

Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 36

Sample # 230451

Potassium Select PT Scheme

Labs Reporting: 9

Potash

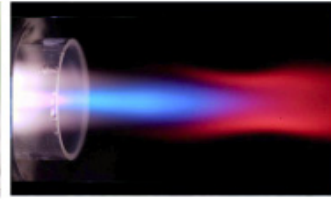
Statistical Summary

Issue Date : 05/31/2023

Method Code	Analyte & Method Sample # 230451	# 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
020.50	Total P2O5, ICP (%)	1		0.0100									
050.00	Soluble K2O, STPB Oxalate (60%)	4	4	60.46	0.6360	60.46	1.7846	0.6360	0.3975	1.05%	0.83	0.3300	1.29%
050.50	Soluble K2O, ICP (Oxalate) (60%)	1		64.62									
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	1		60.09									
050.99	Soluble K2O, Other (60%)	4	4	62.79	4.574	62.79	1.8079	4.574	2.859	7.28%	5.89	1.380	1.26%
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours, 5g samp	1		0.2200									
060.99	Water (Free), Other (%)	1		0.0750									
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	1		0.0784									
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	1		0.0412									
131.30	Water Soluble Mg, ICP (%)	1		0.0121									
148.07	Total S, ICP, test portion as in 2017.02 (%)	1		0.0349									
148.99	Total S, Other (%)	1		0.0357									
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	2	1	1.750	1.768								
151.99	Acid Soluble As, Other (ppm)	1		0.5000									
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	2	1	0.5200	0.6788								
181.99	Acid Soluble Cd, Other (ppm)	1		0.0400									
190.00	Water Soluble Cl, Titrimetric (%)	3	3	45.41	3.102	45.41	1.0000	3.102	2.238	6.83%	7.23	0.5460	1.48%
190.99	Water Soluble Cl, Other (%)	1		47.40									
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	2	1	2.650	2.333								
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	2	1	0.5500	0.6364								
202.99	Acid Soluble Co, Other (ppm)	1		0.1150									
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	1		2.000									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	1		0.0982									
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	2	1	2.400	2.263								
251.99	Acid Soluble Pb, Other (ppm)	1		0.7500									
281.30	Acid Soluble Hg, ICP (ppm)	1		2.000									
281.99	Acid Soluble Hg, Other (ppm)	1		0.0100									
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	1		1.000									
289.99	Acid Soluble Mo, Other (ppm)	1		0.3000									

Method Code	Analyte & Method Sample # 230451	# 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
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	1		1.000									
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	2	1	5.700	6.081								
301.99	Acid Soluble Se, Other (ppm)	1		1.650									
311.00	Sodium, AA (%)	1		1.246									
311.33	Sodium, ICP, test portion as in 2017.02 (%)	1		1.203									
311.99	Sodium, Other (%)	1		0.9900									
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	1		3.000									

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.



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Magruder Fertilizer Proficiency Testing Program

Sample # 230451

Potassium Select PT Scheme

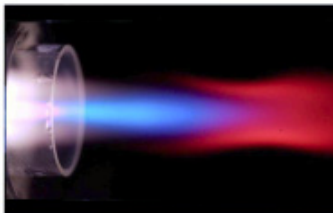
Potash

Method Precision Report

Issue Date : 05/31/2023

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

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



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 36

Sample # 230451

Potassium Select PT Scheme

Labs Reporting: 9

Potash

Lab Values

Issue Date : 05/31/2023

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	R-bar				
020.50	Total P2O5, ICP (%)	0611	< 0.01					0			5
050.00	Soluble K2O, STPB Oxalate (60%)	0494	59.52	1.090	60.46	0.6360	0.3300	4	-1.48		0
050.00	Soluble K2O, STPB Oxalate (60%)	0589	60.67	0.0800	60.46	0.6360	0.3300	4	0.34		0
050.00	Soluble K2O, STPB Oxalate (60%)	0405	60.72	0.0500	60.46	0.6360	0.3300	4	0.41		0
050.00	Soluble K2O, STPB Oxalate (60%)	0220	60.92	0.1000	60.46	0.6360	0.3300	4	0.73		0
050.50	Soluble K2O, ICP (Oxalate) (60%)	0086	64.62	1.762				1			0
050.52	Soluble K2O, ICP (Citrate-EDTA) (60%)	0494	60.09	0.8100				1			0
050.99	Soluble K2O, Other (60%)	0615	60.40	1.200	62.79	4.574	1.380	4	-0.52		0
050.99	Soluble K2O, Other (60%)	0590	60.51	0.0200	62.79	4.574	1.380	4	-0.50		0
050.99	Soluble K2O, Other (60%)	0611	60.60	0.2000	62.79	4.574	1.380	4	-0.48		0
050.99	Soluble K2O, Other (60%)	0042	69.65	4.100	62.79	4.574	1.380	4	1.50		0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours, 5g sample)	0220	0.2200	0.0400				1			0
060.99	Water (Free), Other (%)	0405	0.0750	0.0020				1			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0494	0.0784	0.0080				1			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0494	0.0412	0.0021				1			0
131.30	Water Soluble Mg, ICP (%)	0611	0.0121	0.0000				1			0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0494	0.0349	0.0035				1			0
148.99	Total S, Other (%)	0611	0.0357	0.0000				1			0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0220	0.5000	0.0000				1			0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0405	< 3					1			5
151.99	Acid Soluble As, Other (ppm)	0220	0.5000	0.0000				1			0
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0220	0.0400	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	0.0400	0.0000				1			0
190.00	Water Soluble Cl, Titrimetric (%)	0494	41.83	1.544	45.41	3.102	0.5460	3	-1.15		0
190.00	Water Soluble Cl, Titrimetric (%)	0220	47.03	0.0900	45.41	3.102	0.5460	3	0.52		0
190.00	Water Soluble Cl, Titrimetric (%)	0405	47.37	0.0040	45.41	3.102	0.5460	3	0.63		0
190.99	Water Soluble Cl, Other (%)	0611	47.40	0.0000				1			0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0220	4.300	2.000				1			0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0405	< 1					1			5
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0220	0.1000	0.0000				1			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	R-bar				
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0405	< 1					1			5
202.99	Acid Soluble Co, Other (ppm)	0220	0.1150	0.0100				1			0
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	0405	< 2					0			5
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0494	0.0982	0.0027				1			0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0220	0.8000	0.2000				1			0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0405	< 4					1			5
251.99	Acid Soluble Pb, Other (ppm)	0220	0.7500	0.3000				1			0
281.30	Acid Soluble Hg, ICP (ppm)	0405	< 2					0			5
281.99	Acid Soluble Hg, Other (ppm)	0220	< 0.01					0			5
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0405	< 1					0			5
289.99	Acid Soluble Mo, Other (ppm)	0220	< 0.3					0			5
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0405	< 1					0			5
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0220	1.400	0.2000				1			0
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0405	< 10					1			5
301.99	Acid Soluble Se, Other (ppm)	0220	1.650	0.3000				1			0
311.00	Sodium, AA (%)	0405	1.246	0.0060				1			0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0494	1.203	0.0798				1			0
311.99	Sodium, Other (%)	0611	0.9900	0.0000				1			0
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0405	< 3					0			5

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.