



Analyte PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Analytes: 28

Sample # 241215

Regular PT Scheme Sample Doubles with K Scheme

Labs Reporting: 74

Potash

Statistical Summary

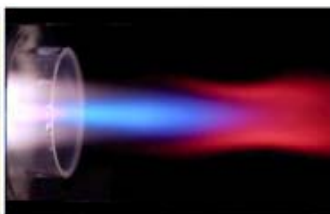
Issue Date : 01/31/2025

Analyte Code	Analyte Sample # 241215	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Analyte IA Ratio	Average Range (R-bar)	Horwitz %RSD
001	Ammoniacal N (%)	1		0.0278									
005	Urea N (%)	1		0.0662									
010	Total N (%)	5	5	0.0339	0.0247	0.0339	0.4900	0.0247	0.0138	72.90%	0.12	0.0359	6.66%
020	Total P2O5 (%)	4	2	0.0286	0.0479	0.0066		0.0074	0.0065	111.42%		0.0002	8.52%
041	Direct Available P2O5 (%)	3	1	0.3400	0.5716	0.0066	0.6700	0.0074	0.0092	111.42%	0.03	0.0001	8.52%
050	Soluble K2O (60%)	75	73	60.10	2.948	60.37	1.7837	1.065	0.1558	1.76%	1.39	0.3582	1.29%
060	Water (Free) (%)	9	8	0.0982	0.0512	0.0979		0.0621	0.0274	63.40%		0.0044	5.67%
101	Acid Soluble Ca (%)	5	5	0.0849	0.0075	0.0849	0.2042	0.0075	0.0042	8.88%	0.09	0.0040	5.80%
121	Acid Soluble Mg (%)	6	5	0.0640	0.0039	0.0634	0.2032	0.0040	0.0022	6.30%	0.05	0.0001	6.06%
131	Water Soluble Mg (%)	1		0.0376									
148	Total S (%)	4	4	0.0439	0.0371	0.0439	0.2022	0.0371	0.0232	84.63%	0.43	0.0070	6.40%
149	S - HNO3 soluble (%)	1		0.0257									
151	Acid Soluble As (ppm)	15	5	1.993	2.899	1.033		1.926	1.077	186.48%		0.0490	15.92%
165	Acid Soluble B (%)	3	0	0.0034	0.0057	1.033	0.1579	1.926		186.48%	28.42	0.0118	3.98%
181	Acid Soluble Cd (ppm)	16	4	0.5966	1.231	0.0558		0.0513	0.0321	91.99%		0.0080	22.00%
190	Water Soluble Cl (%)	23	22	47.06	1.086	46.93	1.0000	0.7059	0.1881	1.50%	1.64	0.2403	1.46%
191	Acid Soluble Cr (ppm)	15	8	3.005	4.967	0.9422		0.6660	0.2943	70.68%		0.1479	16.14%
202	Acid Soluble Co (ppm)	13	3	1.440	2.206	2.551	1.7653	3.969	2.864	155.58%	5.24	0.6602	13.89%
221	Acid Soluble Cu (%)	13	3	0.0019	0.0036	0.0003	0.0050	0.0001	0.0001	22.91%	0.04	0.0002	13.35%
241	Acid Soluble Fe (%)	6	6	0.0637	0.0238	0.0689	0.0119	0.0137	0.0070	19.80%	2.67	0.0040	5.98%
251	Acid Soluble Pb (ppm)	15	5	1.912	2.135	0.4291		0.2695	0.1507	62.82%		0.0644	18.17%
261	Acid Soluble Mn (%)	6	5	0.0022	0.0038	0.0006	0.0051	0.0002	0.0001	34.50%	0.10	0.0001	12.16%
281	Acid Soluble Hg (ppm)	10	2	0.4058	0.6829	0.0027		0.0033	0.0029	120.47%		0.0011	22.00%
289	Acid Soluble Mo (ppm)	10	1	0.9744	1.600	0.0027	1.0008	0.0033	0.0041	120.47%	0.01	0.0002	22.00%
291	Acid Soluble Ni (ppm)	14	6	1.357	1.679	0.8105		0.5362	0.2736	66.15%		0.2743	16.51%
301	Acid Soluble Se (ppm)	11	4	1.958	3.255	0.8052		1.251	0.7817	155.33%		0.0434	16.53%
311	Sodium (%)	26	26	1.092	0.2595	1.053	0.1103	0.0962	0.0236	9.14%	2.03	0.0375	3.97%
321	Acid Soluble Zn (%)	12	3	0.0021	0.0037	0.0007	0.0051	0.0007	0.0005	104.08%	0.33	0.0006	11.98%

The Analyte IA Ratio = 2.33 * Robust SD / IA at the Analyte Assigned Value. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates

Analyte Code	Analyte Sample # 241215	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Analyte IA Ratio	Average Range (R-bar)	Horwitz %RSD
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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.



Analyte PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Analytes: 28

Sample # 241215

Regular PT Scheme Sample Doubles with K Scheme

Labs Reporting: 74

Potash

Lab Values

Issue Date : 01/31/2025

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
001	Ammoniacal N (%)	0524	0.0278	0.0003				1		001.99	0
005	Urea N (%)	0524	0.0662	0.0074				1		005.99	0
010	Total N (%)	0568	0.0070	0.0000	0.0339	0.0247	0.0359	5	-1.09	010.12	0
010	Total N (%)	0422	0.0100	0.0000	0.0339	0.0247	0.0359	5	-0.97	010.60	0
010	Total N (%)	0524	0.0370	0.0088	0.0339	0.0247	0.0359	5	0.13	010.99	0
010	Total N (%)	0588	0.0570	0.0040	0.0339	0.0247	0.0359	5	0.93	010.60	0
010	Total N (%)	0354	0.0585	0.0950	0.0339	0.0247	0.0359	5	1.00	010.60	0
020	Total P2O5 (%)	0524	0.0014	0.0000				2		020.50	0
020	Total P2O5 (%)	0422	0.0118	0.0002				2		020.50	0
020	Total P2O5 (%)	0542	< 0.0012					2		020.50	5
020	Total P2O5 (%)	0588	< 0.1					2		020.50	5
041	Direct Available P2O5 (%)	0568	0.0100	0.0000				1		041.21	0
041	Direct Available P2O5 (%)	0354	< 0.01					1		041.21	5
041	Direct Available P2O5 (%)	0034	< 1					1		041.40	5
050	Soluble K2O (60%)	0543	54.17†	0.0760	60.37	1.065	0.3582	73	-5.82	050.52	0
050	Soluble K2O (60%)	0515	55.35†	1.390	60.37	1.065	0.3582	73	-4.72	050.99	0
050	Soluble K2O (60%)	0568	57.30†	0.0000	60.37	1.065	0.3582	73	-2.88	050.51	0
050	Soluble K2O (60%)	0553	58.04†	1.890	60.37	1.065	0.3582	73	-2.19	050.99	0
050	Soluble K2O (60%)	0354	58.15†	0.1000	60.37	1.065	0.3582	73	-2.09	050.52	0
050	Soluble K2O (60%)	0055	58.35†	0.0850	60.37	1.065	0.3582	73	-1.90	050.50	0
050	Soluble K2O (60%)	0389	58.67	0.0200	60.37	1.065	0.3582	73	-1.60	050.99	0
050	Soluble K2O (60%)	0043	58.76	0.0000	60.37	1.065	0.3582	73	-1.51	050.52	0
050	Soluble K2O (60%)	0102	58.96	0.0000	60.37	1.065	0.3582	73	-1.32	050.00	0
050	Soluble K2O (60%)	0524	59.01	1.064	60.37	1.065	0.3582	73	-1.28	050.99	0
050	Soluble K2O (60%)	0421	59.15	0.1000	60.37	1.065	0.3582	73	-1.15	050.99	0
050	Soluble K2O (60%)	0481	59.16	0.2300	60.37	1.065	0.3582	73	-1.14	050.99	0
050	Soluble K2O (60%)	0255	59.16	0.1810	60.37	1.065	0.3582	73	-1.14	050.99	0
050	Soluble K2O (60%)	0049	59.44	0.1400	60.37	1.065	0.3582	73	-0.87	050.00	0
050	Soluble K2O (60%)	0521	59.44	0.0000	60.37	1.065	0.3582	73	-0.87	050.99	0
050	Soluble K2O (60%)	0423	59.48	0.1700	60.37	1.065	0.3582	73	-0.84	050.52	0
050	Soluble K2O (60%)	0234	59.65	0.8000	60.37	1.065	0.3582	73	-0.68	050.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			#	Magruder PT	Your	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar	Tests	Z Score	Method	
050	Soluble K2O (60%)	0615	59.75	0.3000	60.37	1.065	0.3582	73	-0.58	050.99	0
050	Soluble K2O (60%)	0531	59.85	0.1000	60.37	1.065	0.3582	73	-0.49	050.99	0
050	Soluble K2O (60%)	0169	59.95	0.1000	60.37	1.065	0.3582	73	-0.39	050.50	0
050	Soluble K2O (60%)	0626	59.98	0.0500	60.37	1.065	0.3582	73	-0.37	050.99	0
050	Soluble K2O (60%)	0577	60.00	0.4800	60.37	1.065	0.3582	73	-0.35	050.99	0
050	Soluble K2O (60%)	0626	60.02	0.0400	60.37	1.065	0.3582	73	-0.33	050.00	0
050	Soluble K2O (60%)	0324	60.05	0.7000	60.37	1.065	0.3582	73	-0.30	050.50	0
050	Soluble K2O (60%)	0619	60.20	0.2000	60.37	1.065	0.3582	73	-0.16	050.00	0
050	Soluble K2O (60%)	0619	60.20	0.2000	60.37	1.065	0.3582	73	-0.16	050.99	0
050	Soluble K2O (60%)	0635	60.23	0.0500	60.37	1.065	0.3582	73	-0.14	050.99	0
050	Soluble K2O (60%)	0605	60.23	0.1720	60.37	1.065	0.3582	73	-0.14	050.99	0
050	Soluble K2O (60%)	0517	60.25	0.3000	60.37	1.065	0.3582	73	-0.11	050.99	0
050	Soluble K2O (60%)	0584	60.29	0.2600	60.37	1.065	0.3582	73	-0.08	050.99	0
050	Soluble K2O (60%)	0451	60.30	0.1800	60.37	1.065	0.3582	73	-0.07	050.99	0
050	Soluble K2O (60%)	0023	60.30	0.5990	60.37	1.065	0.3582	73	-0.07	050.52	0
050	Soluble K2O (60%)	0564	60.33	0.0500	60.37	1.065	0.3582	73	-0.04	050.99	0
050	Soluble K2O (60%)	0377	60.37	0.5200	60.37	1.065	0.3582	73	0.00	050.52	0
050	Soluble K2O (60%)	0600	60.38	0.2500	60.37	1.065	0.3582	73	0.00	050.99	0
050	Soluble K2O (60%)	0007	60.39	0.4100	60.37	1.065	0.3582	73	0.01	050.51	0
050	Soluble K2O (60%)	0444	60.39	0.3400	60.37	1.065	0.3582	73	0.02	050.50	0
050	Soluble K2O (60%)	0485	60.40	0.2000	60.37	1.065	0.3582	73	0.03	050.52	0
050	Soluble K2O (60%)	0513	60.40	0.1600	60.37	1.065	0.3582	73	0.03	050.99	0
050	Soluble K2O (60%)	0072	60.42	0.0740	60.37	1.065	0.3582	73	0.04	050.00	0
050	Soluble K2O (60%)	0588	60.44	2.810	60.37	1.065	0.3582	73	0.06	050.99	0
050	Soluble K2O (60%)	0612	60.47	2.870	60.37	1.065	0.3582	73	0.09	050.99	0
050	Soluble K2O (60%)	0444	60.53	0.0100	60.37	1.065	0.3582	73	0.15	050.00	0
050	Soluble K2O (60%)	0231	60.53	0.1000	60.37	1.065	0.3582	73	0.15	050.00	0
050	Soluble K2O (60%)	0394	60.55	0.5500	60.37	1.065	0.3582	73	0.17	050.99	0
050	Soluble K2O (60%)	0177	60.58	0.1050	60.37	1.065	0.3582	73	0.20	050.52	0
050	Soluble K2O (60%)	0042	60.65	0.5000	60.37	1.065	0.3582	73	0.26	050.99	0
050	Soluble K2O (60%)	0611	60.65	0.1000	60.37	1.065	0.3582	73	0.26	050.99	0
050	Soluble K2O (60%)	0494	60.71	2.130	60.37	1.065	0.3582	73	0.31	050.52	0
050	Soluble K2O (60%)	0559	60.85	0.0100	60.37	1.065	0.3582	73	0.45	050.99	0
050	Soluble K2O (60%)	0055	60.87	0.1300	60.37	1.065	0.3582	73	0.46	050.00	0
050	Soluble K2O (60%)	0405	60.93	0.1000	60.37	1.065	0.3582	73	0.53	050.00	0
050	Soluble K2O (60%)	0527	60.94	0.1548	60.37	1.065	0.3582	73	0.53	050.99	0
050	Soluble K2O (60%)	0368	60.97	1.225	60.37	1.065	0.3582	73	0.56	050.51	0
050	Soluble K2O (60%)	0073	61.00	0.6100	60.37	1.065	0.3582	73	0.59	050.00	0
050	Soluble K2O (60%)	0037	61.00	0.2500	60.37	1.065	0.3582	73	0.59	050.62	0
050	Soluble K2O (60%)	0422	61.04	0.1566	60.37	1.065	0.3582	73	0.63	050.50	0
050	Soluble K2O (60%)	0494	61.13	0.8100	60.37	1.065	0.3582	73	0.71	050.00	0
050	Soluble K2O (60%)	0034	61.14	0.3505	60.37	1.065	0.3582	73	0.72	050.62	0
050	Soluble K2O (60%)	0095	61.19	2.540	60.37	1.065	0.3582	73	0.77	050.62	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
050	Soluble K2O (60%)	0433	61.23	0.4300	60.37	1.065	0.3582	73	0.80	050.99	0
050	Soluble K2O (60%)	0292	61.29	0.1700	60.37	1.065	0.3582	73	0.86	050.50	0
050	Soluble K2O (60%)	0035	61.45	0.1000	60.37	1.065	0.3582	73	1.01	050.61	0
050	Soluble K2O (60%)	0136	61.65	0.3000	60.37	1.065	0.3582	73	1.20	050.52	0
050	Soluble K2O (60%)	0561	61.75	0.0200	60.37	1.065	0.3582	73	1.30	050.99	0
050	Soluble K2O (60%)	0371	61.79	0.5900	60.37	1.065	0.3582	73	1.33	050.99	0
050	Soluble K2O (60%)	0537	61.80	2.170	60.37	1.065	0.3582	73	1.34	050.99	0
050	Soluble K2O (60%)	0029	61.88	2.010	60.37	1.065	0.3582	73	1.41	050.62	0
050	Soluble K2O (60%)	0040	62.15	0.5000	60.37	1.065	0.3582	73	1.67	050.30	0
050	Soluble K2O (60%)	0086	62.21‡	1.934	60.37	1.065	0.3582	73	1.73	050.50	0
050	Soluble K2O (60%)	0291	62.33‡	0.0800	60.37	1.065	0.3582	73	1.84	050.51	0
050	Soluble K2O (60%)	0572	63.36‡	1.510	60.37	1.065	0.3582	73	2.80	050.99	0
050	Soluble K2O (60%)	0542	68.50‡	0.4110	60.37	1.065	0.3582	73	7.64	050.99	0
050	Soluble K2O (60%)	0307	63.25‡	3.300	60.37	1.065	0.3582	73	2.70	050.99	1
050	Soluble K2O (60%)	0472	39.60†	1.800	60.37	1.065	0.3582	73	-19.51	050.32	2
060	Water (Free) (%)	0136	0.0110	0.0010	0.0979	0.0621	0.0044	8	-1.28	060.99	0
060	Water (Free) (%)	0405	0.0225	0.0010	0.0979	0.0621	0.0044	8	-1.11	060.99	0
060	Water (Free) (%)	0394	0.0905	0.0030	0.0979	0.0621	0.0044	8	-0.11	060.30	0
060	Water (Free) (%)	0572	0.0950	0.0100	0.0979	0.0621	0.0044	8	-0.04	060.99	0
060	Water (Free) (%)	0626	0.1300	0.0000	0.0979	0.0621	0.0044	8	0.47	060.30	0
060	Water (Free) (%)	0626	0.1400	0.0000	0.0979	0.0621	0.0044	8	0.62	060.20	0
060	Water (Free) (%)	0513	0.1445	0.0070	0.0979	0.0621	0.0044	8	0.69	060.20	0
060	Water (Free) (%)	0009	0.1500	0.0000	0.0979	0.0621	0.0044	8	0.77	060.99	0
060	Water (Free) (%)	0481	< 0.1		0.0979	0.0621	0.0044	8		060.99	5
101	Acid Soluble Ca (%)	0568	0.0740	0.0000	0.0849	0.0075	0.0040	5	-1.44	101.30	0
101	Acid Soluble Ca (%)	0572	0.0820	0.0020	0.0849	0.0075	0.0040	5	-0.38	101.99	0
101	Acid Soluble Ca (%)	0542	0.0849	0.0011	0.0849	0.0075	0.0040	5	0.00	101.99	0
101	Acid Soluble Ca (%)	0354	0.0900	0.0000	0.0849	0.0075	0.0040	5	0.68	101.30	0
101	Acid Soluble Ca (%)	0035	0.0935	0.0090	0.0849	0.0075	0.0040	5	1.15	101.30	0
121	Acid Soluble Mg (%)	0524	0.0592	0.0001	0.0634	0.0040	0.0001	5	-0.93	121.99	0
121	Acid Soluble Mg (%)	0568	0.0620	0.0000	0.0634	0.0040	0.0001	5	-0.31	121.30	0
121	Acid Soluble Mg (%)	0371	0.0630	0.0000	0.0634	0.0040	0.0001	5	-0.09	121.30	0
121	Acid Soluble Mg (%)	0572	0.0630	0.0000	0.0634	0.0040	0.0001	5	-0.09	121.99	0
121	Acid Soluble Mg (%)	0354	0.0700	0.0000	0.0634	0.0040	0.0001	5	1.43	121.30	0
121	Acid Soluble Mg (%)	0542	0.0671	0.0004	0.0634	0.0040	0.0001	5	0.80	121.99	1
131	Water Soluble Mg (%)	0572	0.0376	0.0014				1		131.99	0
148	Total S (%)	0422	0.0104	0.0005	0.0439	0.0371	0.0070	4	-0.90	148.99	0
148	Total S (%)	0354	0.0300	0.0200	0.0439	0.0371	0.0070	4	-0.37	148.99	0
148	Total S (%)	0542	0.0384	0.0062	0.0439	0.0371	0.0070	4	-0.15	148.99	0
148	Total S (%)	0572	0.0967	0.0011	0.0439	0.0371	0.0070	4	1.42	148.99	0
149	S - HNO3 soluble (%)	0524	0.0257	0.0021				1		149.04	0
151	Acid Soluble As (ppm)	0524	0.1424	0.0118	1.033	1.926	0.0490	5	-0.46	151.30	0
151	Acid Soluble As (ppm)	0371	0.1545	0.0250	1.033	1.926	0.0490	5	-0.46	151.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
151	Acid Soluble As (ppm)	0572	0.1900	0.1400	1.033	1.926	0.0490	5	-0.44	151.99	0
151	Acid Soluble As (ppm)	0086	0.1995	0.0130	1.033	1.926	0.0490	5	-0.43	151.32	0
151	Acid Soluble As (ppm)	0515	4.479	0.0550	1.033	1.926	0.0490	5	1.79	151.33	0
151	Acid Soluble As (ppm)	0515	2.685	3.118	1.033	1.926	0.0490	5	0.86	151.34	1
151	Acid Soluble As (ppm)	0255	0.0000	0.0000	1.033	1.926	0.0490	5		151.30	4
151	Acid Soluble As (ppm)	0368	< 0.3		1.033	1.926	0.0490	5		151.34	5
151	Acid Soluble As (ppm)	0626	< 0.5		1.033	1.926	0.0490	5		151.00	5
151	Acid Soluble As (ppm)	0220	< 0.5		1.033	1.926	0.0490	5		151.99	5
151	Acid Soluble As (ppm)	0481	< 0.5		1.033	1.926	0.0490	5		151.99	5
151	Acid Soluble As (ppm)	0136	< 1		1.033	1.926	0.0490	5		151.33	5
151	Acid Soluble As (ppm)	0405	< 3		1.033	1.926	0.0490	5		151.32	5
151	Acid Soluble As (ppm)	0605	< 6.25		1.033	1.926	0.0490	5		151.30	5
151	Acid Soluble As (ppm)	0117	< 10		1.033	1.926	0.0490	5		151.33	5
165	Acid Soluble B (%)	0371	0.0000	0.0000				0		165.30	4
165	Acid Soluble B (%)	0542	< 0.0001					0		165.99	5
165	Acid Soluble B (%)	0354	< 0.01					0		165.30	5
181	Acid Soluble Cd (ppm)	0371	0.0055	0.0030	0.0558	0.0513	0.0080	4	-0.98	181.99	0
181	Acid Soluble Cd (ppm)	0524	0.0176	0.0130	0.0558	0.0513	0.0080	4	-0.74	181.30	0
181	Acid Soluble Cd (ppm)	0220	0.1000	0.0000	0.0558	0.0513	0.0080	4	0.86	181.32	0
181	Acid Soluble Cd (ppm)	0220	0.1000	0.0000	0.0558	0.0513	0.0080	4	0.86	181.99	0
181	Acid Soluble Cd (ppm)	0255	0.0000	0.0000	0.0558	0.0513	0.0080	4		181.30	4
181	Acid Soluble Cd (ppm)	0572	< 0.05		0.0558	0.0513	0.0080	4		181.99	5
181	Acid Soluble Cd (ppm)	0394	< 0.1		0.0558	0.0513	0.0080	4		181.30	5
181	Acid Soluble Cd (ppm)	0368	< 0.1		0.0558	0.0513	0.0080	4		181.34	5
181	Acid Soluble Cd (ppm)	0515	< 0.133		0.0558	0.0513	0.0080	4		181.34	5
181	Acid Soluble Cd (ppm)	0515	< 0.19		0.0558	0.0513	0.0080	4		181.33	5
181	Acid Soluble Cd (ppm)	0605	< 0.25		0.0558	0.0513	0.0080	4		181.30	5
181	Acid Soluble Cd (ppm)	0481	< 0.5		0.0558	0.0513	0.0080	4		181.99	5
181	Acid Soluble Cd (ppm)	0626	< 1		0.0558	0.0513	0.0080	4		181.30	5
181	Acid Soluble Cd (ppm)	0405	< 1		0.0558	0.0513	0.0080	4		181.32	5
181	Acid Soluble Cd (ppm)	0136	< 1		0.0558	0.0513	0.0080	4		181.33	5
181	Acid Soluble Cd (ppm)	0117	< 5		0.0558	0.0513	0.0080	4		181.33	5
190	Water Soluble Cl (%)	0389	45.44	0.1600	46.93	0.7059	0.2403	22	-2.11	190.99	0
190	Water Soluble Cl (%)	0394	45.52	0.5100	46.93	0.7059	0.2403	22	-2.01	190.00	0
190	Water Soluble Cl (%)	0422	45.68	0.7662	46.93	0.7059	0.2403	22	-1.77	190.00	0
190	Water Soluble Cl (%)	0553	46.00	1.000	46.93	0.7059	0.2403	22	-1.32	190.00	0
190	Water Soluble Cl (%)	0029	46.49	0.1510	46.93	0.7059	0.2403	22	-0.62	190.00	0
190	Water Soluble Cl (%)	0531	46.55	0.1000	46.93	0.7059	0.2403	22	-0.54	190.00	0
190	Water Soluble Cl (%)	0531	46.55	0.1000	46.93	0.7059	0.2403	22	-0.54	190.99	0
190	Water Soluble Cl (%)	0572	46.78	0.3000	46.93	0.7059	0.2403	22	-0.22	190.00	0
190	Water Soluble Cl (%)	0537	46.90	0.2300	46.93	0.7059	0.2403	22	-0.05	190.00	0
190	Water Soluble Cl (%)	0600	46.98	0.3600	46.93	0.7059	0.2403	22	0.07	190.00	0
190	Water Soluble Cl (%)	0564	47.00	0.2000	46.93	0.7059	0.2403	22	0.10	190.00	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
190	Water Soluble Cl (%)	0029	47.08	0.7500	46.93	0.7059	0.2403	22	0.20	190.99	0
190	Water Soluble Cl (%)	0513	47.12	0.1400	46.93	0.7059	0.2403	22	0.27	190.00	0
190	Water Soluble Cl (%)	0605	47.17	0.0600	46.93	0.7059	0.2403	22	0.34	190.00	0
190	Water Soluble Cl (%)	0619	47.25	0.1000	46.93	0.7059	0.2403	22	0.45	190.00	0
190	Water Soluble Cl (%)	0619	47.25	0.1000	46.93	0.7059	0.2403	22	0.45	190.99	0
190	Water Soluble Cl (%)	0444	47.45	0.1000	46.93	0.7059	0.2403	22	0.73	190.00	0
190	Water Soluble Cl (%)	0611	47.45	0.1000	46.93	0.7059	0.2403	22	0.73	190.99	0
190	Water Soluble Cl (%)	0563	47.62	0.8100	46.93	0.7059	0.2403	22	0.97	190.00	0
190	Water Soluble Cl (%)	0405	47.64	0.0300	46.93	0.7059	0.2403	22	0.99	190.00	0
190	Water Soluble Cl (%)	0626	47.74	0.2300	46.93	0.7059	0.2403	22	1.14	190.00	0
190	Water Soluble Cl (%)	0626	47.90	0.0400	46.93	0.7059	0.2403	22	1.37	190.99	0
190	Water Soluble Cl (%)	0136	50.90	2.600	46.93	0.7059	0.2403	22	5.62	190.99	1
191	Acid Soluble Cr (ppm)	0524	0.0566	0.0072	0.9422	0.6660	0.1479	8	-1.33	191.30	0
191	Acid Soluble Cr (ppm)	0371	0.4585	0.0270	0.9422	0.6660	0.1479	8	-0.73	191.99	0
191	Acid Soluble Cr (ppm)	0394	0.5515	0.0590	0.9422	0.6660	0.1479	8	-0.59	191.30	0
191	Acid Soluble Cr (ppm)	0220	0.8650	0.0300	0.9422	0.6660	0.1479	8	-0.12	191.32	0
191	Acid Soluble Cr (ppm)	0572	1.185	0.2500	0.9422	0.6660	0.1479	8	0.36	191.99	0
191	Acid Soluble Cr (ppm)	0220	1.200	0.4000	0.9422	0.6660	0.1479	8	0.39	191.99	0
191	Acid Soluble Cr (ppm)	0605	1.280	0.0400	0.9422	0.6660	0.1479	8	0.51	191.30	0
191	Acid Soluble Cr (ppm)	0515	3.466	0.3700	0.9422	0.6660	0.1479	8	3.79	191.33	0
191	Acid Soluble Cr (ppm)	0515	2.413	3.730	0.9422	0.6660	0.1479	8	2.21	191.34	1
191	Acid Soluble Cr (ppm)	0368	< 0.1		0.9422	0.6660	0.1479	8		191.34	5
191	Acid Soluble Cr (ppm)	0405	< 1		0.9422	0.6660	0.1479	8		191.32	5
191	Acid Soluble Cr (ppm)	0136	< 2.5		0.9422	0.6660	0.1479	8		191.33	5
191	Acid Soluble Cr (ppm)	0626	< 5		0.9422	0.6660	0.1479	8		191.30	5
191	Acid Soluble Cr (ppm)	0117	< 5		0.9422	0.6660	0.1479	8		191.33	5
191	Acid Soluble Cr (ppm)	0481	< 20		0.9422	0.6660	0.1479	8		191.99	5
202	Acid Soluble Co (ppm)	0524	0.2409	0.0767	2.551	3.969	0.6602	3	-0.58	202.30	0
202	Acid Soluble Co (ppm)	0542	0.2785	0.0530	2.551	3.969	0.6602	3	-0.57	202.30	0
202	Acid Soluble Co (ppm)	0255	7.134	1.851	2.551	3.969	0.6602	3	1.15	202.99	0
202	Acid Soluble Co (ppm)	0220	< 0.1		2.551	3.969	0.6602	3		202.32	5
202	Acid Soluble Co (ppm)	0368	< 0.1		2.551	3.969	0.6602	3		202.34	5
202	Acid Soluble Co (ppm)	0220	< 0.1		2.551	3.969	0.6602	3		202.99	5
202	Acid Soluble Co (ppm)	0515	< 0.139		2.551	3.969	0.6602	3		202.34	5
202	Acid Soluble Co (ppm)	0515	< 0.26		2.551	3.969	0.6602	3		202.33	5
202	Acid Soluble Co (ppm)	0572	< 0.62		2.551	3.969	0.6602	3		202.99	5
202	Acid Soluble Co (ppm)	0405	< 1		2.551	3.969	0.6602	3		202.32	5
202	Acid Soluble Co (ppm)	0605	< 1.25		2.551	3.969	0.6602	3		202.30	5
202	Acid Soluble Co (ppm)	0136	< 2.5		2.551	3.969	0.6602	3		202.33	5
202	Acid Soluble Co (ppm)	0117	< 5		2.551	3.969	0.6602	3		202.33	5
221	Acid Soluble Cu (%)	0515	0.0003	0.0001	0.0003	0.0001	0.0002	3	-1.09	221.33	0
221	Acid Soluble Cu (%)	0035	0.0004	0.0003	0.0003	0.0001	0.0002	3	0.22	221.30	0
221	Acid Soluble Cu (%)	0515	0.0004	0.0002	0.0003	0.0001	0.0002	3	0.87	221.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
221	Acid Soluble Cu (%)	0255	0.0000	0.0000	0.0003	0.0001	0.0002	3		221.30	4
221	Acid Soluble Cu (%)	0368	0.0000	0.0000	0.0003	0.0001	0.0002	3		221.99	4
221	Acid Soluble Cu (%)	0371	0.0005	0.0010	0.0003	0.0001	0.0002	3		221.30	4
221	Acid Soluble Cu (%)	0405	< 0.0002		0.0003	0.0001	0.0002	3		221.32	5
221	Acid Soluble Cu (%)	0136	< 0.0002		0.0003	0.0001	0.0002	3		221.33	5
221	Acid Soluble Cu (%)	0394	< 0.0002		0.0003	0.0001	0.0002	3		221.33	5
221	Acid Soluble Cu (%)	0542	< 0.0002		0.0003	0.0001	0.0002	3		221.99	5
221	Acid Soluble Cu (%)	0117	< 0.0025		0.0003	0.0001	0.0002	3		221.33	5
221	Acid Soluble Cu (%)	0354	< 0.01		0.0003	0.0001	0.0002	3		221.30	5
221	Acid Soluble Cu (%)	0481	< 0.01		0.0003	0.0001	0.0002	3		221.99	5
241	Acid Soluble Fe (%)	0371	0.0170	0.0080	0.0689	0.0137	0.0040	6	-3.39	241.30	0
241	Acid Soluble Fe (%)	0572	0.0655	0.0030	0.0689	0.0137	0.0040	6	-0.22	241.99	0
241	Acid Soluble Fe (%)	0524	0.0682	0.0002	0.0689	0.0137	0.0040	6	-0.05	241.99	0
241	Acid Soluble Fe (%)	0035	0.0695	0.0070	0.0689	0.0137	0.0040	6	0.04	241.30	0
241	Acid Soluble Fe (%)	0354	0.0800	0.0000	0.0689	0.0137	0.0040	6	0.72	241.30	0
241	Acid Soluble Fe (%)	0542	0.0820	0.0020	0.0689	0.0137	0.0040	6	0.85	241.99	0
251	Acid Soluble Pb (ppm)	0394	0.2245	0.0310	0.4291	0.2695	0.0644	5	-0.76	251.30	0
251	Acid Soluble Pb (ppm)	0572	0.2550	0.0100	0.4291	0.2695	0.0644	5	-0.65	251.99	0
251	Acid Soluble Pb (ppm)	0524	0.2659	0.0812	0.4291	0.2695	0.0644	5	-0.61	251.30	0
251	Acid Soluble Pb (ppm)	0220	0.5500	0.1000	0.4291	0.2695	0.0644	5	0.45	251.32	0
251	Acid Soluble Pb (ppm)	0220	0.8500	0.1000	0.4291	0.2695	0.0644	5	1.56	251.99	0
251	Acid Soluble Pb (ppm)	0515	1.375	0.2480	0.4291	0.2695	0.0644	5	3.51	251.33	1
251	Acid Soluble Pb (ppm)	0255	0.0000	0.0000	0.4291	0.2695	0.0644	5		251.30	4
251	Acid Soluble Pb (ppm)	0515	< 0.216		0.4291	0.2695	0.0644	5		251.34	5
251	Acid Soluble Pb (ppm)	0368	< 0.7		0.4291	0.2695	0.0644	5		251.34	5
251	Acid Soluble Pb (ppm)	0481	< 1		0.4291	0.2695	0.0644	5		251.99	5
251	Acid Soluble Pb (ppm)	0136	< 3		0.4291	0.2695	0.0644	5		251.33	5
251	Acid Soluble Pb (ppm)	0405	< 4		0.4291	0.2695	0.0644	5		251.32	5
251	Acid Soluble Pb (ppm)	0626	< 5		0.4291	0.2695	0.0644	5		251.30	5
251	Acid Soluble Pb (ppm)	0117	< 5		0.4291	0.2695	0.0644	5		251.33	5
251	Acid Soluble Pb (ppm)	0605	< 6.25		0.4291	0.2695	0.0644	5		251.30	5
261	Acid Soluble Mn (%)	0035	0.0005	0.0000	0.0006	0.0002	0.0001	5	-0.49	261.30	0
261	Acid Soluble Mn (%)	0524	0.0005	0.0000	0.0006	0.0002	0.0001	5	-0.49	261.99	0
261	Acid Soluble Mn (%)	0542	0.0006	0.0001	0.0006	0.0002	0.0001	5	-0.29	261.99	0
261	Acid Soluble Mn (%)	0572	0.0006	0.0001	0.0006	0.0002	0.0001	5	-0.29	261.99	0
261	Acid Soluble Mn (%)	0371	0.0010	0.0000	0.0006	0.0002	0.0001	5	1.55	261.32	0
261	Acid Soluble Mn (%)	0354	< 0.01		0.0006	0.0002	0.0001	5		261.30	5
281	Acid Soluble Hg (ppm)	0524	0.0004	0.0002				2		281.99	0
281	Acid Soluble Hg (ppm)	0371	0.0050	0.0020				2		281.30	0
281	Acid Soluble Hg (ppm)	0572	< 0.009					2		281.99	5
281	Acid Soluble Hg (ppm)	0220	< 0.01					2		281.99	5
281	Acid Soluble Hg (ppm)	0009	< 0.044					2		281.99	5
281	Acid Soluble Hg (ppm)	0515	< 0.1					2		281.30	5

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
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281	Acid Soluble Hg (ppm)	0086	< 0.14					2		281.99	5
281	Acid Soluble Hg (ppm)	0481	< 0.5					2		281.00	5
281	Acid Soluble Hg (ppm)	0605	< 1.25					2		281.30	5
281	Acid Soluble Hg (ppm)	0405	< 2					2		281.30	5
289	Acid Soluble Mo (ppm)	0542	0.1355	0.0950				1		289.30	0
289	Acid Soluble Mo (ppm)	0255	0.0000	0.0000				1		289.30	4
289	Acid Soluble Mo (ppm)	0368	0.1000	0.2000				1		289.34	4
289	Acid Soluble Mo (ppm)	0515	< 0.178					1		289.34	5
289	Acid Soluble Mo (ppm)	0515	< 0.23					1		289.33	5
289	Acid Soluble Mo (ppm)	0220	< 0.3					1		289.32	5
289	Acid Soluble Mo (ppm)	0220	< 0.3					1		289.99	5
289	Acid Soluble Mo (ppm)	0405	< 1					1		289.32	5
289	Acid Soluble Mo (ppm)	0136	< 2.5					1		289.33	5
289	Acid Soluble Mo (ppm)	0117	< 5					1		289.33	5
291	Acid Soluble Ni (ppm)	0542	0.3800	0.1140	0.8105	0.5362	0.2743	6	-0.80	291.30	0
291	Acid Soluble Ni (ppm)	0394	0.4265	0.0750	0.8105	0.5362	0.2743	6	-0.72	291.30	0
291	Acid Soluble Ni (ppm)	0371	0.5865	0.1970	0.8105	0.5362	0.2743	6	-0.42	291.30	0
291	Acid Soluble Ni (ppm)	0605	0.6700	0.2600	0.8105	0.5362	0.2743	6	-0.26	291.30	0
291	Acid Soluble Ni (ppm)	0220	1.300	0.4000	0.8105	0.5362	0.2743	6	0.91	291.32	0
291	Acid Soluble Ni (ppm)	0220	1.500	0.6000	0.8105	0.5362	0.2743	6	1.29	291.99	0
291	Acid Soluble Ni (ppm)	0255	0.0000	0.0000	0.8105	0.5362	0.2743	6		291.99	4
291	Acid Soluble Ni (ppm)	0515	< 0.18		0.8105	0.5362	0.2743	6		291.34	5
291	Acid Soluble Ni (ppm)	0368	< 0.2		0.8105	0.5362	0.2743	6		291.34	5
291	Acid Soluble Ni (ppm)	0515	< 0.26		0.8105	0.5362	0.2743	6		291.33	5
291	Acid Soluble Ni (ppm)	0405	< 1		0.8105	0.5362	0.2743	6		291.32	5
291	Acid Soluble Ni (ppm)	0136	< 2.5		0.8105	0.5362	0.2743	6		291.33	5
291	Acid Soluble Ni (ppm)	0626	< 5		0.8105	0.5362	0.2743	6		291.30	5
291	Acid Soluble Ni (ppm)	0117	< 5		0.8105	0.5362	0.2743	6		291.33	5
301	Acid Soluble Se (ppm)	0524	0.0149	0.0041	0.8052	1.251	0.0434	4	-0.54	301.30	0
301	Acid Soluble Se (ppm)	0220	0.2000	0.0000	0.8052	1.251	0.0434	4	-0.41	301.99	0
301	Acid Soluble Se (ppm)	0220	0.3350	0.0300	0.8052	1.251	0.0434	4	-0.32	301.32	0
301	Acid Soluble Se (ppm)	0515	2.671	0.0960	0.8052	1.251	0.0434	4	1.26	301.33	0
301	Acid Soluble Se (ppm)	0255	0.0000	0.0000	0.8052	1.251	0.0434	4		301.99	4
301	Acid Soluble Se (ppm)	0086	< 0.14		0.8052	1.251	0.0434	4		301.32	5
301	Acid Soluble Se (ppm)	0515	< 0.226		0.8052	1.251	0.0434	4		301.34	5
301	Acid Soluble Se (ppm)	0481	< 0.5		0.8052	1.251	0.0434	4		301.99	5
301	Acid Soluble Se (ppm)	0368	< 1.2		0.8052	1.251	0.0434	4		301.34	5
301	Acid Soluble Se (ppm)	0605	< 6.25		0.8052	1.251	0.0434	4		301.30	5
301	Acid Soluble Se (ppm)	0405	< 10		0.8052	1.251	0.0434	4		301.32	5
311	Sodium (%)	0611	0.5200	0.0000	1.053	0.0962	0.0375	26	-5.54	311.99	0
311	Sodium (%)	0515	0.9460	0.0711	1.053	0.0962	0.0375	26	-1.11	311.33	0
311	Sodium (%)	0572	0.9820	0.0020	1.053	0.0962	0.0375	26	-0.74	311.99	0
311	Sodium (%)	0255	0.9865	0.0390	1.053	0.0962	0.0375	26	-0.69	311.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
311	Sodium (%)	0542	0.9905	0.0230	1.053	0.0962	0.0375	26	-0.65	311.99	0
311	Sodium (%)	0043	0.9940	0.0600	1.053	0.0962	0.0375	26	-0.61	311.33	0
311	Sodium (%)	0394	0.9958	0.0107	1.053	0.0962	0.0375	26	-0.59	311.33	0
311	Sodium (%)	0368	0.9968	0.0730	1.053	0.0962	0.0375	26	-0.58	311.99	0
311	Sodium (%)	0444	1.000	0.0200	1.053	0.0962	0.0375	26	-0.55	311.32	0
311	Sodium (%)	0481	1.010	0.0200	1.053	0.0962	0.0375	26	-0.44	311.99	0
311	Sodium (%)	0389	1.015	0.0100	1.053	0.0962	0.0375	26	-0.39	311.99	0
311	Sodium (%)	0117	1.018	0.0141	1.053	0.0962	0.0375	26	-0.36	311.33	0
311	Sodium (%)	0035	1.020	0.0200	1.053	0.0962	0.0375	26	-0.34	311.33	0
311	Sodium (%)	0513	1.030	0.0200	1.053	0.0962	0.0375	26	-0.24	311.30	0
311	Sodium (%)	0515	1.030	0.1273	1.053	0.0962	0.0375	26	-0.23	311.99	0
311	Sodium (%)	0354	1.045	0.0700	1.053	0.0962	0.0375	26	-0.08	311.99	0
311	Sodium (%)	0405	1.049	0.0170	1.053	0.0962	0.0375	26	-0.04	311.00	0
311	Sodium (%)	0626	1.055	0.0100	1.053	0.0962	0.0375	26	0.02	311.30	0
311	Sodium (%)	0605	1.065	0.0500	1.053	0.0962	0.0375	26	0.13	311.99	0
311	Sodium (%)	0527	1.112	0.0218	1.053	0.0962	0.0375	26	0.62	311.33	0
311	Sodium (%)	0037	1.138	0.0439	1.053	0.0962	0.0375	26	0.89	311.33	0
311	Sodium (%)	0136	1.200	0.0000	1.053	0.0962	0.0375	26	1.53	311.33	0
311	Sodium (%)	0531	1.350	0.1000	1.053	0.0962	0.0375	26	3.09	311.30	0
311	Sodium (%)	0531	1.350	0.1000	1.053	0.0962	0.0375	26	3.09	311.99	0
311	Sodium (%)	0537	1.400	0.0400	1.053	0.0962	0.0375	26	3.61	311.30	0
311	Sodium (%)	0485	2.085	0.0100	1.053	0.0962	0.0375	26	10.73	311.99	0
321	Acid Soluble Zn (%)	0515	0.0002	0.0000	0.0007	0.0007	0.0006	3	-0.68	321.33	0
321	Acid Soluble Zn (%)	0035	0.0004	0.0001	0.0007	0.0007	0.0006	3	-0.47	321.30	0
321	Acid Soluble Zn (%)	0255	0.0015	0.0010	0.0007	0.0007	0.0006	3	1.15	321.30	0
321	Acid Soluble Zn (%)	0371	0.0000	0.0000	0.0007	0.0007	0.0006	3		321.30	4
321	Acid Soluble Zn (%)	0368	0.0000	0.0000	0.0007	0.0007	0.0006	3		321.99	4
321	Acid Soluble Zn (%)	0394	< 0.0002		0.0007	0.0007	0.0006	3		321.33	5
321	Acid Soluble Zn (%)	0542	< 0.0002		0.0007	0.0007	0.0006	3		321.99	5
321	Acid Soluble Zn (%)	0405	< 0.0003		0.0007	0.0007	0.0006	3		321.32	5
321	Acid Soluble Zn (%)	0136	< 0.0003		0.0007	0.0007	0.0006	3		321.33	5
321	Acid Soluble Zn (%)	0117	< 0.0025		0.0007	0.0007	0.0006	3		321.33	5
321	Acid Soluble Zn (%)	0354	< 0.01		0.0007	0.0007	0.0006	3		321.30	5
321	Acid Soluble Zn (%)	0481	< 0.01		0.0007	0.0007	0.0006	3		321.99	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. Identical duplicates not included in calculation of Rob R-bar. Your offset values are higher (±) or lower (†) than the Robust Analyte value ± Investigational Allowance. 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.