

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

### Method Proficiency For All Labs (Lab Values)

Sample # 150211  
Grade 0-0-60 (KCI)

### Statistical Summary

Issue Date : 03/31/2015

Method Code	Analyte & Method	Total # Labs Submitting	# Labs in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	IA %RSD	Average Range (R-bar)	Horwitz %RSD
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	11	10	59.88	3.935	60.81	1.7887	1.237	0.2765	2.03%	1.47%	0.4560	2.16%
050.30	Soluble Potassium as K2O, AA (60%)	5	5	61.63	1.274	61.63	1.7887	1.274	0.4028	2.07%	1.45%	0.8220	2.15%
050.31	Soluble Potassium as K2O, AA (60%)	1		58.47									
050.50	Soluble Potassium as K2O, ICP (60%)	6	5	60.13	1.429	60.13	1.7887	1.429	0.4520	2.38%	1.49%	0.3560	2.16%
050.51	Soluble Potassium as K2O, ICP (60%)	10	10	61.99	2.588	61.43	1.7887	1.247	0.2788	2.03%	1.46%	0.7328	2.15%
050.60	Soluble Potassium as K2O, Flame Photometric (60%)	7	6	60.98	0.9252	60.98	1.7887	1.049	0.3029	1.72%	1.47%	0.0855	2.15%
050.61	Soluble Potassium as K2O, Flame Photometric (60%)	6	6	61.07	1.333	60.98	1.7887	1.225	0.3537	2.01%	1.47%	1.027	2.15%
050.99	Soluble Potassium as K2O, Other (60%)	19	18	60.71	0.8947	60.69	1.7887	0.9624	0.1604	1.59%	1.47%	0.6737	2.16%
060.00	Water (%)	1		0.2050									
060.99	Water (%)	7	6	0.0774	0.0669	0.0676		0.0527	0.0152	78.00%		0.0032	6.00%
190.00	Water Soluble Chlorine, Titrimetric (%)	6	6	47.19	0.9262	47.26		0.8953	0.2585	1.89%		0.1500	2.24%
190.99	Water Soluble Chlorine, Other (%)	3	3	42.92	7.450	42.92		7.450	3.041	17.36%		0.4433	2.27%

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Method Proficiency For All Labs (Lab Values)

Sample # 150211

Grade 0-0-60 (KCI)

### Method Precision Report

Issue Date : 03/31/2015

Method Code	Analyte & Method	Total # Labs Submitting	# Labs 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 Potassium as K <sub>2</sub> O, STPB Oxalate	11	9	61.08	1.064	1.059	0.1517	1.070	1.73%	0.25%	1.75%	7.049
050.50	Soluble Potassium as K <sub>2</sub> O, ICP	6	5	60.13	1.429	1.412	0.3122	1.446	2.35%	0.52%	2.41%	4.632
050.51	Soluble Potassium as K <sub>2</sub> O, ICP	10	9	61.22	0.9348	0.7990	0.6864	1.053	1.30%	1.12%	1.72%	1.535
050.60	Soluble Potassium as K <sub>2</sub> O, Flame Photometric	7	5	61.17	0.8899	0.8894	0.0427	0.8904	1.45%	0.07%	1.46%	20.87
050.61	Soluble Potassium as K <sub>2</sub> O, Flame Photometric	6	6	61.07	1.333	1.070	1.124	1.552	1.75%	1.84%	2.54%	1.380
050.99	Soluble Potassium as K <sub>2</sub> O, Other	19	18	60.71	0.8947	0.7668	0.6518	1.006	1.26%	1.07%	1.66%	1.544
060.99	Water	7	6	0.0774	0.0669	0.0668	0.0037	0.0669	86.29%	4.79%	86.42%	18.04
190.00	Water Soluble Chlorine, Titrimetric	6	6	47.19	0.9262	0.9206	0.1434	0.9317	1.95%	0.30%	1.97%	6.497

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STRIVING FOR EXCELLENCE IN ANALYSIS

### Method Proficiency For All Labs (Lab Values)

Sample # 150211

### Lab Values

Grade 0-0-60 (KCI)

Issue Date : 03/31/2015

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Labs	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0230	49.05*	3.300	60.81	1.237	0.4560	10	-9.51	10%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0258	59.77	0.0100	60.81	1.237	0.4560	10	-0.85	1%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0102	60.01	0.0000	60.81	1.237	0.4560	10	-0.65	1%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0090	60.45	0.1500	60.81	1.237	0.4560	10	-0.30	0%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0231	60.61	0.2100	60.81	1.237	0.4560	10	-0.17	0%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0049	61.02	0.5200	60.81	1.237	0.4560	10	0.17	0%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0405	61.16	0.0600	60.81	1.237	0.4560	10	0.28	0%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0211	61.71	0.2700	60.81	1.237	0.4560	10	0.72	1%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0114	61.78	0.0200	60.81	1.237	0.4560	10	0.78	1%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0055	63.24	0.0200	60.81	1.237	0.4560	10	1.96	2%	0
050.00	Soluble Potassium as K2O, STPB Oxalate (60%)	0470	56.82*	9.980	60.81	1.237	0.4560	10	-3.23	3%	1
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0040	60.30	1.600	61.63	1.274	0.8220	5	-1.05	1%	0
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0136	60.41	0.0700	61.63	1.274	0.8220	5	-0.96	1%	0
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0157	62.05	0.9000	61.63	1.274	0.8220	5	0.33	0%	0
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0498	62.10	0.8000	61.63	1.274	0.8220	5	0.37	0%	0
050.30	Soluble Potassium as K2O, AA (Oxalate) (60%)	0185	63.31	0.7400	61.63	1.274	0.8220	5	1.32	1%	0
050.31	Soluble Potassium as K2O, AA (Citrate) (60%)	0472	58.47*	0.0300			0.0300	1			
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0452	58.27*	0.1300	60.13	1.429	0.3560	5	-1.30	2%	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0324	59.00*	0.8000	60.13	1.429	0.3560	5	-0.79	1%	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0055	60.65	0.4300	60.13	1.429	0.3560	5	0.36	0%	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0292	61.11	0.0600	60.13	1.429	0.3560	5	0.69	1%	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0390	61.61	0.3600	60.13	1.429	0.3560	5	1.04	1%	0
050.50	Soluble Potassium as K2O, ICP (Oxalate) (60%)	0157	61.30	2.800	60.13	1.429	0.3560	5	0.82	1%	1
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0483	59.99	1.920	61.43	1.247	0.7328	10	-1.16	1%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0043	60.17	0.4700	61.43	1.247	0.7328	10	-1.02	1%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0485	60.20	0.0800	61.43	1.247	0.7328	10	-0.99	1%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0025	61.00	1.000	61.43	1.247	0.7328	10	-0.35	0%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0007	61.50	0.8000	61.43	1.247	0.7328	10	0.05	0%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0389	61.55	1.100	61.43	1.247	0.7328	10	0.10	0%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0354	61.96	0.1580	61.43	1.247	0.7328	10	0.42	0%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0291	62.10	0.0400	61.43	1.247	0.7328	10	0.54	1%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0377	62.55	1.300	61.43	1.247	0.7328	10	0.90	1%	0
050.51	Soluble Potassium as K2O, ICP (Citrate) (60%)	0117	68.92	0.4600	61.43	1.247	0.7328	10	6.01	6%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Labs	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
050.60	Soluble Potassium as K2O, Flame Photometric (... (60%)	0351	60.02	0.2730	60.98	1.049	0.0855	6	-0.92	1%	0
050.60	Soluble Potassium as K2O, Flame Photometric (... (60%)	0510	60.14	0.0100	60.98	1.049	0.0855	6	-0.81	1%	0
050.60	Soluble Potassium as K2O, Flame Photometric (... (60%)	0169	60.44	0.0800	60.98	1.049	0.0855	6	-0.52	0%	0
050.60	Soluble Potassium as K2O, Flame Photometric (... (60%)	0105	61.25	0.0400	60.98	1.049	0.0855	6	0.26	0%	0
050.60	Soluble Potassium as K2O, Flame Photometric (... (60%)	0470	61.80	0.0100	60.98	1.049	0.0855	6	0.78	1%	0
050.60	Soluble Potassium as K2O, Flame Photometric (... (60%)	0309	62.25	0.1000	60.98	1.049	0.0855	6	1.21	1%	0
050.60	Soluble Potassium as K2O, Flame Photometric (... (60%)	0041	60.73	2.380	60.98	1.049	0.0855	6	-0.24	0%	1
050.61	Soluble Potassium as K2O, Flame Photometric (... (60%)	0095	59.39	2.580	60.98	1.225	1.027	6	-1.30	1%	0
050.61	Soluble Potassium as K2O, Flame Photometric (... (60%)	0037	60.15	0.0500	60.98	1.225	1.027	6	-0.68	1%	0
050.61	Soluble Potassium as K2O, Flame Photometric (... (60%)	0035	60.82	0.5700	60.98	1.225	1.027	6	-0.13	0%	0
050.61	Soluble Potassium as K2O, Flame Photometric (... (60%)	0034	61.29	0.0102	60.98	1.225	1.027	6	0.25	0%	0
050.61	Soluble Potassium as K2O, Flame Photometric (... (60%)	0456	61.53	0.0900	60.98	1.225	1.027	6	0.45	0%	0
050.61	Soluble Potassium as K2O, Flame Photometric (... (60%)	0494	63.28	2.860	60.98	1.225	1.027	6	1.88	2%	0
050.99	Soluble Potassium as K2O, Other (60%)	0042	59.39	1.980	60.69	0.9624	0.6737	18	-1.35	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0360	59.64	0.1200	60.69	0.9624	0.6737	18	-1.09	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0482	59.85	0.3000	60.69	0.9624	0.6737	18	-0.87	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0506	59.95	0.7000	60.69	0.9624	0.6737	18	-0.77	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0027	60.01	0.6600	60.69	0.9624	0.6737	18	-0.71	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0500	60.06	0.0400	60.69	0.9624	0.6737	18	-0.65	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0368	60.21	0.6540	60.69	0.9624	0.6737	18	-0.50	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0493	60.25	0.1000	60.69	0.9624	0.6737	18	-0.46	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0322	60.67	0.0190	60.69	0.9624	0.6737	18	-0.02	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0177	60.73	0.1457	60.69	0.9624	0.6737	18	0.04	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0371	60.80	0.6000	60.69	0.9624	0.6737	18	0.11	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0450	61.00	0.6500	60.69	0.9624	0.6737	18	0.32	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0481	61.00	1.200	60.69	0.9624	0.6737	18	0.32	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0486	61.04	0.1100	60.69	0.9624	0.6737	18	0.36	0%	0
050.99	Soluble Potassium as K2O, Other (60%)	0402	61.60	2.000	60.69	0.9624	0.6737	18	0.95	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0029	61.96	0.9700	60.69	0.9624	0.6737	18	1.31	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0307	62.16	1.627	60.69	0.9624	0.6737	18	1.53	1%	0
050.99	Soluble Potassium as K2O, Other (60%)	0043	62.53	0.2500	60.69	0.9624	0.6737	18	1.91	2%	0
050.99	Soluble Potassium as K2O, Other (60%)	0275	47.70*	1.210	60.69	0.9624	0.6737	18	-13.50	11%	2
060.00	Water (Free), Vacuum Oven (%)	0456	0.2050	0.0100			0.0100	1			
060.99	Water (Free), Other (%)	0481	0.0205	0.0010	0.0676	0.0527	0.0032	6	-0.89	35%	0
060.99	Water (Free), Other (%)	0027	0.0250	0.0100	0.0676	0.0527	0.0032	6	-0.81	32%	0
060.99	Water (Free), Other (%)	0368	0.0500	0.0000	0.0676	0.0527	0.0032	6	-0.33	13%	0
060.99	Water (Free), Other (%)	0405	0.0690	0.0080	0.0676	0.0527	0.0032	6	0.03	1%	0
060.99	Water (Free), Other (%)	0009	0.1000	0.0000	0.0676	0.0527	0.0032	6	0.61	24%	0
060.99	Water (Free), Other (%)	0506	0.2000	0.0000	0.0676	0.0527	0.0032	6	2.51	98%	0
060.99	Water (Free), Other (%)	0512	0.0150	0.0300	0.0676	0.0527	0.0032	6	-1.00	39%	4
190.00	Water Soluble Chlorine, Titrimetric (%)	0506	45.70	0.0000	47.26	0.8953	0.1500	6	-1.74	2%	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0494	46.66	0.3200	47.26	0.8953	0.1500	6	-0.67	1%	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0009	47.22	0.0200	47.26	0.8953	0.1500	6	-0.05	0%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Labs	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
190.00	Water Soluble Chlorine, Titrimetric (%)	0405	47.42	0.0400	47.26	0.8953	0.1500	6	0.18	0%	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0105	47.71	0.3200	47.26	0.8953	0.1500	6	0.50	0%	0
190.00	Water Soluble Chlorine, Titrimetric (%)	0498	48.40	0.2000	47.26	0.8953	0.1500	6	1.27	1%	0
190.99	Water Soluble Chlorine, Other (%)	0368	34.65	0.7300	42.92	7.450	0.4433	3	-1.11	10%	0
190.99	Water Soluble Chlorine, Other (%)	0027	45.00	0.4000	42.92	7.450	0.4433	3	0.28	2%	0
190.99	Water Soluble Chlorine, Other (%)	0389	49.10	0.2000	42.92	7.450	0.4433	3	0.83	7%	0

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 and a 4 flag indicates rejected due to 0 value submitted. Robust statistics not used if < 6 labs reporting, in this case the Z Scores are included for information only (Grey). An offset lab value with an asterisk indicates that the value is lower than the Analyte value less the IA. Method or Analyte 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.