Method PT For All Labs
Sample # 220851
Grade 0-0-50

Magruder Fertilizer Proficiency Testing Program

Potassium Select PT Scheme

Statistical Summary

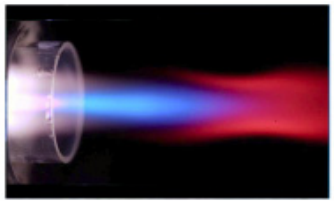
 # Methods: 43
 # Labs Reporting: 17
Issue Date : 09/30/2022

Method Code	Analyte & Method Sample # 220851	# 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		0.0095									
020.50	Total P2O5, ICP (%)	1		0.1100									
050.00	Soluble K2O, STPB Oxalate (50%)	4	4	53.28	2.294	53.28	1.6928	2.294	1.434	4.31%	3.16	0.3825	1.37%
050.30	Soluble K2O, AA (Oxalate) (50%)	2	2	52.28	0.2510								
050.32	Soluble K2O, AA (Citrate-EDTA) (50%)	1		48.08									
050.50	Soluble K2O, ICP (Oxalate) (50%)	1		50.45									
050.52	Soluble K2O, ICP (Citrate-EDTA) (50%)	3	3	51.67	0.8801	51.67	1.6767	0.8801	0.6351	1.70%	1.22	1.110	1.39%
050.99	Soluble K2O, Other (50%)	6	6	53.00	4.022	52.67	1.6867	3.769	1.924	7.16%	**5.21**	0.6383	1.38%
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	2	2	0.1079	0.0242								
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	2	2	0.1852	0.0498								
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	3	3	18.07	0.1711	18.07		0.1711	0.1235	0.95%		0.0867	2.35%
148.00	Total S, Combustion (17%)	1		16.77									
148.01	Total S, Gravimetric - sulfate and elemental (17%)	2	2	17.65	0.7287								
148.07	Total S, ICP, test portion as in 2017.02 (17%)	5	5	18.16	0.9547	18.16	1.0000	0.9547	0.5337	5.26%	2.22	0.4564	2.35%
148.99	Total S, Other (17%)	4	4	17.98	0.8083	17.98	1.0000	0.8083	0.5052	4.49%	1.88	0.1275	2.36%
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	1		0.5000									
151.99	Acid Soluble As, Other (ppm)	2	1	1.625	1.945								
181.99	Acid Soluble Cd, Other (ppm)	2	0	0.5500	0.6364								
190.00	Water Soluble Cl, Titrimetric (0.8%)	3	3	0.0981	0.0805	0.0981	0.0148	0.0805	0.0581	82.07%	12.67	0.0009	5.67%
190.99	Water Soluble Cl, Other (0.8%)	1		0.0700									
191.30	Acid Soluble Cr, ICP (ppm)	1		12.00									
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	1		7.600									
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	1		9.935									
191.99	Acid Soluble Cr, Other (ppm)	2	2	9.600	1.980								
202.30	Acid Soluble Co, ICP (ppm)	1		10.50									
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	1		3.150									
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	1		5.955									
202.99	Acid Soluble Co, Other (ppm)	2	2	4.875	2.298								
221.99	Acid Soluble Cu, Other (%)	1		0.0012									

Method Code	Analyte & Method Sample # 220851	# 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 (%)	2	2	0.0215	0.0021								
251.99	Acid Soluble Pb, Other (ppm)	2	0	2.500	2.121								
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	1		0.0064									
281.99	Acid Soluble Hg, Other (ppm)	2	0	1.005	1.407								
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	1		0.6000									
289.99	Acid Soluble Mo, Other (ppm)	2	1	0.7000	0.4243								
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	1		3.950									
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	1		4.080									
291.99	Acid Soluble Ni, Other (ppm)	2	2	4.600	0.5657								
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	1		0.3000									
301.99	Acid Soluble Se, Other (ppm)	2	1	5.075	6.965								
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	1		0.0194									
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	2	2	0.0175	0.0036								
321.99	Acid Soluble Zn, Other (%)	2	2	0.0189	0.0002								

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 usin the Thompson Modification, Analyst,2000,125,385-386.



Method PT For All Labs

Sample # 220851

Grade 0-0-50

Magruder Fertilizer Proficiency Testing Program

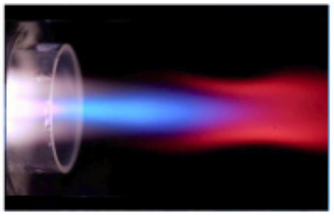
Potassium Select PT Scheme

Method Precision Report

Issue Date : 09/30/2022

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
050.99	Soluble K2O, Other (50%)	6	5	51.54	2.054	2.039	0.3531	2.069	3.96%	0.69%	4.02%	5.862

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


Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

 # Methods: 43

Sample # 220851

Potassium Select PT Scheme

 # Labs Reporting: 17

Grade 0-0-50

Lab Values

Issue Date : 09/30/2022

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				
010.60	Total N, Combustion (%)	0472	0.0095	0.0010				1			0
020.50	Total P2O5, ICP (%)	0472	0.1100	0.0200				1			0
050.00	Soluble K2O, STPB Oxalate (50%)	0589	51.82	0.0400	53.28	2.294	0.3825	4	-0.63		0
050.00	Soluble K2O, STPB Oxalate (50%)	0220	51.92	0.0700	53.28	2.294	0.3825	4	-0.59		0
050.00	Soluble K2O, STPB Oxalate (50%)	0494	52.71	1.130	53.28	2.294	0.3825	4	-0.25		0
050.00	Soluble K2O, STPB Oxalate (50%)	0597	56.67	0.2900	53.28	2.294	0.3825	4	1.48		0
050.30	Soluble K2O, AA (Oxalate) (50%)	0040	52.10	0.4000				2			0
050.30	Soluble K2O, AA (Oxalate) (50%)	0073	52.46	0.1100				2			0
050.32	Soluble K2O, AA (Citrate-EDTA) (50%)	0472	48.08	1.250				1			0
050.50	Soluble K2O, ICP (Oxalate) (50%)	0603	50.45	0.1000				1			0
050.52	Soluble K2O, ICP (Citrate-EDTA) (50%)	0025	50.95	0.3000	51.67	0.8801	1.110	3	-0.82		0
050.52	Soluble K2O, ICP (Citrate-EDTA) (50%)	0494	51.41	2.710	51.67	0.8801	1.110	3	-0.30		0
050.52	Soluble K2O, ICP (Citrate-EDTA) (50%)	0547	52.65	0.3200	51.67	0.8801	1.110	3	1.12		0
050.99	Soluble K2O, Other (50%)	0576	47.93	0.1200	52.67	3.769	0.6383	6	**-1.12**	Low	0
050.99	Soluble K2O, Other (50%)	0027	52.06	0.0300	52.67	3.769	0.6383	6	**-0.14**	OK	0
050.99	Soluble K2O, Other (50%)	0590	52.16	0.0400	52.67	3.769	0.6383	6	**-0.12**	OK	0
050.99	Soluble K2O, Other (50%)	0421	52.45	1.100	52.67	3.769	0.6383	6	**-0.05**	OK	0
050.99	Soluble K2O, Other (50%)	0561	53.08	0.1400	52.67	3.769	0.6383	6	**0.10**	OK	0
050.99	Soluble K2O, Other (50%)	0042	60.30	2.400	52.67	3.769	0.6383	6	**1.80**	High	0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0494	0.0909	0.0003				2			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0472	0.1250	0.0100				2			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0472	0.1500	0.0000				2			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0494	0.2205	0.0025				2			0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0561	17.95	0.1100	18.07	0.1711	0.0867	3	-0.73		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0027	18.00	0.1200	18.07	0.1711	0.0867	3	-0.41		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0405	18.27	0.0300	18.07	0.1711	0.0867	3	1.14		0
148.00	Total S, Combustion (17%)	0073	16.77	0.0700				1			0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0589	17.13	0.1000				2			0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0494	18.16	0.0890				2			0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0603	17.09	0.0500	18.16	0.9547	0.4564	5	-1.13		0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0472	17.66	0.2300	18.16	0.9547	0.4564	5	-0.53		0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0040	18.15	0.1000	18.16	0.9547	0.4564	5	-0.02		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				
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0494	18.28	0.2018	18.16	0.9547	0.4564	5	0.12		0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0421	19.65	1.700	18.16	0.9547	0.4564	5	1.56		0
148.99	Total S, Other (17%)	0576	17.10	0.0000	17.98	0.8083	0.1275	4	-1.09		0
148.99	Total S, Other (17%)	0597	17.78	0.3800	17.98	0.8083	0.1275	4	-0.25		0
148.99	Total S, Other (17%)	0590	18.01	0.0300	17.98	0.8083	0.1275	4	0.03		0
148.99	Total S, Other (17%)	0220	19.05	0.1000	17.98	0.8083	0.1275	4	1.32		0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0220	0.5000	0.2000				1			0
151.99	Acid Soluble As, Other (ppm)	0220	0.2500	0.1000				1			0
151.99	Acid Soluble As, Other (ppm)	0405	< 3					1			5
181.99	Acid Soluble Cd, Other (ppm)	0220	< 0.1					0			5
181.99	Acid Soluble Cd, Other (ppm)	0405	< 1					0			5
190.00	Water Soluble Cl, Titrimetric (0.8%)	0220	0.0400	0.0000	0.0981	0.0805	0.0009	3	-0.72		0
190.00	Water Soluble Cl, Titrimetric (0.8%)	0494	0.0643	0.0026	0.0981	0.0805	0.0009	3	-0.42		0
190.00	Water Soluble Cl, Titrimetric (0.8%)	0561	0.1900	0.0000	0.0981	0.0805	0.0009	3	1.14		0
190.99	Water Soluble Cl, Other (0.8%)	0589	0.0700	0.0000				1			0
191.30	Acid Soluble Cr, ICP (ppm)	0027	12.00	0.0000				1			0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0220	7.600	0.2000				1			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0494	9.935	0.3300				1			0
191.99	Acid Soluble Cr, Other (ppm)	0220	8.200	2.200				2			0
191.99	Acid Soluble Cr, Other (ppm)	0405	11.00	0.0000				2			0
202.30	Acid Soluble Co, ICP (ppm)	0027	10.50	1.000				1			0
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0220	3.150	0.1000				1			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0494	5.955	0.2300				1			0
202.99	Acid Soluble Co, Other (ppm)	0220	3.250	0.3000				2			0
202.99	Acid Soluble Co, Other (ppm)	0405	6.500	1.000				2			0
221.99	Acid Soluble Cu, Other (%)	0405	0.0012	0.0000				1			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0472	0.0200	0.0000				2			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0494	0.0230	0.0005				2			0
251.99	Acid Soluble Pb, Other (ppm)	0220	< 1					0			5
251.99	Acid Soluble Pb, Other (ppm)	0405	< 4					0			5
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0494	0.0064	0.0003				1			0
281.99	Acid Soluble Hg, Other (ppm)	0220	< 0.01					0			5
281.99	Acid Soluble Hg, Other (ppm)	0405	< 2					0			5
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0220	0.6000	0.2000				1			0
289.99	Acid Soluble Mo, Other (ppm)	0220	0.4000	0.2000				1			0
289.99	Acid Soluble Mo, Other (ppm)	0405	< 1					1			5
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0220	3.950	0.1000				1			0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0494	4.080	0.2600				1			0
291.99	Acid Soluble Ni, Other (ppm)	0220	4.200	0.8000				2			0
291.99	Acid Soluble Ni, Other (ppm)	0405	5.000	0.0000				2			0
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0220	0.3000	0.0000				1			0
301.99	Acid Soluble Se, Other (ppm)	0220	0.1500	0.1000				1			0
301.99	Acid Soluble Se, Other (ppm)	0405	< 10					1			5

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				
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0220	0.0194	0.0000				1			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0494	0.0150	0.0005				2			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0472	0.0200	0.0000				2			0
321.99	Acid Soluble Zn, Other (%)	0220	0.0188	0.0003				2			0
321.99	Acid Soluble Zn, Other (%)	0405	0.0190	0.0000				2			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.