

Method PT For All Labs
 Sample # 221141
 P rock

Magruder Fertilizer Proficiency Testing Program
Phosphorous Select PT Scheme
Statistical Summary

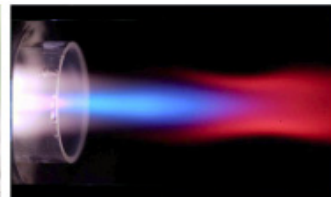
Methods: 100
 # Labs Reporting: 27
 Issue Date : 12/31/2022

Method Code	Analyte & Method Sample # 221141	# 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
001.10	Ammoniacal N, Magnesium Oxide Method (%)	1		0.4250									
010.60	Total N, Combustion (%)	1		0.0460									
020.10	Total P2O5, Gravimetric Quinolinium MolybdoP (%)	2	2	28.11	0.6930								
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	11	10	25.22	5.836	27.40		1.222	0.4832	4.46%		0.0450	1.91%
020.40	Total P2O5, Automated (%)	2	2	27.56	0.3217								
020.50	Total P2O5, ICP (%)	4	4	27.14	2.108	27.14		2.108	1.317	7.77%		0.3594	1.92%
020.99	Total P2O5, Other (%)	2	2	28.81	1.690								
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP	2	2	17.24	6.990								
030.40	Citrate Insoluble P2O5, Automated, test portion 963.03 A-B (%)	1		11.77									
040.20	Indirect Available P2O5, Spectrophotometric (%)	3	3	3.075	3.364	3.075	0.6700	3.364	2.428	109.39%	11.70	0.0433	3.38%
040.40	Indirect Available P2O5, Automated (%)	2	2	9.095	9.786								
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	5	5	10.61	3.953	10.61	0.6900	3.953	2.210	37.25%	13.35	0.1760	2.80%
041.20	Direct Available P2O5, Spectrophotometric (%)	1		9.915									
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	2	2	12.05	0.5763								
041.50	Direct Available P2O5, ICP (%)	2	2	26.71	1.614								
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (%)	4	4	14.32	4.284	14.32	0.7000	4.284	2.677	29.91%	14.26	0.5795	2.64%
048.20	Water Soluble P2O5, Spectrophotometric (%)	2	2	0.0550	0.0636								
050.52	Soluble K2O, ICP (Citrate-EDTA) (%)	1		0.0600									
050.99	Soluble K2O, Other (%)	2	2	0.1608	0.0272								
060.00	Water (Free), Vacuum Oven (%)	1		1.095									
060.99	Water (Free), Other (%)	1		0.5900									
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	5	5	30.82	7.020	30.82	1.0000	7.020	3.924	22.77%	16.36	0.3440	1.80%
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (%)	2	2	28.17	0.2376								
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	6	6	30.81	6.400	30.38	1.0000	6.248	3.188	20.57%	14.56	0.5232	1.81%
101.99	Acid Soluble Ca, Other (%)	7	7	31.79	4.853	30.69	1.0000	2.593	1.225	8.45%	6.04	0.4985	1.81%
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	1		0.4000									
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	5	5	0.5125	0.1557	0.5125	0.2256	0.1557	0.0871	30.39%	1.61	0.0010	4.42%
121.32	Acid Soluble Mg, ICP, test portion 2006.03A-C (%)	2	2	0.4574	0.0245								
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	6	6	0.5213	0.1194	0.4883	0.2244	0.0490	0.0250	10.04%	0.51	0.0101	4.46%

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121.99	Acid Soluble Mg, Other (%)	6	6	0.4725	0.1929	0.4643	0.2232	0.1994	0.1018	42.95%	2.08	0.0159	4.49%
131.99	Water Soluble Mg, Other (%)	1		4.000									
148.07	Total S, ICP, test portion as in 2017.02 (%)	4	3	0.8297	0.4904	1.073	0.2536	0.0756	0.0546	7.05%	0.69	0.0089	3.96%
151.00	Acid Soluble As, AA, test portion 2006.03 modified w/dual acid	1		21.75									
151.30	Acid Soluble As, ICP (ppm)	4	4	19.31	4.293	19.31		4.293	2.683	22.23%		1.840	10.24%
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	2	2	19.03	7.743								
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	2	2	18.00	1.150								
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	1		24.55									
151.99	Acid Soluble As, Other (ppm)	2	2	21.06	3.451								
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	1		0.0615									
165.99	Acid Soluble B, Other (%)	2	1	0.0150	0.0071								
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid	1		7.200									
181.30	Acid Soluble Cd, ICP (ppm)	4	4	11.01	1.071	11.01		1.071	0.6697	9.74%		0.3000	11.15%
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	2	2	12.13	0.1768								
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	3	3	11.70	0.4213	11.70		0.4213	0.3041	3.60%		0.1795	11.05%
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	1		10.85									
181.99	Acid Soluble Cd, Other (ppm)	1		8.135									
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid	1		37.50									
191.30	Acid Soluble Cr, ICP (ppm)	5	5	65.47	10.81	65.47		10.81	6.042	16.51%		3.088	8.53%
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	2	2	70.88	3.359								
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	3	3	66.07	1.362	66.07		1.362	0.9830	2.06%		1.208	8.51%
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	1		60.15									
191.99	Acid Soluble Cr, Other (ppm)	1		53.43									
202.00	Acid Soluble Co, AA, test portion 2006.03 modified w/dual acid	1		20.00									
202.30	Acid Soluble Co, ICP (ppm)	4	3	2.144	1.491	2.658	1.7975	1.321	0.9534	49.70%	1.71	0.0700	13.81%
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	2	2	3.525	0.6718								
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	2	2	3.047	0.3142								
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	1		9.050									
221.02	Acid Soluble Cu, AA, 965.09, test portion 2006.03A-C (%)	1		0.0020									
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	2	2	0.0010	0.0001								
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	1		0.0010									
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	2	2	0.0055	0.0064								
221.99	Acid Soluble Cu, Other (%)	3	2	0.0074	0.0110	0.0109	0.0061	0.0128	0.0113	117.47%	4.91	0.0011	7.89%
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	3	3	0.8032	0.0373	0.8032	0.0853	0.0373	0.0269	4.64%	1.02	0.0277	4.13%
241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	1		0.8000									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	4	4	0.8165	0.0316	0.8165	0.0866	0.0316	0.0197	3.87%	0.85	0.0208	4.12%
241.99	Acid Soluble Fe, Other (%)	1		0.9525									
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid	1		8.200									
251.30	Acid Soluble Pb, ICP (ppm)	4	4	9.478	2.385	9.478		2.385	1.491	25.17%		0.9750	11.40%
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	2	2	11.28	1.025								

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251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	3	3	11.44	1.194	11.44		1.194	0.8618	10.44%		0.7325	11.09%
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	1		0.6000									
251.99	Acid Soluble Pb, Other (ppm)	1		6.870									
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	1		0.0140									
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	4	4	0.0167	0.0023	0.0167	0.0067	0.0023	0.0014	13.45%	0.79	0.0004	7.40%
281.30	Acid Soluble Hg, ICP (ppm)	4	1	0.5266	0.9826	0.0167		0.0023	0.0028	13.45%		0.0030	22.00%
281.99	Acid Soluble Hg, Other (ppm)	2	1	0.0239	0.0196								
289.30	Acid Soluble Mo, ICP (ppm)	3	3	10.65	0.3041	10.65	4.1950	0.3041	0.2195	2.86%	0.17	0.7000	11.21%
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	1		10.65									
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	3	3	10.73	0.6481	10.73	4.2189	0.6481	0.4677	6.04%	0.36	0.0736	11.19%
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	1		0.0000									
289.99	Acid Soluble Mo, Other (ppm)	1		11.00									
291.30	Acid Soluble Ni, ICP (ppm)	4	4	12.90	2.095	12.90		2.095	1.309	16.24%		1.093	10.89%
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	1		14.90									
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	2	2	12.90	4.102								
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	1		15.25									
291.99	Acid Soluble Ni, Other (ppm)	2	2	13.36	2.316								
301.30	Acid Soluble Se, ICP (ppm)	1		5.325									
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	1		1.350									
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	2	1	2.163	3.045								
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	1		1.100									
301.99	Acid Soluble Se, Other (ppm)	2	1	5.375	6.541								
311.33	Sodium, ICP, test portion as in 2017.02 (%)	1		0.6852									
311.99	Sodium, Other (%)	1		0.9700									
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	1		0.0050									
321.02	Acid Soluble Zn, AA, 965.09, test portion 2006.03A-C (%)	1		0.0100									
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	2	2	0.0052	0.0017								
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	1		0.0036									
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	4	2	0.0120	0.0188	0.0040	0.0054	0.0007	0.0006	17.68%	0.31	0.0005	9.18%
321.99	Acid Soluble Zn, Other (%)	4	4	0.0049	0.0014	0.0049	0.0055	0.0014	0.0009	29.34%	0.61	0.0013	8.90%
431.99	Soluble Si in nonliquids, Other (%)	1		5.570									

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.



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Sample # 221141

Phosphorous Select PT Scheme

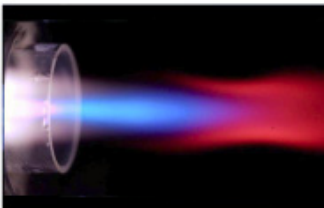
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Method Precision Report

Issue Date : 12/31/2022

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
020.20	Total P ₂ O ₅ , Spectrophotometric MolybdovanadoP (%)	11	9	26.41	4.383	4.383	0.0464	4.383	16.60%	0.18%	16.60%	94.53
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	5	5	30.82	7.020	7.017	0.2922	7.023	22.77%	0.95%	22.78%	24.04
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	6	5	32.46	5.543	5.540	0.2478	5.545	17.07%	0.76%	17.09%	22.38
101.99	Acid Soluble Ca, Other (%)	7	6	30.04	1.657	1.615	0.5223	1.697	5.38%	1.74%	5.65%	3.249
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	6	5	0.4736	0.0267	0.0262	0.0077	0.0273	5.52%	1.63%	5.76%	3.542
121.99	Acid Soluble Mg, Other (%)	6	6	0.4725	0.1929	0.1926	0.0138	0.1931	40.77%	2.92%	40.87%	13.99

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



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 100

Sample # 221141

Phosphorous Select PT Scheme

Labs Reporting: 27

P rock

Lab Values

Issue Date : 12/31/2022

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Range				
001.10	Ammoniacal N, Magnesium Oxide Method (%)	0498	0.4250	0.0500				1			0
010.60	Total N, Combustion (%)	0472	0.0460	0.0080				1			0
020.10	Total P2O5, Gravimetric Quinolinium MolybdoP (%)	0493	27.62	0.0400				2			0
020.10	Total P2O5, Gravimetric Quinolinium MolybdoP (%)	0570	28.60	0.0000				2			0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0534	12.22	0.0200	27.40	1.222	0.0450	10	-11.55	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0371	14.80	0.0000	27.40	1.222	0.0450	10	-9.59	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0498	27.00	0.0000	27.40	1.222	0.0450	10	-0.31	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0405	27.57	0.0100	27.40	1.222	0.0450	10	0.12	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0493	27.61	0.0400	27.40	1.222	0.0450	10	0.16	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0582	27.89	0.0400	27.40	1.222	0.0450	10	0.37	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0593	27.89	0.1400	27.40	1.222	0.0450	10	0.37	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0561	27.93	0.0300	27.40	1.222	0.0450	10	0.40	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0581	28.10	0.0700	27.40	1.222	0.0450	10	0.53	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0220	28.91	0.1000	27.40	1.222	0.0450	10	1.15	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0027	27.51	0.4300	27.40	1.222	0.0450	10	0.08	NA	1
020.40	Total P2O5, Automated (%)	0586	27.33	0.1400				2			0
020.40	Total P2O5, Automated (%)	0096	27.79	0.0100				2			0
020.50	Total P2O5, ICP (%)	0368	25.57	0.5579	27.14	2.108	0.3594	4	-0.75		0
020.50	Total P2O5, ICP (%)	0472	26.15	0.1800	27.14	2.108	0.3594	4	-0.47		0
020.50	Total P2O5, ICP (%)	0450	26.60	0.6000	27.14	2.108	0.3594	4	-0.26		0
020.50	Total P2O5, ICP (%)	0527	30.24	0.0995	27.14	2.108	0.3594	4	1.47		0
020.99	Total P2O5, Other (%)	0513	27.61	0.0600				2			0
020.99	Total P2O5, Other (%)	0576	30.00	0.0000				2			0
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP (%)	0371	12.30	0.0000				2			0
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP (%)	0220	22.19	0.2300				2			0
030.40	Citrate Insoluble P2O5, Automated, test portion 963.03 A-B (%)	0096	11.77	0.6000				1			0
040.20	Indirect Available P2O5, Spectrophotometric (%)	0576	0.1000	0.0000	3.075	3.364	0.0433	3	-0.88		0
040.20	Indirect Available P2O5, Spectrophotometric (%)	0371	2.400	0.0000	3.075	3.364	0.0433	3	-0.20		0
040.20	Indirect Available P2O5, Spectrophotometric (%)	0220	6.725	0.1300	3.075	3.364	0.0433	3	1.09		0
040.40	Indirect Available P2O5, Automated (%)	0586	2.175	0.0300				2			0
040.40	Indirect Available P2O5, Automated (%)	0096	16.02	0.6100				2			0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0185	6.120	0.0200	10.61	3.953	0.1760	5	-1.14		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Range				
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0220	7.010	0.0800	10.61	3.953	0.1760	5	-0.91		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0513	11.93	0.0300	10.61	3.953	0.1760	5	0.33		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0405	12.47	0.0100	10.61	3.953	0.1760	5	0.47		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0073	15.53	0.7400	10.61	3.953	0.1760	5	1.24		0
041.20	Direct Available P2O5, Spectrophotometric (%)	0027	9.915	0.1100				1			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	0472	11.64	0.0000				2			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	0405	12.46	0.0100				2			0
041.50	Direct Available P2O5, ICP (%)	0368	25.57	0.5579				2			0
041.50	Direct Available P2O5, ICP (%)	0421	27.85	0.5000				2			0
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (%)	0025	8.710	1.100	14.32	4.284	0.5795	4	-1.31		0
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (%)	0040	13.25	0.3000	14.32	4.284	0.5795	4	-0.25		0
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (%)	0037	17.42	0.1080	14.32	4.284	0.5795	4	0.72		0
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (%)	0494	17.91	0.8100	14.32	4.284	0.5795	4	0.84		0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0472	0.0100	0.0000				2			0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0371	0.1000	0.0000				2			0
050.52	Soluble K2O, ICP (Citrate-EDTA) (%)	0494	0.0600	0.1200				0			4
050.99	Soluble K2O, Other (%)	0527	0.1415	0.0016				2			0
050.99	Soluble K2O, Other (%)	0513	0.1800	0.0000				2			0
060.00	Water (Free), Vacuum Oven (%)	0096	1.095	0.0100				1			0
060.99	Water (Free), Other (%)	0513	0.5900	0.0200				1			0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0073	23.51	0.6100	30.82	7.020	0.3440	5	-1.04		0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0513	28.05	0.0900	30.82	7.020	0.3440	5	-0.40		0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0371	29.86	0.1800	30.82	7.020	0.3440	5	-0.14		0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0096	30.28	0.2100	30.82	7.020	0.3440	5	-0.08		0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0581	42.43	0.6300	30.82	7.020	0.3440	5	1.65		0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (%)	0220	28.00	0.0600				2			0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (%)	0405	28.34	1.341				2			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0494	22.54	1.708	30.38	6.248	0.5232	6	-1.12	Low	0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0472	29.26	0.1200	30.38	6.248	0.5232	6	-0.16	Low	0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0040	29.50	0.4500	30.38	6.248	0.5232	6	-0.13	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0025	30.20	0.6000	30.38	6.248	0.5232	6	-0.03	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0527	31.04	0.0914	30.38	6.248	0.5232	6	0.09	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0582	42.30	0.1700	30.38	6.248	0.5232	6	1.70	High	0
101.99	Acid Soluble Ca, Other (%)	0368	28.22	0.4444	30.69	2.593	0.4985	7	-0.86	Low	0
101.99	Acid Soluble Ca, Other (%)	0450	28.75	0.1300	30.69	2.593	0.4985	7	-0.68	Low	0
101.99	Acid Soluble Ca, Other (%)	0586	29.42	0.1700	30.69	2.593	0.4985	7	-0.44	Low	0
101.99	Acid Soluble Ca, Other (%)	0561	30.05	0.1600	30.69	2.593	0.4985	7	-0.22	OK	0
101.99	Acid Soluble Ca, Other (%)	0027	31.10	1.270	30.69	2.593	0.4985	7	0.14	OK	0
101.99	Acid Soluble Ca, Other (%)	0534	32.73	1.180	30.69	2.593	0.4985	7	0.71	High	0
101.99	Acid Soluble Ca, Other (%)	0593	42.24	0.1350	30.69	2.593	0.4985	7	4.03	High	0
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	0040	0.4000	0.0200				1			0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0073	0.4225	0.0050	0.5125	0.1557	0.0010	5	-0.58		0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0371	0.4400	0.0000	0.5125	0.1557	0.0010	5	-0.47		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Range				
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0513	0.4500	0.0000	0.5125	0.1557	0.0010	5	-0.40		0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0096	0.4600	0.0000	0.5125	0.1557	0.0010	5	-0.34		0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0581	0.7900	0.0000	0.5125	0.1557	0.0010	5	1.78		0
121.32	Acid Soluble Mg, ICP, test portion 2006.03A-C (%)	0220	0.4400	0.0200				2			0
121.32	Acid Soluble Mg, ICP, test portion 2006.03A-C (%)	0405	0.4747	0.0008				2			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0025	0.4450	0.0120	0.4883	0.0490	0.0101	6	-0.79	OK	0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0561	0.4500	0.0200	0.4883	0.0490	0.0101	6	-0.70	OK	0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0494	0.4714	0.0015	0.4883	0.0490	0.0101	6	-0.31	OK	0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0472	0.5000	0.0000	0.4883	0.0490	0.0101	6	0.21	OK	0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0527	0.5015	0.0068	0.4883	0.0490	0.0101	6	0.24	OK	0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0582	0.7600	0.0200	0.4883	0.0490	0.0101	6	4.94	High	0
121.99	Acid Soluble Mg, Other (%)	0450	0.2300	0.0200	0.4643	0.1994	0.0159	6	-1.05	Low	0
121.99	Acid Soluble Mg, Other (%)	0534	0.3750	0.0300	0.4643	0.1994	0.0159	6	-0.40	OK	0
121.99	Acid Soluble Mg, Other (%)	0368	0.4358	0.0072	0.4643	0.1994	0.0159	6	-0.13	OK	0
121.99	Acid Soluble Mg, Other (%)	0586	0.4850	0.0300	0.4643	0.1994	0.0159	6	0.09	OK	0
121.99	Acid Soluble Mg, Other (%)	0027	0.4965	0.0030	0.4643	0.1994	0.0159	6	0.14	OK	0
121.99	Acid Soluble Mg, Other (%)	0593	0.8125	0.0050	0.4643	0.1994	0.0159	6	1.56	High	0
131.99	Water Soluble Mg, Other (%)	0576	4.000	0.0000				1			0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0494	0.9989	0.0066	1.073	0.0756	0.0089	3	-0.98		0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0513	1.070	0.0200	1.073	0.0756	0.0089	3	-0.04		0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0472	1.150	0.0000	1.073	0.0756	0.0089	3	1.02		0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0527	< 0.1		1.073	0.0756	0.0089	3			5
151.00	Acid Soluble As, AA, test portion 2006.03 modified w/dual acid	0498	21.75	0.5000				1			0
151.30	Acid Soluble As, ICP (ppm)	0582	12.95	5.700	19.31	4.293	1.840	4	-1.48		0
151.30	Acid Soluble As, ICP (ppm)	0096	20.50	1.000	19.31	4.293	1.840	4	0.28		0
151.30	Acid Soluble As, ICP (ppm)	0371	21.80	0.6600	19.31	4.293	1.840	4	0.58		0
151.30	Acid Soluble As, ICP (ppm)	0450	22.00	0.0000	19.31	4.293	1.840	4	0.63		0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0220	13.55	0.1000				2			0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0405	24.50	1.000				2			0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0527	17.18	0.3978				2			0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0037	18.81	0.6590				2			0
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0368	24.55	2.700				1			0
151.99	Acid Soluble As, Other (ppm)	0534	18.62	0.6400				2			0
151.99	Acid Soluble As, Other (ppm)	0586	23.50	7.000				2			0
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0073	0.0615	0.0130				1			0
165.99	Acid Soluble B, Other (%)	0472	0.0200	0.0000				1			0
165.99	Acid Soluble B, Other (%)	0527	< 0.01					1			5
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid	0498	7.200	0.2000				1			0
181.30	Acid Soluble Cd, ICP (ppm)	0096	9.500	0.6000	11.01	1.071	0.3000	4	-1.40		0
181.30	Acid Soluble Cd, ICP (ppm)	0586	11.00	0.0000	11.01	1.071	0.3000	4	0.00		0
181.30	Acid Soluble Cd, ICP (ppm)	0371	11.62	0.2000	11.01	1.071	0.3000	4	0.57		0
181.30	Acid Soluble Cd, ICP (ppm)	0450	11.90	0.4000	11.01	1.071	0.3000	4	0.84		0
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0405	12.00	0.0000				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Range				
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0220	12.25	0.1000				2			0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0037	11.37	0.0030	11.70	0.4213	0.1795	3	-0.78		0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0494	11.55	0.3000	11.70	0.4213	0.1795	3	-0.34		0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0527	12.17	0.2354	11.70	0.4213	0.1795	3	1.13		0
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0368	10.85	0.3000				1			0
181.99	Acid Soluble Cd, Other (ppm)	0534	8.135	0.2900				1			0
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid	0498	37.50	2.600				1			0
191.30	Acid Soluble Cr, ICP (ppm)	0027	55.50	3.000	65.47	10.81	3.088	5	-0.92		0
191.30	Acid Soluble Cr, ICP (ppm)	0371	60.63	1.040	65.47	10.81	3.088	5	-0.45		0
191.30	Acid Soluble Cr, ICP (ppm)	0096	61.20	1.400	65.47	10.81	3.088	5	-0.39		0
191.30	Acid Soluble Cr, ICP (ppm)	0586	66.50	1.000	65.47	10.81	3.088	5	0.10		0
191.30	Acid Soluble Cr, ICP (ppm)	0450	83.50	9.000	65.47	10.81	3.088	5	1.67		0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0405	68.50	1.000				2			0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0220	73.25	0.7000				2			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0037	65.26	1.454	66.07	1.362	1.208	3	-0.59		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0494	65.30	1.800	66.07	1.362	1.208	3	-0.56		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0527	67.64	0.3714	66.07	1.362	1.208	3	1.15		0
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0368	60.15	1.700				1			0
191.99	Acid Soluble Cr, Other (ppm)	0534	53.43	0.9000				1			0
202.00	Acid Soluble Co, AA, test portion 2006.03 modified w/dual acid	0498	< 20					0			5
202.30	Acid Soluble Co, ICP (ppm)	0096	1.200	0.2000	2.658	1.321	0.0700	3	-1.10		0
202.30	Acid Soluble Co, ICP (ppm)	0450	3.000	0.0000	2.658	1.321	0.0700	3	0.26		0
202.30	Acid Soluble Co, ICP (ppm)	0371	3.775	0.0100	2.658	1.321	0.0700	3	0.85		0
202.30	Acid Soluble Co, ICP (ppm)	0586	< 0.6		2.658	1.321	0.0700	3			5
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0220	3.050	0.1000				2			0
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0405	4.000	0.0000				2			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0494	2.825	0.1100				2			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0527	3.269	0.1693				2			0
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0368	9.050	0.7000				1			0
221.02	Acid Soluble Cu, AA, 965.09, test portion 2006.03A-C (%)	0498	< 0.002					0			5
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0096	0.0009	0.0000				2			0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0371	0.0010	0.0000				2			0
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	0405	0.0010	0.0000				1			0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0527	0.0009	0.0000				2			0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0472	0.0100	0.0000				2			0
221.99	Acid Soluble Cu, Other (%)	0368	0.0019	0.0021				2			0
221.99	Acid Soluble Cu, Other (%)	0576	0.0200	0.0000				2			0
221.99	Acid Soluble Cu, Other (%)	0586	< 0.0002					2			5
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0096	0.7650	0.0500	0.8032	0.0373	0.0277	3	-1.02		0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0513	0.8050	0.0100	0.8032	0.0373	0.0277	3	0.05		0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0073	0.8395	0.0230	0.8032	0.0373	0.0277	3	0.97		0
241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	0220	0.8000	0.0000				1			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0472	0.7900	0.0000	0.8165	0.0316	0.0208	4	-0.84		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Range				
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0025	0.7980	0.0480	0.8165	0.0316	0.0208	4	-0.58		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0494	0.8173	0.0291	0.8165	0.0316	0.0208	4	0.02		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0527	0.8607	0.0061	0.8165	0.0316	0.0208	4	1.40		0
241.99	Acid Soluble Fe, Other (%)	0593	0.9525	0.0150				1			0
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid	0498	8.200	0.6000				1			0
251.30	Acid Soluble Pb, ICP (ppm)	0096	6.800	2.000	9.478	2.385	0.9750	4	-1.12		0
251.30	Acid Soluble Pb, ICP (ppm)	0586	8.250	1.500	9.478	2.385	0.9750	4	-0.51		0
251.30	Acid Soluble Pb, ICP (ppm)	0371	10.81	0.1000	9.478	2.385	0.9750	4	0.56		0
251.30	Acid Soluble Pb, ICP (ppm)	0450	12.05	0.3000	9.478	2.385	0.9750	4	1.08		0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0220	10.55	0.1000				2			0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0405	12.00	0.0000				2			0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0494	10.41	1.380	11.44	1.194	0.7325	3	-0.86		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0037	11.15	0.7050	11.44	1.194	0.7325	3	-0.24		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0527	12.75	0.1124	11.44	1.194	0.7325	3	1.10		0
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0368	< 0.6					0			5
251.99	Acid Soluble Pb, Other (ppm)	0534	6.870	0.6200				1			0
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	0371	0.0140	0.0000				1			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0527	0.0152	0.0000	0.0167	0.0023	0.0004	4	-0.68		0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0025	0.0153	0.0000	0.0167	0.0023	0.0004	4	-0.63		0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0494	0.0164	0.0014	0.0167	0.0023	0.0004	4	-0.14		0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0472	0.0200	0.0000	0.0167	0.0023	0.0004	4	1.46		0
281.30	Acid Soluble Hg, ICP (ppm)	0371	0.0555	0.0030				1			0
281.30	Acid Soluble Hg, ICP (ppm)	0527	< 0.001					1			5
281.30	Acid Soluble Hg, ICP (ppm)	0450	< 0.05					1			5
281.30	Acid Soluble Hg, ICP (ppm)	0405	< 2					1			5
281.99	Acid Soluble Hg, Other (ppm)	0368	0.0378	0.0013				1			0
281.99	Acid Soluble Hg, Other (ppm)	0220	< 0.01					1			5
289.30	Acid Soluble Mo, ICP (ppm)	0096	10.45	0.1000	10.65	0.3041	0.7000	3	-0.66		0
289.30	Acid Soluble Mo, ICP (ppm)	0450	10.50	0.0000	10.65	0.3041	0.7000	3	-0.49		0
289.30	Acid Soluble Mo, ICP (ppm)	0586	11.00	2.000	10.65	0.3041	0.7000	3	1.15		0
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0220	10.65	0.1000				1			0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0037	10.00	0.0000	10.73	0.6481	0.0736	3	-1.13		0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0494	10.95	0.1000	10.73	0.6481	0.0736	3	0.34		0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0527	11.24	0.1207	10.73	0.6481	0.0736	3	0.79		0
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0368	0.0000	0.0000				0			4
289.99	Acid Soluble Mo, Other (ppm)	0405	11.00	0.0000				1			0
291.30	Acid Soluble Ni, ICP (ppm)	0586	11.00	3.000	12.90	2.095	1.093	4	-0.91		0
291.30	Acid Soluble Ni, ICP (ppm)	0096	11.30	1.200	12.90	2.095	1.093	4	-0.76		0
291.30	Acid Soluble Ni, ICP (ppm)	0450	14.00	0.0000	12.90	2.095	1.093	4	0.52		0
291.30	Acid Soluble Ni, ICP (ppm)	0371	15.31	0.1700	12.90	2.095	1.093	4	1.15		0
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0220	14.90	0.2000				1			0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0037	10.00	0.0000				2			0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0527	15.80	0.2759				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Range				
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0368	15.25	0.1000				1			0
291.99	Acid Soluble Ni, Other (ppm)	0534	11.73	0.3100				2			0
291.99	Acid Soluble Ni, Other (ppm)	0405	15.00	0.0000				2			0
301.30	Acid Soluble Se, ICP (ppm)	0371	5.325	0.0300				1			0
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0220	1.350	0.1000				1			0
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0037	4.316	0.8140				1			0
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0527	< 0.01					1			5
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0368	< 1.1					0			5
301.99	Acid Soluble Se, Other (ppm)	0586	0.7500	0.0200				1			0
301.99	Acid Soluble Se, Other (ppm)	0405	< 10					1			5
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	0.6852	0.0053				1			0
311.99	Sodium, Other (%)	0513	0.9700	0.0200				1			0
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	0040	0.0050	0.0000				1			0
321.02	Acid Soluble Zn, AA, 965.09, test portion 2006.03A-C (%)	0498	< 0.01					0			5
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0371	0.0040	0.0000				2			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0096	0.0064	0.0013				2			0
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0220	0.0036	0.0000				1			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0527	0.0035	0.0000				2			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0037	0.0045	0.0010				2			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0582	0.0000	0.0000				2			4
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0593	< 0.04					2			5
321.99	Acid Soluble Zn, Other (%)	0405	0.0040	0.0004	0.0049	0.0014	0.0013	4	-0.63		0
321.99	Acid Soluble Zn, Other (%)	0027	0.0041	0.0002	0.0049	0.0014	0.0013	4	-0.56		0
321.99	Acid Soluble Zn, Other (%)	0586	0.0045	0.0010	0.0049	0.0014	0.0013	4	-0.29		0
321.99	Acid Soluble Zn, Other (%)	0368	0.0071	0.0037	0.0049	0.0014	0.0013	4	1.48		0
431.99	Soluble Si in nonliquids, Other (%)	0513	5.570	0.0600				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. 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 the purpose of this Proficiency Testing program.