

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

# Methods: 78

Sample # 180511

### Statistical Summary

# Labs Reporting: 91

Grade 46-0-0

Issue Date : 06/30/2018

Method Code	Analyte & Method Sample # 180511	# 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
001.99	Ammoniacal Nitrogen, Other (%)	3	3	9.414	9.820	9.414		9.820	7.087	104.31%		0.0777	2.85%
005.00	Urea Nitrogen, Urease (as N) (%)	3	3	46.07	0.3525	46.07		0.3525	0.2544	0.77%		0.0933	2.25%
005.99	Urea Nitrogen, Other (%)	5	5	44.23	3.854	44.23		3.854	2.154	8.71%		0.1494	2.26%
006.10	Biuret Nitrogen, Spectrophotometric (as N) (%)	1		0.9550									
006.99	Biuret Nitrogen, Other (%)	2	2	0.6618	0.0400								
008.10	Biuret, Spectrophotometric (as Biuret) (%)	10	10	0.7703	0.2251	0.7786		0.1382	0.0546	17.75%		0.0347	4.15%
008.99	Biuret, Other (%)	3	3	0.8028	0.1929	0.8028		0.1929	0.1392	24.02%		0.0350	4.13%
010.11	Total Nitrogen, Modified Comprehensive (46%)	12	11	46.06	0.2618	46.09	0.8800	0.2180	0.0822	0.47%	0.58	0.1054	2.25%
010.12	Total Nitrogen, Salicylic (46%)	3	3	45.72	0.3205	45.72	0.8800	0.3205	0.2313	0.70%	0.85	0.2000	2.25%
010.60	Total Nitrogen, Combustion (46%)	62	61	46.34	0.6645	46.31	0.8800	0.4797	0.0768	1.04%	1.27	0.2769	2.25%
010.99	Total Nitrogen, Other (46%)	11	11	45.85	0.4895	45.92	0.8800	0.3612	0.1361	0.79%	0.96	0.1565	2.25%
020.40	Total Phosphorus as P2O5, Automated (%)	1		46.06									
020.50	Total Phosphorus as P2O5, ICP (%)	1		0.0004									
020.99	Total Phosphorus as P2O5, Other (%)	1		0.0004									
041.50	Direct Available Phosphorus as P2O5, ICP (%)	1		0.1000									
041.60	Direct Available Phosphorus as P2O5, Citrate-EDTA ...	1		0.0210									
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	1		0.0050									
050.99	Soluble Potassium as K2O, Other (%)	2	2	0.0590	0.0580								
060.00	Water (Free), Vacuum Oven (%)	4	4	0.1424	0.0700	0.1424		0.0700	0.0438	49.20%		0.0227	5.36%
060.10	Water (Free), Vacuum Desiccation (%)	1		0.0985									
060.20	Water (Free), Karl Fischer (%)	4	4	0.2450	0.0579	0.2450		0.0579	0.0362	23.62%		0.0100	4.94%
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours,...	1		0.4000									
060.99	Water (Free), Other (%)	5	5	0.3684	0.3066	0.3684		0.3066	0.1714	83.23%		0.0528	4.65%
101.30	Acid Soluble Calcium, ICP, test portion inorganic ... (%)	2	2	6.183	8.581								
121.30	Acid Soluble Magnesium, ICP, test portion inorgani... (	2	2	0.3333	0.4571								
121.33	Acid Soluble Magnesium, ICP, 2017.02 (%)	1		0.0054									
121.99	Acid Soluble Magnesium, Other (%)	1		0.0255									
148.07	Total Sulfur, ICP, test portion as in 2017.02 (%)	1		0.0002									
148.99	Total Sulfur, Other (%)	1		0.0100									
149.04	Sulfur - HNO3 soluble, ICP (%)	1		0.0004									
151.33	Acid Soluble Arsenic , ICP, 2017.02 (ppm)	1		0.0000									

Method Code	Analyte & Method Sample # 180511	# 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
151.34	Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
151.99	Acid Soluble Arsenic , Other (ppm)	1		0.1750									
165.30	Acid Soluble Boron , ICP, test portion in 982.01 (%)	1		0.0100									
165.99	Acid Soluble Boron , Other (%)	1		0.0000									
181.30	Acid Soluble Cadmium , ICP (ppm)	2	2	40.11	56.70								
181.33	Acid Soluble Cadmium , ICP, 2017.02 (ppm)	1		0.0000									
181.34	Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)	1		0.1255									
181.99	Acid Soluble Cadmium , Other (ppm)	1		0.0100									
191.30	Acid Soluble Chromium , ICP (ppm)	1		384.0									
191.33	Acid Soluble Chromium , ICP, 2017.02 (ppm)	1		0.0000									
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppm)	1		1.159									
191.99	Acid Soluble Chromium , Other (ppm)	1		2.045									
202.30	Acid Soluble Cobalt , ICP (ppm)	2	2	1.668	2.294								
202.33	Acid Soluble Cobalt , ICP, 2017.02 (ppm)	1		0.0000									
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	1		0.6695									
202.99	Acid Soluble Cobalt , Other (ppm)	1		0.0100									
221.30	Acid Soluble Copper , ICP, test portion inorganic... (%)	2	2	0.0076	0.0034								
221.33	Acid Soluble Copper , ICP, 2017.02 (%)	1		0.0002									
221.99	Acid Soluble Copper , Other (%)	1		0.0000									
241.30	Acid Soluble Iron , ICP, test portion inorganic 96... (%)	2	2	0.3600	0.4950								
241.33	Acid Soluble Iron , ICP, 2017.02 (%)	1		0.0014									
241.99	Acid Soluble Iron , Other (%)	1		0.0031									
251.30	Acid Soluble Lead , ICP (ppm)	2	2	6.368	8.884								
251.33	Acid Soluble Lead , ICP, 2017.02 (ppm)	1		1.038									
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	1		0.4905									
251.99	Acid Soluble Lead , Other (ppm)	1		0.1350									
261.30	Acid Soluble Manganese , ICP, test portion 972.02a (%)	2	2	0.0102	0.0066								
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									
281.99	Acid Soluble Mercury , Other (ppm)	1		0.0100									
289.30	Acid Soluble Molybdenum , ICP (ppm)	2	2	7.291	10.27								
289.33	Acid Soluble Molybdenum , ICP, 2017.02 (ppm)	1		0.0000									
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/6010C (ppm)	1		0.4025									
291.30	Acid Soluble Nickel , ICP (ppm)	1		137.0									
291.33	Acid Soluble Nickel , ICP, 2017.02 (ppm)	1		0.0000									
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	1		0.1645									
291.99	Acid Soluble Nickel , Other (ppm)	2	2	0.4250	0.2545								
301.30	Acid Soluble Selenium , ICP (ppm)	1		1.448									
301.33	Acid Soluble Selenium , ICP, 2017.02 (ppm)	1		0.0000									
301.34	Acid Soluble Selenium , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
301.99	Acid Soluble Selenium , Other (ppm)	1		0.0150									

Method Code	Analyte & Method Sample # 180511	# 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
311.33	Sodium, ICP, test portion as in 2017.02 (%)	1		0.1125									
311.99	Sodium, Other (%)	1		0.0450									
321.30	Acid Soluble Zinc , ICP, test portion inorganic 9...	2	2	0.2200	0.2970								
321.33	Acid Soluble Zinc , ICP, 2017.02 (%)	1		0.0000									
321.99	Acid Soluble Zinc , Other (%)	1		0.0001									

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

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STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 180511

Grade 46-0-0

### Method Precision Report

Issue Date : 06/30/2018

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
008.10	Biuret, Spectrophotometric (as Biuret) (%)	10	10	0.7703	0.2251	0.2242	0.0286	0.2260	29.11%	3.71%	29.34%	7.912
010.11	Total Nitrogen, Modified Comprehensive (46%)	12	9	46.12	0.1768	0.1708	0.0649	0.1827	0.37%	0.14%	0.40%	2.813
010.60	Total Nitrogen, Combustion (46%)	62	57	46.32	0.4995	0.4758	0.2152	0.5222	1.03%	0.46%	1.13%	2.427
010.99	Total Nitrogen, Other (46%)	11	9	45.95	0.2780	0.2675	0.1070	0.2881	0.58%	0.23%	0.63%	2.693

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

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Method Proficiency For All Labs (Lab Values)

# Methods: 78

Sample # 180511

Lab Values

# Labs Reporting: 91

Grade 46-0-0

Issue Date : 06/30/2018

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				
001.99	Ammoniacal Nitrogen, Other (%)	0524	0.4515	0.0130	9.414	9.820	0.0777	3	-0.91		0
001.99	Ammoniacal Nitrogen, Other (%)	0545	7.880	0.0200	9.414	9.820	0.0777	3	-0.16		0
001.99	Ammoniacal Nitrogen, Other (%)	0541	19.91	0.2000	9.414	9.820	0.0777	3	1.07		0
005.00	Urea Nitrogen, Urease (as N) (%)	0389	45.68	0.1600	46.07	0.3525	0.0933	3	-1.10		0
005.00	Urea Nitrogen, Urease (as N) (%)	0169	46.15	0.1000	46.07	0.3525	0.0933	3	0.24		0
005.00	Urea Nitrogen, Urease (as N) (%)	0027	46.37	0.0200	46.07	0.3525	0.0933	3	0.86		0
005.99	Urea Nitrogen, Other (%)	0545	37.74	0.0300	44.23	3.854	0.1494	5	-1.69		0
005.99	Urea Nitrogen, Other (%)	0027	44.36	0.2700	44.23	3.854	0.1494	5	0.03		0
005.99	Urea Nitrogen, Other (%)	0394	45.05	0.0970	44.23	3.854	0.1494	5	0.21		0
005.99	Urea Nitrogen, Other (%)	0513	46.27	0.0500	44.23	3.854	0.1494	5	0.53		0
005.99	Urea Nitrogen, Other (%)	0451	47.75	0.3000	44.23	3.854	0.1494	5	0.91		0
006.10	Biuret Nitrogen, Spectrophotometric (as N) (%)	0550	0.9550	0.1900				1			0
006.99	Biuret Nitrogen, Other (%)	0356	0.6335	0.0630				2			0
006.99	Biuret Nitrogen, Other (%)	0234	0.6900	0.0000				2			0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0546	0.2870	0.0420	0.7786	0.1382	0.0347	10	-3.31	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0498	0.6900	0.0200	0.7786	0.1382	0.0347	10	-0.60	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0371	0.7100	0.0400	0.7786	0.1382	0.0347	10	-0.46	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0513	0.7150	0.0300	0.7786	0.1382	0.0347	10	-0.43	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0444	0.7300	0.0800	0.7786	0.1382	0.0347	10	-0.33	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0405	0.7800	0.0200	0.7786	0.1382	0.0347	10	0.01	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0493	0.8250	0.0500	0.7786	0.1382	0.0347	10	0.31	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0510	0.8535	0.0020	0.7786	0.1382	0.0347	10	0.50	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0415	0.9252	0.0453	0.7786	0.1382	0.0347	10	0.99	NA	0
008.10	Biuret, Spectrophotometric (as Biuret) (%)	0476	1.187	0.0173	0.7786	0.1382	0.0347	10	2.75	NA	0
008.99	Biuret, Other (%)	0394	0.6785	0.0450	0.8028	0.1929	0.0350	3	-0.64		0
008.99	Biuret, Other (%)	0520	0.7050	0.0300	0.8028	0.1929	0.0350	3	-0.51		0
008.99	Biuret, Other (%)	0486	1.025	0.0300	0.8028	0.1929	0.0350	3	1.15		0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0539	45.43	0.0600	46.09	0.2180	0.1054	11	-3.02	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0535	45.85	0.1000	46.09	0.2180	0.1054	11	-1.09	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0416	45.99	0.0300	46.09	0.2180	0.1054	11	-0.47	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0531	46.02	0.0100	46.09	0.2180	0.1054	11	-0.33	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0538	46.03	0.1500	46.09	0.2180	0.1054	11	-0.29	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0415	46.08	0.4014	46.09	0.2180	0.1054	11	-0.03	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				
010.11	Total Nitrogen, Modified Comprehensive (46%)	0549	46.10	0.1000	46.09	0.2180	0.1054	11	0.06	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0371	46.15	0.1000	46.09	0.2180	0.1054	11	0.29	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0105	46.32	0.0500	46.09	0.2180	0.1054	11	1.04	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0546	46.32	0.1400	46.09	0.2180	0.1054	11	1.07	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0510	46.36	0.0179	46.09	0.2180	0.1054	11	1.27	OK	0
010.11	Total Nitrogen, Modified Comprehensive (46%)	0309	44.96	1.110	46.09	0.2180	0.1054	11	-5.20	Low	1
010.12	Total Nitrogen, Salicylic (46%)	0544	45.41	0.1000	45.72	0.3205	0.2000	3	-0.97		0
010.12	Total Nitrogen, Salicylic (46%)	0117	45.70	0.0000	45.72	0.3205	0.2000	3	-0.06		0
010.12	Total Nitrogen, Salicylic (46%)	0498	46.05	0.5000	45.72	0.3205	0.2000	3	1.03		0
010.60	Total Nitrogen, Combustion (46%)	0354	45.10	0.2000	46.31	0.4797	0.2769	61	-2.51	Low	0
010.60	Total Nitrogen, Combustion (46%)	0483	45.21	0.0400	46.31	0.4797	0.2769	61	-2.28	Low	0
010.60	Total Nitrogen, Combustion (46%)	0292	45.23	0.4100	46.31	0.4797	0.2769	61	-2.25	Low	0
010.60	Total Nitrogen, Combustion (46%)	0422	45.29	2.210	46.31	0.4797	0.2769	61	-2.13	Low	0
010.60	Total Nitrogen, Combustion (46%)	0482	45.60	0.0000	46.31	0.4797	0.2769	61	-1.47	OK	0
010.60	Total Nitrogen, Combustion (46%)	0025	45.61	0.0300	46.31	0.4797	0.2769	61	-1.45	OK	0
010.60	Total Nitrogen, Combustion (46%)	0325	45.75	0.1000	46.31	0.4797	0.2769	61	-1.16	OK	0
010.60	Total Nitrogen, Combustion (46%)	0550	45.78	0.7600	46.31	0.4797	0.2769	61	-1.10	OK	0
010.60	Total Nitrogen, Combustion (46%)	0472	45.79	0.3300	46.31	0.4797	0.2769	61	-1.09	OK	0
010.60	Total Nitrogen, Combustion (46%)	0451	45.80	1.200	46.31	0.4797	0.2769	61	-1.05	OK	0
010.60	Total Nitrogen, Combustion (46%)	0307	45.81	0.4800	46.31	0.4797	0.2769	61	-1.03	OK	0
010.60	Total Nitrogen, Combustion (46%)	0055	45.85	0.0600	46.31	0.4797	0.2769	61	-0.95	OK	0
010.60	Total Nitrogen, Combustion (46%)	0255	45.89	0.6220	46.31	0.4797	0.2769	61	-0.87	OK	0
010.60	Total Nitrogen, Combustion (46%)	0324	45.90	0.2000	46.31	0.4797	0.2769	61	-0.85	OK	0
010.60	Total Nitrogen, Combustion (46%)	0041	45.95	0.4700	46.31	0.4797	0.2769	61	-0.75	OK	0
010.60	Total Nitrogen, Combustion (46%)	0114	45.97	1.400	46.31	0.4797	0.2769	61	-0.70	OK	0
010.60	Total Nitrogen, Combustion (46%)	0234	45.97	0.0400	46.31	0.4797	0.2769	61	-0.70	OK	0
010.60	Total Nitrogen, Combustion (46%)	0157	46.05	0.1000	46.31	0.4797	0.2769	61	-0.53	OK	0
010.60	Total Nitrogen, Combustion (46%)	0521	46.06	0.0000	46.31	0.4797	0.2769	61	-0.50	OK	0
010.60	Total Nitrogen, Combustion (46%)	0389	46.12	0.2500	46.31	0.4797	0.2769	61	-0.40	OK	0
010.60	Total Nitrogen, Combustion (46%)	0070	46.12	0.2200	46.31	0.4797	0.2769	61	-0.39	OK	0
010.60	Total Nitrogen, Combustion (46%)	0231	46.16	0.0400	46.31	0.4797	0.2769	61	-0.30	OK	0
010.60	Total Nitrogen, Combustion (46%)	0494	46.17	0.0200	46.31	0.4797	0.2769	61	-0.28	OK	0
010.60	Total Nitrogen, Combustion (46%)	0096	46.19	0.0500	46.31	0.4797	0.2769	61	-0.25	OK	0
010.60	Total Nitrogen, Combustion (46%)	0523	46.20	0.2000	46.31	0.4797	0.2769	61	-0.22	OK	0
010.60	Total Nitrogen, Combustion (46%)	0547	46.22	0.1500	46.31	0.4797	0.2769	61	-0.19	OK	0
010.60	Total Nitrogen, Combustion (46%)	0501	46.25	0.1000	46.31	0.4797	0.2769	61	-0.12	OK	0
010.60	Total Nitrogen, Combustion (46%)	0106	46.28	0.1500	46.31	0.4797	0.2769	61	-0.06	OK	0
010.60	Total Nitrogen, Combustion (46%)	0086	46.31	0.3660	46.31	0.4797	0.2769	61	0.01	OK	0
010.60	Total Nitrogen, Combustion (46%)	0402	46.34	0.0300	46.31	0.4797	0.2769	61	0.06	OK	0
010.60	Total Nitrogen, Combustion (46%)	0043	46.37	0.0700	46.31	0.4797	0.2769	61	0.12	OK	0
010.60	Total Nitrogen, Combustion (46%)	0233	46.40	0.0100	46.31	0.4797	0.2769	61	0.19	OK	0
010.60	Total Nitrogen, Combustion (46%)	0007	46.40	0.6000	46.31	0.4797	0.2769	61	0.20	OK	0
010.60	Total Nitrogen, Combustion (46%)	0534	46.43	0.0300	46.31	0.4797	0.2769	61	0.25	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				
010.60	Total Nitrogen, Combustion (46%)	0035	46.43	0.0200	46.31	0.4797	0.2769	61	0.26	OK	0
010.60	Total Nitrogen, Combustion (46%)	0368	46.44	0.4380	46.31	0.4797	0.2769	61	0.27	OK	0
010.60	Total Nitrogen, Combustion (46%)	0177	46.44	0.1200	46.31	0.4797	0.2769	61	0.28	OK	0
010.60	Total Nitrogen, Combustion (46%)	0360	46.45	0.0900	46.31	0.4797	0.2769	61	0.29	OK	0
010.60	Total Nitrogen, Combustion (46%)	0095	46.46	0.0500	46.31	0.4797	0.2769	61	0.31	OK	0
010.60	Total Nitrogen, Combustion (46%)	0486	46.49	0.2800	46.31	0.4797	0.2769	61	0.38	OK	0
010.60	Total Nitrogen, Combustion (46%)	0072	46.53	0.1000	46.31	0.4797	0.2769	61	0.47	OK	0
010.60	Total Nitrogen, Combustion (46%)	0423	46.53	0.4200	46.31	0.4797	0.2769	61	0.47	OK	0
010.60	Total Nitrogen, Combustion (46%)	0040	46.55	0.1000	46.31	0.4797	0.2769	61	0.51	OK	0
010.60	Total Nitrogen, Combustion (46%)	0105	46.56	0.0800	46.31	0.4797	0.2769	61	0.53	OK	0
010.60	Total Nitrogen, Combustion (46%)	0419	46.59	0.5500	46.31	0.4797	0.2769	61	0.58	OK	0
010.60	Total Nitrogen, Combustion (46%)	0444	46.61	0.2000	46.31	0.4797	0.2769	61	0.63	OK	0
010.60	Total Nitrogen, Combustion (46%)	0073	46.63	0.0900	46.31	0.4797	0.2769	61	0.67	OK	0
010.60	Total Nitrogen, Combustion (46%)	0029	46.65	0.5100	46.31	0.4797	0.2769	61	0.71	OK	0
010.60	Total Nitrogen, Combustion (46%)	0136	46.65	0.1000	46.31	0.4797	0.2769	61	0.72	OK	0
010.60	Total Nitrogen, Combustion (46%)	0027	46.70	0.2000	46.31	0.4797	0.2769	61	0.82	OK	0
010.60	Total Nitrogen, Combustion (46%)	0542	46.71	0.0270	46.31	0.4797	0.2769	61	0.85	OK	0
010.60	Total Nitrogen, Combustion (46%)	0042	46.75	0.3000	46.31	0.4797	0.2769	61	0.93	OK	0
010.60	Total Nitrogen, Combustion (46%)	0049	46.76	0.0300	46.31	0.4797	0.2769	61	0.94	OK	0
010.60	Total Nitrogen, Combustion (46%)	0377	46.76	0.3900	46.31	0.4797	0.2769	61	0.94	OK	0
010.60	Total Nitrogen, Combustion (46%)	0034	46.89	0.1400	46.31	0.4797	0.2769	61	1.22	OK	0
010.60	Total Nitrogen, Combustion (46%)	0102	46.98	0.1200	46.31	0.4797	0.2769	61	1.41	OK	0
010.60	Total Nitrogen, Combustion (46%)	0452	47.00	0.0500	46.31	0.4797	0.2769	61	1.44	OK	0
010.60	Total Nitrogen, Combustion (46%)	0485	47.19	1.126	46.31	0.4797	0.2769	61	1.83	OK	0
010.60	Total Nitrogen, Combustion (46%)	0527	47.47	0.2200	46.31	0.4797	0.2769	61	2.43	High	0
010.60	Total Nitrogen, Combustion (46%)	0117	47.65	0.1000	46.31	0.4797	0.2769	61	2.80	High	0
010.60	Total Nitrogen, Combustion (46%)	0230	49.65	0.1000	46.31	0.4797	0.2769	61	6.97	High	0
010.60	Total Nitrogen, Combustion (46%)	0405	31.17	29.96	46.31	0.4797	0.2769	61	-31.55	Low	2
010.99	Total Nitrogen, Other (46%)	0476	44.61	0.1024	45.92	0.3612	0.1565	11	-3.41	Low	0
010.99	Total Nitrogen, Other (46%)	0532	45.49	0.0600	45.92	0.3612	0.1565	11	-1.12	OK	0
010.99	Total Nitrogen, Other (46%)	0545	45.62	0.0500	45.92	0.3612	0.1565	11	-0.79	OK	0
010.99	Total Nitrogen, Other (46%)	0493	45.90	0.1000	45.92	0.3612	0.1565	11	-0.06	OK	0
010.99	Total Nitrogen, Other (46%)	0520	45.91	0.2600	45.92	0.3612	0.1565	11	-0.03	OK	0
010.99	Total Nitrogen, Other (46%)	0519	45.92	0.0400	45.92	0.3612	0.1565	11	0.00	OK	0
010.99	Total Nitrogen, Other (46%)	0537	46.01	0.0148	45.92	0.3612	0.1565	11	0.22	OK	0
010.99	Total Nitrogen, Other (46%)	0522	46.11	0.1000	45.92	0.3612	0.1565	11	0.49	OK	0
010.99	Total Nitrogen, Other (46%)	0508	46.16	0.3300	45.92	0.3612	0.1565	11	0.61	OK	0
010.99	Total Nitrogen, Other (46%)	0356	46.23	0.6240	45.92	0.3612	0.1565	11	0.80	OK	0
010.99	Total Nitrogen, Other (46%)	0524	46.42	0.0400	45.92	0.3612	0.1565	11	1.29	OK	0
020.40	Total Phosphorus as P2O5, Automated (%)	0035	46.06	0.4300				1			0
020.50	Total Phosphorus as P2O5, ICP (%)	0524	0.0004	0.0000				1			0
020.99	Total Phosphorus as P2O5, Other (%)	0515	0.0004	0.0002				1			0
041.50	Direct Available Phosphorus as P2O5, ICP (%)	0325	0.1000	0.0000				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				
041.60	Direct Available Phosphorus as P2O5, Citrate-... (%)	0354	0.0210	0.0020				1			0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	0354	0.0050	0.0000				1			0
050.99	Soluble Potassium as K2O, Other (%)	0524	0.0180	0.0017				2			0
050.99	Soluble Potassium as K2O, Other (%)	0325	0.1000	0.0000				2			0
060.00	Water (Free), Vacuum Oven (%)	0007	0.0800	0.0400	0.1424	0.0700	0.0227	4	-0.89		0
060.00	Water (Free), Vacuum Oven (%)	0405	0.1050	0.0100	0.1424	0.0700	0.0227	4	-0.53		0
060.00	Water (Free), Vacuum Oven (%)	0096	0.1450	0.0300	0.1424	0.0700	0.0227	4	0.04		0
060.00	Water (Free), Vacuum Oven (%)	0416	0.2395	0.0109	0.1424	0.0700	0.0227	4	1.39		0
060.10	Water (Free), Vacuum Desiccation (%)	0356	0.0985	0.0310				1			0
060.20	Water (Free), Karl Fischer (%)	0234	0.2000	0.0000	0.2450	0.0579	0.0100	4	-0.78		0
060.20	Water (Free), Karl Fischer (%)	0394	0.2050	0.0100	0.2450	0.0579	0.0100	4	-0.69		0
060.20	Water (Free), Karl Fischer (%)	0371	0.2500	0.0200	0.2450	0.0579	0.0100	4	0.09		0
060.20	Water (Free), Karl Fischer (%)	0493	0.3250	0.0100	0.2450	0.0579	0.0100	4	1.38		0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 h... (%)	0055	0.4000	0.0000				1			0
060.99	Water (Free), Other (%)	0055	0.1750	0.0500	0.3684	0.3066	0.0528	5	-0.63		0
060.99	Water (Free), Other (%)	0513	0.2080	0.0020	0.3684	0.3066	0.0528	5	-0.52		0
060.99	Water (Free), Other (%)	0510	0.2439	0.0022	0.3684	0.3066	0.0528	5	-0.41		0
060.99	Water (Free), Other (%)	0520	0.3050	0.0300	0.3684	0.3066	0.0528	5	-0.21		0
060.99	Water (Free), Other (%)	0550	0.9100	0.1800	0.3684	0.3066	0.0528	5	1.77		0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0354	0.1150	0.0100				2			0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0035	12.25	0.3000				2			0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0354	0.0100	0.0000				2			0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0035	0.6565	0.0650				2			0
121.33	Acid Soluble Magnesium, ICP, 2017.02 (%)	0515	0.0054	0.0062				1			0
121.99	Acid Soluble Magnesium, Other (%)	0515	0.0255	0.0030				1			0
148.07	Total Sulfur, ICP, test portion as in 2017.02 (%)	0515	0.0002	0.0004				0			4
148.99	Total Sulfur, Other (%)	0354	0.0100	0.0000				1			0
149.04	Sulfur - HNO3 soluble, ICP (%)	0524	0.0004	0.0001				1			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	0.0000	0.0000				0			4
151.99	Acid Soluble Arsenic , Other (ppm)	0519	0.1750	0.0100				1			0
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
181.30	Acid Soluble Cadmium , ICP (ppm)	0524	0.0154	0.0007				2			0
181.30	Acid Soluble Cadmium , ICP (ppm)	0035	80.20	4.600				2			0
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	0.1255	0.2510				0			4
181.99	Acid Soluble Cadmium , Other (ppm)	0519	0.0100	0.0000				1			0
191.30	Acid Soluble Chromium , ICP (ppm)	0035	384.0	24.00				1			0
191.33	Acid Soluble Chromium , ICP, 2017.02 (ppm)	0515	0.0000	0.0000				0			4
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C... (ppm)	0515	1.159	1.340				1			0
191.99	Acid Soluble Chromium , Other (ppm)	0519	2.045	0.0300				1			0
202.30	Acid Soluble Cobalt , ICP (ppm)	0524	0.0460	0.0645				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				
202.30	Acid Soluble Cobalt , ICP (ppm)	0035	3.290	0.4800				2			0
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	0.6695	1.339				0			4
202.99	Acid Soluble Cobalt , Other (ppm)	0519	0.0100	0.0000				1			0
221.30	Acid Soluble Copper , ICP, test portion inor... (%)	0035	0.0052	0.0002				2			0
221.30	Acid Soluble Copper , ICP, test portion inor... (%)	0354	0.0100	0.0000				2			0
221.33	Acid Soluble Copper , ICP, 2017.02 (%)	0515	0.0002	0.0003				0			4
221.99	Acid Soluble Copper , Other (%)	0515	0.0000	0.0000				0			4
241.30	Acid Soluble Iron , ICP, test portion inorgan... (%)	0354	0.0100	0.0000				2			0
241.30	Acid Soluble Iron , ICP, test portion inorgan... (%)	0035	0.7100	0.0280				2			0
241.33	Acid Soluble Iron , ICP, 2017.02 (%)	0515	0.0014	0.0004				1			0
241.99	Acid Soluble Iron , Other (%)	0515	0.0031	0.0058				1			0
251.30	Acid Soluble Lead , ICP (ppm)	0524	0.0860	0.0050				2			0
251.30	Acid Soluble Lead , ICP (ppm)	0035	12.65	2.300				2			0
251.33	Acid Soluble Lead , ICP, 2017.02 (ppm)	0515	1.038	0.7190				1			0
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	0515	0.4905	0.9810				0			4
251.99	Acid Soluble Lead , Other (ppm)	0519	0.1350	0.0300				1			0
261.30	Acid Soluble Manganese , ICP, test portion 9... (%)	0354	0.0055	0.0090				2			0
261.30	Acid Soluble Manganese , ICP, test portion 9... (%)	0035	0.0149	0.0021				2			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
281.99	Acid Soluble Mercury , Other (ppm)	0519	0.0100	0.0000				1			0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0524	0.0313	0.0115				2			0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0035	14.55	3.100				2			0
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	0.4025	0.8050				0			4
291.30	Acid Soluble Nickel , ICP (ppm)	0035	137.0	2.000				1			0
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	0.1645	0.3290				0			4
291.99	Acid Soluble Nickel , Other (ppm)	0524	0.2451	0.0289				2			0
291.99	Acid Soluble Nickel , Other (ppm)	0519	0.6050	0.0100				2			0
301.30	Acid Soluble Selenium , ICP (ppm)	0524	1.448	0.0250				1			0
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
301.99	Acid Soluble Selenium , Other (ppm)	0519	0.0150	0.0100				1			0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0035	0.1125	0.0550				1			0
311.99	Sodium, Other (%)	0354	0.0450	0.0100				1			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... (%)	0035	0.4300	0.0380				2			0
321.33	Acid Soluble Zinc , ICP, 2017.02 (%)	0515	0.0000	0.0000				0			4
321.99	Acid Soluble Zinc , Other (%)	0515	0.0001	0.0001				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

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				

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  $\pm$  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.