

Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 104

Sample # 240341

Phosphorous Select PT Scheme

Labs Reporting: 22

12-40-0 MAP + Zn

Statistical Summary

Issue Date : 04/30/2024

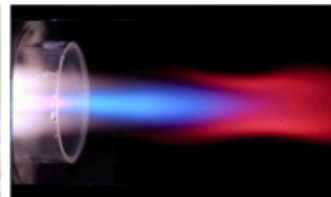
Method Code	Analyte & Method Sample # 240341	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Horwitz %RSD
001.99	Ammoniacal N, Other (%)	10	9	11.70	0.6786	11.92		0.1275	0.0531	1.07%		0.0236	2.75%
010.12	Total N, Salicylic (12%)	1		11.90									
010.60	Total N, Combustion (12%)	12	11	11.95	0.1470	11.97	0.6096	0.1029	0.0388	0.86%	0.39	0.0592	2.75%
010.99	Total N, Other (12%)	2	2	11.86	0.0566								
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	8	8	40.36	1.072	40.66		0.3116	0.1377	0.77%		0.2143	1.57%
020.40	Total P2O5, Automated (%)	2	2	40.60	0.2404								
020.50	Total P2O5, ICP (%)	3	3	40.22	0.1293	40.22		0.1293	0.0933	0.32%		0.5638	1.58%
020.99	Total P2O5, Other (%)	2	2	40.18	0.1803								
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP	3	3	0.1183	0.0653	0.1183		0.0653	0.0471	55.15%		0.0500	5.51%
030.40	Citrate Insoluble P2O5, Automated, test portion 963.03 A-B (%)	2	2	0.0875	0.0177								
030.50	Citrate Insoluble P2O5, ICP, test portion 963.03 A-B (%)	1		0.2500									
030.99	Citrate Insoluble P2O5, Other (%)	1		0.2250									
040.20	Indirect Available P2O5, Spectrophotometric (40%)	2	2	40.61	0.3889								
040.40	Indirect Available P2O5, Automated (40%)	1		40.70									
040.99	Indirect Available P2O5, Other (40%)	3	3	40.39	0.0379	40.39	0.9059	0.0379	0.0273	0.09%	0.10	0.0767	1.57%
041.10	Direct Available P2O5, Gravimetric Quinolinium (40%)	2	2	40.78	0.3182								
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	5	5	36.49	8.122	36.49	0.8374	8.122	4.540	22.26%	22.60	7.295	1.66%
041.20	Direct Available P2O5, Spectrophotometric (40%)	1		40.81									
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	1		38.73									
041.50	Direct Available P2O5, ICP (40%)	2	2	41.41	4.745								
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (40%)	1		40.13									
041.99	Direct Available P2O5, Other (40%)	1		40.81									
048.20	Water Soluble P2O5, Spectrophotometric (%)	2	2	35.71	1.114								
048.40	Water Soluble P2O5, Automated (%)	1		36.12									
048.99	Water Soluble P2O5, Other (%)	3	3	35.88	0.5341	35.88		0.5341	0.3855	1.49%		0.1400	1.67%
050.99	Soluble K2O, Other (%)	2	2	0.1259	0.0013								
060.00	Water (Free), Vacuum Oven (%)	3	3	0.4983	0.3912	0.4983		0.3912	0.2823	78.49%		0.0233	4.44%
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours, 5g samp	1		0.9950									
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	1		0.2400									

Method Code	Analyte & Method Sample # 240341	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Horwitz %RSD
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (%)	1		0.3900									
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	2	1	0.1195	0.1549								
101.99	Acid Soluble Ca, Other (%)	2	2	0.2523	0.0746								
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	1		0.6900									
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	2	2	0.6749	0.0182								
121.99	Acid Soluble Mg, Other (%)	2	2	0.6743	0.0223								
143.00	Elemental S, Gravimetric Sulfur - carbon disulfide soluble sulfu	3	3	3.834	0.7191	3.834		0.7191	0.5190	18.76%		0.0987	3.27%
143.99	Elemental S, Other (%)	1		7.263									
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	4	4	5.646	0.1409	5.646		0.1409	0.0881	2.50%		0.0267	3.08%
145.99	Sulfate S, HCl soluble, Other (%)	1		5.375									
148.00	Total S, Combustion (10%)	4	4	10.28	0.1191	10.28	0.7141	0.1191	0.0744	1.16%	0.39	0.0775	2.82%
148.01	Total S, Gravimetric - sulfate and elemental (10%)	2	2	9.538	0.0081								
148.07	Total S, ICP, test portion as in 2017.02 (10%)	4	4	10.09	0.1290	10.09	0.7044	0.1290	0.0806	1.28%	0.43	0.3173	2.82%
148.99	Total S, Other (10%)	4	4	8.792	2.238	8.792	0.6396	2.238	1.399	25.46%	8.15	0.0555	2.88%
151.30	Acid Soluble As, ICP (ppm)	3	3	10.85	1.447	10.85		1.447	1.044	13.33%		0.8500	11.17%
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	2	2	13.45	2.192								
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	2	2	14.95	4.177								
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	1		10.55									
151.99	Acid Soluble As, Other (ppm)	1		11.90									
165.99	Acid Soluble B, Other (%)	2	2	0.0076	0.0042								
171.99	Water Soluble B, Other (%)	1		0.0380									
181.30	Acid Soluble Cd, ICP (ppm)	2	2	5.750	0.3536								
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	2	2	5.675	0.4596								
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	2	2	5.573	0.4918								
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	1		5.350									
181.99	Acid Soluble Cd, Other (ppm)	1		5.300									
191.30	Acid Soluble Cr, ICP (ppm)	3	3	125.2	6.449	125.2		6.449	4.654	5.15%		3.500	7.73%
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	2	2	124.0	0.0354								
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	2	2	124.8	1.827								
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	1		128.5									
191.99	Acid Soluble Cr, Other (ppm)	1		123.2									
202.30	Acid Soluble Co, ICP (ppm)	2	2	2.250	0.3536								
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	2	2	2.325	0.2475								
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	2	2	2.175	0.2261								
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	1		1.950									
202.99	Acid Soluble Co, Other (ppm)	1		2.000									
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	1		0.0003									
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	2	2	0.0003	0.0000								
221.99	Acid Soluble Cu, Other (%)	3	2	0.0037	0.0055	0.0005	0.0051	0.0003	0.0003	56.57%	0.13	0.0004	12.56%
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	2	2	0.7615	0.0354								

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241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	1		1.145									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	2	2	0.8116	0.0114								
241.99	Acid Soluble Fe, Other (%)	2	2	0.7843	0.0435								
251.30	Acid Soluble Pb, ICP (ppm)	3	3	7.433	0.5008	7.433		0.5008	0.3614	6.74%		2.800	11.83%
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	2	2	10.40	0.5657								
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	2	2	10.51	4.375								
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	1		13.10									
251.99	Acid Soluble Pb, Other (ppm)	1		10.65									
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	1		0.0242									
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	2	2	0.0241	0.0007								
261.99	Acid Soluble Mn, Other (%)	1		0.0240									
281.30	Acid Soluble Hg, ICP (ppm)	2	0	1.001	1.414								
281.99	Acid Soluble Hg, Other (ppm)	1		0.0100									
289.30	Acid Soluble Mo, ICP (ppm)	3	2	7.200	5.632	10.30	4.0900	2.404	2.125	23.34%	1.37	2.800	11.26%
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	2	2	9.600	0.5657								
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	2	2	9.757	0.2367								
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	1		11.60									
289.99	Acid Soluble Mo, Other (ppm)	1		9.100									
291.30	Acid Soluble Ni, ICP (ppm)	3	3	18.47	4.484	18.47		4.484	3.236	24.28%		1.000	10.31%
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	2	2	16.28	1.025								
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	2	2	18.52	1.662								
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	1		16.75									
291.99	Acid Soluble Ni, Other (ppm)	1		16.90									
301.30	Acid Soluble Se, ICP (ppm)	1		0.5000									
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	2	0	5.150	6.859								
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	1		0.0010									
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	1		1.300									
301.99	Acid Soluble Se, Other (ppm)	1		0.3000									
311.33	Sodium, ICP, test portion as in 2017.02 (%)	2	2	0.1430	0.0072								
311.99	Sodium, Other (%)	1		0.1700									
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (1%)	2	2	0.9681	0.0147								
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (1%)	3	3	0.9988	0.0168	0.9988	0.1049	0.0168	0.0121	1.68%	0.37	0.0257	4.00%
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	7	7	0.9658	0.0438	0.9658	0.1016	0.0497	0.0235	5.15%	1.14	0.0292	4.02%
321.99	Acid Soluble Zn, Other (1%)	5	5	0.9043	0.0364	0.9043	0.0954	0.0364	0.0204	4.03%	0.89	0.0488	4.06%
325.30	Water Soluble Zn, ICP (%)	1		0.5500									

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. The Horwitz %RSD is calculated using the Thompson Modification, Analyst,2000,125,385-386.

Horwitz %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 # 240341	
Method Code	



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Sample # 240341

Phosphorous Select PT Scheme

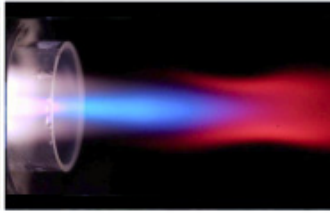
12-40-0 MAP + Zn

Method Precision Report

Issue Date : 04/30/2024

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
001.99	Ammoniacal N, Other (%)	10	8	11.94	0.0926	0.0920	0.0148	0.0932	0.77%	0.12%	0.78%	6.278
010.60	Total N, Combustion (12%)	12	10	11.99	0.0955	0.0887	0.0498	0.1017	0.74%	0.42%	0.85%	2.044
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	8	7	40.73	0.2156	0.1896	0.1451	0.2387	0.47%	0.36%	0.59%	1.645
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	7	7	0.9658	0.0438	0.0411	0.0218	0.0465	4.25%	2.25%	4.81%	2.135
321.99	Acid Soluble Zn, Other (1%)	5	5	0.9043	0.0364	0.0226	0.0404	0.0463	2.50%	4.47%	5.12%	1.146

Notes: Precision data calculated when 5 or more Tests included.



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 104

Sample # 240341

Phosphorous Select PT Scheme

Labs Reporting: 22

12-40-0 MAP + Zn

Lab Values

Issue Date : 04/30/2024

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
001.99	Ammoniacal N, Other (%)	0368	9.798	0.0900	11.92	0.1275	0.0236	9	-15.34	NA	0
001.99	Ammoniacal N, Other (%)	0517	11.78	0.0300	11.92	0.1275	0.0236	9	-1.03	NA	0
001.99	Ammoniacal N, Other (%)	0582	11.87	0.0200	11.92	0.1275	0.0236	9	-0.34	NA	0
001.99	Ammoniacal N, Other (%)	0581	11.90	0.0000	11.92	0.1275	0.0236	9	-0.13	NA	0
001.99	Ammoniacal N, Other (%)	0593	11.94	0.0100	11.92	0.1275	0.0236	9	0.13	NA	0
001.99	Ammoniacal N, Other (%)	0586	11.98	0.0150	11.92	0.1275	0.0236	9	0.43	NA	0
001.99	Ammoniacal N, Other (%)	0096	11.99	0.0100	11.92	0.1275	0.0236	9	0.49	NA	0
001.99	Ammoniacal N, Other (%)	0405	12.03	0.0300	11.92	0.1275	0.0236	9	0.78	NA	0
001.99	Ammoniacal N, Other (%)	0513	12.07	0.0300	11.92	0.1275	0.0236	9	1.07	NA	0
001.99	Ammoniacal N, Other (%)	0220	11.71	0.1700	11.92	0.1275	0.0236	9	-1.54	NA	1
010.12	Total N, Salicylic (12%)	0602	11.90	0.1000				1			0
010.60	Total N, Combustion (12%)	0494	11.59	0.0300	11.97	0.1029	0.0592	11	-3.75	OK	0
010.60	Total N, Combustion (12%)	0593	11.88	0.1300	11.97	0.1029	0.0592	11	-0.93	OK	0
010.60	Total N, Combustion (12%)	0055	11.90	0.0900	11.97	0.1029	0.0592	11	-0.69	OK	0
010.60	Total N, Combustion (12%)	0561	11.91	0.0200	11.97	0.1029	0.0592	11	-0.59	OK	0
010.60	Total N, Combustion (12%)	0086	11.97	0.0830	11.97	0.1029	0.0592	11	-0.01	OK	0
010.60	Total N, Combustion (12%)	0368	11.97	0.0760	11.97	0.1029	0.0592	11	0.00	OK	0
010.60	Total N, Combustion (12%)	0220	11.98	0.0300	11.97	0.1029	0.0592	11	0.04	OK	0
010.60	Total N, Combustion (12%)	0405	12.03	0.0200	11.97	0.1029	0.0592	11	0.58	OK	0
010.60	Total N, Combustion (12%)	0007	12.05	0.1000	11.97	0.1029	0.0592	11	0.77	OK	0
010.60	Total N, Combustion (12%)	0131	12.05	0.0140	11.97	0.1029	0.0592	11	0.81	OK	0
010.60	Total N, Combustion (12%)	0040	12.20	0.0000	11.97	0.1029	0.0592	11	2.23	OK	0
010.60	Total N, Combustion (12%)	0527	11.89	0.3600	11.97	0.1029	0.0592	11	-0.78	OK	1
010.99	Total N, Other (12%)	0517	11.82	0.0400				2			0
010.99	Total N, Other (12%)	0602	11.90	0.1000				2			0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0615	37.75	0.5000	40.66	0.3116	0.2143	8	-8.55	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0405	40.43	0.0100	40.66	0.3116	0.2143	8	-0.70	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0593	40.59	0.0000	40.66	0.3116	0.2143	8	-0.21	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0561	40.63	0.1300	40.66	0.3116	0.2143	8	-0.11	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0582	40.69	0.0500	40.66	0.3116	0.2143	8	0.06	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0581	40.80	0.2100	40.66	0.3116	0.2143	8	0.39	NA	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0602	40.93	0.1400	40.66	0.3116	0.2143	8	0.78	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0220	41.06	0.4600	40.66	0.3116	0.2143	8	1.16	NA	0
020.40	Total P2O5, Automated (%)	0586	40.43	0.1000				2			0
020.40	Total P2O5, Automated (%)	0096	40.77	0.0600				2			0
020.50	Total P2O5, ICP (%)	0368	40.10	0.9369	40.22	0.1293	0.5638	3	-0.96		0
020.50	Total P2O5, ICP (%)	0527	40.21	0.0216	40.22	0.1293	0.5638	3	-0.08		0
020.50	Total P2O5, ICP (%)	0637	40.35	0.7330	40.22	0.1293	0.5638	3	1.04		0
020.99	Total P2O5, Other (%)	0513	40.05	0.0200				2			0
020.99	Total P2O5, Other (%)	0517	40.31	0.0300				2			0
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP (	0405	0.0500	0.0000	0.1183	0.0653	0.0500	3	-1.05		0
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP (	0602	0.1250	0.0500	0.1183	0.0653	0.0500	3	0.10		0
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP (	0220	0.1800	0.0000	0.1183	0.0653	0.0500	3	0.94		0
030.40	Citrate Insoluble P2O5, Automated, test portion 963.03 A-B (%)	0096	0.0750	0.0100				2			0
030.40	Citrate Insoluble P2O5, Automated, test portion 963.03 A-B (%)	0586	0.1000	0.0200				2			0
030.50	Citrate Insoluble P2O5, ICP, test portion 963.03 A-B (%)	0582	0.2500	0.0200				1			0
030.99	Citrate Insoluble P2O5, Other (%)	0593	0.2250	0.1900				1			0
040.20	Indirect Available P2O5, Spectrophotometric (40%)	0586	40.33	0.0800				2			0
040.20	Indirect Available P2O5, Spectrophotometric (40%)	0220	40.88	0.4600				2			0
040.40	Indirect Available P2O5, Automated (40%)	0096	40.70	0.0700				1			0
040.99	Indirect Available P2O5, Other (40%)	0593	40.37	0.1900	40.39	0.0379	0.0767	3	-0.70		0
040.99	Indirect Available P2O5, Other (40%)	0405	40.38	0.0100	40.39	0.0379	0.0767	3	-0.44		0
040.99	Indirect Available P2O5, Other (40%)	0582	40.44	0.0300	40.39	0.0379	0.0767	3	1.14		0
041.10	Direct Available P2O5, Gravimetric Quinolinium (40%)	0040	40.55	0.3000				2			0
041.10	Direct Available P2O5, Gravimetric Quinolinium (40%)	0494	41.00	0.1200				2			0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA I	0517	21.97	35.91	36.49	8.122	7.295	5	-1.79		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA I	0513	39.92	0.0600	36.49	8.122	7.295	5	0.42		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA I	0405	39.99	0.0100	36.49	8.122	7.295	5	0.43		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA I	0220	40.28	0.2600	36.49	8.122	7.295	5	0.47		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA I	0055	40.30	0.2350	36.49	8.122	7.295	5	0.47		0
041.20	Direct Available P2O5, Spectrophotometric (40%)	0602	40.81	0.0900				1			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext. (	0055	38.73	0.2000				1			0
041.50	Direct Available P2O5, ICP (40%)	0007	38.05	0.5000				2			0
041.50	Direct Available P2O5, ICP (40%)	0131	44.76	0.5800				2			0
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (40%)	0494	40.13	0.1400				1			0
041.99	Direct Available P2O5, Other (40%)	0602	40.81	0.0900				1			0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0593	34.93	1.110				2			0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0602	36.50	0.2000				2			0
048.40	Water Soluble P2O5, Automated (%)	0096	36.12	0.1200				1			0
048.99	Water Soluble P2O5, Other (%)	0513	35.57	0.1100	35.88	0.5341	0.1400	3	-0.60		0
048.99	Water Soluble P2O5, Other (%)	0517	35.59	0.1100	35.88	0.5341	0.1400	3	-0.56		0
048.99	Water Soluble P2O5, Other (%)	0602	36.50	0.2000	35.88	0.5341	0.1400	3	1.15		0
050.99	Soluble K2O, Other (%)	0096	0.1250	0.0300				2			0
050.99	Soluble K2O, Other (%)	0527	0.1269	0.0023				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
060.00	Water (Free), Vacuum Oven (%)	0513	0.2700	0.0200	0.4983	0.3912	0.0233	3	-0.58		0
060.00	Water (Free), Vacuum Oven (%)	0517	0.2750	0.0300	0.4983	0.3912	0.0233	3	-0.57		0
060.00	Water (Free), Vacuum Oven (%)	0096	0.9500	0.0200	0.4983	0.3912	0.0233	3	1.15		0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours, 5g sample)	0593	0.9950	0.2100				1			0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0096	0.2400	0.0040				1			0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (%)	0581	0.3900	0.0400				1			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0494	0.2290	0.0080				1			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0527	< 0.01					1			5
101.99	Acid Soluble Ca, Other (%)	0637	0.1995	0.0550				2			0
101.99	Acid Soluble Ca, Other (%)	0593	0.3050	0.0500				2			0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0096	0.6900	0.0200				1			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0494	0.6620	0.0000				2			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0527	0.6878	0.0302				2			0
121.99	Acid Soluble Mg, Other (%)	0637	0.6585	0.0430				2			0
121.99	Acid Soluble Mg, Other (%)	0593	0.6900	0.0000				2			0
143.00	Elemental S, Gravimetric Sulfur - carbon disulfide soluble sulfur	0405	3.065	0.0100	3.834	0.7191	0.0987	3	-1.07		0
143.00	Elemental S, Gravimetric Sulfur - carbon disulfide soluble sulfur	0494	3.946	0.2660	3.834	0.7191	0.0987	3	0.16		0
143.00	Elemental S, Gravimetric Sulfur - carbon disulfide soluble sulfur	0220	4.490	0.0200	3.834	0.7191	0.0987	3	0.91		0
143.99	Elemental S, Other (%)	0368	7.263	0.1164				1			0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0405	5.550	0.0000	5.646	0.1409	0.0267	4	-0.68		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0561	5.580	0.0200	5.646	0.1409	0.0267	4	-0.47		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0494	5.598	0.0500	5.646	0.1409	0.0267	4	-0.34		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0220	5.855	0.0100	5.646	0.1409	0.0267	4	1.49		0
145.99	Sulfate S, HCl soluble, Other (%)	0593	5.375	0.0900				1			0
148.00	Total S, Combustion (10%)	0582	10.18	0.1000	10.28	0.1191	0.0775	4	-0.85		0
148.00	Total S, Combustion (10%)	0593	10.22	0.0200	10.28	0.1191	0.0775	4	-0.51		0
148.00	Total S, Combustion (10%)	0581	10.28	0.0900	10.28	0.1191	0.0775	4	-0.05		0
148.00	Total S, Combustion (10%)	0405	10.45	0.1000	10.28	0.1191	0.0775	4	1.42		0
148.01	Total S, Gravimetric - sulfate and elemental (10%)	0055	9.533	0.4250				2			0
148.01	Total S, Gravimetric - sulfate and elemental (10%)	0494	9.544	0.2160				2			0
148.07	Total S, ICP, test portion as in 2017.02 (10%)	0494	9.944	0.7330	10.09	0.1290	0.3173	4	-1.12		0
148.07	Total S, ICP, test portion as in 2017.02 (10%)	0040	10.05	0.3000	10.09	0.1290	0.3173	4	-0.29		0
148.07	Total S, ICP, test portion as in 2017.02 (10%)	0513	10.11	0.1700	10.09	0.1290	0.3173	4	0.13		0
148.07	Total S, ICP, test portion as in 2017.02 (10%)	0527	10.25	0.0663	10.09	0.1290	0.3173	4	1.28		0
148.99	Total S, Other (10%)	0096	5.845	0.1100	8.792	2.238	0.0555	4	-1.32		0
148.99	Total S, Other (10%)	0405	8.615	0.0100	8.792	2.238	0.0555	4	-0.08		0
148.99	Total S, Other (10%)	0637	9.506	0.0820	8.792	2.238	0.0555	4	0.32		0
148.99	Total S, Other (10%)	0220	11.20	0.0200	8.792	2.238	0.0555	4	1.08		0
151.30	Acid Soluble As, ICP (ppm)	0593	9.800	0.0000	10.85	1.447	0.8500	3	-0.73		0
151.30	Acid Soluble As, ICP (ppm)	0096	10.25	0.7000	10.85	1.447	0.8500	3	-0.41		0
151.30	Acid Soluble As, ICP (ppm)	0586	12.50	1.000	10.85	1.447	0.8500	3	1.14		0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0220	11.90	0.0000				2			0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0405	15.00	0.0000				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0527	11.99	0.6362				2			0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0494	17.90	15.80				2			0
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0368	10.55	0.5000				1			0
151.99	Acid Soluble As, Other (ppm)	0220	11.90	0.0000				1			0
165.99	Acid Soluble B, Other (%)	0593	0.0046	0.0000				2			0
165.99	Acid Soluble B, Other (%)	0527	0.0106	0.0004				2			0
171.99	Water Soluble B, Other (%)	0637	0.0380	0.0020				1			0
181.30	Acid Soluble Cd, ICP (ppm)	0586	5.500	3.000				2			0
181.30	Acid Soluble Cd, ICP (ppm)	0593	6.000	0.0000				2			0
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0220	5.350	0.1000				2			0
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0405	6.000	0.0000				2			0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0494	5.225	0.0500				2			0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0527	5.921	0.0744				2			0
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0368	5.350	0.3000				1			0
181.99	Acid Soluble Cd, Other (ppm)	0220	5.300	0.0000				1			0
191.30	Acid Soluble Cr, ICP (ppm)	0096	118.0	2.000	125.2	6.449	3.500	3	-1.11		0
191.30	Acid Soluble Cr, ICP (ppm)	0593	127.0	0.0000	125.2	6.449	3.500	3	0.28		0
191.30	Acid Soluble Cr, ICP (ppm)	0586	130.5	5.000	125.2	6.449	3.500	3	0.83		0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0220	124.0	0.7000				2			0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0405	124.0	0.0000				2			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0494	123.5	11.00				2			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0527	126.1	0.3474				2			0
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0368	128.5	7.000				1			0
191.99	Acid Soluble Cr, Other (ppm)	0220	123.2	1.300				1			0
202.30	Acid Soluble Co, ICP (ppm)	0593	2.000	0.0000				2			0
202.30	Acid Soluble Co, ICP (ppm)	0586	2.500	1.000				2			0
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0220	2.150	0.1000				2			0
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0405	2.500	1.000				2			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0494	2.015	0.1300				2			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0527	2.335	0.1152				2			0
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0368	1.950	0.1000				1			0
202.99	Acid Soluble Co, Other (ppm)	0220	2.000	0.0000				1			0
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	0405	0.0003	0.0000				1			0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0494	0.0003	0.0000				2			0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0527	0.0003	0.0000				2			0
221.99	Acid Soluble Cu, Other (%)	0593	0.0003	0.0000				2			0
221.99	Acid Soluble Cu, Other (%)	0368	0.0007	0.0004				2			0
221.99	Acid Soluble Cu, Other (%)	0586	< 0.01					2			5
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0096	0.7365	0.0730				2			0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0513	0.7865	0.0030				2			0
241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	0581	1.145	0.0300				1			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0494	0.8035	0.0130				2			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0527	0.8197	0.0107				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
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241.99	Acid Soluble Fe, Other (%)	0637	0.7535	0.0490				2			0
241.99	Acid Soluble Fe, Other (%)	0593	0.8150	0.0100				2			0
251.30	Acid Soluble Pb, ICP (ppm)	0096	7.050	1.100	7.433	0.5008	2.800	3	-0.77		0
251.30	Acid Soluble Pb, ICP (ppm)	0586	7.250	4.500	7.433	0.5008	2.800	3	-0.37		0
251.30	Acid Soluble Pb, ICP (ppm)	0593	8.000	0.0000	7.433	0.5008	2.800	3	1.13		0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0405	10.00	0.0000				2			0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0220	10.80	1.000				2			0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0527	7.413	0.1272				2			0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0494	13.60	5.000				2			0
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0368	13.10	0.0000				1			0
251.99	Acid Soluble Pb, Other (ppm)	0220	10.65	0.7000				1			0
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	0096	0.0242	0.0001				1			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0494	0.0236	0.0010				2			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0527	0.0247	0.0003				2			0
261.99	Acid Soluble Mn, Other (%)	0593	0.0240	0.0000				1			0
281.30	Acid Soluble Hg, ICP (ppm)	0527	< 0.001					0			5
281.30	Acid Soluble Hg, ICP (ppm)	0405	< 2					0			5
281.99	Acid Soluble Hg, Other (ppm)	0220	< 0.01					0			5
289.30	Acid Soluble Mo, ICP (ppm)	0096	8.600	2.800				2			0
289.30	Acid Soluble Mo, ICP (ppm)	0593	12.00	0.0000				2			0
289.30	Acid Soluble Mo, ICP (ppm)	0586	< 1					2			5
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0220	9.200	0.0000				2			0
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0405	10.00	0.0000				2			0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0494	9.590	0.4200				2			0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0527	9.925	0.0091				2			0
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0368	11.60	0.0000				1			0
289.99	Acid Soluble Mo, Other (ppm)	0220	9.100	0.0000				1			0
291.30	Acid Soluble Ni, ICP (ppm)	0096	14.90	0.0000	18.47	4.484	1.000	3	-0.80		0
291.30	Acid Soluble Ni, ICP (ppm)	0593	17.00	0.0000	18.47	4.484	1.000	3	-0.33		0
291.30	Acid Soluble Ni, ICP (ppm)	0586	23.50	1.000	18.47	4.484	1.000	3	1.12		0
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0220	15.55	1.300				2			0
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0405	17.00	0.0000				2			0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0527	17.35	0.8183				2			0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0494	19.70	7.600				2			0
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0368	16.75	0.1000				1			0
291.99	Acid Soluble Ni, Other (ppm)	0220	16.90	3.800				1			0
301.30	Acid Soluble Se, ICP (ppm)	0593	0.5000	0.0000				1			0
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0220	< 0.3					0			5
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0405	< 10					0			5
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0527	< 0.001					0			5
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0368	< 1.3					0			5
301.99	Acid Soluble Se, Other (ppm)	0220	< 0.3					0			5
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0494	0.1379	0.0022				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	0.1481	0.0012				2			0
311.99	Sodium, Other (%)	0096	0.1700	0.0000				1			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (1%)	0096	0.9577	0.0768				2			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (1%)	0513	0.9785	0.0230				2			0
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (1%)	0405	0.9815	0.0070	0.9988	0.0168	0.0257	3	-1.03		0
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (1%)	0581	1.000	0.0400	0.9988	0.0168	0.0257	3	0.07		0
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (1%)	0220	1.015	0.0300	0.9988	0.0168	0.0257	3	0.96		0
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	0040	0.9135	0.0430	0.9658	0.0497	0.0292	7	-0.95	OK	0
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	0561	0.9150	0.0300	0.9658	0.0497	0.0292	7	-0.92	OK	0
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	0055	0.9308	0.0545	0.9658	0.0497	0.0292	7	-0.64	OK	0
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	0494	0.9890	0.0219	0.9658	0.0497	0.0292	7	0.42	OK	0
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	0582	1.000	0.0000	0.9658	0.0497	0.0292	7	0.62	OK	0
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	0527	1.002	0.0057	0.9658	0.0497	0.0292	7	0.66	OK	0
321.33	Acid Soluble Zn, ICP, 2017.02 (1%)	0593	1.010	0.0200	0.9658	0.0497	0.0292	7	0.80	OK	0
321.99	Acid Soluble Zn, Other (1%)	0042	0.8455	0.1070	0.9043	0.0364	0.0488	5	-1.61		0
321.99	Acid Soluble Zn, Other (1%)	0517	0.9025	0.0350	0.9043	0.0364	0.0488	5	-0.05		0
321.99	Acid Soluble Zn, Other (1%)	0637	0.9115	0.0290	0.9043	0.0364	0.0488	5	0.20		0
321.99	Acid Soluble Zn, Other (1%)	0586	0.9175	0.0450	0.9043	0.0364	0.0488	5	0.36		0
321.99	Acid Soluble Zn, Other (1%)	0368	0.9446	0.0279	0.9043	0.0364	0.0488	5	1.10		0
325.30	Water Soluble Zn, ICP (%)	0513	0.5500	0.0000				1			0

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. IA Status describes where your result is relative to the Assigned Value ± IA. Red indicates Higher or Lower and Green indicates within the IA range about the Robust mean. Method codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for