

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

# Methods: 73

Sample # 171111

### Statistical Summary

# Labs Reporting: 93

Grade 12-0-0-26S

Issue Date : 12/31/2017

Method Code	Analyte & Method	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	IA %RSD	Average Range (R-bar)	Horwitz %RSD
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	15	15	12.23	0.3778	12.12		0.1177	0.0380	0.97%		0.0603	2.75%
001.99	Ammoniacal Nitrogen, Other (%)	29	28	12.14	0.1916	12.14		0.1788	0.0422	1.47%		0.0918	2.75%
009.10	Ammoniacal Plus Nitrate Nitrogen, Devarda (%)	1		11.50									
010.11	Total Nitrogen, Modified Comprehensive (12%)	9	8	12.16	0.1115	12.16	0.6112	0.1264	0.0559	1.04%	2.51%	0.0513	2.75%
010.12	Total Nitrogen, Salicylic (12%)	2	2	12.54	0.0530								
010.60	Total Nitrogen, Combustion (12%)	55	53	12.16	0.3992	12.11	0.6112	0.2301	0.0395	1.90%	2.52%	0.0986	2.75%
010.99	Total Nitrogen, Other (12%)	6	5	12.04	0.3152	12.04	0.6112	0.3152	0.1762	2.62%	2.54%	0.0475	2.75%
020.50	Total Phosphorus as P2O5, ICP (%)	3	2	0.0282	0.0379	0.0282		0.0379	0.0335	134.16%		0.0054	6.84%
020.99	Total Phosphorus as P2O5, Other (%)	1		0.0002									
041.50	Direct Available Phosphorus as P2O5, ICP (%)	1		0.1000									
041.60	Direct Available Phosphorus as P2O5, Citrate-EDTA ... (%)	1		0.0030									
050.51	Soluble Potassium as K2O, ICP (Citrate) (%)	1		0.2800									
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	1		0.0025									
050.99	Soluble Potassium as K2O, Other (%)	4	4	0.4992	0.9293	0.4992		0.9293	0.5808	186.15%		0.0721	4.44%
101.30	Acid Soluble Calcium, ICP, test portion inorganic ... (%)	2	2	0.1063	0.0732								
101.99	Acid Soluble Calcium, Other (%)	1		0.0088									
121.30	Acid Soluble Magnesium, ICP, test portion inorgani... (%)	2	2	0.0202	0.0101								
121.33	Acid Soluble Magnesium, ICP, test portion 2006.03A... (%)	1		0.0004									
121.99	Acid Soluble Magnesium, Other (%)	3	2	0.0004	0.0004	0.0004		0.0004	0.0003	88.39%		0.0002	12.98%
143.99	Elemental Sulfur, Other (%)	4	4	26.51	1.861	26.51		1.861	1.163	7.02%		0.3625	2.44%
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulfur - ... (%)	4	4	26.23	0.1440	26.23		0.1440	0.0900	0.55%		0.2450	2.45%
146.00	Total Sulfur in Liquid, Gravimetric - sulfate, sul... (%)	7	7	27.26	2.069	26.97		1.618	0.7642	6.00%		0.1657	2.44%
146.99	Total Sulfur in Liquid, Other (%)	1		52.15									
147.00	Total Sulfur in Urea/Formulations, Gravimetric (%)	1		16.11									
148.00	Total Sulfur, Combustion (26%)	6	6	26.50	0.9303	26.43	1.0000	0.8478	0.4326	3.21%	1.89%	0.1567	2.44%
148.01	Total Sulfur, Gravimetric - sulfate and elemental... (26%)	14	12	26.36	0.5318	26.38	1.0000	0.5553	0.2004	2.10%	1.90%	0.1699	2.44%
148.07	Total Sulfur, ICP, test portion as in 2006.03 modi... (26%)	13	12	26.81	1.630	26.62	1.0000	1.406	0.5073	5.28%	1.88%	1.163	2.44%
148.99	Total Sulfur, Other (26%)	7	7	26.39	0.9245	26.39	1.0000	1.048	0.4953	3.97%	1.89%	0.3570	2.44%
149.04	Sulfur - HNO3 soluble, ICP (%)	4	4	25.76	0.8539	25.76		0.8539	0.5337	3.32%		0.0390	2.45%
151.33	Acid Soluble Arsenic , ICP, 2006.03 modified w/9:3... (ppm)	1		0.0005									
151.34	Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)	1		0.0317									

Method Code	Analyte & Method	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	IA %RSD	Average Range (R-bar)	Horwitz %RSD
151.99	Acid Soluble Arsenic , Other (ppm)	1		0.0700									
165.30	Acid Soluble Boron , ICP, test portion in 982.01 (%)	1		0.0180									
165.99	Acid Soluble Boron , Other (%)	2	1	16.45									
181.30	Acid Soluble Cadmium , ICP (ppm)	1		0.0025									
181.33	Acid Soluble Cadmium , ICP, 2006.03 modified w/9:3... (ppm)	1		0.0101									
181.34	Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)	1		0.0035									
181.99	Acid Soluble Cadmium , Other (ppm)	1		0.0100									
191.33	Acid Soluble Chromium , ICP, 2006.03 modified w/9:... (ppm)	1		0.1605									
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppm)	1		0.1666									
191.99	Acid Soluble Chromium , Other (ppm)	1		0.2950									
202.30	Acid Soluble Cobalt , ICP (ppm)	1		0.0312									
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified w/9:3 ... (ppm)	1		0.0086									
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	1		0.0020									
202.99	Acid Soluble Cobalt , Other (ppm)	1		0.0100									
221.30	Acid Soluble Copper , ICP, test portion inorganic ... (%)	2	2	1.090	1.534								
221.33	Acid Soluble Copper , ICP, test portion 2006.03A-C... (	1		0.0000									
221.99	Acid Soluble Copper , Other (%)	2	1	0.0001									
241.30	Acid Soluble Iron, ICP, test portion inorganic 965... (%)	1		0.0035									
241.33	Acid Soluble Iron, ICP, test portion 2006.03A-C, w... (%)	1		0.0002									
241.99	Acid Soluble Iron, Other (%)	2	2	0.0005	0.0006								
251.33	Acid Soluble Lead , ICP, 2006.03 modified w/9:3 HN...	1		0.4055									
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	1		0.0194									
251.99	Acid Soluble Lead , Other (ppm)	1		0.1100									
261.30	Acid Soluble Manganese , ICP, test portion 972.02a (%)	1		0.0010									
261.35	Acid Soluble Manganese , ICP, test portion 2006.03...	1		0.0000									
261.99	Acid Soluble Manganese , Other (%)	2	1	0.0001									
281.30	Acid Soluble Mercury , ICP (ppm)	1		0.0160									
281.99	Acid Soluble Mercury , Other (ppm)	2	2	0.0380	0.0524								
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modified w/..	1		0.0026									
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/6010C (p	1		0.0363									
291.30	Acid Soluble Nickel , ICP (ppm)	1		0.0968									
291.33	Acid Soluble Nickel , ICP, 2006.03 modified w/9:3 ... (p	1		0.1006									
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	1		0.0662									
291.99	Acid Soluble Nickel , Other (ppm)	1		0.1700									
301.30	Acid Soluble Selenium , ICP (ppm)	1		0.2400									
301.33	Acid Soluble Selenium , ICP, 2006.03 modified w/9:...	1		0.2963									
301.34	Acid Soluble Selenium , ICP, EPA 3050B/6010C (ppm)	1		0.1107									
301.99	Acid Soluble Selenium , Other (ppm)	1		0.0100									
311.99	Sodium, Other (%)	1		0.1135									
321.30	Acid Soluble Zinc , ICP, test portion inorganic 96... (%)	1		0.0035									
321.33	Acid Soluble Zinc , ICP, test portion 2006.03A-C, ... (%)	1		0.0001									
321.99	Acid Soluble Zinc , Other (%)	2	1	0.0001									

# magruder fertilizer

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STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 171111

Grade 12-0-0-26S

### Method Precision Report

Issue Date : 12/31/2017

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
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	15	14	12.16	0.2748	0.2714	0.0608	0.2781	2.23%	0.50%	2.29%	4.573
001.99	Ammoniacal Nitrogen, Other (%)	29	26	12.14	0.1492	0.1337	0.0937	0.1632	1.10%	0.77%	1.34%	1.743
010.11	Total Nitrogen, Modified Comprehensive (12%)	9	8	12.16	0.1115	0.1066	0.0459	0.1161	0.88%	0.38%	0.95%	2.530
010.60	Total Nitrogen, Combustion (12%)	55	50	12.08	0.2528	0.2454	0.0856	0.2600	2.03%	0.71%	2.15%	3.036
148.01	Total Sulfur, Gravimetric - sulfate and elemental (26%)	14	12	26.36	0.5318	0.5195	0.1604	0.5437	1.97%	0.61%	2.06%	3.391
148.07	Total Sulfur, ICP, test portion as in 2006.03 modified w/9:3 HNO3:HCl (26%)	13	11	26.47	1.201	1.097	0.6904	1.296	4.14%	2.61%	4.90%	1.878

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

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Method Proficiency For All Labs (Lab Values)

# Methods: 73

Sample # 171111

Lab Values

# Labs Reporting: 93

Grade 12-0-0-26S

Issue Date : 12/31/2017

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0309	11.82	0.0200	12.12	0.1177	0.0603	15	-2.59	1%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0486	11.97	0.0200	12.12	0.1177	0.0603	15	-1.32	1%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0234	12.02	0.0500	12.12	0.1177	0.0603	15	-0.93	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0444	12.02	0.0600	12.12	0.1177	0.0603	15	-0.89	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0536	12.11	0.0200	12.12	0.1177	0.0603	15	-0.13	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0389	12.12	0.1200	12.12	0.1177	0.0603	15	-0.04	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0531	12.13	0.0400	12.12	0.1177	0.0603	15	0.04	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0535	12.13	0.0600	12.12	0.1177	0.0603	15	0.04	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0177	12.15	0.0155	12.12	0.1177	0.0603	15	0.18	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0169	12.16	0.0300	12.12	0.1177	0.0603	15	0.26	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0090	12.16	0.1400	12.12	0.1177	0.0603	15	0.30	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0405	12.17	0.0030	12.12	0.1177	0.0603	15	0.35	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0498	12.20	0.2000	12.12	0.1177	0.0603	15	0.64	0%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0526	13.04	0.1262	12.12	0.1177	0.0603	15	7.81	4%	0
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0230	13.20	0.0000	12.12	0.1177	0.0603	15	9.13	4%	0
001.99	Ammoniacal Nitrogen, Other (%)	0501	11.62	0.0675	12.14	0.1788	0.0918	28	-2.90	2%	0
001.99	Ammoniacal Nitrogen, Other (%)	0451	11.85	0.3900	12.14	0.1788	0.0918	28	-1.66	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0027	11.87	0.0300	12.14	0.1788	0.0918	28	-1.55	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0368	11.91	0.0400	12.14	0.1788	0.0918	28	-1.30	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0537	12.01	0.0126	12.14	0.1788	0.0918	28	-0.75	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0532	12.01	0.0600	12.14	0.1788	0.0918	28	-0.74	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0029	12.03	0.2000	12.14	0.1788	0.0918	28	-0.63	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0493	12.05	0.1000	12.14	0.1788	0.0918	28	-0.51	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0476	12.05	0.3009	12.14	0.1788	0.0918	28	-0.49	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0540	12.06	0.0200	12.14	0.1788	0.0918	28	-0.46	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0533	12.11	0.0200	12.14	0.1788	0.0918	28	-0.18	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0536	12.11	0.0200	12.14	0.1788	0.0918	28	-0.18	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0531	12.13	0.0200	12.14	0.1788	0.0918	28	-0.07	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0535	12.14	0.0600	12.14	0.1788	0.0918	28	-0.01	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0513	12.15	0.0700	12.14	0.1788	0.0918	28	0.02	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0255	12.18	0.3600	12.14	0.1788	0.0918	28	0.21	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0539	12.18	0.0200	12.14	0.1788	0.0918	28	0.21	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0416	12.20	0.0300	12.14	0.1788	0.0918	28	0.30	0%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001.99	Ammoniacal Nitrogen, Other (%)	0371	12.20	0.0000	12.14	0.1788	0.0918	28	0.32	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0482	12.20	0.0000	12.14	0.1788	0.0918	28	0.32	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0220	12.22	0.0200	12.14	0.1788	0.0918	28	0.44	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0519	12.26	0.0200	12.14	0.1788	0.0918	28	0.66	0%	0
001.99	Ammoniacal Nitrogen, Other (%)	0538	12.30	0.0400	12.14	0.1788	0.0918	28	0.88	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0510	12.32	0.0000	12.14	0.1788	0.0918	28	1.00	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0394	12.35	0.1100	12.14	0.1788	0.0918	28	1.14	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0522	12.38	0.0300	12.14	0.1788	0.0918	28	1.30	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0096	12.43	0.0300	12.14	0.1788	0.0918	28	1.58	1%	0
001.99	Ammoniacal Nitrogen, Other (%)	0506	12.55	0.5000	12.14	0.1788	0.0918	28	2.28	2%	0
001.99	Ammoniacal Nitrogen, Other (%)	0524	9.220	0.5800	12.14	0.1788	0.0918	28	-16.34	12%	2
009.10	Ammoniacal Plus Nitrate Nitrogen, Devarda (%)	0481	11.50	0.2000				1			0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0309	12.01	0.1000	12.16	0.1264	0.0513	8	-1.12	1%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0500	12.08	0.0400	12.16	0.1264	0.0513	8	-0.61	0%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0105	12.09	0.0200	12.16	0.1264	0.0513	8	-0.54	0%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0540	12.10	0.0100	12.16	0.1264	0.0513	8	-0.51	0%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0220	12.21	0.0400	12.16	0.1264	0.0513	8	0.33	0%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0371	12.25	0.1000	12.16	0.1264	0.0513	8	0.62	0%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0535	12.25	0.1000	12.16	0.1264	0.0513	8	0.62	0%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0510	12.33	0.0000	12.16	0.1264	0.0513	8	1.23	1%	0
010.11	Total Nitrogen, Modified Comprehensive (12%)	0114	11.88	0.3900	12.16	0.1264	0.0513	8	-2.10	1%	1
010.12	Total Nitrogen, Salicylic (12%)	0481	12.50	0.0000				2			0
010.12	Total Nitrogen, Salicylic (12%)	0534	12.58	0.0100				2			0
010.60	Total Nitrogen, Combustion (12%)	0255	11.53	0.2970	12.11	0.2301	0.0986	53	-2.52	2%	0
010.60	Total Nitrogen, Combustion (12%)	0472	11.57	0.0600	12.11	0.2301	0.0986	53	-2.34	2%	0
010.60	Total Nitrogen, Combustion (12%)	0102	11.59	0.1500	12.11	0.2301	0.0986	53	-2.28	2%	0
010.60	Total Nitrogen, Combustion (12%)	0027	11.62	0.1200	12.11	0.2301	0.0986	53	-2.12	2%	0
010.60	Total Nitrogen, Combustion (12%)	0523	11.80	0.0000	12.11	0.2301	0.0986	53	-1.34	1%	0
010.60	Total Nitrogen, Combustion (12%)	0483	11.85	0.0500	12.11	0.2301	0.0986	53	-1.15	1%	0
010.60	Total Nitrogen, Combustion (12%)	0292	11.88	0.0100	12.11	0.2301	0.0986	53	-1.02	1%	0
010.60	Total Nitrogen, Combustion (12%)	0494	11.92	0.0600	12.11	0.2301	0.0986	53	-0.82	1%	0
010.60	Total Nitrogen, Combustion (12%)	0390	11.93	0.0500	12.11	0.2301	0.0986	53	-0.80	1%	0
010.60	Total Nitrogen, Combustion (12%)	0073	11.93	0.0200	12.11	0.2301	0.0986	53	-0.78	1%	0
010.60	Total Nitrogen, Combustion (12%)	0043	11.94	0.0100	12.11	0.2301	0.0986	53	-0.75	1%	0
010.60	Total Nitrogen, Combustion (12%)	0105	11.94	0.1800	12.11	0.2301	0.0986	53	-0.73	1%	0
010.60	Total Nitrogen, Combustion (12%)	0035	11.95	0.0100	12.11	0.2301	0.0986	53	-0.71	1%	0
010.60	Total Nitrogen, Combustion (12%)	0041	11.95	0.0000	12.11	0.2301	0.0986	53	-0.69	1%	0
010.60	Total Nitrogen, Combustion (12%)	0389	11.96	0.0400	12.11	0.2301	0.0986	53	-0.65	1%	0
010.60	Total Nitrogen, Combustion (12%)	0042	11.98	0.0900	12.11	0.2301	0.0986	53	-0.58	1%	0
010.60	Total Nitrogen, Combustion (12%)	0423	11.99	0.1700	12.11	0.2301	0.0986	53	-0.54	1%	0
010.60	Total Nitrogen, Combustion (12%)	0157	12.00	0.0000	12.11	0.2301	0.0986	53	-0.47	0%	0
010.60	Total Nitrogen, Combustion (12%)	0516	12.00	0.0000	12.11	0.2301	0.0986	53	-0.47	0%	0
010.60	Total Nitrogen, Combustion (12%)	0234	12.02	0.0400	12.11	0.2301	0.0986	53	-0.39	0%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010.60	Total Nitrogen, Combustion (12%)	0486	12.04	0.0500	12.11	0.2301	0.0986	53	-0.32	0%	0
010.60	Total Nitrogen, Combustion (12%)	0231	12.06	0.0300	12.11	0.2301	0.0986	53	-0.23	0%	0
010.60	Total Nitrogen, Combustion (12%)	0452	12.08	0.0200	12.11	0.2301	0.0986	53	-0.12	0%	0
010.60	Total Nitrogen, Combustion (12%)	0541	12.10	0.0100	12.11	0.2301	0.0986	53	-0.06	0%	0
010.60	Total Nitrogen, Combustion (12%)	0356	12.10	0.2300	12.11	0.2301	0.0986	53	-0.06	0%	0
010.60	Total Nitrogen, Combustion (12%)	0230	12.10	0.0000	12.11	0.2301	0.0986	53	-0.04	0%	0
010.60	Total Nitrogen, Combustion (12%)	0072	12.10	0.2200	12.11	0.2301	0.0986	53	-0.04	0%	0
010.60	Total Nitrogen, Combustion (12%)	0096	12.12	0.0200	12.11	0.2301	0.0986	53	0.05	0%	0
010.60	Total Nitrogen, Combustion (12%)	0037	12.12	0.1000	12.11	0.2301	0.0986	53	0.07	0%	0
010.60	Total Nitrogen, Combustion (12%)	0034	12.13	0.2800	12.11	0.2301	0.0986	53	0.09	0%	0
010.60	Total Nitrogen, Combustion (12%)	0106	12.13	0.1200	12.11	0.2301	0.0986	53	0.09	0%	0
010.60	Total Nitrogen, Combustion (12%)	0136	12.14	0.1500	12.11	0.2301	0.0986	53	0.11	0%	0
010.60	Total Nitrogen, Combustion (12%)	0501	12.15	0.1000	12.11	0.2301	0.0986	53	0.18	0%	0
010.60	Total Nitrogen, Combustion (12%)	0177	12.16	0.0900	12.11	0.2301	0.0986	53	0.20	0%	0
010.60	Total Nitrogen, Combustion (12%)	0086	12.17	0.0570	12.11	0.2301	0.0986	53	0.29	0%	0
010.60	Total Nitrogen, Combustion (12%)	0049	12.19	0.0500	12.11	0.2301	0.0986	53	0.33	0%	0
010.60	Total Nitrogen, Combustion (12%)	0291	12.20	0.0100	12.11	0.2301	0.0986	53	0.38	0%	0
010.60	Total Nitrogen, Combustion (12%)	0040	12.20	0.0000	12.11	0.2301	0.0986	53	0.40	0%	0
010.60	Total Nitrogen, Combustion (12%)	0233	12.20	0.0400	12.11	0.2301	0.0986	53	0.40	0%	0
010.60	Total Nitrogen, Combustion (12%)	0405	12.21	0.0360	12.11	0.2301	0.0986	53	0.44	0%	0
010.60	Total Nitrogen, Combustion (12%)	0377	12.23	0.3600	12.11	0.2301	0.0986	53	0.53	1%	0
010.60	Total Nitrogen, Combustion (12%)	0029	12.28	0.0400	12.11	0.2301	0.0986	53	0.74	1%	0
010.60	Total Nitrogen, Combustion (12%)	0324	12.30	0.0000	12.11	0.2301	0.0986	53	0.83	1%	0
010.60	Total Nitrogen, Combustion (12%)	0451	12.33	0.0500	12.11	0.2301	0.0986	53	0.94	1%	0
010.60	Total Nitrogen, Combustion (12%)	0025	12.33	0.1400	12.11	0.2301	0.0986	53	0.96	1%	0
010.60	Total Nitrogen, Combustion (12%)	0007	12.40	0.2000	12.11	0.2301	0.0986	53	1.27	1%	0
010.60	Total Nitrogen, Combustion (12%)	0444	12.45	0.2300	12.11	0.2301	0.0986	53	1.46	1%	0
010.60	Total Nitrogen, Combustion (12%)	0325	12.45	0.1000	12.11	0.2301	0.0986	53	1.48	1%	0
010.60	Total Nitrogen, Combustion (12%)	0527	12.50	0.0930	12.11	0.2301	0.0986	53	1.72	2%	0
010.60	Total Nitrogen, Combustion (12%)	0521	13.00	0.0000	12.11	0.2301	0.0986	53	3.87	4%	0
010.60	Total Nitrogen, Combustion (12%)	0055	13.17	0.0000	12.11	0.2301	0.0986	53	4.61	4%	0
010.60	Total Nitrogen, Combustion (12%)	0260	13.21	0.2230	12.11	0.2301	0.0986	53	4.79	5%	0
010.60	Total Nitrogen, Combustion (12%)	0354	13.82	0.8220	12.11	0.2301	0.0986	53	7.43	7%	0
010.60	Total Nitrogen, Combustion (12%)	0307	11.92	1.170	12.11	0.2301	0.0986	53	-0.84	1%	1
010.60	Total Nitrogen, Combustion (12%)	0368	13.19	1.305	12.11	0.2301	0.0986	53	4.68	4%	1
010.99	Total Nitrogen, Other (12%)	0530	11.50*	0.0000	12.04	0.3152	0.0475	5	-1.48	2%	0
010.99	Total Nitrogen, Other (12%)	0476	12.00	0.0687	12.04	0.3152	0.0475	5	-0.09	0%	0
010.99	Total Nitrogen, Other (12%)	0300	12.20	0.0100	12.04	0.3152	0.0475	5	0.44	1%	0
010.99	Total Nitrogen, Other (12%)	0524	12.24	0.1088	12.04	0.3152	0.0475	5	0.55	1%	0
010.99	Total Nitrogen, Other (12%)	0519	12.25	0.0500	12.04	0.3152	0.0475	5	0.58	1%	0
010.99	Total Nitrogen, Other (12%)	0506	12.55	0.5000	12.04	0.3152	0.0475	5	1.42	2%	1
020.50	Total Phosphorus as P2O5, ICP (%)	0389	0.0015	0.0007				2			0
020.50	Total Phosphorus as P2O5, ICP (%)	0483	0.0550	0.0100				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
020.50	Total Phosphorus as P2O5, ICP (%)	0255	0.0000	0.0000				2			4
020.99	Total Phosphorus as P2O5, Other (%)	0515	0.0002	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	0.0030	0.0000				1			0
050.51	Soluble Potassium as K2O, ICP (Citrate) (%)	0483	0.2800	0.0600				1			0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	0354	0.0025	0.0010				1			0
050.99	Soluble Potassium as K2O, Other (%)	0389	0.0027	0.0009	0.4992	0.9293	0.0721	4	-0.53	50%	0
050.99	Soluble Potassium as K2O, Other (%)	0524	0.0028	0.0005	0.4992	0.9293	0.0721	4	-0.53	50%	0
050.99	Soluble Potassium as K2O, Other (%)	0325	0.1000	0.0000	0.4992	0.9293	0.0721	4	-0.43	40%	0
050.99	Soluble Potassium as K2O, Other (%)	0255	1.892	0.2870	0.4992	0.9293	0.0721	4	1.50	139%	0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0354	0.0545	0.0010				2			0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0483	0.1580	0.0340				2			0
101.99	Acid Soluble Calcium, Other (%)	0389	0.0088	0.0026				1			0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0354	0.0130	0.0040				2			0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0483	0.0273	0.0010				2			0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (%)	0515	0.0004	0.0002				1			0
121.99	Acid Soluble Magnesium, Other (%)	0524	0.0002	0.0001				2			0
121.99	Acid Soluble Magnesium, Other (%)	0389	0.0007	0.0003				2			0
121.99	Acid Soluble Magnesium, Other (%)	0515	0.0000	0.0000				2			4
143.99	Elemental Sulfur, Other (%)	0472	24.71	0.3600	26.51	1.861	0.3625	4	-0.97	3%	0
143.99	Elemental Sulfur, Other (%)	0389	25.84	0.7500	26.51	1.861	0.3625	4	-0.36	1%	0
143.99	Elemental Sulfur, Other (%)	0291	26.40	0.0100	26.51	1.861	0.3625	4	-0.06	0%	0
143.99	Elemental Sulfur, Other (%)	0255	29.10	0.3300	26.51	1.861	0.3625	4	1.39	5%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0027	26.10	0.2800	26.23	0.1440	0.2450	4	-0.89	0%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0043	26.12	0.3300	26.23	0.1440	0.2450	4	-0.78	0%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0106	26.30	0.0400	26.23	0.1440	0.2450	4	0.50	0%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0444	26.40	0.3300	26.23	0.1440	0.2450	4	1.16	0%	0
146.00	Total Sulfur in Liquid, Gravimetric - sulfate... (%)	0073	25.33	0.0900	26.97	1.618	0.1657	7	-0.92	3%	0
146.00	Total Sulfur in Liquid, Gravimetric - sulfate... (%)	0498	26.00	0.2000	26.97	1.618	0.1657	7	-0.54	2%	0
146.00	Total Sulfur in Liquid, Gravimetric - sulfate... (%)	0220	26.11	0.0200	26.97	1.618	0.1657	7	-0.48	2%	0
146.00	Total Sulfur in Liquid, Gravimetric - sulfate... (%)	0522	26.45	0.0600	26.97	1.618	0.1657	7	-0.29	1%	0
146.00	Total Sulfur in Liquid, Gravimetric - sulfate... (%)	0324	27.30	0.4000	26.97	1.618	0.1657	7	0.18	1%	0
146.00	Total Sulfur in Liquid, Gravimetric - sulfate... (%)	0416	28.22	0.2300	26.97	1.618	0.1657	7	0.70	2%	0
146.00	Total Sulfur in Liquid, Gravimetric - sulfate... (%)	0055	31.44	0.1600	26.97	1.618	0.1657	7	2.50	8%	0
146.99	Total Sulfur in Liquid, Other (%)	0390	52.15	0.5000				1			0
147.00	Total Sulfur in Urea/Formulations, Gravimetric (%)	0072	16.11	10.29				1			0
148.00	Total Sulfur, Combustion (26%)	0157	25.20*	0.0000	26.43	0.8478	0.1567	6	-1.29	2%	0
148.00	Total Sulfur, Combustion (26%)	0025	26.26	0.0900	26.43	0.8478	0.1567	6	-0.18	0%	0
148.00	Total Sulfur, Combustion (26%)	0136	26.38	0.1800	26.43	0.8478	0.1567	6	-0.05	0%	0
148.00	Total Sulfur, Combustion (26%)	0049	26.53	0.1500	26.43	0.8478	0.1567	6	0.10	0%	0
148.00	Total Sulfur, Combustion (26%)	0029	26.55	0.1200	26.43	0.8478	0.1567	6	0.13	0%	0
148.00	Total Sulfur, Combustion (26%)	0451	28.10	0.4000	26.43	0.8478	0.1567	6	1.76	3%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0500	25.30*	0.0000	26.38	0.5553	0.1699	12	-1.95	2%	0

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			Value	Range	Rob Mean	Rob SD	R-bar				
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0534	25.59	0.2800	26.38	0.5553	0.1699	12	-1.43	2%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0040	26.05	0.1000	26.38	0.5553	0.1699	12	-0.60	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0231	26.10	0.0000	26.38	0.5553	0.1699	12	-0.51	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0513	26.18	0.1300	26.38	0.5553	0.1699	12	-0.37	0%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0157	26.45	0.1000	26.38	0.5553	0.1699	12	0.12	0%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0029	26.55	0.1700	26.38	0.5553	0.1699	12	0.29	0%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0485	26.71	0.0628	26.38	0.5553	0.1699	12	0.59	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0105	26.76	0.5200	26.38	0.5553	0.1699	12	0.68	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0114	26.77	0.4000	26.38	0.5553	0.1699	12	0.70	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0095	26.85	0.1200	26.38	0.5553	0.1699	12	0.84	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0476	27.04	0.1556	26.38	0.5553	0.1699	12	1.18	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0230	25.55	2.500	26.38	0.5553	0.1699	12	-1.50	2%	1
148.01	Total Sulfur, Gravimetric - sulfate and elem... (26%)	0530	2.600*	0.0000	26.38	0.5553	0.1699	12	-42.83	45%	2
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0483	24.60*	2.800	26.62	1.406	1.163	12	-1.44	4%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0102	25.20*	0.0000	26.62	1.406	1.163	12	-1.01	3%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0486	25.72	0.3000	26.62	1.406	1.163	12	-0.64	2%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0117	25.95	0.1100	26.62	1.406	1.163	12	-0.48	1%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0037	26.30	0.2090	26.62	1.406	1.163	12	-0.23	1%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0325	26.60	1.400	26.62	1.406	1.163	12	-0.01	0%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0177	26.61	0.0701	26.62	1.406	1.163	12	-0.01	0%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0494	26.83	0.7320	26.62	1.406	1.163	12	0.15	0%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0292	26.93	0.0100	26.62	1.406	1.163	12	0.22	1%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0527	27.26	0.0000	26.62	1.406	1.163	12	0.45	1%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0394	29.20	0.0000	26.62	1.406	1.163	12	1.83	5%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0541	30.49	8.320	26.62	1.406	1.163	12	2.75	7%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (26%)	0515	39.16	40.97	26.62	1.406	1.163	12	8.92	24%	1
148.99	Total Sulfur, Other (26%)	0307	25.08*	0.6800	26.39	1.048	0.3570	7	-1.13	2%	0
148.99	Total Sulfur, Other (26%)	0482	25.30*	0.2000	26.39	1.048	0.3570	7	-0.94	2%	0
148.99	Total Sulfur, Other (26%)	0368	26.30	1.179	26.39	1.048	0.3570	7	-0.08	0%	0
148.99	Total Sulfur, Other (26%)	0523	26.58	0.2000	26.39	1.048	0.3570	7	0.16	0%	0
148.99	Total Sulfur, Other (26%)	0481	26.65	0.1000	26.39	1.048	0.3570	7	0.22	0%	0
148.99	Total Sulfur, Other (26%)	0452	27.38	0.1400	26.39	1.048	0.3570	7	0.85	2%	0
148.99	Total Sulfur, Other (26%)	0354	27.45	0.0000	26.39	1.048	0.3570	7	0.92	2%	0
149.04	Sulfur - HNO3 soluble, ICP (%)	0521	24.52	0.0000	25.76	0.8539	0.0390	4	-1.45	2%	0
149.04	Sulfur - HNO3 soluble, ICP (%)	0519	25.91	0.0100	25.76	0.8539	0.0390	4	0.18	0%	0
149.04	Sulfur - HNO3 soluble, ICP (%)	0524	26.15	0.1460	25.76	0.8539	0.0390	4	0.46	1%	0
149.04	Sulfur - HNO3 soluble, ICP (%)	0423	26.45	0.0000	25.76	0.8539	0.0390	4	0.81	1%	0
151.33	Acid Soluble Arsenic , ICP, 2006.03 modified ... (ppm)	0515	0.0005	0.0002				1			0
151.34	Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)	0515	0.0317	0.0633				0			4
151.99	Acid Soluble Arsenic , Other (ppm)	0519	0.0700	0.0000				1			0
165.30	Acid Soluble Boron , ICP, test portion in 982... (%)	0354	0.0180	0.0160				1			0
165.99	Acid Soluble Boron , Other (%)	0483	16.45	9.300				1			0
165.99	Acid Soluble Boron , Other (%)	0515	0.0003	0.0005				1			4



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			Value	Range	Rob Mean	Rob SD	R-bar				
181.30	Acid Soluble Cadmium , ICP (ppm)	0524	0.0025	0.0050				0		4	
181.33	Acid Soluble Cadmium , ICP, 2006.03 modified ... (ppm)	0515	0.0101	0.0060				1		0	
181.34	Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)	0515	0.0035	0.0069				0		4	
181.99	Acid Soluble Cadmium , Other (ppm)	0519	0.0100	0.0000				1		0	
191.33	Acid Soluble Chromium , ICP, 2006.03 modified... (ppm)	0515	0.1605	0.1124				1		0	
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppm)	0515	0.1666	0.0520				1		0	
191.99	Acid Soluble Chromium , Other (ppm)	0519	0.2950	0.0100				1		0	
202.30	Acid Soluble Cobalt , ICP (ppm)	0524	0.0312	0.0024				1		0	
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified w... (ppm)	0515	0.0086	0.0172				0		4	
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	0515	0.0020	0.0039				0		4	
202.99	Acid Soluble Cobalt , Other (ppm)	0519	0.0100	0.0000				1		0	
221.30	Acid Soluble Copper , ICP, test portion inorg... (%)	0354	0.0055	0.0010				2		0	
221.30	Acid Soluble Copper , ICP, test portion inorg... (%)	0483	2.175	0.0900				2		0	
221.33	Acid Soluble Copper , ICP, test portion 2006.... (%)	0515	0.0000	0.0000				0		4	
221.99	Acid Soluble Copper , Other (%)	0389	0.0001	0.0000				1		0	
221.99	Acid Soluble Copper , Other (%)	0515	0.0000	0.0000				1		4	
241.30	Acid Soluble Iron, ICP, test portion inorgani... (%)	0354	0.0035	0.0010				1		0	
241.33	Acid Soluble Iron, ICP, test portion 2006.03A... (%)	0515	0.0002	0.0004				0		4	
241.99	Acid Soluble Iron, Other (%)	0515	0.0001	0.0000				2		0	
241.99	Acid Soluble Iron, Other (%)	0389	0.0009	0.0000				2		0	
251.33	Acid Soluble Lead , ICP, 2006.03 modified w/9... (ppm)	0515	0.4055	0.4699				1		0	
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	0515	0.0194	0.0388				0		4	
251.99	Acid Soluble Lead , Other (ppm)	0519	0.1100	0.0200				1		0	
261.30	Acid Soluble Manganese , ICP, test portion 97... (%)	0354	0.0010	0.0000				1		0	
261.35	Acid Soluble Manganese , ICP, test portion 20... (%)	0515	0.0000	0.0000				0		4	
261.99	Acid Soluble Manganese , Other (%)	0389	0.0001	0.0000				1		0	
261.99	Acid Soluble Manganese , Other (%)	0515	0.0000	0.0000				1		4	
281.30	Acid Soluble Mercury , ICP (ppm)	0515	0.0160	0.0080				1		0	
281.99	Acid Soluble Mercury , Other (ppm)	0009	0.0009	0.0010				2		0	
281.99	Acid Soluble Mercury , Other (ppm)	0519	0.0750	0.0100				2		0	
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm)	0515	0.0026	0.0051				0		4	
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/6010... (ppm)	0515	0.0363	0.0113				1		0	
291.30	Acid Soluble Nickel , ICP (ppm)	0524	0.0968	0.0834				1		0	
291.33	Acid Soluble Nickel , ICP, 2006.03 modified w... (ppm)	0515	0.1006	0.1194				1		0	
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	0515	0.0662	0.0127				1		0	
291.99	Acid Soluble Nickel , Other (ppm)	0519	0.1700	0.0200				1		0	
301.30	Acid Soluble Selenium , ICP (ppm)	0524	0.2400	0.0800				1		0	
301.33	Acid Soluble Selenium , ICP, 2006.03 modified... (ppm)	0515	0.2963	0.2613				1		0	
301.34	Acid Soluble Selenium , ICP, EPA 3050B/6010C (ppm)	0515	0.1107	0.0160				1		0	
301.99	Acid Soluble Selenium , Other (ppm)	0519	0.0100	0.0000				1		0	
311.99	Sodium, Other (%)	0354	0.1135	0.0330				1		0	
321.30	Acid Soluble Zinc , ICP, test portion inorgan... (%)	0354	0.0035	0.0050				1		0	
321.33	Acid Soluble Zinc , ICP, test portion 2006.03... (%)	0515	0.0001	0.0000				1		0	

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
321.99	Acid Soluble Zinc , Other (%)	0389	0.0001	0.0000				1		0	
321.99	Acid Soluble Zinc , Other (%)	0515	0.0001	0.0001				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 and a 4 flag indicates rejected due to 0 value submitted. 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 included for information only (Grey). An offset lab value with an astrix indicates that the value is lower than the Analyte value less the IA. Method or Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.