

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

# Methods: 69

Sample # 180812

Statistical Summary

# Labs Reporting: 83

0-0-60 Potash

Issue Date : 09/30/2018

Method Code	Analyte & Method Sample # 180812	# 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)	Hornitz %RSD
010.60	Total Nitrogen, Combustion (%)	3	3	0.1060	0.0493	0.1060	0.4900	0.0493	0.0356	46.49%	0.23	0.0367	5.61%
020.50	Total Phosphorus as P2O5, ICP (%)	4	2	29.16	41.20	29.16		41.20	36.42	141.32%		4.110	2.41%
020.99	Total Phosphorus as P2O5, Other (%)	1		0.0018									
041.50	Direct Available Phosphorus as P2O5, ICP (%)	1		0.1000									
041.60	Direct Available Phosphorus as P2O5, Citrate-EDTA ..	1		0.0320									
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	12	11	60.20	0.3473	60.19	1.7819	0.3169	0.1194	0.53%	0.41	0.1464	2.16%
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	3	3	59.93	0.9186	59.93	1.7790	0.9186	0.6629	1.53%	1.20	0.6433	2.16%
050.31	Soluble Potassium as K2O, AA (Citrate) (60%)	2	2	59.12	2.305								
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	8	7	60.72	4.576	60.72	1.7872	5.190	2.452	8.55%	6.77	0.8614	2.16%
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	4	4	60.47	0.5488	60.47	1.7847	0.5488	0.3430	0.91%	0.72	1.703	2.16%
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	11	11	59.56	3.723	60.42	1.7842	0.9796	0.3692	1.62%	1.28	0.6995	2.16%
050.60	Soluble Potassium as K2O, Flame Photometric (Oxala	3	3	60.13	0.5188	60.13	1.7813	0.5188	0.3744	0.86%	0.68	0.1350	2.16%
050.61	Soluble Potassium as K2O, Flame Photometric (Citra..	1		61.08									
050.62	Soluble Potassium as K2O, Flame Photometric (Citra..	4	4	60.23	1.549	60.23	1.7823	1.549	0.9680	2.57%	2.02	1.315	2.16%
050.99	Soluble Potassium as K2O, Other (60%)	37	36	60.74	2.638	60.32	1.7832	0.9704	0.2022	1.61%	1.27	0.4725	2.16%
060.00	Water (Free), Vacuum Oven (%)	3	3	0.1991	0.2216	0.1991		0.2216	0.1599	111.29%		0.0317	5.10%
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours,..	2	2	0.5225	0.2440								
060.99	Water (Free), Other (%)	7	7	0.2856	0.1507	0.2856		0.1709	0.0808	59.85%		0.0299	4.83%
101.03	Acid Soluble Calcium, AA, 965.09, test portion 200... ('	1		0.0743									
101.30	Acid Soluble Calcium, ICP, test portion inorganic ... (%)	3	3	0.1402	0.0808	0.1402	0.2070	0.0807	0.0583	57.61%	0.91	0.0223	5.38%
101.33	Acid Soluble Calcium, ICP, 2017.02 (%)	1		0.0699									
101.99	Acid Soluble Calcium, Other (%)	1		0.3850									
121.03	Acid Soluble Magnesium, AA, 965.09, test portion 2...	1		0.1350									
121.30	Acid Soluble Magnesium, ICP, test portion inorgani... (	3	3	0.1520	0.0311	0.1520	0.2076	0.0311	0.0224	20.46%	0.35	0.0100	5.31%
121.33	Acid Soluble Magnesium, ICP, 2017.02 (%)	2	2	0.1404	0.0075								
121.99	Acid Soluble Magnesium, Other (%)	2	2	0.1896	0.1067								
131.70	Water Soluble Magnesium, Titrimetric (EDTA) (%)	1		0.3588									
148.07	Total Sulfur, ICP, test portion as in 2017.02 (%)	3	3	0.0218	0.0050	0.0218	0.2011	0.0050	0.0036	22.86%	0.06	0.0053	7.11%
148.99	Total Sulfur, Other (%)	2	2	0.0175	0.0106								
151.33	Acid Soluble Arsenic , ICP, 2017.02 (ppm)	1		0.0000									
151.34	Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)	1		0.9780									

Method Code	Analyte & Method Sample # 180812	# 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)	Howitz %RSD
165.30	Acid Soluble Boron , ICP, test portion in 982.01 (%)	1		0.0100									
165.99	Acid Soluble Boron , Other (%)	2	0	0.0000									
181.33	Acid Soluble Cadmium , ICP, 2017.02 (ppm)	1		0.0000									
181.34	Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppn	1		0.0000									
190.00	Water Soluble Chlorine, Titrimetric (%)	11	11	47.32	1.031	47.33	1.0000	0.3438	0.1296	0.73%	0.80	0.1764	2.24%
190.99	Water Soluble Chlorine, Other (%)	2	2	47.94	4.029								
191.33	Acid Soluble Chromium , ICP, 2017.02 (ppm)	1		0.5875									
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppi	1		1.764									
202.33	Acid Soluble Cobalt , ICP, 2017.02 (ppm)	1		0.0000									
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
221.30	Acid Soluble Copper , ICP, test portion inorganic... (%)	2	2	0.0475	0.0530								
221.33	Acid Soluble Copper , ICP, 2017.02 (%)	1		0.0002									
221.99	Acid Soluble Copper , Other (%)	1		0.0011									
241.03	Acid Soluble Iron , AA, 965.09, test portion 2006.... (%)	1		0.0099									
241.30	Acid Soluble Iron , ICP, test portion inorganic 96... (%)	3	3	0.0833	0.1270	0.0833	0.0133	0.1270	0.0917	152.42%	22.20	0.0600	5.81%
241.33	Acid Soluble Iron , ICP, 2017.02 (%)	2	2	0.0284	0.0262								
241.99	Acid Soluble Iron , Other (%)	1		0.0122									
251.33	Acid Soluble Lead , ICP, 2017.02 (ppm)	1		0.0000									
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
261.30	Acid Soluble Manganese , ICP, test portion 972.02a (‘	1		0.0100									
261.32	Acid Soluble Manganese , ICP, test portion inorga... (‘	1		0.0800									
261.35	Acid Soluble Manganese , ICP, 2017.02 (%)	1		0.0000									
261.99	Acid Soluble Manganese , Other (%)	1		0.0000									
281.30	Acid Soluble Mercury , ICP (ppm)	1		0.0000									
289.33	Acid Soluble Molybdenum , ICP, 2017.02 (ppm)	1		0.0000									
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/6010C (i	1		0.0000									
291.33	Acid Soluble Nickel , ICP, 2017.02 (ppm)	1		0.0000									
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
301.33	Acid Soluble Selenium , ICP, 2017.02 (ppm)	1		0.0000									
301.34	Acid Soluble Selenium , ICP, EPA 3050B/6010C (ppr	1		0.0000									
311.00	Sodium, AA (%)	3	3	1.282	0.1248	1.282	0.1332	0.1248	0.0901	9.74%	2.18	0.2013	3.85%
311.30	Sodium, Flame Photometric (%)	4	4	1.258	0.1542	1.258	0.1308	0.1542	0.0964	12.26%	2.75	0.0351	3.86%
311.32	Sodium, ICP, 2006.03 test portion (%)	5	5	1.240	0.5340	1.240	0.1290	0.5340	0.2985	43.08%	9.65	0.0231	3.87%
311.33	Sodium, ICP, test portion as in 2017.02 (%)	2	2	1.318	0.0675								
311.99	Sodium, Other (%)	6	6	1.228	0.1881	1.224	0.1274	0.2030	0.1036	16.59%	3.71	0.0684	3.88%
321.30	Acid Soluble Zinc , ICP, test portion inorganic 9... (%)	2	2	0.0400	0.0424								
321.33	Acid Soluble Zinc , ICP, 2017.02 (%)	1		0.0000									
321.99	Acid Soluble Zinc , Other (%)	1		0.0000									

The Method IA Ratio = 2.33 \* Robust SD / 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.

Howitz %RSD	
Average Range (R-bar)	
Method IA Ratio	
Robust % RSD	
Robust Uncertainty (U)	
Robust sd	
IA at Method Value	
Assigned Value Robust Mean	
Raw SD	
Raw Mean	
# Tests in Robust Calculations	
# Tests Submitted	
Analyte & Method Sample # 180812	
Method Code	

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STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 180812

### Method Precision Report

0-0-60 Potash

Issue Date : 09/30/2018

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 Potassium as K <sub>2</sub> O, STPB Oxalate (60%)	12	11	60.20	0.3473	0.3353	0.1280	0.3589	0.56%	0.21%	0.60%	2.803
050.52	Soluble Potassium as K <sub>2</sub> O, ICP (Citrate-EDTA) (60%)	11	10	60.65	0.9455	0.7943	0.7254	1.076	1.31%	1.20%	1.77%	1.483
050.99	Soluble Potassium as K <sub>2</sub> O, Other (60%)	37	33	60.39	1.661	1.639	0.3765	1.682	2.71%	0.62%	2.78%	4.467
190.00	Water Soluble Chlorine, Titrimetric (%)	11	10	47.55	0.7273	0.7143	0.1936	0.7401	1.50%	0.41%	1.56%	3.823

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

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STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

# Methods: 69

Sample # 180812

Lab Values

# Labs Reporting: 83

0-0-60 Potash

Issue Date : 09/30/2018

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				
010.60	Total Nitrogen, Combustion (%)	0547	0.0600	0.0000	0.1060	0.0493	0.0367	3	-0.93		0
010.60	Total Nitrogen, Combustion (%)	0325	0.1000	0.0000	0.1060	0.0493	0.0367	3	-0.12		0
010.60	Total Nitrogen, Combustion (%)	0354	0.1580	0.1100	0.1060	0.0493	0.0367	3	1.06		0
020.50	Total Phosphorus as P2O5, ICP (%)	0483	0.0200	0.0000				2			0
020.50	Total Phosphorus as P2O5, ICP (%)	0042	58.29	8.220				2			0
020.50	Total Phosphorus as P2O5, ICP (%)	0547	0.0000	0.0000				2			4
020.50	Total Phosphorus as P2O5, ICP (%)	0552	0.0000	0.0000				2			4
020.99	Total Phosphorus as P2O5, Other (%)	0515	0.0018	0.0000				1			0
041.50	Direct Available Phosphorus as P2O5, ICP (%)	0325	0.1000	0.0000				1			0
041.60	Direct Available Phosphorus as P2O5, Citrate-... (%)	0354	0.0320	0.0000				1			0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0522	59.59	0.2300	60.19	0.3169	0.1464	11	-1.90	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0550	59.95	0.1000	60.19	0.3169	0.1464	11	-0.75	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0544	59.98	0.1100	60.19	0.3169	0.1464	11	-0.67	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0231	60.01	0.1100	60.19	0.3169	0.1464	11	-0.57	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0494	60.10	0.3500	60.19	0.3169	0.1464	11	-0.29	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0102	60.20	0.0000	60.19	0.3169	0.1464	11	0.04	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0416	60.24	0.1000	60.19	0.3169	0.1464	11	0.17	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0220	60.29	0.0900	60.19	0.3169	0.1464	11	0.31	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0049	60.38	0.1500	60.19	0.3169	0.1464	11	0.59	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0405	60.56	0.0400	60.19	0.3169	0.1464	11	1.18	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0055	60.91	0.3300	60.19	0.3169	0.1464	11	2.26	OK	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0114	60.75	1.830	60.19	0.3169	0.1464	11	1.76	OK	1
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0073	58.97	1.080	59.93	0.9186	0.6433	3	-1.05		0
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0309	60.03	0.4500	59.93	0.9186	0.6433	3	0.10		0
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0040	60.80	0.4000	59.93	0.9186	0.6433	3	0.95		0
050.31	Soluble Potassium as K2O, AA (Citrate) (60%)	0472	57.49	0.0200				2			0
050.31	Soluble Potassium as K2O, AA (Citrate) (60%)	0498	60.75	0.3000				2			0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0292	54.32	0.1100	60.72	5.190	0.8614	7	-1.12	Low	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0390	56.38	1.290	60.72	5.190	0.8614	7	-0.76	Low	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0419	57.67	0.6200	60.72	5.190	0.8614	7	-0.53	Low	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0055	61.75	0.2000	60.72	5.190	0.8614	7	0.18	OK	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0230	64.50	0.2000	60.72	5.190	0.8614	7	0.66	High	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0422	64.57	1.570	60.72	5.190	0.8614	7	0.67	High	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 Potassium as K2O, ICP (Oxalate) (60%)	0324	65.85	2.040	60.72	5.190	0.8614	7	0.89	High	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0157	60.20	6.200	60.72	5.190	0.8614	7	-0.09	OK	1
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0007	59.85	2.900	60.47	0.5488	1.703	4	-1.13		0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0483	60.17	3.500	60.47	0.5488	1.703	4	-0.54		0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0452	60.86	0.0100	60.47	0.5488	1.703	4	0.70		0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0547	61.00	0.4000	60.47	0.5488	1.703	4	0.97		0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0486	48.67	0.0600	60.42	0.9796	0.6995	11	-11.22	Low	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0423	59.32	0.7400	60.42	0.9796	0.6995	11	-1.05	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0023	59.77	0.4200	60.42	0.9796	0.6995	11	-0.62	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0043	60.21	0.2500	60.42	0.9796	0.6995	11	-0.21	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0360	60.33	0.3800	60.42	0.9796	0.6995	11	-0.09	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0354	60.45	0.3000	60.42	0.9796	0.6995	11	0.03	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0494	60.53	0.0150	60.42	0.9796	0.6995	11	0.10	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0377	60.84	0.3100	60.42	0.9796	0.6995	11	0.40	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0485	60.89	2.090	60.42	0.9796	0.6995	11	0.44	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0117	61.46	1.830	60.42	0.9796	0.6995	11	0.99	OK	0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (60%)	0025	62.75	1.300	60.42	0.9796	0.6995	11	2.23	High	0
050.60	Soluble Potassium as K2O, Flame Photometric ... (60%)	0169	59.66	0.1200	60.13	0.5188	0.1350	3	-0.91		0
050.60	Soluble Potassium as K2O, Flame Photometric ... (60%)	0105	60.05	0.0500	60.13	0.5188	0.1350	3	-0.17		0
050.60	Soluble Potassium as K2O, Flame Photometric ... (60%)	0510	60.69	0.2350	60.13	0.5188	0.1350	3	1.07		0
050.61	Soluble Potassium as K2O, Flame Photometric ... (60%)	0035	61.08	0.5000				1			0
050.62	Soluble Potassium as K2O, Flame Photometric ... (60%)	0095	58.41	3.640	60.23	1.549	1.315	4	-1.18		0
050.62	Soluble Potassium as K2O, Flame Photometric ... (60%)	0535	59.55	0.1000	60.23	1.549	1.315	4	-0.44		0
050.62	Soluble Potassium as K2O, Flame Photometric ... (60%)	0513	61.10	0.1900	60.23	1.549	1.315	4	0.56		0
050.62	Soluble Potassium as K2O, Flame Photometric ... (60%)	0029	61.87	1.330	60.23	1.549	1.315	4	1.06		0
050.99	Soluble Potassium as K2O, Other (60%)	0552	56.02	1.120	60.32	0.9704	0.4725	36	-4.43	Low	0
050.99	Soluble Potassium as K2O, Other (60%)	0433	58.37	0.0450	60.32	0.9704	0.4725	36	-2.01	Low	0
050.99	Soluble Potassium as K2O, Other (60%)	0421	58.65	0.7000	60.32	0.9704	0.4725	36	-1.72	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0389	58.99	0.4800	60.32	0.9704	0.4725	36	-1.37	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0540	59.30	0.8000	60.32	0.9704	0.4725	36	-1.05	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0368	59.56	0.0614	60.32	0.9704	0.4725	36	-0.79	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0482	59.60	2.600	60.32	0.9704	0.4725	36	-0.75	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0535	59.65	0.1000	60.32	0.9704	0.4725	36	-0.69	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0096	59.71	0.1100	60.32	0.9704	0.4725	36	-0.64	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0523	59.75	0.9000	60.32	0.9704	0.4725	36	-0.59	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0545	59.99	0.0000	60.32	0.9704	0.4725	36	-0.34	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0536	60.05	0.1000	60.32	0.9704	0.4725	36	-0.28	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0537	60.07	0.3200	60.32	0.9704	0.4725	36	-0.26	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0549	60.08	0.1500	60.32	0.9704	0.4725	36	-0.26	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0533	60.09	0.2400	60.32	0.9704	0.4725	36	-0.24	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0539	60.11	0.2300	60.32	0.9704	0.4725	36	-0.22	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0531	60.15	0.1000	60.32	0.9704	0.4725	36	-0.18	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0481	60.17	0.4700	60.32	0.9704	0.4725	36	-0.16	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 Potassium as K2O, Other (60%)	0476	60.22	0.4223	60.32	0.9704	0.4725	36	-0.11	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0538	60.23	0.1600	60.32	0.9704	0.4725	36	-0.10	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0501	60.28	0.0500	60.32	0.9704	0.4725	36	-0.05	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0518	60.35	0.3000	60.32	0.9704	0.4725	36	0.03	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0444	60.46	0.0100	60.32	0.9704	0.4725	36	0.14	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0027	60.51	0.5870	60.32	0.9704	0.4725	36	0.19	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0532	60.79	1.382	60.32	0.9704	0.4725	36	0.48	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0325	60.85	0.1000	60.32	0.9704	0.4725	36	0.54	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0546	60.88	0.1200	60.32	0.9704	0.4725	36	0.57	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0307	60.91	2.039	60.32	0.9704	0.4725	36	0.60	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0177	61.06	0.0742	60.32	0.9704	0.4725	36	0.76	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0371	61.13	1.130	60.32	0.9704	0.4725	36	0.83	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0527	61.42	0.0800	60.32	0.9704	0.4725	36	1.13	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0234	61.60	1.000	60.32	0.9704	0.4725	36	1.32	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0451	61.83	0.7000	60.32	0.9704	0.4725	36	1.55	OK	0
050.99	Soluble Potassium as K2O, Other (60%)	0255	64.99	0.2690	60.32	0.9704	0.4725	36	4.81	High	0
050.99	Soluble Potassium as K2O, Other (60%)	0521	65.74	0.0000	60.32	0.9704	0.4725	36	5.58	High	0
050.99	Soluble Potassium as K2O, Other (60%)	0402	72.99	0.0600	60.32	0.9704	0.4725	36	13.05	High	0
050.99	Soluble Potassium as K2O, Other (60%)	0515	51.35	29.06	60.32	0.9704	0.4725	36	-9.24	Low	1
060.00	Water (Free), Vacuum Oven (%)	0007	0.0300	0.0200	0.1991	0.2216	0.0317	3	-0.76		0
060.00	Water (Free), Vacuum Oven (%)	0416	0.1174	0.0150	0.1991	0.2216	0.0317	3	-0.37		0
060.00	Water (Free), Vacuum Oven (%)	0096	0.4500	0.0600	0.1991	0.2216	0.0317	3	1.13		0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 h... (%)	0055	0.3500	0.1000				2			0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 h... (%)	0518	0.6950	0.0300				2			0
060.99	Water (Free), Other (%)	0405	0.1345	0.0090	0.2856	0.1709	0.0299	7	-0.80	NA	0
060.99	Water (Free), Other (%)	0550	0.1350	0.0040	0.2856	0.1709	0.0299	7	-0.80	NA	0
060.99	Water (Free), Other (%)	0481	0.1850	0.0100	0.2856	0.1709	0.0299	7	-0.53	NA	0
060.99	Water (Free), Other (%)	0510	0.2445	0.0062	0.2856	0.1709	0.0299	7	-0.22	NA	0
060.99	Water (Free), Other (%)	0220	0.3400	0.0600	0.2856	0.1709	0.0299	7	0.29	NA	0
060.99	Water (Free), Other (%)	0055	0.4650	0.1100	0.2856	0.1709	0.0299	7	0.95	NA	0
060.99	Water (Free), Other (%)	0513	0.4950	0.0100	0.2856	0.1709	0.0299	7	1.11	NA	0
101.03	Acid Soluble Calcium, AA, 965.09, test portio... (%)	0105	0.0743	0.0087				1			0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0482	0.0750	0.0100	0.1402	0.0807	0.0223	3	-0.81		0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0354	0.1150	0.0100	0.1402	0.0807	0.0223	3	-0.31		0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0483	0.2305	0.0470	0.1402	0.0807	0.0223	3	1.12		0
101.33	Acid Soluble Calcium, ICP, 2017.02 (%)	0117	0.0699	0.0046				1			0
101.99	Acid Soluble Calcium, Other (%)	0552	0.3850	0.0300				1			0
121.03	Acid Soluble Magnesium, AA, 965.09, test port... (%)	0105	0.1350	0.0004				1			0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0354	0.1250	0.0100	0.1520	0.0311	0.0100	3	-0.87		0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0482	0.1450	0.0100	0.1520	0.0311	0.0100	3	-0.23		0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0483	0.1860	0.0100	0.1520	0.0311	0.0100	3	1.09		0
121.33	Acid Soluble Magnesium, ICP, 2017.02 (%)	0117	0.1352	0.0015				2			0
121.33	Acid Soluble Magnesium, ICP, 2017.02 (%)	0515	0.1457	0.0048				2			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				
121.99	Acid Soluble Magnesium, Other (%)	0515	0.1141	0.0054				2			0
121.99	Acid Soluble Magnesium, Other (%)	0552	0.2650	0.0300				2			0
131.70	Water Soluble Magnesium, Titrimetric (EDTA) (%)	0510	0.3588	0.0475				1			0
148.07	Total Sulfur, ICP, test portion as in 2017.02 (%)	0117	0.0179	0.0007	0.0218	0.0050	0.0053	3	-0.79		0
148.07	Total Sulfur, ICP, test portion as in 2017.02 (%)	0515	0.0202	0.0059	0.0218	0.0050	0.0053	3	-0.33		0
148.07	Total Sulfur, ICP, test portion as in 2017.02 (%)	0483	0.0274	0.0092	0.0218	0.0050	0.0053	3	1.12		0
148.99	Total Sulfur, Other (%)	0354	0.0100	0.0000				2			0
148.99	Total Sulfur, Other (%)	0482	0.0250	0.0100				2			0
151.33	Acid Soluble Arsenic , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
151.34	Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)	0515	0.9780	1.956				0			4
165.30	Acid Soluble Boron , ICP, test portion in 98... (%)	0354	0.0100	0.0000				1			0
165.99	Acid Soluble Boron , Other (%)	0515	0.0000	0.0000				0			4
165.99	Acid Soluble Boron , Other (%)	0552	0.0000	0.0000				0			4
181.33	Acid Soluble Cadmium , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
181.34	Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
190.00	Water Soluble Chlorine, Titrimetric (%)	0550	45.01	0.0200	47.33	0.3438	0.1764	11	-6.31	Low	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0029	46.93	0.0100	47.33	0.3438	0.1764	11	-1.10	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0546	47.12	0.4680	47.33	0.3438	0.1764	11	-0.57	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0105	47.28	0.4500	47.33	0.3438	0.1764	11	-0.15	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0498	47.30	0.0000	47.33	0.3438	0.1764	11	-0.08	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0405	47.36	0.0200	47.33	0.3438	0.1764	11	0.08	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0220	47.41	0.1100	47.33	0.3438	0.1764	11	0.21	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0055	47.42	0.1400	47.33	0.3438	0.1764	11	0.25	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0444	47.42	0.0000	47.33	0.3438	0.1764	11	0.25	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0513	47.74	0.2300	47.33	0.3438	0.1764	11	1.11	OK	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0476	49.53	0.4928	47.33	0.3438	0.1764	11	5.99	High	0
190.99	Water Soluble Chlorine, Other (%)	0029	45.09	0.0200				2			0
190.99	Water Soluble Chlorine, Other (%)	0368	50.79	0.2570				2			0
191.33	Acid Soluble Chromium , ICP, 2017.02 (ppm)	0515	0.5875	1.175				0			4
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C... (ppm)	0515	1.764	3.528				0			4
202.33	Acid Soluble Cobalt , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
221.30	Acid Soluble Copper , ICP, test portion inor... (%)	0354	0.0100	0.0000				2			0
221.30	Acid Soluble Copper , ICP, test portion inor... (%)	0552	0.0850	0.0700				2			0
221.33	Acid Soluble Copper , ICP, 2017.02 (%)	0515	0.0002	0.0001				1			0
221.99	Acid Soluble Copper , Other (%)	0515	0.0011	0.0005				1			0
241.03	Acid Soluble Iron , AA, 965.09, test portion ... (%)	0105	0.0099	0.0008				1			0
241.30	Acid Soluble Iron , ICP, test portion inorgan... (%)	0354	0.0100	0.0000	0.0833	0.1270	0.0600	3	-0.58		0
241.30	Acid Soluble Iron , ICP, test portion inorgan... (%)	0482	0.0100	0.0000	0.0833	0.1270	0.0600	3	-0.58		0
241.30	Acid Soluble Iron , ICP, test portion inorgan... (%)	0552	0.2300	0.1800	0.0833	0.1270	0.0600	3	1.15		0
241.33	Acid Soluble Iron , ICP, 2017.02 (%)	0117	0.0099	0.0001				2			0
241.33	Acid Soluble Iron , ICP, 2017.02 (%)	0515	0.0470	0.0271				2			0
241.99	Acid Soluble Iron , Other (%)	0515	0.0122	0.0051				1			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				
251.33	Acid Soluble Lead , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
261.30	Acid Soluble Manganese , ICP, test portion 9... (%)	0354	0.0100	0.0000				1			0
261.32	Acid Soluble Manganese , ICP, test portion i... (%)	0552	0.0800	0.0000				1			0
261.35	Acid Soluble Manganese , ICP, 2017.02 (%)	0515	0.0000	0.0000				0			4
261.99	Acid Soluble Manganese , Other (%)	0515	0.0000	0.0000				0			4
281.30	Acid Soluble Mercury , ICP (ppm)	0515	0.0000	0.0000				0			4
289.33	Acid Soluble Molybdenum , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/601... (ppm)	0515	0.0000	0.0000				0			4
291.33	Acid Soluble Nickel , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
301.33	Acid Soluble Selenium , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
301.34	Acid Soluble Selenium , ICP, EPA 3050B/6010C... (ppm)	0515	0.0000	0.0000				0			4
311.00	Sodium, AA (%)	0498	1.195	0.0100	1.282	0.1248	0.2013	3	-0.70		0
311.00	Sodium, AA (%)	0405	1.226	0.0040	1.282	0.1248	0.2013	3	-0.45		0
311.00	Sodium, AA (%)	0550	1.425	0.5900	1.282	0.1248	0.2013	3	1.15		0
311.30	Sodium, Flame Photometric (%)	0476	1.043	0.0900	1.258	0.1542	0.0351	4	-1.39		0
311.30	Sodium, Flame Photometric (%)	0105	1.255	0.0300	1.258	0.1542	0.0351	4	-0.02		0
311.30	Sodium, Flame Photometric (%)	0510	1.338	0.0102	1.258	0.1542	0.0351	4	0.52		0
311.30	Sodium, Flame Photometric (%)	0513	1.395	0.0100	1.258	0.1542	0.0351	4	0.89		0
311.32	Sodium, ICP, 2006.03 test portion (%)	0220	0.6280	0.0100	1.240	0.5340	0.0231	5	-1.15		0
311.32	Sodium, ICP, 2006.03 test portion (%)	0521	1.102	0.0000	1.240	0.5340	0.0231	5	-0.26		0
311.32	Sodium, ICP, 2006.03 test portion (%)	0515	1.158	0.0857	1.240	0.5340	0.0231	5	-0.15		0
311.32	Sodium, ICP, 2006.03 test portion (%)	0231	1.210	0.0200	1.240	0.5340	0.0231	5	-0.06		0
311.32	Sodium, ICP, 2006.03 test portion (%)	0444	2.100	0.0000	1.240	0.5340	0.0231	5	1.61		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0117	1.270	0.0000				2			0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	1.366	0.0010				2			0
311.99	Sodium, Other (%)	0481	0.9950	0.0100	1.224	0.2030	0.0684	6	-1.00	Low	0
311.99	Sodium, Other (%)	0255	1.110	0.1420	1.224	0.2030	0.0684	6	-0.50	OK	0
311.99	Sodium, Other (%)	0482	1.205	0.0700	1.224	0.2030	0.0684	6	-0.08	OK	0
311.99	Sodium, Other (%)	0354	1.245	0.0100	1.224	0.2030	0.0684	6	0.09	OK	0
311.99	Sodium, Other (%)	0368	1.260	0.0286	1.224	0.2030	0.0684	6	0.16	OK	0
311.99	Sodium, Other (%)	0096	1.555	0.1500	1.224	0.2030	0.0684	6	1.45	High	0
321.30	Acid Soluble Zinc , ICP, test portion inorga... (%)	0354	0.0100	0.0000				2			0
321.30	Acid Soluble Zinc , ICP, test portion inorga... (%)	0552	0.0700	0.0600				2			0
321.33	Acid Soluble Zinc , ICP, 2017.02 (%)	0515	0.0000	0.0000				0			4
321.99	Acid Soluble Zinc , Other (%)	0515	0.0000	0.0000				0			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.