
151	Acid Soluble As (ppm)	0563	0.6400	0.0200	0.4149	0.1277	0.0507	5	1.76	151.33	0
151	Acid Soluble As (ppm)	0255	0.0000	0.0000	0.4149	0.1277	0.0507	5		151.30	4
151	Acid Soluble As (ppm)	0527	< 0.0001		0.4149	0.1277	0.0507	5		151.33	5
151	Acid Soluble As (ppm)	0368	< 0.3		0.4149	0.1277	0.0507	5		151.34	5
151	Acid Soluble As (ppm)	0136	< 1		0.4149	0.1277	0.0507	5		151.33	5
151	Acid Soluble As (ppm)	0494	< 1.42		0.4149	0.1277	0.0507	5		151.33	5
151	Acid Soluble As (ppm)	0405	< 3		0.4149	0.1277	0.0507	5		151.32	5
151	Acid Soluble As (ppm)	0605	< 6.2		0.4149	0.1277	0.0507	5		151.30	5
165	Acid Soluble B (%)	0524	0.0002	0.0000	0.0046	0.0048	0.0008	4	-0.78	165.99	0
165	Acid Soluble B (%)	0423	0.0010	0.0000	0.0046	0.0048	0.0008	4	-0.64	165.99	0
165	Acid Soluble B (%)	0494	0.0073	0.0008	0.0046	0.0048	0.0008	4	0.47	165.99	0
165	Acid Soluble B (%)	0354	0.0100	0.0000	0.0046	0.0048	0.0008	4	0.95	165.30	0
165	Acid Soluble B (%)	0527	< 0.01		0.0046	0.0048	0.0008	4		165.99	5
165	Acid Soluble B (%)	0572	< 0.011		0.0046	0.0048	0.0008	4		165.99	5
171	Water Soluble B (%)	0572	< 0.011					0		171.99	5
181	Acid Soluble Cd (ppm)	0524	0.0015	0.0002	0.9807	1.659	1.170	3	-0.59	181.30	0
181	Acid Soluble Cd (ppm)	0563	0.0440	0.0040	0.9807	1.659	1.170	3	-0.56	181.33	0
181	Acid Soluble Cd (ppm)	0255	2.897	3.507	0.9807	1.659	1.170	3	1.15	181.30	0
181	Acid Soluble Cd (ppm)	0527	< 0.0001		0.9807	1.659	1.170	3		181.33	5
181	Acid Soluble Cd (ppm)	0572	< 0.05		0.9807	1.659	1.170	3		181.99	5
181	Acid Soluble Cd (ppm)	0220	< 0.1		0.9807	1.659	1.170	3		181.32	5
181	Acid Soluble Cd (ppm)	0368	< 0.1		0.9807	1.659	1.170	3		181.34	5
181	Acid Soluble Cd (ppm)	0220	< 0.1		0.9807	1.659	1.170	3		181.99	5
181	Acid Soluble Cd (ppm)	0494	< 0.17		0.9807	1.659	1.170	3		181.33	5
181	Acid Soluble Cd (ppm)	0405	< 1		0.9807	1.659	1.170	3		181.32	5
181	Acid Soluble Cd (ppm)	0136	< 1		0.9807	1.659	1.170	3		181.33	5
181	Acid Soluble Cd (ppm)	0605	< 1.85		0.9807	1.659	1.170	3		181.30	5
190	Water Soluble Cl (0.8%)	0220	0.04500†	0.0100	0.3658	0.3459	0.0391	16	-0.93	190.00	0
190	Water Soluble Cl (0.8%)	0451	0.07650†	0.0010	0.3658	0.3459	0.0391	16	-0.84	190.99	0
190	Water Soluble Cl (0.8%)	0422	0.1095†	0.0090	0.3658	0.3459	0.0391	16	-0.74	190.00	0
190	Water Soluble Cl (0.8%)	0494	0.1165†	0.0050	0.3658	0.3459	0.0391	16	-0.72	190.00	0
190	Water Soluble Cl (0.8%)	0023	0.1350†	0.0220	0.3658	0.3459	0.0391	16	-0.67	190.99	0
190	Water Soluble Cl (0.8%)	0292	0.1700†	0.0000	0.3658	0.3459	0.0391	16	-0.57	190.99	0
190	Water Soluble Cl (0.8%)	0498	0.2150†	0.0300	0.3658	0.3459	0.0391	16	-0.44	190.00	0
190	Water Soluble Cl (0.8%)	0619	0.2250†	0.0300	0.3658	0.3459	0.0391	16	-0.41	190.00	0
190	Water Soluble Cl (0.8%)	0619	0.2250†	0.0300	0.3658	0.3459	0.0391	16	-0.41	190.99	0
190	Water Soluble Cl (0.8%)	0600	0.2500†	0.1000	0.3658	0.3459	0.0391	16	-0.33	190.00	0
190	Water Soluble Cl (0.8%)	0561	0.3400	0.0800	0.3658	0.3459	0.0391	16	-0.07	190.00	0
190	Water Soluble Cl (0.8%)	0577	0.6900‡	0.0400	0.3658	0.3459	0.0391	16	0.94	190.00	0
190	Water Soluble Cl (0.8%)	0533	0.7650‡	0.0100	0.3658	0.3459	0.0391	16	1.15	190.00	0
190	Water Soluble Cl (0.8%)	0538	0.7900‡	0.0200	0.3658	0.3459	0.0391	16	1.23	190.00	0
190	Water Soluble Cl (0.8%)	0535	0.8500‡	0.1000	0.3658	0.3459	0.0391	16	1.40	190.00	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
190	Water Soluble Cl (0.8%)	0535	0.8500±	0.1000	0.3658	0.3459	0.0391	16	1.40	190.99	0
190	Water Soluble Cl (0.8%)	0405	< 0.5		0.3658	0.3459	0.0391	16		190.00	5
191	Acid Soluble Cr (ppm)	0524	3.460	0.0257	8.490	2.993	0.2976	9	-1.55	191.30	0
191	Acid Soluble Cr (ppm)	0572	5.411	0.2525	8.490	2.993	0.2976	9	-0.95	191.99	0
191	Acid Soluble Cr (ppm)	0220	6.950	0.3000	8.490	2.993	0.2976	9	-0.47	191.32	0
191	Acid Soluble Cr (ppm)	0220	7.350	0.3000	8.490	2.993	0.2976	9	-0.35	191.99	0
191	Acid Soluble Cr (ppm)	0527	9.687	0.2531	8.490	2.993	0.2976	9	0.37	191.33	0
191	Acid Soluble Cr (ppm)	0563	10.22	0.3800	8.490	2.993	0.2976	9	0.53	191.33	0
191	Acid Soluble Cr (ppm)	0494	10.65	0.3000	8.490	2.993	0.2976	9	0.67	191.33	0
191	Acid Soluble Cr (ppm)	0405	11.00	0.0000	8.490	2.993	0.2976	9	0.77	191.32	0
191	Acid Soluble Cr (ppm)	0605	11.14	0.7200	8.490	2.993	0.2976	9	0.82	191.30	0
191	Acid Soluble Cr (ppm)	0368	7.700	3.200	8.490	2.993	0.2976	9	-0.24	191.34	1
191	Acid Soluble Cr (ppm)	0136	< 2.5		8.490	2.993	0.2976	9		191.33	5
202	Acid Soluble Co (ppm)	0563	0.3600	0.0400	0.4393	0.0793	0.0705	7	-1.00	202.33	0
202	Acid Soluble Co (ppm)	0220	0.4000	0.0000	0.4393	0.0793	0.0705	7	-0.50	202.32	0
202	Acid Soluble Co (ppm)	0368	0.4000	0.0000	0.4393	0.0793	0.0705	7	-0.50	202.34	0
202	Acid Soluble Co (ppm)	0220	0.4000	0.0000	0.4393	0.0793	0.0705	7	-0.50	202.99	0
202	Acid Soluble Co (ppm)	0524	0.4540	0.0860	0.4393	0.0793	0.0705	7	0.18	202.30	0
202	Acid Soluble Co (ppm)	0605	0.5030	0.0360	0.4393	0.0793	0.0705	7	0.80	202.30	0
202	Acid Soluble Co (ppm)	0423	0.8200	0.1200	0.4393	0.0793	0.0705	7	4.80	202.32	0
202	Acid Soluble Co (ppm)	0255	15.03	9.470	0.4393	0.0793	0.0705	7	183.86	202.99	1
202	Acid Soluble Co (ppm)	0527	< 0.0001		0.4393	0.0793	0.0705	7		202.33	5
202	Acid Soluble Co (ppm)	0572	< 0.65		0.4393	0.0793	0.0705	7		202.99	5
202	Acid Soluble Co (ppm)	0494	< 0.7		0.4393	0.0793	0.0705	7		202.33	5
202	Acid Soluble Co (ppm)	0405	< 1		0.4393	0.0793	0.0705	7		202.32	5
202	Acid Soluble Co (ppm)	0136	< 2.5		0.4393	0.0793	0.0705	7		202.33	5
221	Acid Soluble Cu (%)	0524	0.0001	0.0000	0.0102	0.0171	0.0009	3	-0.48	221.99	0
221	Acid Soluble Cu (%)	0368	0.0006	0.0009	0.0102	0.0171	0.0009	3	-0.46	221.99	0
221	Acid Soluble Cu (%)	0354	0.0300	0.0000	0.0102	0.0171	0.0009	3	0.94	221.30	0
221	Acid Soluble Cu (%)	0255	0.0000	0.0000	0.0102	0.0171	0.0009	3		221.30	4
221	Acid Soluble Cu (%)	0106	0.0000	0.0000	0.0102	0.0171	0.0009	3		221.33	4
221	Acid Soluble Cu (%)	0527	< 0.0001		0.0102	0.0171	0.0009	3		221.33	5
221	Acid Soluble Cu (%)	0563	< 0.0001		0.0102	0.0171	0.0009	3		221.33	5
221	Acid Soluble Cu (%)	0572	< 0.0001		0.0102	0.0171	0.0009	3		221.99	5
221	Acid Soluble Cu (%)	0405	< 0.0002		0.0102	0.0171	0.0009	3		221.32	5
221	Acid Soluble Cu (%)	0136	< 0.0002		0.0102	0.0171	0.0009	3		221.33	5
221	Acid Soluble Cu (%)	0494	< 0.0002		0.0102	0.0171	0.0009	3		221.33	5
241	Acid Soluble Fe (%)	0572	0.0397	0.0008	0.0523	0.0115	0.0010	7	-0.99	241.99	0
241	Acid Soluble Fe (%)	0524	0.0412	0.0023	0.0523	0.0115	0.0010	7	-0.88	241.99	0
241	Acid Soluble Fe (%)	0472	0.0500	0.0000	0.0523	0.0115	0.0010	7	-0.18	241.33	0
241	Acid Soluble Fe (%)	0527	0.0535	0.0010	0.0523	0.0115	0.0010	7	0.10	241.33	0
241	Acid Soluble Fe (%)	0630	0.0558	0.0001	0.0523	0.0115	0.0010	7	0.27	241.33	0
241	Acid Soluble Fe (%)	0494	0.0564	0.0009	0.0523	0.0115	0.0010	7	0.32	241.33	0

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			Value	Range	Rob Mean	Rob SD	Rob R-bar				
241	Acid Soluble Fe (%)	0354	0.0800	0.0000	0.0523	0.0115	0.0010	7	2.19	241.30	0
251	Acid Soluble Pb (ppm)	0524	0.4702	0.0336	0.6233	0.1282	0.0402	5	-1.19	251.30	0
251	Acid Soluble Pb (ppm)	0563	0.5650	0.0500	0.6233	0.1282	0.0402	5	-0.45	251.33	0
251	Acid Soluble Pb (ppm)	0572	0.5814	0.0371	0.6233	0.1282	0.0402	5	-0.33	251.99	0
251	Acid Soluble Pb (ppm)	0220	0.7000	0.0000	0.6233	0.1282	0.0402	5	0.60	251.32	0
251	Acid Soluble Pb (ppm)	0220	0.8000	0.0000	0.6233	0.1282	0.0402	5	1.38	251.99	0
251	Acid Soluble Pb (ppm)	0368	1.000	0.4000	0.6233	0.1282	0.0402	5	2.94	251.34	1
251	Acid Soluble Pb (ppm)	0255	0.0000	0.0000	0.6233	0.1282	0.0402	5		251.30	4
251	Acid Soluble Pb (ppm)	0527	< 0.0001		0.6233	0.1282	0.0402	5		251.33	5
251	Acid Soluble Pb (ppm)	0494	< 0.91		0.6233	0.1282	0.0402	5		251.33	5
251	Acid Soluble Pb (ppm)	0136	< 3		0.6233	0.1282	0.0402	5		251.33	5
251	Acid Soluble Pb (ppm)	0405	< 4		0.6233	0.1282	0.0402	5		251.32	5
251	Acid Soluble Pb (ppm)	0605	< 5		0.6233	0.1282	0.0402	5		251.30	5
261	Acid Soluble Mn (%)	0572	0.0008	0.0000	0.0027	0.0041	0.0001	5	-0.41	261.99	0
261	Acid Soluble Mn (%)	0524	0.0009	0.0001	0.0027	0.0041	0.0001	5	-0.40	261.99	0
261	Acid Soluble Mn (%)	0527	0.0010	0.0000	0.0027	0.0041	0.0001	5	-0.37	261.35	0
261	Acid Soluble Mn (%)	0563	0.0010	0.0000	0.0027	0.0041	0.0001	5	-0.37	261.35	0
261	Acid Soluble Mn (%)	0354	0.0100	0.0000	0.0027	0.0041	0.0001	5	1.56	261.30	0
261	Acid Soluble Mn (%)	0494	< 0.0001		0.0027	0.0041	0.0001	5		261.35	5
281	Acid Soluble Hg (ppm)	0524	0.0002	0.0000				1		281.99	0
281	Acid Soluble Hg (ppm)	0527	< 0.001					1		281.30	5
281	Acid Soluble Hg (ppm)	0572	< 0.009					1		281.99	5
281	Acid Soluble Hg (ppm)	0220	< 0.01					1		281.99	5
281	Acid Soluble Hg (ppm)	0605	< 1.25					1		281.30	5
281	Acid Soluble Hg (ppm)	0405	< 2					1		281.30	5
289	Acid Soluble Mo (ppm)	0524	0.1049	0.0466	0.2590	0.1115	0.0833	5	-1.21	289.30	0
289	Acid Soluble Mo (ppm)	0368	0.2000	0.0000	0.2590	0.1115	0.0833	5	-0.46	289.34	0
289	Acid Soluble Mo (ppm)	0563	0.2900	0.1200	0.2590	0.1115	0.0833	5	0.24	289.33	0
289	Acid Soluble Mo (ppm)	0220	0.3000	0.0000	0.2590	0.1115	0.0833	5	0.32	289.32	0
289	Acid Soluble Mo (ppm)	0220	0.4000	0.0000	0.2590	0.1115	0.0833	5	1.10	289.99	0
289	Acid Soluble Mo (ppm)	0255	0.0000	0.0000	0.2590	0.1115	0.0833	5		289.30	4
289	Acid Soluble Mo (ppm)	0106	0.0000	0.0000	0.2590	0.1115	0.0833	5		289.33	4
289	Acid Soluble Mo (ppm)	0527	< 0.0001		0.2590	0.1115	0.0833	5		289.33	5
289	Acid Soluble Mo (ppm)	0405	< 1		0.2590	0.1115	0.0833	5		289.32	5
289	Acid Soluble Mo (ppm)	0572	< 2.1		0.2590	0.1115	0.0833	5		289.99	5
289	Acid Soluble Mo (ppm)	0136	< 2.5		0.2590	0.1115	0.0833	5		289.33	5
291	Acid Soluble Ni (ppm)	0524	0.5581	0.0160	1.010	0.6247	0.5440	5	-0.63	291.30	0
291	Acid Soluble Ni (ppm)	0220	0.7000	0.0000	1.010	0.6247	0.5440	5	-0.43	291.32	0
291	Acid Soluble Ni (ppm)	0220	0.7500	0.1000	1.010	0.6247	0.5440	5	-0.36	291.99	0
291	Acid Soluble Ni (ppm)	0563	0.9400	0.0600	1.010	0.6247	0.5440	5	-0.10	291.33	0
291	Acid Soluble Ni (ppm)	0368	2.100	2.000	1.010	0.6247	0.5440	5	1.52	291.34	0
291	Acid Soluble Ni (ppm)	0255	22.46	14.37	1.010	0.6247	0.5440	5	29.97	291.99	1
291	Acid Soluble Ni (ppm)	0527	< 0.0001		1.010	0.6247	0.5440	5		291.33	5

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
291	Acid Soluble Ni (ppm)	0405	< 1		1.010	0.6247	0.5440	5		291.32	5
291	Acid Soluble Ni (ppm)	0572	< 1.67		1.010	0.6247	0.5440	5		291.99	5
291	Acid Soluble Ni (ppm)	0605	< 2.4		1.010	0.6247	0.5440	5		291.30	5
291	Acid Soluble Ni (ppm)	0136	< 2.5		1.010	0.6247	0.5440	5		291.33	5
301	Acid Soluble Se (ppm)	0524	0.0114	0.0015				1		301.30	0
301	Acid Soluble Se (ppm)	0255	0.0000	0.0000				1		301.99	4
301	Acid Soluble Se (ppm)	0527	< 0.01					1		301.33	5
301	Acid Soluble Se (ppm)	0220	< 0.3					1		301.32	5
301	Acid Soluble Se (ppm)	0220	< 0.3					1		301.99	5
301	Acid Soluble Se (ppm)	0572	< 0.68					1		301.99	5
301	Acid Soluble Se (ppm)	0494	< 1					1		301.33	5
301	Acid Soluble Se (ppm)	0368	< 1.3					1		301.34	5
301	Acid Soluble Se (ppm)	0605	< 1.65					1		301.30	5
301	Acid Soluble Se (ppm)	0405	< 10					1		301.32	5
311	Sodium (%)	0423	0.0680	0.0020	0.1160	0.0336	0.0062	6	-1.27	311.33	0
311	Sodium (%)	0494	0.1101	0.0002	0.1160	0.0336	0.0062	6	-0.16	311.33	0
311	Sodium (%)	0572	0.1125	0.0048	0.1160	0.0336	0.0062	6	-0.09	311.99	0
311	Sodium (%)	0527	0.1205	0.0039	0.1160	0.0336	0.0062	6	0.12	311.33	0
311	Sodium (%)	0535	0.1250	0.0100	0.1160	0.0336	0.0062	6	0.24	311.99	0
311	Sodium (%)	0354	0.1600	0.0200	0.1160	0.0336	0.0062	6	1.17	311.99	0
321	Acid Soluble Zn (%)	0524	0.0001	0.0000	0.0023	0.0043	0.0002	5	-0.44	321.99	0
321	Acid Soluble Zn (%)	0220	0.0005	0.0001	0.0023	0.0043	0.0002	5	-0.37	321.32	0
321	Acid Soluble Zn (%)	0368	0.0005	0.0001	0.0023	0.0043	0.0002	5	-0.37	321.99	0
321	Acid Soluble Zn (%)	0572	0.0005	0.0003	0.0023	0.0043	0.0002	5	-0.37	321.99	0
321	Acid Soluble Zn (%)	0354	0.0100	0.0000	0.0023	0.0043	0.0002	5	1.56	321.30	0
321	Acid Soluble Zn (%)	0255	0.0115	0.0010	0.0023	0.0043	0.0002	5	1.86	321.30	1
321	Acid Soluble Zn (%)	0106	0.0000	0.0000	0.0023	0.0043	0.0002	5		321.33	4
321	Acid Soluble Zn (%)	0405	< 0.0003		0.0023	0.0043	0.0002	5		321.32	5
321	Acid Soluble Zn (%)	0136	< 0.0003		0.0023	0.0043	0.0002	5		321.33	5
321	Acid Soluble Zn (%)	0494	< 0.0005		0.0023	0.0043	0.0002	5		321.33	5
321	Acid Soluble Zn (%)	0527	< 0.001		0.0023	0.0043	0.0002	5		321.33	5
325	Water Soluble Zn (%)	0368	0.0005	0.0001				2		325.30	0
325	Water Soluble Zn (%)	0572	0.0006	0.0003				2		325.99	0
431	Soluble Si in nonliquids (%)	0572	0.0209	0.0020				1		431.99	0

Interpreting Z Scores and Flags:

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.

Notes:

*Robust statistics not used if < 6 labs used in calculations, in this case Values and Z Scores are grayed out and should be interpreted with extreme caution. Identical duplicates not included in calculation of Rob R-bar. 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.