

Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 41

Sample # 240451

Potassium Select PT Scheme

Labs Reporting: 17

Grade 0-0-50

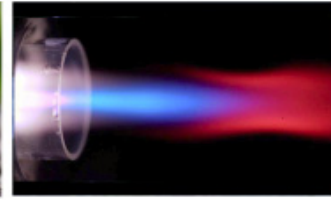
Statistical Summary

Issue Date : 05/31/2024

Method Code	Analyte & Method Sample # 240451	# 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
010.60	Total N, Combustion (%)	1		0.0000									
020.50	Total P2O5, ICP (%)	1		0.0100									
041.50	Direct Available P2O5, ICP (%)	1		0.0000									
050.00	Soluble K2O, STPB Oxalate (50%)	6	6	50.07	0.6372	50.26	1.6626	0.2418	0.1234	0.48%	0.34	0.0840	1.41%
050.30	Soluble K2O, AA (Oxalate) (50%)	1		50.95									
050.50	Soluble K2O, ICP (Oxalate) (50%)	1		50.10									
050.51	Soluble K2O, ICP (Citrate) (50%)	2	2	52.37	5.191								
050.52	Soluble K2O, ICP (Citrate-EDTA) (50%)	1		50.37									
050.60	Soluble K2O, Flame Photometric (Oxalate) (50%)	1		50.31									
050.99	Soluble K2O, Other (50%)	8	7	50.70	3.441	50.24	1.6624	0.7775	0.3673	1.55%	1.09	0.2118	1.41%
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	1		0.1500									
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	1		0.3282									
121.99	Acid Soluble Mg, Other (%)	1		0.9600									
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	4	4	17.96	0.3520	17.96		0.3520	0.2200	1.96%		0.0525	2.36%
148.00	Total S, Combustion (17.5%)	1		0.0000									
148.01	Total S, Gravimetric - sulfate and elemental (17.5%)	1		18.01									
148.07	Total S, ICP, test portion as in 2017.02 (17.5%)	3	3	17.45	0.7396	17.45	1.0000	0.7396	0.5338	4.24%	1.72	0.6066	2.39%
148.99	Total S, Other (17.5%)	5	5	17.68	0.6042	17.68	1.0000	0.6042	0.3378	3.42%	1.41	0.1975	2.38%
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	3	2	1.271	1.498	0.4060		0.0085	0.0075	2.10%		0.0789	18.32%
151.99	Acid Soluble As, Other (ppm)	2	1	0.2750	0.2475								
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	2	1	0.5150	0.6859								
181.99	Acid Soluble Cd, Other (ppm)	2	1	0.0650	0.0495								
190.00	Water Soluble Cl, Titrimetric (0.8%)	4	3	0.1325	0.0974	0.1733	0.0223	0.0651	0.0470	37.54%	6.79	0.0220	5.21%
190.99	Water Soluble Cl, Other (0.8%)	1		0.2400									
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	1		10.00									
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	1		12.70									
191.99	Acid Soluble Cr, Other (ppm)	1		0.1000									
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	1		1.000									
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	1		0.0002									

Method Code	Analyte & Method Sample # 240451	# 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
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	1		0.0552									
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	1		4.000									
281.30	Acid Soluble Hg, ICP (ppm)	2	1	1.275	1.025								
281.99	Acid Soluble Hg, Other (ppm)	1		0.0010									
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	1		1.000									
291.30	Acid Soluble Ni, ICP (ppm)	1		1.700									
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	1		1.500									
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	2	1	5.020	7.042								
311.33	Sodium, ICP, test portion as in 2017.02 (%)	1		0.1202									
311.99	Sodium, Other (%)	1		0.1900									
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	1		0.0013									
321.99	Acid Soluble Zn, Other (%)	1		0.0030									

The Method IA Ratio = $2.33 * \text{Robust SD} / \text{IA at the Method Assigned Value}$. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates the IA ratio is significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting. 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 # 240451

Potassium Select PT Scheme

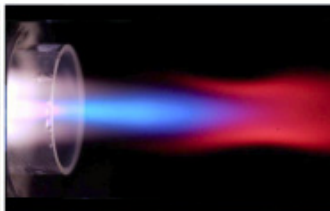
Grade 0-0-50

Method Precision Report

Issue Date : 05/31/2024

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
050.00	Soluble K ₂ O, STPB Oxalate (50%)	6	5	50.33	0.1318	0.1216	0.0717	0.1412	0.24%	0.14%	0.28%	1.969
050.99	Soluble K ₂ O, Other (50%)	8	7	49.68	2.050	2.046	0.1765	2.053	4.12%	0.36%	4.13%	11.63

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



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Methods: 41

Sample # 240451

Potassium Select PT Scheme

Labs Reporting: 17

Grade 0-0-50

Lab Values

Issue Date : 05/31/2024

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				
010.60	Total N, Combustion (%)	0131	0.0000	0.0000				0			4
020.50	Total P2O5, ICP (%)	0611	< 0.01					0			5
041.50	Direct Available P2O5, ICP (%)	0131	0.0000	0.0000				0			4
050.00	Soluble K2O, STPB Oxalate (50%)	0597	48.80	0.0900	50.26	0.2418	0.0840	6	-5.38	OK	0
050.00	Soluble K2O, STPB Oxalate (50%)	0405	50.13	0.1000	50.26	0.2418	0.0840	6	-0.47	OK	0
050.00	Soluble K2O, STPB Oxalate (50%)	0602	50.31	0.0700	50.26	0.2418	0.0840	6	0.18	OK	0
050.00	Soluble K2O, STPB Oxalate (50%)	0055	50.32	0.0400	50.26	0.2418	0.0840	6	0.22	OK	0
050.00	Soluble K2O, STPB Oxalate (50%)	0494	50.43	0.0500	50.26	0.2418	0.0840	6	0.62	OK	0
050.00	Soluble K2O, STPB Oxalate (50%)	0220	50.47	0.1800	50.26	0.2418	0.0840	6	0.79	OK	0
050.30	Soluble K2O, AA (Oxalate) (50%)	0040	50.95	0.7000				1			0
050.50	Soluble K2O, ICP (Oxalate) (50%)	0055	50.10	0.8750				1			0
050.51	Soluble K2O, ICP (Citrate) (50%)	0007	48.70	0.8000				2			0
050.51	Soluble K2O, ICP (Citrate) (50%)	0131	56.04	0.2970				2			0
050.52	Soluble K2O, ICP (Citrate-EDTA) (50%)	0494	50.37	0.3100				1			0
050.60	Soluble K2O, Flame Photometric (Oxalate) (50%)	0602	50.31	0.0700				1			0
050.99	Soluble K2O, Other (50%)	0543	45.15	0.0010	50.24	0.7775	0.2118	7	-5.92	Low	0
050.99	Soluble K2O, Other (50%)	0615	49.66	0.4400	50.24	0.7775	0.2118	7	-0.68	OK	0
050.99	Soluble K2O, Other (50%)	0590	50.21	0.0000	50.24	0.7775	0.2118	7	-0.04	OK	0
050.99	Soluble K2O, Other (50%)	0602	50.31	0.0700	50.24	0.7775	0.2118	7	0.07	OK	0
050.99	Soluble K2O, Other (50%)	0561	50.59	0.2600	50.24	0.7775	0.2118	7	0.41	OK	0
050.99	Soluble K2O, Other (50%)	0611	50.75	0.1000	50.24	0.7775	0.2118	7	0.59	OK	0
050.99	Soluble K2O, Other (50%)	0371	51.10	0.4000	50.24	0.7775	0.2118	7	1.00	OK	0
050.99	Soluble K2O, Other (50%)	0042	57.80	3.400	50.24	0.7775	0.2118	7	8.79	High	1
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0494	0.1500	0.0210				1			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0494	0.3282	0.0128				1			0
121.99	Acid Soluble Mg, Other (%)	0611	0.9600	0.0000				1			0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0494	17.49	0.0300	17.96	0.3520	0.0525	4	-1.35		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0405	17.92	0.0200	17.96	0.3520	0.0525	4	-0.11		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0220	18.13	0.0800	17.96	0.3520	0.0525	4	0.49		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0561	18.30	0.0800	17.96	0.3520	0.0525	4	0.97		0
148.00	Total S, Combustion (17.5%)	0131	0.0000	0.0000				0			4

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				
148.01	Total S, Gravimetric - sulfate and elemental (17.5%)	0055	18.01	0.1950				1			0
148.07	Total S, ICP, test portion as in 2017.02 (17.5%)	0543	16.62	0.7410	17.45	0.7396	0.6066	3	-1.12		0
148.07	Total S, ICP, test portion as in 2017.02 (17.5%)	0040	17.70	0.2000	17.45	0.7396	0.6066	3	0.34		0
148.07	Total S, ICP, test portion as in 2017.02 (17.5%)	0494	18.03	0.8788	17.45	0.7396	0.6066	3	0.79		0
148.99	Total S, Other (17.5%)	0611	17.15	0.5000	17.68	0.6042	0.1975	5	-0.87		0
148.99	Total S, Other (17.5%)	0602	17.22	0.0700	17.68	0.6042	0.1975	5	-0.76		0
148.99	Total S, Other (17.5%)	0597	17.40	0.1300	17.68	0.6042	0.1975	5	-0.46		0
148.99	Total S, Other (17.5%)	0371	18.09	0.0000	17.68	0.6042	0.1975	5	0.69		0
148.99	Total S, Other (17.5%)	0220	18.53	0.0900	17.68	0.6042	0.1975	5	1.41		0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0220	0.4000	0.0000				2			0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0086	0.4121	0.0789				2			0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0405	< 3					2			5
151.99	Acid Soluble As, Other (ppm)	0220	0.4500	0.1000				1			0
151.99	Acid Soluble As, Other (ppm)	0371	< 0.1					1			5
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0220	0.0300	0.0000				1			0
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0405	< 1					1			5
181.99	Acid Soluble Cd, Other (ppm)	0220	0.0300	0.0000				1			0
181.99	Acid Soluble Cd, Other (ppm)	0371	< 0.1					1			5
190.00	Water Soluble Cl, Titrimetric (0.8%)	0494	0.1100	0.0060	0.1733	0.0651	0.0220	3	-0.97		0
190.00	Water Soluble Cl, Titrimetric (0.8%)	0561	0.1700	0.0400	0.1733	0.0651	0.0220	3	-0.05		0
190.00	Water Soluble Cl, Titrimetric (0.8%)	0602	0.2400	0.0200	0.1733	0.0651	0.0220	3	1.02		0
190.00	Water Soluble Cl, Titrimetric (0.8%)	0220	< 0.01		0.1733	0.0651	0.0220	3			5
190.99	Water Soluble Cl, Other (0.8%)	0602	0.2400	0.0200				1			0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0405	10.00	0.0000				1			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0494	12.70	0.2000				1			0
191.99	Acid Soluble Cr, Other (ppm)	0371	< 0.1					0			5
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0405	< 1					0			5
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	0405	< 0.0002					0			5
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0494	0.0552	0.0007				1			0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0405	< 4					0			5
281.30	Acid Soluble Hg, ICP (ppm)	0371	0.5500	0.1000				1			0
281.30	Acid Soluble Hg, ICP (ppm)	0405	< 2					1			5
281.99	Acid Soluble Hg, Other (ppm)	0086	0.0010	0.0012				1			0
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0405	< 1					0			5
291.30	Acid Soluble Ni, ICP (ppm)	0371	1.700	0.0000				1			0
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0405	1.500	1.000				1			0
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0086	0.0408	0.0031				1			0
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0405	< 10					1			5
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0494	0.1202	0.0040				1			0
311.99	Sodium, Other (%)	0611	0.1900	0.0200				1			0
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0405	0.0013	0.0009				1			0
321.99	Acid Soluble Zn, Other (%)	0371	0.0030	0.0020				1			0

Interpreting Z Scores and Flags:

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				

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