

Analyte PT For All Labs

### Magruder Fertilizer Proficiency Testing Program

# Analytes: 20

Sample # 231031

Nitrogen Select PT Scheme

# Labs Reporting: 14

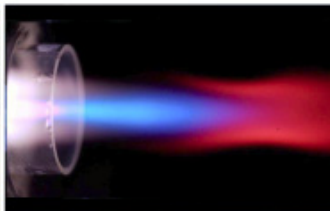
Grade 21-0-0

### Statistical Summary

Issue Date : 11/30/2023

Analyte Code	Analyte Sample # 231031	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Analyte IA Ratio	Average Range (R-bar)	Horwitz %RSD
001	Ammoniacal N (%)	7	7	20.99	0.0943	20.99		0.1049	0.0496	0.50%		0.0355	2.18%
010	Total N (21%)	12	11	20.29	2.803	21.07	0.7407	0.1143	0.0431	0.54%	0.36	0.0959	2.18%
060	Water (Free) (%)	1		0.1900									
145	Sulfate S, HCl soluble (%)	3	3	23.98	0.2133	23.98		0.2133	0.1540	0.89%		0.0733	2.04%
148	Total S (24%)	9	9	24.20	0.6249	24.09	1.0000	0.4082	0.1701	1.69%	0.95	0.2193	2.04%
149	S - HNO3 soluble (%)	1		24.78									
151	Acid Soluble As (ppm)	6	3	1.774	2.276	2.049		3.314	2.391	161.73%		0.0255	14.36%
165	Acid Soluble B (%)	1		5.050									
181	Acid Soluble Cd (ppm)	8	4	1.196	1.751	1.393		2.656	1.660	190.67%		0.0460	15.22%
191	Acid Soluble Cr (ppm)	8	5	7.843	9.934	9.340		12.85	7.182	137.55%		0.7200	11.43%
202	Acid Soluble Co (ppm)	8	4	2.036	2.176	1.072	1.3215	1.800	1.125	167.96%	3.17	0.0566	15.83%
221	Acid Soluble Cu (%)	8	4	1.855	3.821	3.709	0.3759	4.990	3.119	134.54%	30.93	0.2804	3.28%
241	Acid Soluble Fe (%)	3	3	0.0139	0.0001	0.0139	0.0064	0.0001	0.0001	0.96%	0.05	0.0001	7.62%
251	Acid Soluble Pb (ppm)	8	4	2.841	2.392	1.933		2.751	1.719	142.33%		0.1085	14.49%
261	Acid Soluble Mn (%)	2	2	4.505	6.371								
281	Acid Soluble Hg (ppm)	5	2	0.4175	0.8853	0.0413		0.0548	0.0484	132.85%		0.0000	22.00%
289	Acid Soluble Mo (ppm)	6	4	4.074	4.106	3.361	2.0082	3.544	2.215	105.45%	4.11	0.3504	13.33%
291	Acid Soluble Ni (ppm)	8	6	4.518	4.206	3.368		3.131	1.598	92.96%		1.369	13.32%
301	Acid Soluble Se (ppm)	5	1	4.651	5.977	3.368		3.131	3.913	92.96%		0.0000	13.32%
321	Acid Soluble Zn (%)	8	5	1.089	3.077	1.741	0.1791	3.892	2.176	223.51%	50.62	1.002	3.68%

The Analyte IA Ratio = 2.33 \* Robust SD / IA at the Analyte Assigned Value. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates the IA ratio is significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting. The Horwitz %RSD is calculated using the Thompson Modification, Analyst,2000,125,385-386.



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Sample # 231031

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# Labs Reporting: 14

Grade 21-0-0

Lab Values

Issue Date : 11/30/2023

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
001	Ammoniacal N (%)	0405	20.83	0.0100	20.99	0.1049	0.0355	7	-1.41	001.99	0
001	Ammoniacal N (%)	0586	20.91	0.0700	20.99	0.1049	0.0355	7	-0.72	001.99	0
001	Ammoniacal N (%)	0593	20.96	0.0200	20.99	0.1049	0.0355	7	-0.25	001.99	0
001	Ammoniacal N (%)	0513	21.05	0.0100	20.99	0.1049	0.0355	7	0.48	001.99	0
001	Ammoniacal N (%)	0585	21.05	0.0200	20.99	0.1049	0.0355	7	0.53	001.99	0
001	Ammoniacal N (%)	0626	21.06	0.1100	20.99	0.1049	0.0355	7	0.57	001.99	0
001	Ammoniacal N (%)	0585	21.08	0.0300	20.99	0.1049	0.0355	7	0.74	001.10	0
010	Total N (21%)	0494	20.47	0.6800	21.07	0.1143	0.0959	11	-5.22	010.60	0
010	Total N (21%)	0561	20.94	0.1300	21.07	0.1143	0.0959	11	-1.16	010.60	0
010	Total N (21%)	0371	21.01	0.0100	21.07	0.1143	0.0959	11	-0.54	010.60	0
010	Total N (21%)	0585	21.05	0.0200	21.07	0.1143	0.0959	11	-0.15	010.99	0
010	Total N (21%)	0405	21.06	0.0400	21.07	0.1143	0.0959	11	-0.06	010.60	0
010	Total N (21%)	0185	21.07	0.1300	21.07	0.1143	0.0959	11	-0.02	010.60	0
010	Total N (21%)	0585	21.08	0.0300	21.07	0.1143	0.0959	11	0.07	010.17	0
010	Total N (21%)	0086	21.09	0.0360	21.07	0.1143	0.0959	11	0.18	010.60	0
010	Total N (21%)	0626	21.13	0.0500	21.07	0.1143	0.0959	11	0.51	010.60	0
010	Total N (21%)	0040	21.20	0.0000	21.07	0.1143	0.0959	11	1.16	010.60	0
010	Total N (21%)	0615	21.95‡	0.7000	21.07	0.1143	0.0959	11	7.73	010.99	0
010	Total N (21%)	0042	11.45†	0.1000	21.07	0.1143	0.0959	11	-84.15	010.60	2
060	Water (Free) (%)	0585	0.1900	0.0000				1		060.20	0
145	Sulfate S, HCl soluble (%)	0626	23.75	0.0300	23.98	0.2133	0.0733	3	-1.09	145.00	0
145	Sulfate S, HCl soluble (%)	0405	24.02	0.0200	23.98	0.2133	0.0733	3	0.20	145.00	0
145	Sulfate S, HCl soluble (%)	0561	24.17	0.1700	23.98	0.2133	0.0733	3	0.88	145.00	0
148	Total S (24%)	0586	23.51	0.7100	24.09	0.4082	0.2193	9	-1.31	148.99	0
148	Total S (24%)	0040	23.80	0.2000	24.09	0.4082	0.2193	9	-0.65	148.07	0
148	Total S (24%)	0626	23.92	0.0700	24.09	0.4082	0.2193	9	-0.39	148.00	0
148	Total S (24%)	0371	23.96	0.0800	24.09	0.4082	0.2193	9	-0.29	148.00	0
148	Total S (24%)	0593	24.10	0.2200	24.09	0.4082	0.2193	9	0.03	148.00	0
148	Total S (24%)	0585	24.11	0.0900	24.09	0.4082	0.2193	9	0.04	148.01	0
148	Total S (24%)	0494	24.17	0.5453	24.09	0.4082	0.2193	9	0.20	148.07	0
148	Total S (24%)	0513	24.52	0.0800	24.09	0.4082	0.2193	9	0.98	148.07	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
148	Total S (24%)	0586	25.69±	0.1400	24.09	0.4082	0.2193	9	3.63	148.01	0
149	S - HNO3 soluble (%)	0086	24.78	0.4561				1		149.04	0
151	Acid Soluble As (ppm)	0585	0.1300	0.0000	2.049	3.314	0.0255	3	-0.47	151.30	0
151	Acid Soluble As (ppm)	0371	0.1415	0.0010	2.049	3.314	0.0255	3	-0.47	151.30	0
151	Acid Soluble As (ppm)	0593	5.875	0.0500	2.049	3.314	0.0255	3	0.94	151.30	0
151	Acid Soluble As (ppm)	0626	< 0.5		2.049	3.314	0.0255	3		151.00	5
151	Acid Soluble As (ppm)	0586	< 1		2.049	3.314	0.0255	3		151.30	5
151	Acid Soluble As (ppm)	0405	< 3		2.049	3.314	0.0255	3		151.32	5
165	Acid Soluble B (%)	0593	5.050	0.0800				1		165.99	0
181	Acid Soluble Cd (ppm)	0371	0.0090	0.0020	1.393	2.656	0.0460	4	-0.44	181.30	0
181	Acid Soluble Cd (ppm)	0585	0.0200	0.0000	1.393	2.656	0.0460	4	-0.44	181.30	0
181	Acid Soluble Cd (ppm)	0086	0.1673	0.0460	1.393	2.656	0.0460	4	-0.39	181.33	0
181	Acid Soluble Cd (ppm)	0593	5.375	0.0900	1.393	2.656	0.0460	4	1.27	181.30	0
181	Acid Soluble Cd (ppm)	0626	< 1		1.393	2.656	0.0460	4		181.00	5
181	Acid Soluble Cd (ppm)	0586	< 1		1.393	2.656	0.0460	4		181.30	5
181	Acid Soluble Cd (ppm)	0405	< 1		1.393	2.656	0.0460	4		181.32	5
181	Acid Soluble Cd (ppm)	0626	< 1		1.393	2.656	0.0460	4		181.34	5
191	Acid Soluble Cr (ppm)	0371	1.620	0.0800	9.340	12.85	0.7200	5	-0.52	191.30	0
191	Acid Soluble Cr (ppm)	0405	2.000	0.0000	9.340	12.85	0.7200	5	-0.50	191.32	0
191	Acid Soluble Cr (ppm)	0585	4.070	0.0000	9.340	12.85	0.7200	5	-0.36	191.30	0
191	Acid Soluble Cr (ppm)	0593	7.010	0.0800	9.340	12.85	0.7200	5	-0.16	191.30	0
191	Acid Soluble Cr (ppm)	0586	32.00	2.000	9.340	12.85	0.7200	5	1.54	191.30	0
191	Acid Soluble Cr (ppm)	0086	6.042	7.677	9.340	12.85	0.7200	5	-0.22	191.33	1
191	Acid Soluble Cr (ppm)	0626	< 5		9.340	12.85	0.7200	5		191.00	5
191	Acid Soluble Cr (ppm)	0626	< 5		9.340	12.85	0.7200	5		191.34	5
202	Acid Soluble Co (ppm)	0371	0.0685	0.0190	1.072	1.800	0.0566	4	-0.47	202.30	0
202	Acid Soluble Co (ppm)	0585	0.1000	0.0000	1.072	1.800	0.0566	4	-0.46	202.30	0
202	Acid Soluble Co (ppm)	0086	0.3534	0.0808	1.072	1.800	0.0566	4	-0.34	202.33	0
202	Acid Soluble Co (ppm)	0593	3.765	0.0700	1.072	1.800	0.0566	4	1.27	202.30	0
202	Acid Soluble Co (ppm)	0586	< 1		1.072	1.800	0.0566	4		202.30	5
202	Acid Soluble Co (ppm)	0405	< 1		1.072	1.800	0.0566	4		202.32	5
202	Acid Soluble Co (ppm)	0626	< 5		1.072	1.800	0.0566	4		202.00	5
202	Acid Soluble Co (ppm)	0626	< 5		1.072	1.800	0.0566	4		202.34	5
221	Acid Soluble Cu (%)	0585	0.0001	0.0000	3.709	4.990	0.2804	4	-0.63	221.99	0
221	Acid Soluble Cu (%)	0371	0.0002	0.0001	3.709	4.990	0.2804	4	-0.63	221.30	0
221	Acid Soluble Cu (%)	0086	4.281	0.7512	3.709	4.990	0.2804	4	0.10	221.33	0
221	Acid Soluble Cu (%)	0593	10.56	0.0900	3.709	4.990	0.2804	4	1.16	221.99	0
221	Acid Soluble Cu (%)	0405	< 0.0002		3.709	4.990	0.2804	4		221.32	5
221	Acid Soluble Cu (%)	0626	< 0.0005		3.709	4.990	0.2804	4		221.00	5
221	Acid Soluble Cu (%)	0626	< 0.0005		3.709	4.990	0.2804	4		221.30	5
221	Acid Soluble Cu (%)	0586	< 0.001		3.709	4.990	0.2804	4		221.99	5
241	Acid Soluble Fe (%)	0626	0.0138	0.0001	0.0139	0.0001	0.0001	3	-0.76	241.00	0
241	Acid Soluble Fe (%)	0626	0.0138	0.0000	0.0139	0.0001	0.0001	3	-0.38	241.30	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
241	Acid Soluble Fe (%)	0371	0.0140	0.0000	0.0139	0.0001	0.0001	3	1.13	241.30	0
251	Acid Soluble Pb (ppm)	0371	0.0395	0.0050	1.933	2.751	0.1085	4	-0.58	251.30	0
251	Acid Soluble Pb (ppm)	0585	0.1000	0.0000	1.933	2.751	0.1085	4	-0.56	251.30	0
251	Acid Soluble Pb (ppm)	0086	1.696	0.2705	1.933	2.751	0.1085	4	-0.07	251.33	0
251	Acid Soluble Pb (ppm)	0593	5.895	0.0500	1.933	2.751	0.1085	4	1.22	251.30	0
251	Acid Soluble Pb (ppm)	0586	< 1		1.933	2.751	0.1085	4		251.30	5
251	Acid Soluble Pb (ppm)	0405	< 4		1.933	2.751	0.1085	4		251.32	5
251	Acid Soluble Pb (ppm)	0626	< 5		1.933	2.751	0.1085	4		251.00	5
251	Acid Soluble Pb (ppm)	0626	< 5		1.933	2.751	0.1085	4		251.34	5
261	Acid Soluble Mn (%)	0371	0.0003	0.0000				2		261.32	0
261	Acid Soluble Mn (%)	0593	9.010	0.1000				2		261.99	0
281	Acid Soluble Hg (ppm)	0626	0.0025	0.0000				2		281.99	0
281	Acid Soluble Hg (ppm)	0593	0.0800	0.0000				2		281.30	0
281	Acid Soluble Hg (ppm)	0371	0.0000	0.0000				2		281.30	4
281	Acid Soluble Hg (ppm)	0585	0.0050	0.0100				2		281.30	4
281	Acid Soluble Hg (ppm)	0405	< 2					2		281.30	5
289	Acid Soluble Mo (ppm)	0585	0.3900	0.0000	3.361	3.544	0.3504	4	-0.71	289.30	0
289	Acid Soluble Mo (ppm)	0086	0.4273	0.0011	3.361	3.544	0.3504	4	-0.70	289.33	0
289	Acid Soluble Mo (ppm)	0593	5.125	0.0500	3.361	3.544	0.3504	4	0.42	289.30	0
289	Acid Soluble Mo (ppm)	0586	7.500	1.000	3.361	3.544	0.3504	4	0.99	289.30	0
289	Acid Soluble Mo (ppm)	0405	< 1		3.361	3.544	0.3504	4		289.32	5
289	Acid Soluble Mo (ppm)	0626	< 10		3.361	3.544	0.3504	4		289.34	5
291	Acid Soluble Ni (ppm)	0371	0.8325	0.0350	3.368	3.131	1.369	6	-0.72	291.30	0
291	Acid Soluble Ni (ppm)	0405	1.000	0.0000	3.368	3.131	1.369	6	-0.67	291.32	0
291	Acid Soluble Ni (ppm)	0585	2.380	0.0000	3.368	3.131	1.369	6	-0.28	291.30	0
291	Acid Soluble Ni (ppm)	0086	2.887	3.332	3.368	3.131	1.369	6	-0.14	291.33	0
291	Acid Soluble Ni (ppm)	0593	5.045	0.1100	3.368	3.131	1.369	6	0.48	291.30	0
291	Acid Soluble Ni (ppm)	0586	14.00	2.000	3.368	3.131	1.369	6	3.02	291.30	0
291	Acid Soluble Ni (ppm)	0626	< 5		3.368	3.131	1.369	6		291.00	5
291	Acid Soluble Ni (ppm)	0626	< 5		3.368	3.131	1.369	6		291.34	5
301	Acid Soluble Se (ppm)	0593	12.25	0.9000				1		301.30	0
301	Acid Soluble Se (ppm)	0371	0.0000	0.0000				1		301.30	4
301	Acid Soluble Se (ppm)	0585	0.0050	0.0100				1		301.30	4
301	Acid Soluble Se (ppm)	0626	< 1					1		301.00	5
301	Acid Soluble Se (ppm)	0405	< 10					1		301.32	5
321	Acid Soluble Zn (%)	0585	0.0004	0.0001	1.741	3.892	1.002	5	-0.39	321.99	0
321	Acid Soluble Zn (%)	0405	0.0004	0.0000	1.741	3.892	1.002	5	-0.39	321.32	0
321	Acid Soluble Zn (%)	0371	0.0006	0.0002	1.741	3.892	1.002	5	-0.39	321.30	0
321	Acid Soluble Zn (%)	0593	0.0018	0.0001	1.741	3.892	1.002	5	-0.39	321.33	0
321	Acid Soluble Zn (%)	0086	8.704	4.006	1.741	3.892	1.002	5	1.56	321.33	0
321	Acid Soluble Zn (%)	0626	< 0.0005		1.741	3.892	1.002	5		321.00	5
321	Acid Soluble Zn (%)	0626	< 0.0005		1.741	3.892	1.002	5		321.30	5
321	Acid Soluble Zn (%)	0586	< 0.001		1.741	3.892	1.002	5		321.99	5

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				

**Interpreting Z Scores and Flags:**

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier, 3 = removed from stats, 4 = rejected due to 0s submitted and 5 = LOD. A 9 flag indicates a data problem - scores not calculated.

**Notes:**

\*Robust statistics not used if < 6 labs used in calculations, in this case Values and Z Scores are grayed out and should be interpreted with extreme caution. Identical duplicates not included in calculation of Rob R-bar. Your offset values are higher (‡) or lower (†) than the Robust Analyte value ± Investigational Allowance. Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.