

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 190812

0-0-60 Potash

### Statistical Summary

# Methods: 87

# Labs Reporting: 85

Issue Date : 09/30/2019

Method Code	Analyte & Method Sample # 190812	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Horwitz %RSD
001.99	Ammoniacal N, Other (%)	1		0.0195									
010.60	Total N, Combustion (%)	4	3	3.832	6.468	3.832	0.4900	6.468	4.668	168.79%	30.75	0.0063	3.27%
010.99	Total N, Other (%)	2	2	5.559	7.709								
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	1		51.50									
020.50	Total P2O5, ICP (%)	4	2	0.1237	0.1292	0.1237		0.1292	0.1142	104.43%		0.0646	5.48%
020.99	Total P2O5, Other (%)	1		0.0080									
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext. (%)	1		0.0450									
041.50	Direct Available P2O5, ICP (%)	1		0.1000									
041.99	Direct Available P2O5, Other (%)	1		51.97									
048.99	Water Soluble P2O5, Other (%)	1		46.48									
050.00	Soluble K2O, STPB Oxalate (60%)	12	11	62.12	1.332	62.17	1.8017	1.384	0.5217	2.23%	1.79	0.1900	2.15%
050.30	Soluble K2O, AA (Oxalate) (60%)	4	4	60.29	4.324	60.29	1.7829	4.324	2.703	7.17%	5.65	1.438	2.16%
050.31	Soluble K2O, AA (Citrate) (60%)	1		59.75									
050.50	Soluble K2O, ICP (Oxalate) (60%)	9	9	63.08	4.738	63.34	1.8134	4.318	1.799	6.82%	5.55	1.223	2.14%
050.51	Soluble K2O, ICP (Citrate) (60%)	3	3	63.52	1.696	63.52	1.8152	1.696	1.224	2.67%	2.18	0.1233	2.14%
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	8	8	61.99	1.176	61.99	1.7999	1.334	0.5896	2.15%	1.73	0.5377	2.15%
050.60	Soluble K2O, Flame Photometric (Oxalate) (60%)	3	3	62.52	0.8184	62.52	1.8052	0.8184	0.5906	1.31%	1.06	0.0733	2.15%
050.61	Soluble K2O, Flame Photometric (Citrate) (60%)	1		61.42									
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (60%)	6	6	62.46	1.092	62.46	1.8046	1.239	0.6322	1.98%	1.60	0.5833	2.15%
050.99	Soluble K2O, Other (60%)	40	39	61.32	3.015	61.57	1.7957	1.817	0.3637	2.95%	2.36	0.6375	2.15%
060.00	Water (Free), Vacuum Oven (%)	2	2	0.0237	0.0054								
060.20	Water (Free), Karl Fischer (%)	1		0.0500									
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours, 5g sample) (%)	1		0.0510									
060.99	Water (Free), Other (%)	1		0.0605									
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	1		0.0900									
101.99	Acid Soluble Ca, Other (%)	1		0.0000									
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	1		0.0085									
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	1		0.0100									
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	1		0.0646									
121.99	Acid Soluble Mg, Other (%)	2	1	0.0010									
148.07	Total S, ICP, test portion as in 2017.02 (%)	1		0.0928									
148.99	Total S, Other (%)	1		0.0100									
149.04	S - HNO3 soluble, ICP (%)	1		0.0030									

Method Code	Analyte & Method Sample # 190812	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Horwitz %RSD
151.30	Acid Soluble As, ICP (ppm)	1		0.3607									
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	1		0.0000									
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
151.99	Acid Soluble As, Other (ppm)	1		0.4250									
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	1		0.0100									
165.99	Acid Soluble B, Other (%)	3	1	0.0420		0.0237	0.0066	0.0054	0.0067	22.68%	1.91	0.0065	7.02%
181.30	Acid Soluble Cd, ICP (ppm)	2	2	21.15	29.91								
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	1		0.0000									
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
181.99	Acid Soluble Cd, Other (ppm)	1		0.0100									
190.00	Water Soluble Cl, Titrimetric (%)	13	12	47.42	1.357	47.43	1.0000	1.523	0.5494	3.21%	3.55	0.2801	2.24%
190.99	Water Soluble Cl, Other (%)	6	6	49.93	5.579	49.44	1.0000	5.159	2.633	10.44%	12.02	0.3900	2.22%
191.30	Acid Soluble Cr, ICP (ppm)	2	2	23.68	33.33								
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	1		185.4									
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	1		256.6									
191.99	Acid Soluble Cr, Other (ppm)	1		0.2850									
202.30	Acid Soluble Co, ICP (ppm)	2	1	0.5950									
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	1		0.0000									
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
202.99	Acid Soluble Co, Other (ppm)	1		0.0100									
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	2	0	0.0000									
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	1		0.0012									
221.99	Acid Soluble Cu, Other (%)	2	1	0.0015									
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	2	0	0.0000									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	1		0.0314									
241.99	Acid Soluble Fe, Other (%)	2	2	0.0281	0.0372								
251.30	Acid Soluble Pb, ICP (ppm)	2	2	0.3305	0.0064								
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	1		0.0000									
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
251.99	Acid Soluble Pb, Other (ppm)	1		0.5200									
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	1		0.0100									
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	1		0.0000									
261.99	Acid Soluble Mn, Other (%)	2	1	0.0165									
281.30	Acid Soluble Hg, ICP (ppm)	1		0.0000									
281.99	Acid Soluble Hg, Other (ppm)	1		0.0400									
289.30	Acid Soluble Mo, ICP (ppm)	2	1	2.890									
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	1		0.0000									
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
291.30	Acid Soluble Ni, ICP (ppm)	2	1	4.500									
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	1		0.0000									
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
291.99	Acid Soluble Ni, Other (ppm)	1		0.0400									
301.30	Acid Soluble Se, ICP (ppm)	1		0.2350									
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	1		0.0000									

Method Code	Analyte & Method Sample # 190812	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Horwitz %RSD
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
301.99	Acid Soluble Se, Other (ppm)	1		0.3050									
311.00	Sodium, AA (%)	3	3	0.0524	0.0036	0.0524	0.0102	0.0036	0.0026	6.95%	0.83	0.0014	6.23%
311.30	Sodium, Flame Photometric (%)	2	2	0.1336	0.1076								
311.32	Sodium, ICP, 2006.03 test portion (%)	1		0.0807									
311.33	Sodium, ICP, test portion as in 2017.02 (%)	5	4	145.4	290.6	145.4	1.0000	290.6	181.6	199.90%	677.08	21.70	1.89%
311.99	Sodium, Other (%)	6	5	0.0675	0.0353	0.0675	0.0118	0.0353	0.0197	52.24%	6.99	0.0058	6.00%
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	2	0	0.0000									
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	1		0.0000									
321.99	Acid Soluble Zn, Other (%)	2	1	0.0018									

The Method IA Ratio =  $2.33 * \text{Robust SD} / \text{IA at the Method Assigned Value}$ . 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.

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 190812

### Method Precision Report

0-0-60 Potash

Issue Date : 09/30/2019

Method Code	Analyte & Method	# Tests Submitted	# Tests Used in Precision Calcs	Mean	SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
050.00	Soluble K <sub>2</sub> O, STPB Oxalate (60%)	12	10	61.91	1.189	1.186	0.1224	1.192	1.92%	0.20%	1.93%	9.735
050.50	Soluble K <sub>2</sub> O, ICP (Oxalate) (60%)	9	8	62.13	4.042	4.000	0.8274	4.084	6.44%	1.33%	6.57%	4.936
050.99	Soluble K <sub>2</sub> O, Other (60%)	40	36	61.83	1.865	1.828	0.5223	1.901	2.96%	0.84%	3.07%	3.640
190.00	Water Soluble Cl, Titrimetric (%)	13	11	47.54	1.359	1.352	0.1941	1.366	2.84%	0.41%	2.87%	7.036

Notes: Precision data calculated when 8 or more Tests included.

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Method Proficiency For All Labs (Lab Values)

Sample # 190812

0-0-60 Potash

Lab Values

# Methods: 87

# Labs Reporting: 85

Issue Date : 09/30/2019

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001.99	Ammoniacal N, Other (%)	0524	0.0195	0.0023				1			0
010.60	Total N, Combustion (%)	0354	0.0955	0.0190	3.832	6.468	0.0063	3	-0.58		0
010.60	Total N, Combustion (%)	0325	0.1000	0.0000	3.832	6.468	0.0063	3	-0.58		0
010.60	Total N, Combustion (%)	0534	11.30	0.0000	3.832	6.468	0.0063	3	1.15		0
010.60	Total N, Combustion (%)	0422	0.0000	0.0000	3.832	6.468	0.0063	3			4
010.99	Total N, Other (%)	0524	0.1073	0.0347				2			0
010.99	Total N, Other (%)	0560	11.01	0.0600				2			0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0534	51.50	0.0000				1			0
020.50	Total P2O5, ICP (%)	0524	0.0324	0.0391				2			0
020.50	Total P2O5, ICP (%)	0542	0.2150	0.0900				2			0
020.50	Total P2O5, ICP (%)	0552	0.0000	0.0000				2			4
020.50	Total P2O5, ICP (%)	0422	0.0950	0.1900				2			4
020.99	Total P2O5, Other (%)	0515	0.0080	0.0002				1			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext. (%)	0354	0.0450	0.0100				1			0
041.50	Direct Available P2O5, ICP (%)	0325	0.1000	0.0000				1			0
041.99	Direct Available P2O5, Other (%)	0560	51.97	0.0200				1			0
048.99	Water Soluble P2O5, Other (%)	0560	46.48	0.0200				1			0
050.00	Soluble K2O, STPB Oxalate (60%)	0102	59.50	0.2000	62.17	1.384	0.1900	11	-1.93	Low	0
050.00	Soluble K2O, STPB Oxalate (60%)	0522	60.80	0.0600	62.17	1.384	0.1900	11	-0.99	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0550	61.09	0.0200	62.17	1.384	0.1900	11	-0.78	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0055	61.41	0.2600	62.17	1.384	0.1900	11	-0.55	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0220	62.18	0.0600	62.17	1.384	0.1900	11	0.00	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0444	62.30	0.3200	62.17	1.384	0.1900	11	0.09	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0231	62.68	0.1100	62.17	1.384	0.1900	11	0.36	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0416	62.78	0.0000	62.17	1.384	0.1900	11	0.44	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0405	63.06	0.0500	62.17	1.384	0.1900	11	0.64	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0494	63.28	0.2600	62.17	1.384	0.1900	11	0.80	OK	0
050.00	Soluble K2O, STPB Oxalate (60%)	0049	64.26	0.7500	62.17	1.384	0.1900	11	1.50	High	0
050.00	Soluble K2O, STPB Oxalate (60%)	0073	69.17	1.320	62.17	1.384	0.1900	11	5.05	High	1
050.30	Soluble K2O, AA (Oxalate) (60%)	0309	53.83	2.740	60.29	4.324	1.438	4	-1.49		0
050.30	Soluble K2O, AA (Oxalate) (60%)	0157	61.85	0.3000	60.29	4.324	1.438	4	0.36		0
050.30	Soluble K2O, AA (Oxalate) (60%)	0040	62.70	2.200	60.29	4.324	1.438	4	0.56		0
050.30	Soluble K2O, AA (Oxalate) (60%)	0356	62.77	0.5100	60.29	4.324	1.438	4	0.57		0
050.31	Soluble K2O, AA (Citrate) (60%)	0472	59.75	1.500				1			0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0292	53.68	0.8500	63.34	4.318	1.223	9	-2.07	Low	0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0390	61.18	0.6600	63.34	4.318	1.223	9	-0.46	Low	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
050.50	Soluble K2O, ICP (Oxalate) (60%)	0420	61.23	0.3800	63.34	4.318	1.223	9	-0.45	Low	0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0324	62.80	3.000	63.34	4.318	1.223	9	-0.12	OK	0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0055	62.84	0.3100	63.34	4.318	1.223	9	-0.11	OK	0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0117	63.45	0.2692	63.34	4.318	1.223	9	0.02	OK	0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0086	63.79	0.6935	63.34	4.318	1.223	9	0.10	OK	0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0422	68.11	0.0400	63.34	4.318	1.223	9	1.02	High	0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0230	70.70	4.800	63.34	4.318	1.223	9	1.57	High	0
050.51	Soluble K2O, ICP (Citrate) (60%)	0452	62.21	0.1000	63.52	1.696	0.1233	3	-0.77		0
050.51	Soluble K2O, ICP (Citrate) (60%)	0547	62.91	0.0400	63.52	1.696	0.1233	3	-0.36		0
050.51	Soluble K2O, ICP (Citrate) (60%)	0070	65.44	0.2300	63.52	1.696	0.1233	3	1.13		0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0354	60.15	0.1000	61.99	1.334	0.5377	8	-1.26	Low	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0377	60.65	0.2900	61.99	1.334	0.5377	8	-0.93	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0025	61.70	0.8000	61.99	1.334	0.5377	8	-0.20	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0043	61.77	1.950	61.99	1.334	0.5377	8	-0.16	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0360	62.21	0.1600	61.99	1.334	0.5377	8	0.15	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0485	62.82	0.3300	61.99	1.334	0.5377	8	0.56	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0023	63.31	0.0400	61.99	1.334	0.5377	8	0.90	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0117	63.36	0.6313	61.99	1.334	0.5377	8	0.94	OK	0
050.60	Soluble K2O, Flame Photometric (Oxalate) (60%)	0169	61.62	0.2000	62.52	0.8184	0.0733	3	-1.10		0
050.60	Soluble K2O, Flame Photometric (Oxalate) (60%)	0105	62.72	0.0200	62.52	0.8184	0.0733	3	0.24		0
050.60	Soluble K2O, Flame Photometric (Oxalate) (60%)	0526	63.22	0.0000	62.52	0.8184	0.0733	3	0.86		0
050.61	Soluble K2O, Flame Photometric (Citrate) (60%)	0456	61.42	0.3300				1			0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (60%)	0513	60.63	0.1300	62.46	1.239	0.5833	6	-1.32	Low	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (60%)	0018	62.15	0.1000	62.46	1.239	0.5833	6	-0.23	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (60%)	0105	62.41	0.6100	62.46	1.239	0.5833	6	-0.04	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (60%)	0037	62.56	0.3300	62.46	1.239	0.5833	6	0.07	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (60%)	0095	63.18	1.180	62.46	1.239	0.5833	6	0.52	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (60%)	0029	63.87	1.150	62.46	1.239	0.5833	6	1.01	OK	0
050.99	Soluble K2O, Other (60%)	0389	48.57	0.1300	61.57	1.817	0.6375	39	-7.16	Low	0
050.99	Soluble K2O, Other (60%)	0515	54.26	4.178	61.57	1.817	0.6375	39	-4.02	Low	0
050.99	Soluble K2O, Other (60%)	0325	59.90	1.000	61.57	1.817	0.6375	39	-0.92	OK	0
050.99	Soluble K2O, Other (60%)	0371	59.95	0.7000	61.57	1.817	0.6375	39	-0.89	OK	0
050.99	Soluble K2O, Other (60%)	0560	60.00	0.0700	61.57	1.817	0.6375	39	-0.87	OK	0
050.99	Soluble K2O, Other (60%)	0558	60.05	0.1000	61.57	1.817	0.6375	39	-0.84	OK	0
050.99	Soluble K2O, Other (60%)	0519	60.06	0.0800	61.57	1.817	0.6375	39	-0.83	OK	0
050.99	Soluble K2O, Other (60%)	0537	60.07	2.050	61.57	1.817	0.6375	39	-0.83	OK	0
050.99	Soluble K2O, Other (60%)	0476	60.09	0.1514	61.57	1.817	0.6375	39	-0.81	OK	0
050.99	Soluble K2O, Other (60%)	0546	60.25	0.0800	61.57	1.817	0.6375	39	-0.73	OK	0
050.99	Soluble K2O, Other (60%)	0523	60.25	0.1000	61.57	1.817	0.6375	39	-0.73	OK	0
050.99	Soluble K2O, Other (60%)	0096	60.35	0.3800	61.57	1.817	0.6375	39	-0.67	OK	0
050.99	Soluble K2O, Other (60%)	0551	60.40	0.2000	61.57	1.817	0.6375	39	-0.64	OK	0
050.99	Soluble K2O, Other (60%)	0531	60.55	0.1000	61.57	1.817	0.6375	39	-0.56	OK	0
050.99	Soluble K2O, Other (60%)	0533	60.67	0.2400	61.57	1.817	0.6375	39	-0.50	OK	0
050.99	Soluble K2O, Other (60%)	0451	60.74	1.300	61.57	1.817	0.6375	39	-0.46	OK	0
050.99	Soluble K2O, Other (60%)	0433	60.84	0.0300	61.57	1.817	0.6375	39	-0.41	OK	0
050.99	Soluble K2O, Other (60%)	0520	60.87	0.6200	61.57	1.817	0.6375	39	-0.39	OK	0
050.99	Soluble K2O, Other (60%)	0518	61.20	0.0000	61.57	1.817	0.6375	39	-0.20	OK	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
050.99	Soluble K2O, Other (60%)	0421	61.35	0.1000	61.57	1.817	0.6375	39	-0.12	OK	0
050.99	Soluble K2O, Other (60%)	0394	61.36	0.0860	61.57	1.817	0.6375	39	-0.12	OK	0
050.99	Soluble K2O, Other (60%)	0482	61.40	2.400	61.57	1.817	0.6375	39	-0.09	OK	0
050.99	Soluble K2O, Other (60%)	0234	61.60	0.4000	61.57	1.817	0.6375	39	0.02	OK	0
050.99	Soluble K2O, Other (60%)	0493	61.60	0.1000	61.57	1.817	0.6375	39	0.02	OK	0
050.99	Soluble K2O, Other (60%)	0042	61.75	0.5000	61.57	1.817	0.6375	39	0.10	OK	0
050.99	Soluble K2O, Other (60%)	0532	62.45	0.3700	61.57	1.817	0.6375	39	0.48	OK	0
050.99	Soluble K2O, Other (60%)	0481	62.55	0.3000	61.57	1.817	0.6375	39	0.54	OK	0
050.99	Soluble K2O, Other (60%)	0524	62.67	3.749	61.57	1.817	0.6375	39	0.60	OK	0
050.99	Soluble K2O, Other (60%)	0553	62.95	0.9000	61.57	1.817	0.6375	39	0.76	OK	0
050.99	Soluble K2O, Other (60%)	0559	63.09	0.0200	61.57	1.817	0.6375	39	0.84	OK	0
050.99	Soluble K2O, Other (60%)	0552	63.25	0.4900	61.57	1.817	0.6375	39	0.92	OK	0
050.99	Soluble K2O, Other (60%)	0555	63.29	0.1200	61.57	1.817	0.6375	39	0.95	OK	0
050.99	Soluble K2O, Other (60%)	0561	63.37	0.0600	61.57	1.817	0.6375	39	0.99	High	0
050.99	Soluble K2O, Other (60%)	0177	63.53	0.0625	61.57	1.817	0.6375	39	1.08	High	0
050.99	Soluble K2O, Other (60%)	0542	64.14	0.9100	61.57	1.817	0.6375	39	1.41	High	0
050.99	Soluble K2O, Other (60%)	0255	64.16	1.662	61.57	1.817	0.6375	39	1.42	High	0
050.99	Soluble K2O, Other (60%)	0527	64.49	0.4019	61.57	1.817	0.6375	39	1.61	High	0
050.99	Soluble K2O, Other (60%)	0027	65.10	0.5200	61.57	1.817	0.6375	39	1.94	High	0
050.99	Soluble K2O, Other (60%)	0556	68.20	0.2000	61.57	1.817	0.6375	39	3.65	High	0
050.99	Soluble K2O, Other (60%)	0450	63.38	5.820	61.57	1.817	0.6375	39	1.00	High	1
060.00	Water (Free), Vacuum Oven (%)	0416	0.0199	0.0000				2			0
060.00	Water (Free), Vacuum Oven (%)	0456	0.0275	0.0150				2			0
060.20	Water (Free), Karl Fischer (%)	0481	0.0500	0.0000				1			0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours, 5g sample) (%)	0513	0.0510	0.0020				1			0
060.99	Water (Free), Other (%)	0513	0.0605	0.0030				1			0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0354	0.0900	0.0000				1			0
101.99	Acid Soluble Ca, Other (%)	0552	0.0000	0.0000				0			4
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	0553	0.0085	0.0010				1			0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					0			5
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0515	0.0646	0.0296				1			0
121.99	Acid Soluble Mg, Other (%)	0524	0.0010	0.0001				1			0
121.99	Acid Soluble Mg, Other (%)	0552	0.0000	0.0000				1			4
148.07	Total S, ICP, test portion as in 2017.02 (%)	0515	0.0928	0.0025				1			0
148.99	Total S, Other (%)	0354	< 0.01					0			5
149.04	S - HNO3 soluble, ICP (%)	0524	0.0030	0.0015				1			0
151.30	Acid Soluble As, ICP (ppm)	0524	0.3607	0.0774				1			0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
151.99	Acid Soluble As, Other (ppm)	0519	0.4250	0.0100				1			0
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0354	< 0.01					0			5
165.99	Acid Soluble B, Other (%)	0515	0.0420	0.0065				1			0
165.99	Acid Soluble B, Other (%)	0524	0.0000	0.0000				1			4
165.99	Acid Soluble B, Other (%)	0552	0.0000	0.0000				1			4
181.30	Acid Soluble Cd, ICP (ppm)	0524	0.0031	0.0034				2			0
181.30	Acid Soluble Cd, ICP (ppm)	0389	42.30	2.800				2			0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
181.99	Acid Soluble Cd, Other (ppm)	0519	0.0100	0.0000				1			0
190.00	Water Soluble Cl, Titrimetric (%)	0558	45.05	0.3000	47.43	1.523	0.2801	12	-1.56	Low	0
190.00	Water Soluble Cl, Titrimetric (%)	0117	45.73	0.1400	47.43	1.523	0.2801	12	-1.12	Low	0
190.00	Water Soluble Cl, Titrimetric (%)	0523	46.14	0.9900	47.43	1.523	0.2801	12	-0.85	Low	0
190.00	Water Soluble Cl, Titrimetric (%)	0029	46.28	0.5700	47.43	1.523	0.2801	12	-0.76	Low	0
190.00	Water Soluble Cl, Titrimetric (%)	0444	47.60	0.4900	47.43	1.523	0.2801	12	0.11	OK	0
190.00	Water Soluble Cl, Titrimetric (%)	0546	47.67	0.1400	47.43	1.523	0.2801	12	0.16	OK	0
190.00	Water Soluble Cl, Titrimetric (%)	0550	47.73	0.0600	47.43	1.523	0.2801	12	0.20	OK	0
190.00	Water Soluble Cl, Titrimetric (%)	0220	47.80	0.1500	47.43	1.523	0.2801	12	0.24	OK	0
190.00	Water Soluble Cl, Titrimetric (%)	0405	47.86	0.0400	47.43	1.523	0.2801	12	0.28	OK	0
190.00	Water Soluble Cl, Titrimetric (%)	0494	48.78	0.0710	47.43	1.523	0.2801	12	0.89	High	0
190.00	Water Soluble Cl, Titrimetric (%)	0561	49.08	0.1100	47.43	1.523	0.2801	12	1.08	High	0
190.00	Water Soluble Cl, Titrimetric (%)	0481	49.35	0.3000	47.43	1.523	0.2801	12	1.26	High	0
190.00	Water Soluble Cl, Titrimetric (%)	0526	0.2687	0.0017	47.43	1.523	0.2801	12	-30.97	Low	2
190.99	Water Soluble Cl, Other (%)	0513	44.67	0.1100	49.44	5.159	0.3900	6	-0.82	Low	0
190.99	Water Soluble Cl, Other (%)	0553	46.90	0.2000	49.44	5.159	0.3900	6	-0.44	Low	0
190.99	Water Soluble Cl, Other (%)	0444	47.60	0.4900	49.44	5.159	0.3900	6	-0.32	Low	0
190.99	Water Soluble Cl, Other (%)	0029	47.92	1.120	49.44	5.159	0.3900	6	-0.26	Low	0
190.99	Water Soluble Cl, Other (%)	0555	52.38	0.4000	49.44	5.159	0.3900	6	0.51	High	0
190.99	Water Soluble Cl, Other (%)	0519	60.09	0.0200	49.44	5.159	0.3900	6	1.84	High	0
191.30	Acid Soluble Cr, ICP (ppm)	0524	0.1103	0.0338				2			0
191.30	Acid Soluble Cr, ICP (ppm)	0389	47.25	2.300				2			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0515	185.4	38.38				1			0
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0515	256.6	91.14				1			0
191.99	Acid Soluble Cr, Other (ppm)	0519	0.2850	0.0300				1			0
202.30	Acid Soluble Co, ICP (ppm)	0389	0.5950	0.1100				1			0
202.30	Acid Soluble Co, ICP (ppm)	0524	0.0000	0.0000				1			4
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
202.99	Acid Soluble Co, Other (ppm)	0519	0.0100	0.0000				1			0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				0			4
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					0			5
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0515	0.0012	0.0004				1			0
221.99	Acid Soluble Cu, Other (%)	0515	0.0015	0.0006				1			0
221.99	Acid Soluble Cu, Other (%)	0524	0.0004	0.0008				1			4
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				0			4
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					0			5
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0515	0.0314	0.0258				1			0
241.99	Acid Soluble Fe, Other (%)	0524	0.0018	0.0023				2			0
241.99	Acid Soluble Fe, Other (%)	0515	0.0544	0.0188				2			0
251.30	Acid Soluble Pb, ICP (ppm)	0524	0.3260	0.0176				2			0
251.30	Acid Soluble Pb, ICP (ppm)	0389	0.3350	0.0700				2			0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
251.99	Acid Soluble Pb, Other (ppm)	0519	0.5200	0.0000				1			0
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	0354	< 0.01					0			5



Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				0			4
261.99	Acid Soluble Mn, Other (%)	0515	0.0165	0.0051				1			0
261.99	Acid Soluble Mn, Other (%)	0524	0.0002	0.0004				1			4
281.30	Acid Soluble Hg, ICP (ppm)	0515	0.0000	0.0000				0			4
281.99	Acid Soluble Hg, Other (ppm)	0519	0.0400	0.0000				1			0
289.30	Acid Soluble Mo, ICP (ppm)	0389	2.890	0.2600				1			0
289.30	Acid Soluble Mo, ICP (ppm)	0524	0.0000	0.0000				1			4
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
291.30	Acid Soluble Ni, ICP (ppm)	0389	4.500	1.600				1			0
291.30	Acid Soluble Ni, ICP (ppm)	0524	0.0000	0.0000				1			4
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
291.99	Acid Soluble Ni, Other (ppm)	0519	0.0400	0.0000				1			0
301.30	Acid Soluble Se, ICP (ppm)	0524	0.2350	0.0100				1			0
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
301.99	Acid Soluble Se, Other (ppm)	0519	0.3050	0.0100				1			0
311.00	Sodium, AA (%)	0481	0.0495	0.0010	0.0524	0.0036	0.0014	3	-0.80		0
311.00	Sodium, AA (%)	0550	0.0513	0.0003	0.0524	0.0036	0.0014	3	-0.32		0
311.00	Sodium, AA (%)	0405	0.0565	0.0030	0.0524	0.0036	0.0014	3	1.12		0
311.30	Sodium, Flame Photometric (%)	0513	0.0575	0.0010				2			0
311.30	Sodium, Flame Photometric (%)	0526	0.2097	0.0027				2			0
311.32	Sodium, ICP, 2006.03 test portion (%)	0394	0.0807	0.0129				1			0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0546	0.0464	0.0014	145.4	290.6	21.70	4	-0.50		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	0.0558	0.0038	145.4	290.6	21.70	4	-0.50		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0444	0.1200	0.0000	145.4	290.6	21.70	4	-0.50		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0102	581.3	86.79	145.4	290.6	21.70	4	1.50		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0555	< 0.5		145.4	290.6	21.70	4			5
311.99	Sodium, Other (%)	0255	0.0380	0.0040	0.0675	0.0353	0.0058	5	-0.73		0
311.99	Sodium, Other (%)	0096	0.0395	0.0050	0.0675	0.0353	0.0058	5	-0.69		0
311.99	Sodium, Other (%)	0482	0.0500	0.0000	0.0675	0.0353	0.0058	5	-0.43		0
311.99	Sodium, Other (%)	0354	0.0950	0.0100	0.0675	0.0353	0.0058	5	0.68		0
311.99	Sodium, Other (%)	0519	0.1150	0.0100	0.0675	0.0353	0.0058	5	1.18		0
311.99	Sodium, Other (%)	0450	0.3000	0.3600	0.0675	0.0353	0.0058	5	5.76		1
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				0			4
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					0			5
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0515	0.0000	0.0000				0			4
321.99	Acid Soluble Zn, Other (%)	0524	0.0018	0.0010				1			0
321.99	Acid Soluble Zn, Other (%)	0515	0.0000	0.0000				1			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, 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. IA Status describes where your result is relative to the Assigned Value ± IA. Red indicates Higher or Lower, Green indicates within the IA range. Method 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.