



Analyte PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Analytes: 27

Sample # 250311

Regular PT Scheme

Labs Reporting: 58

Gypsum

Statistical Summary

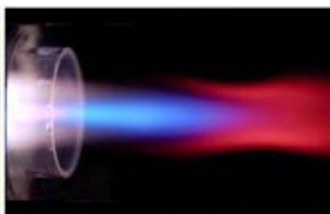
Issue Date : 04/30/2025

Analyte Code	Analyte Sample # 250311	# 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		0.2718									
005	Urea N (%)	1		0.0759									
010	Total N (%)	7	7	0.5044	0.0201	0.5044	0.4900	0.0227	0.0107	4.51%	0.11	0.0149	4.43%
020	Total P2O5 (%)	4	3	0.0299	0.0271	0.0395		0.0234	0.0169	59.33%		0.0068	6.51%
041	Direct Available P2O5 (%)	2	2	0.0913	0.0689								
050	Soluble K2O (%)	5	5	0.0826	0.0300	0.0826	0.4100	0.0300	0.0168	36.38%	0.17	0.0056	5.82%
101	Acid Soluble Ca (21%)	53	51	21.58	1.190	21.49	1.0000	1.215	0.2126	5.65%	2.83	0.4038	2.16%
121	Acid Soluble Mg (%)	10	10	0.1386	0.0251	0.1406	0.2070	0.0236	0.0093	16.76%	0.27	0.0075	5.37%
143	Elemental S (%)	3	3	16.90	1.206	16.90		1.206	0.8701	7.14%		0.0367	2.43%
145	Sulfate S, HCl soluble (%)	8	8	16.39	0.5116	16.45		0.4156	0.1837	2.53%		0.1202	2.47%
148	Total S (17%)	44	43	16.72	0.8790	16.78	1.0000	0.6157	0.1174	3.67%	1.43	0.2764	2.44%
149	S - HNO3 soluble (%)	3	3	15.90	1.865	15.90		1.865	1.346	11.73%		0.8532	2.51%
151	Acid Soluble As (ppm)	14	8	2.777	6.684	0.4592		0.2338	0.1033	50.91%		0.1287	17.98%
165	Acid Soluble B (%)	5	3	0.0043	0.0052	0.0005	0.0031	0.0001	0.0000	11.11%	0.04	0.0007	12.76%
181	Acid Soluble Cd (ppm)	14	6	0.3980	0.5592	0.1126		0.0206	0.0105	18.28%		0.0198	22.00%
191	Acid Soluble Cr (ppm)	16	15	11.89	4.717	11.35		4.920	1.588	43.35%		0.8829	11.10%
202	Acid Soluble Co (ppm)	11	9	5.793	9.449	3.019	1.9057	1.519	0.6331	50.33%	1.86	0.3811	13.55%
221	Acid Soluble Cu (%)	14	6	0.0017	0.0035	0.0004	0.0050	0.0003	0.0001	75.15%	0.13	0.0000	13.18%
241	Acid Soluble Fe (%)	8	8	0.0726	0.0150	0.0726	0.0123	0.0170	0.0075	23.49%	3.24	0.0073	5.94%
251	Acid Soluble Pb (ppm)	14	5	1.451	1.843	0.5087		0.0583	0.0326	11.45%		0.0469	17.71%
261	Acid Soluble Mn (%)	6	5	0.0052	0.0040	0.0043	0.0054	0.0036	0.0020	85.23%	1.56	0.0026	9.09%
281	Acid Soluble Hg (ppm)	10	4	0.5082	0.6355	0.1828		0.0626	0.0391	34.26%		0.0043	20.66%
289	Acid Soluble Mo (ppm)	10	5	1.406	1.085	0.9018	1.2705	0.2720	0.1520	30.16%	0.50	0.0829	16.25%
291	Acid Soluble Ni (ppm)	15	12	7.065	10.04	3.825		1.675	0.6043	43.79%		0.4784	13.07%
301	Acid Soluble Se (ppm)	12	7	2.956	3.092	2.130		0.5856	0.2767	27.49%		0.1577	14.28%
311	Sodium (%)	3	3	0.0137	0.0142	0.0137	0.0064	0.0142	0.0102	103.71%	5.19	0.0002	7.63%
321	Acid Soluble Zn (%)	15	10	0.0033	0.0038	0.0011	0.0051	0.0003	0.0001	25.29%	0.12	0.0001	11.18%

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 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.

Horwitz %RSD
Average Range (R-bar)
Analyte IA Ratio
Robust % RSD
Robust Uncertainty (U)
Robust sd
IA at Analyte Value
Assigned Value Robust Mean
Raw SD
Raw Mean
Tests in Robust Calculations
Tests Submitted
Analyte Sample # 250311
Analyte Code

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: 27

Sample # 250311

Regular PT Scheme

Labs Reporting: 58

Gypsum

Lab Values

Issue Date : 04/30/2025

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	0.2718	0.1152				1		001.99	0
005	Urea N (%)	0524	0.0759	0.0081				1		005.99	0
010	Total N (%)	0423	0.4800	0.0200	0.5044	0.0227	0.0149	7	-0.97	010.60	0
010	Total N (%)	0568	0.4880	0.0000	0.5044	0.0227	0.0149	7	-0.65	010.12	0
010	Total N (%)	0472	0.4885	0.0050	0.5044	0.0227	0.0149	7	-0.63	010.60	0
010	Total N (%)	0524	0.5056	0.0246	0.5044	0.0227	0.0149	7	0.05	010.99	0
010	Total N (%)	0422	0.5150	0.0100	0.5044	0.0227	0.0149	7	0.42	010.60	0
010	Total N (%)	0527	0.5180	0.0000	0.5044	0.0227	0.0149	7	0.54	010.60	0
010	Total N (%)	0354	0.5360	0.0000	0.5044	0.0227	0.0149	7	1.25	010.60	0
020	Total P2O5 (%)	0422	0.0190	0.0019	0.0395	0.0234	0.0068	3	-0.88	020.50	0
020	Total P2O5 (%)	0524	0.0345	0.0086	0.0395	0.0234	0.0068	3	-0.21	020.50	0
020	Total P2O5 (%)	0472	0.0650	0.0100	0.0395	0.0234	0.0068	3	1.09	020.50	0
020	Total P2O5 (%)	0527	< 0.001		0.0395	0.0234	0.0068	3		020.50	5
041	Direct Available P2O5 (%)	0354	0.0425	0.0070				2		041.21	0
041	Direct Available P2O5 (%)	0568	0.1400	0.0000				2		041.21	0
050	Soluble K2O (%)	0524	0.0417	0.0021	0.0826	0.0300	0.0056	5	-1.36	050.99	0
050	Soluble K2O (%)	0354	0.0690	0.0140	0.0826	0.0300	0.0056	5	-0.45	050.52	0
050	Soluble K2O (%)	0527	0.0810	0.0049	0.0826	0.0300	0.0056	5	-0.05	050.99	0
050	Soluble K2O (%)	0422	0.1012	0.0012	0.0826	0.0300	0.0056	5	0.62	050.50	0
050	Soluble K2O (%)	0568	0.1200	0.0000	0.0826	0.0300	0.0056	5	1.25	050.51	0
101	Acid Soluble Ca (21%)	0405	19.12†	0.0500	21.49	1.215	0.4038	51	-1.96	101.32	0
101	Acid Soluble Ca (21%)	0042	19.55†	1.700	21.49	1.215	0.4038	51	-1.60	101.99	0
101	Acid Soluble Ca (21%)	0177	19.98†	0.0321	21.49	1.215	0.4038	51	-1.24	101.33	0
101	Acid Soluble Ca (21%)	0255	20.05†	0.1800	21.49	1.215	0.4038	51	-1.19	101.30	0
101	Acid Soluble Ca (21%)	0102	20.10†	0.2800	21.49	1.215	0.4038	51	-1.15	101.33	0
101	Acid Soluble Ca (21%)	0521	20.19†	0.0000	21.49	1.215	0.4038	51	-1.07	101.33	0
101	Acid Soluble Ca (21%)	0553	20.30†	0.4100	21.49	1.215	0.4038	51	-0.99	101.00	0
101	Acid Soluble Ca (21%)	0481	20.35†	0.2500	21.49	1.215	0.4038	51	-0.94	101.99	0
101	Acid Soluble Ca (21%)	0377	20.46†	0.9400	21.49	1.215	0.4038	51	-0.85	101.30	0
101	Acid Soluble Ca (21%)	0055	20.60	0.1100	21.49	1.215	0.4038	51	-0.74	101.33	0
101	Acid Soluble Ca (21%)	0043	20.67	1.370	21.49	1.215	0.4038	51	-0.68	101.33	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				
101	Acid Soluble Ca (21%)	0231	20.72	0.4700	21.49	1.215	0.4038	51	-0.64	101.30	0
101	Acid Soluble Ca (21%)	0029	20.74	0.0000	21.49	1.215	0.4038	51	-0.62	101.99	0
101	Acid Soluble Ca (21%)	0421	20.75	0.7500	21.49	1.215	0.4038	51	-0.62	101.33	0
101	Acid Soluble Ca (21%)	0451	20.79	0.2300	21.49	1.215	0.4038	51	-0.58	101.30	0
101	Acid Soluble Ca (21%)	0040	20.86	0.5100	21.49	1.215	0.4038	51	-0.52	101.33	0
101	Acid Soluble Ca (21%)	0615	20.90	0.4000	21.49	1.215	0.4038	51	-0.49	101.00	0
101	Acid Soluble Ca (21%)	0602	20.95	0.1000	21.49	1.215	0.4038	51	-0.45	101.70	0
101	Acid Soluble Ca (21%)	0602	20.95	0.1000	21.49	1.215	0.4038	51	-0.45	101.99	0
101	Acid Soluble Ca (21%)	0527	20.97	0.2800	21.49	1.215	0.4038	51	-0.43	101.33	0
101	Acid Soluble Ca (21%)	0612	20.98	0.3700	21.49	1.215	0.4038	51	-0.43	101.33	0
101	Acid Soluble Ca (21%)	0568	21.00	0.0000	21.49	1.215	0.4038	51	-0.41	101.30	0
101	Acid Soluble Ca (21%)	0389	21.11	0.0800	21.49	1.215	0.4038	51	-0.31	101.99	0
101	Acid Soluble Ca (21%)	0049	21.17	0.2400	21.49	1.215	0.4038	51	-0.27	101.30	0
101	Acid Soluble Ca (21%)	0169	21.28	0.0500	21.49	1.215	0.4038	51	-0.18	101.33	0
101	Acid Soluble Ca (21%)	0136	21.30	0.4000	21.49	1.215	0.4038	51	-0.16	101.33	0
101	Acid Soluble Ca (21%)	0423	21.37	0.5500	21.49	1.215	0.4038	51	-0.10	101.32	0
101	Acid Soluble Ca (21%)	0584	21.38	0.1700	21.49	1.215	0.4038	51	-0.10	101.99	0
101	Acid Soluble Ca (21%)	0498	21.40	0.8000	21.49	1.215	0.4038	51	-0.08	101.03	0
101	Acid Soluble Ca (21%)	0605	21.44	0.1580	21.49	1.215	0.4038	51	-0.05	101.99	0
101	Acid Soluble Ca (21%)	0035	21.50	0.0000	21.49	1.215	0.4038	51	0.01	101.30	0
101	Acid Soluble Ca (21%)	0023	21.73	0.0770	21.49	1.215	0.4038	51	0.20	101.99	0
101	Acid Soluble Ca (21%)	0324	21.75	0.5000	21.49	1.215	0.4038	51	0.21	101.30	0
101	Acid Soluble Ca (21%)	0231	21.85	0.0000	21.49	1.215	0.4038	51	0.29	101.99	0
101	Acid Soluble Ca (21%)	0572	22.00	0.4000	21.49	1.215	0.4038	51	0.42	101.99	0
101	Acid Soluble Ca (21%)	0517	22.05	0.3000	21.49	1.215	0.4038	51	0.46	101.70	0
101	Acid Soluble Ca (21%)	0543	22.12	0.3210	21.49	1.215	0.4038	51	0.52	101.33	0
101	Acid Soluble Ca (21%)	0354	22.15	0.1000	21.49	1.215	0.4038	51	0.54	101.30	0
101	Acid Soluble Ca (21%)	0234	22.34	0.9000	21.49	1.215	0.4038	51	0.70	101.30	0
101	Acid Soluble Ca (21%)	0394	22.40	0.0590	21.49	1.215	0.4038	51	0.75	101.33	0
101	Acid Soluble Ca (21%)	0422	22.58‡	0.0100	21.49	1.215	0.4038	51	0.89	101.30	0
101	Acid Soluble Ca (21%)	0523	22.69‡	0.7000	21.49	1.215	0.4038	51	0.99	101.99	0
101	Acid Soluble Ca (21%)	0472	22.79‡	0.0300	21.49	1.215	0.4038	51	1.06	101.33	0
101	Acid Soluble Ca (21%)	0433	22.91‡	0.2700	21.49	1.215	0.4038	51	1.16	101.30	0
101	Acid Soluble Ca (21%)	0307	23.35‡	0.7000	21.49	1.215	0.4038	51	1.53	101.32	0
101	Acid Soluble Ca (21%)	0307	23.35‡	0.7000	21.49	1.215	0.4038	51	1.53	101.99	0
101	Acid Soluble Ca (21%)	0515	23.55‡	1.240	21.49	1.215	0.4038	51	1.69	101.99	0
101	Acid Soluble Ca (21%)	0452	23.56‡	0.8200	21.49	1.215	0.4038	51	1.70	101.33	0
101	Acid Soluble Ca (21%)	0095	23.65‡	3.620	21.49	1.215	0.4038	51	1.78	101.32	0
101	Acid Soluble Ca (21%)	0291	23.79‡	0.0400	21.49	1.215	0.4038	51	1.89	101.30	0
101	Acid Soluble Ca (21%)	0027	23.93‡	0.9600	21.49	1.215	0.4038	51	2.01	101.99	0
101	Acid Soluble Ca (21%)	0515	22.64‡	3.960	21.49	1.215	0.4038	51	0.95	101.33	1
101	Acid Soluble Ca (21%)	0360	23.63‡	5.480	21.49	1.215	0.4038	51	1.76	101.30	1
121	Acid Soluble Mg (%)	0472	0.0850	0.0100	0.1406	0.0236	0.0075	10	-2.19	121.33	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				
121	Acid Soluble Mg (%)	0422	0.1237	0.0001	0.1406	0.0236	0.0075	10	-0.67	121.30	0
121	Acid Soluble Mg (%)	0568	0.1300	0.0000	0.1406	0.0236	0.0075	10	-0.42	121.30	0
121	Acid Soluble Mg (%)	0035	0.1315	0.0090	0.1406	0.0236	0.0075	10	-0.36	121.30	0
121	Acid Soluble Mg (%)	0524	0.1350	0.0024	0.1406	0.0236	0.0075	10	-0.22	121.99	0
121	Acid Soluble Mg (%)	0527	0.1387	0.0019	0.1406	0.0236	0.0075	10	-0.08	121.33	0
121	Acid Soluble Mg (%)	0515	0.1472	0.0108	0.1406	0.0236	0.0075	10	0.26	121.99	0
121	Acid Soluble Mg (%)	0423	0.1510	0.0040	0.1406	0.0236	0.0075	10	0.41	121.32	0
121	Acid Soluble Mg (%)	0354	0.1700	0.0200	0.1406	0.0236	0.0075	10	1.16	121.30	0
121	Acid Soluble Mg (%)	0515	0.1739	0.0119	0.1406	0.0236	0.0075	10	1.31	121.33	0
143	Elemental S (%)	0255	15.51	0.0800	16.90	1.206	0.0367	3	-1.15	143.99	0
143	Elemental S (%)	0291	17.47	0.0100	16.90	1.206	0.0367	3	0.47	143.99	0
143	Elemental S (%)	0389	17.71	0.0200	16.90	1.206	0.0367	3	0.68	143.99	0
145	Sulfate S, HCl soluble (%)	0106	15.31	0.0900	16.45	0.4156	0.1202	8	-2.52	145.00	0
145	Sulfate S, HCl soluble (%)	0553	16.22	0.2300	16.45	0.4156	0.1202	8	-0.52	145.99	0
145	Sulfate S, HCl soluble (%)	0027	16.36	0.1400	16.45	0.4156	0.1202	8	-0.20	145.00	0
145	Sulfate S, HCl soluble (%)	0220	16.38	0.0000	16.45	0.4156	0.1202	8	-0.16	145.00	0
145	Sulfate S, HCl soluble (%)	0177	16.42	0.2184	16.45	0.4156	0.1202	8	-0.07	145.00	0
145	Sulfate S, HCl soluble (%)	0029	16.60	0.0100	16.45	0.4156	0.1202	8	0.32	145.00	0
145	Sulfate S, HCl soluble (%)	0476	16.76	0.1427	16.45	0.4156	0.1202	8	0.68	145.00	0
145	Sulfate S, HCl soluble (%)	0405	17.06	0.0100	16.45	0.4156	0.1202	8	1.33	145.00	0
148	Total S (17%)	0025	14.06†	0.5000	16.78	0.6157	0.2764	43	-4.41	148.00	0
148	Total S (17%)	0545	14.91†	0.5700	16.78	0.6157	0.2764	43	-3.05	148.01	0
148	Total S (17%)	0451	15.35†	0.7000	16.78	0.6157	0.2764	43	-2.32	148.00	0
148	Total S (17%)	0421	15.90	1.000	16.78	0.6157	0.2764	43	-1.43	148.07	0
148	Total S (17%)	0049	15.91	0.1900	16.78	0.6157	0.2764	43	-1.42	148.00	0
148	Total S (17%)	0572	16.05	0.5000	16.78	0.6157	0.2764	43	-1.19	148.99	0
148	Total S (17%)	0169	16.24	0.0300	16.78	0.6157	0.2764	43	-0.89	148.07	0
148	Total S (17%)	0028	16.30	0.1300	16.78	0.6157	0.2764	43	-0.79	148.01	0
148	Total S (17%)	0377	16.33	0.4100	16.78	0.6157	0.2764	43	-0.74	148.99	0
148	Total S (17%)	0498	16.40	0.4000	16.78	0.6157	0.2764	43	-0.62	148.01	0
148	Total S (17%)	0523	16.40	0.3000	16.78	0.6157	0.2764	43	-0.62	148.99	0
148	Total S (17%)	0177	16.41	0.0053	16.78	0.6157	0.2764	43	-0.61	148.07	0
148	Total S (17%)	0472	16.47	0.0200	16.78	0.6157	0.2764	43	-0.50	148.07	0
148	Total S (17%)	0043	16.48	0.2400	16.78	0.6157	0.2764	43	-0.49	148.07	0
148	Total S (17%)	0231	16.55	0.2200	16.78	0.6157	0.2764	43	-0.37	148.01	0
148	Total S (17%)	0177	16.57	0.0558	16.78	0.6157	0.2764	43	-0.34	148.01	0
148	Total S (17%)	0029	16.60	0.0100	16.78	0.6157	0.2764	43	-0.30	148.01	0
148	Total S (17%)	0324	16.60	1.400	16.78	0.6157	0.2764	43	-0.29	148.01	0
148	Total S (17%)	0612	16.67	0.2500	16.78	0.6157	0.2764	43	-0.19	148.07	0
148	Total S (17%)	0040	16.70	0.4000	16.78	0.6157	0.2764	43	-0.13	148.07	0
148	Total S (17%)	0102	16.74	0.1100	16.78	0.6157	0.2764	43	-0.07	148.07	0
148	Total S (17%)	0394	16.74	0.3660	16.78	0.6157	0.2764	43	-0.07	148.07	0
148	Total S (17%)	0602	16.80	0.2000	16.78	0.6157	0.2764	43	0.03	148.02	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				
148	Total S (17%)	0602	16.80	0.2000	16.78	0.6157	0.2764	43	0.03	148.03	0
148	Total S (17%)	0602	16.80	0.2000	16.78	0.6157	0.2764	43	0.03	148.99	0
148	Total S (17%)	0023	16.99	0.1430	16.78	0.6157	0.2764	43	0.35	148.99	0
148	Total S (17%)	0136	17.00	0.0000	16.78	0.6157	0.2764	43	0.36	148.07	0
148	Total S (17%)	0452	17.03	0.5600	16.78	0.6157	0.2764	43	0.41	148.07	0
148	Total S (17%)	0605	17.04	0.2220	16.78	0.6157	0.2764	43	0.42	148.99	0
148	Total S (17%)	0405	17.10	0.0000	16.78	0.6157	0.2764	43	0.52	148.00	0
148	Total S (17%)	0055	17.12	0.3900	16.78	0.6157	0.2764	43	0.54	148.01	0
148	Total S (17%)	0547	17.20	0.3500	16.78	0.6157	0.2764	43	0.67	148.00	0
148	Total S (17%)	0307	17.20	0.0000	16.78	0.6157	0.2764	43	0.68	148.07	0
148	Total S (17%)	0307	17.20	0.0000	16.78	0.6157	0.2764	43	0.68	148.99	0
148	Total S (17%)	0534	17.23	0.0100	16.78	0.6157	0.2764	43	0.72	148.01	0
148	Total S (17%)	0584	17.29	0.1400	16.78	0.6157	0.2764	43	0.83	148.99	0
148	Total S (17%)	0433	17.36	0.2000	16.78	0.6157	0.2764	43	0.94	148.99	0
148	Total S (17%)	0035	17.50	0.2000	16.78	0.6157	0.2764	43	1.17	148.07	0
148	Total S (17%)	0354	17.50	0.2000	16.78	0.6157	0.2764	43	1.17	148.99	0
148	Total S (17%)	0422	17.74	0.1000	16.78	0.6157	0.2764	43	1.56	148.99	0
148	Total S (17%)	0220	17.89‡	0.1300	16.78	0.6157	0.2764	43	1.79	148.99	0
148	Total S (17%)	0527	18.15‡	0.4356	16.78	0.6157	0.2764	43	2.22	148.07	0
148	Total S (17%)	0543	19.36‡	0.6510	16.78	0.6157	0.2764	43	4.18	148.07	0
148	Total S (17%)	0515	14.94†	2.910	16.78	0.6157	0.2764	43	-3.00	148.07	1
149	S - HNO3 soluble (%)	0524	13.75	1.337	15.90	1.865	0.8532	3	-1.15	149.04	0
149	S - HNO3 soluble (%)	0423	16.89	0.3690	15.90	1.865	0.8532	3	0.53	149.04	0
149	S - HNO3 soluble (%)	0521	17.06	0.0000	15.90	1.865	0.8532	3	0.62	149.04	0
151	Acid Soluble As (ppm)	0498	0.2700	0.0200	0.4592	0.2338	0.1287	8	-0.81	151.00	0
151	Acid Soluble As (ppm)	0220	0.3000	0.0000	0.4592	0.2338	0.1287	8	-0.68	151.32	0
151	Acid Soluble As (ppm)	0572	0.3100	0.0000	0.4592	0.2338	0.1287	8	-0.64	151.99	0
151	Acid Soluble As (ppm)	0524	0.3503	0.0045	0.4592	0.2338	0.1287	8	-0.47	151.30	0
151	Acid Soluble As (ppm)	0220	0.4000	0.0000	0.4592	0.2338	0.1287	8	-0.25	151.99	0
151	Acid Soluble As (ppm)	0523	0.5025	0.0010	0.4592	0.2338	0.1287	8	0.19	151.30	0
151	Acid Soluble As (ppm)	0515	0.7310	0.3180	0.4592	0.2338	0.1287	8	1.16	151.34	0
151	Acid Soluble As (ppm)	0515	25.26	0.3000	0.4592	0.2338	0.1287	8	106.09	151.33	0
151	Acid Soluble As (ppm)	0255	0.0000	0.0000	0.4592	0.2338	0.1287	8		151.30	4
151	Acid Soluble As (ppm)	0527	< 0.0001		0.4592	0.2338	0.1287	8		151.33	5
151	Acid Soluble As (ppm)	0481	< 0.5		0.4592	0.2338	0.1287	8		151.99	5
151	Acid Soluble As (ppm)	0136	< 1		0.4592	0.2338	0.1287	8		151.33	5
151	Acid Soluble As (ppm)	0405	< 3		0.4592	0.2338	0.1287	8		151.32	5
151	Acid Soluble As (ppm)	0605	< 6.25		0.4592	0.2338	0.1287	8		151.30	5
165	Acid Soluble B (%)	0524	0.0004	0.0000	0.0005	0.0001	0.0007	3	-1.00	165.99	0
165	Acid Soluble B (%)	0515	0.0005	0.0007	0.0005	0.0001	0.0007	3	0.00	165.99	0
165	Acid Soluble B (%)	0422	0.0005	0.0000	0.0005	0.0001	0.0007	3	1.00	165.30	0
165	Acid Soluble B (%)	0354	< 0.01		0.0005	0.0001	0.0007	3		165.30	5
165	Acid Soluble B (%)	0527	< 0.01		0.0005	0.0001	0.0007	3		165.99	5

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				
181	Acid Soluble Cd (ppm)	0572	0.0900	0.0400	0.1126	0.0206	0.0198	6	-1.10	181.99	0
181	Acid Soluble Cd (ppm)	0220	0.1000	0.0000	0.1126	0.0206	0.0198	6	-0.61	181.32	0
181	Acid Soluble Cd (ppm)	0220	0.1000	0.0000	0.1126	0.0206	0.0198	6	-0.61	181.99	0
181	Acid Soluble Cd (ppm)	0524	0.1226	0.0151	0.1126	0.0206	0.0198	6	0.48	181.30	0
181	Acid Soluble Cd (ppm)	0498	0.1300	0.0200	0.1126	0.0206	0.0198	6	0.85	181.00	0
181	Acid Soluble Cd (ppm)	0523	0.1330	0.0040	0.1126	0.0206	0.0198	6	0.99	181.30	0
181	Acid Soluble Cd (ppm)	0515	1.969	0.4700	0.1126	0.0206	0.0198	6	90.22	181.33	1
181	Acid Soluble Cd (ppm)	0255	0.0780	0.1560	0.1126	0.0206	0.0198	6		181.30	4
181	Acid Soluble Cd (ppm)	0527	< 0.0001		0.1126	0.0206	0.0198	6		181.33	5
181	Acid Soluble Cd (ppm)	0394	< 0.1		0.1126	0.0206	0.0198	6		181.30	5
181	Acid Soluble Cd (ppm)	0605	< 0.25		0.1126	0.0206	0.0198	6		181.30	5
181	Acid Soluble Cd (ppm)	0481	< 0.5		0.1126	0.0206	0.0198	6		181.99	5
181	Acid Soluble Cd (ppm)	0405	< 1		0.1126	0.0206	0.0198	6		181.32	5
181	Acid Soluble Cd (ppm)	0136	< 1		0.1126	0.0206	0.0198	6		181.33	5
191	Acid Soluble Cr (ppm)	0136	5.250	1.500	11.35	4.920	0.8829	15	-1.24	191.33	0
191	Acid Soluble Cr (ppm)	0572	5.555	0.4900	11.35	4.920	0.8829	15	-1.18	191.99	0
191	Acid Soluble Cr (ppm)	0035	6.955	1.230	11.35	4.920	0.8829	15	-0.89	191.30	0
191	Acid Soluble Cr (ppm)	0524	8.115	0.0351	11.35	4.920	0.8829	15	-0.66	191.30	0
191	Acid Soluble Cr (ppm)	0527	9.287	0.4247	11.35	4.920	0.8829	15	-0.42	191.33	0
191	Acid Soluble Cr (ppm)	0515	9.437	1.566	11.35	4.920	0.8829	15	-0.39	191.34	0
191	Acid Soluble Cr (ppm)	0220	10.20	0.6000	11.35	4.920	0.8829	15	-0.23	191.99	0
191	Acid Soluble Cr (ppm)	0394	10.38	0.3180	11.35	4.920	0.8829	15	-0.20	191.30	0
191	Acid Soluble Cr (ppm)	0220	10.65	0.3000	11.35	4.920	0.8829	15	-0.14	191.32	0
191	Acid Soluble Cr (ppm)	0605	11.13	2.812	11.35	4.920	0.8829	15	-0.04	191.30	0
191	Acid Soluble Cr (ppm)	0405	14.50	1.000	11.35	4.920	0.8829	15	0.64	191.32	0
191	Acid Soluble Cr (ppm)	0523	15.50	0.0110	11.35	4.920	0.8829	15	0.84	191.30	0
191	Acid Soluble Cr (ppm)	0027	16.90	0.7200	11.35	4.920	0.8829	15	1.13	191.30	0
191	Acid Soluble Cr (ppm)	0498	17.70	0.0000	11.35	4.920	0.8829	15	1.29	191.00	0
191	Acid Soluble Cr (ppm)	0515	18.70	2.280	11.35	4.920	0.8829	15	1.49	191.33	0
191	Acid Soluble Cr (ppm)	0481	< 20		11.35	4.920	0.8829	15		191.99	5
202	Acid Soluble Co (ppm)	0572	1.450	0.0800	3.019	1.519	0.3811	9	-0.95	202.99	0
202	Acid Soluble Co (ppm)	0220	1.500	0.0000	3.019	1.519	0.3811	9	-0.92	202.32	0
202	Acid Soluble Co (ppm)	0220	1.900	0.0000	3.019	1.519	0.3811	9	-0.68	202.99	0
202	Acid Soluble Co (ppm)	0527	2.047	0.0234	3.019	1.519	0.3811	9	-0.59	202.33	0
202	Acid Soluble Co (ppm)	0605	2.967	0.8740	3.019	1.519	0.3811	9	-0.03	202.30	0
202	Acid Soluble Co (ppm)	0405	4.000	0.0000	3.019	1.519	0.3811	9	0.60	202.32	0
202	Acid Soluble Co (ppm)	0523	4.047	0.0250	3.019	1.519	0.3811	9	0.62	202.30	0
202	Acid Soluble Co (ppm)	0524	4.331	0.7280	3.019	1.519	0.3811	9	0.80	202.30	0
202	Acid Soluble Co (ppm)	0515	4.930	0.5560	3.019	1.519	0.3811	9	1.16	202.33	0
202	Acid Soluble Co (ppm)	0255	34.05	11.34	3.019	1.519	0.3811	9	18.85	202.99	1
202	Acid Soluble Co (ppm)	0136	< 2.5		3.019	1.519	0.3811	9		202.33	5
221	Acid Soluble Cu (%)	0394	0.0001	0.0000	0.0004	0.0003	0.0000	6	-0.96	221.33	0
221	Acid Soluble Cu (%)	0572	0.0002	0.0000	0.0004	0.0003	0.0000	6	-0.59	221.99	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	
221	Acid Soluble Cu (%)	0527	0.0003	0.0000	0.0004	0.0003	0.0000	6	-0.23	221.33	0
221	Acid Soluble Cu (%)	0515	0.0003	0.0000	0.0004	0.0003	0.0000	6	-0.23	221.99	0
221	Acid Soluble Cu (%)	0524	0.0005	0.0000	0.0004	0.0003	0.0000	6	0.51	221.99	0
221	Acid Soluble Cu (%)	0523	0.0010	0.0000	0.0004	0.0003	0.0000	6	2.35	221.99	0
221	Acid Soluble Cu (%)	0515	0.0005	0.0001	0.0004	0.0003	0.0000	6	0.33	221.33	1
221	Acid Soluble Cu (%)	0255	0.0000	0.0000	0.0004	0.0003	0.0000	6		221.30	4
221	Acid Soluble Cu (%)	0422	0.0000	0.0000	0.0004	0.0003	0.0000	6		221.30	4
221	Acid Soluble Cu (%)	0405	< 0.0002		0.0004	0.0003	0.0000	6		221.32	5
221	Acid Soluble Cu (%)	0136	< 0.0002		0.0004	0.0003	0.0000	6		221.33	5
221	Acid Soluble Cu (%)	0498	< 0.001		0.0004	0.0003	0.0000	6		221.03	5
221	Acid Soluble Cu (%)	0354	< 0.01		0.0004	0.0003	0.0000	6		221.30	5
221	Acid Soluble Cu (%)	0481	< 0.01		0.0004	0.0003	0.0000	6		221.99	5
241	Acid Soluble Fe (%)	0515	0.0542	0.0174	0.0726	0.0170	0.0073	8	-0.99	241.99	0
241	Acid Soluble Fe (%)	0524	0.0567	0.0002	0.0726	0.0170	0.0073	8	-0.85	241.99	0
241	Acid Soluble Fe (%)	0035	0.0650	0.0040	0.0726	0.0170	0.0073	8	-0.41	241.30	0
241	Acid Soluble Fe (%)	0354	0.0650	0.0100	0.0726	0.0170	0.0073	8	-0.41	241.30	0
241	Acid Soluble Fe (%)	0422	0.0709	0.0002	0.0726	0.0170	0.0073	8	-0.09	241.30	0
241	Acid Soluble Fe (%)	0527	0.0879	0.0009	0.0726	0.0170	0.0073	8	0.82	241.33	0
241	Acid Soluble Fe (%)	0472	0.0900	0.0000	0.0726	0.0170	0.0073	8	0.93	241.33	0
241	Acid Soluble Fe (%)	0515	0.0910	0.0185	0.0726	0.0170	0.0073	8	0.99	241.33	0
251	Acid Soluble Pb (ppm)	0572	0.4300	0.0000	0.5087	0.0583	0.0469	5	-1.35	251.99	0
251	Acid Soluble Pb (ppm)	0524	0.4682	0.0245	0.5087	0.0583	0.0469	5	-0.70	251.30	0
251	Acid Soluble Pb (ppm)	0523	0.5255	0.0030	0.5087	0.0583	0.0469	5	0.29	251.30	0
251	Acid Soluble Pb (ppm)	0220	0.5500	0.1000	0.5087	0.0583	0.0469	5	0.71	251.32	0
251	Acid Soluble Pb (ppm)	0220	0.5700	0.0600	0.5087	0.0583	0.0469	5	1.05	251.99	0
251	Acid Soluble Pb (ppm)	0515	2.623	1.445	0.5087	0.0583	0.0469	5	36.27	251.33	1
251	Acid Soluble Pb (ppm)	0255	0.0000	0.0000	0.5087	0.0583	0.0469	5		251.30	4
251	Acid Soluble Pb (ppm)	0527	< 0.0001		0.5087	0.0583	0.0469	5		251.33	5
251	Acid Soluble Pb (ppm)	0394	< 0.4		0.5087	0.0583	0.0469	5		251.30	5
251	Acid Soluble Pb (ppm)	0498	< 0.5		0.5087	0.0583	0.0469	5		251.00	5
251	Acid Soluble Pb (ppm)	0481	< 1		0.5087	0.0583	0.0469	5		251.99	5
251	Acid Soluble Pb (ppm)	0136	< 3		0.5087	0.0583	0.0469	5		251.33	5
251	Acid Soluble Pb (ppm)	0405	< 4		0.5087	0.0583	0.0469	5		251.32	5
251	Acid Soluble Pb (ppm)	0605	< 6.25		0.5087	0.0583	0.0469	5		251.30	5
261	Acid Soluble Mn (%)	0422	0.0022	0.0000	0.0043	0.0036	0.0026	5	-0.50	261.30	0
261	Acid Soluble Mn (%)	0524	0.0025	0.0000	0.0043	0.0036	0.0026	5	-0.42	261.99	0
261	Acid Soluble Mn (%)	0035	0.0028	0.0001	0.0043	0.0036	0.0026	5	-0.36	261.30	0
261	Acid Soluble Mn (%)	0527	0.0032	0.0001	0.0043	0.0036	0.0026	5	-0.27	261.35	0
261	Acid Soluble Mn (%)	0515	0.0108	0.0075	0.0043	0.0036	0.0026	5	1.55	261.35	0
261	Acid Soluble Mn (%)	0354	< 0.01		0.0043	0.0036	0.0026	5		261.30	5
281	Acid Soluble Hg (ppm)	0524	0.1080	0.0030	0.1828	0.0626	0.0043	4	-1.01	281.99	0
281	Acid Soluble Hg (ppm)	0572	0.1715	0.0030	0.1828	0.0626	0.0043	4	-0.15	281.99	0
281	Acid Soluble Hg (ppm)	0035	0.1915	0.0070	0.1828	0.0626	0.0043	4	0.12	281.99	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				
281	Acid Soluble Hg (ppm)	0220	0.2600	0.0000	0.1828	0.0626	0.0043	4	1.05	281.99	0
281	Acid Soluble Hg (ppm)	0527	< 0.001		0.1828	0.0626	0.0043	4		281.30	5
281	Acid Soluble Hg (ppm)	0515	< 0.1		0.1828	0.0626	0.0043	4		281.30	5
281	Acid Soluble Hg (ppm)	0481	< 0.5		0.1828	0.0626	0.0043	4		281.00	5
281	Acid Soluble Hg (ppm)	0498	< 0.5		0.1828	0.0626	0.0043	4		281.00	5
281	Acid Soluble Hg (ppm)	0605	< 1.25		0.1828	0.0626	0.0043	4		281.30	5
281	Acid Soluble Hg (ppm)	0405	< 2		0.1828	0.0626	0.0043	4		281.30	5
289	Acid Soluble Mo (ppm)	0524	0.4521	0.0975	0.9018	0.2720	0.0829	5	-1.44	289.30	0
289	Acid Soluble Mo (ppm)	0220	0.9200	0.0600	0.9018	0.2720	0.0829	5	0.06	289.99	0
289	Acid Soluble Mo (ppm)	0220	0.9500	0.1000	0.9018	0.2720	0.0829	5	0.15	289.32	0
289	Acid Soluble Mo (ppm)	0234	1.000	0.0000	0.9018	0.2720	0.0829	5	0.32	289.30	0
289	Acid Soluble Mo (ppm)	0255	1.187	0.0740	0.9018	0.2720	0.0829	5	0.92	289.30	0
289	Acid Soluble Mo (ppm)	0515	3.494	0.4320	0.9018	0.2720	0.0829	5	8.32	289.33	1
289	Acid Soluble Mo (ppm)	0527	< 0.0001		0.9018	0.2720	0.0829	5		289.33	5
289	Acid Soluble Mo (ppm)	0405	< 1		0.9018	0.2720	0.0829	5		289.32	5
289	Acid Soluble Mo (ppm)	0136	< 2.5		0.9018	0.2720	0.0829	5		289.33	5
289	Acid Soluble Mo (ppm)	0572	< 2.56		0.9018	0.2720	0.0829	5		289.99	5
291	Acid Soluble Ni (ppm)	0035	1.670	0.3200	3.825	1.675	0.4784	12	-1.29	291.30	0
291	Acid Soluble Ni (ppm)	0515	1.694	1.038	3.825	1.675	0.4784	12	-1.27	291.34	0
291	Acid Soluble Ni (ppm)	0572	2.505	0.2700	3.825	1.675	0.4784	12	-0.79	291.99	0
291	Acid Soluble Ni (ppm)	0527	3.499	0.1738	3.825	1.675	0.4784	12	-0.19	291.33	0
291	Acid Soluble Ni (ppm)	0605	3.504	1.212	3.825	1.675	0.4784	12	-0.19	291.30	0
291	Acid Soluble Ni (ppm)	0394	3.586	0.0210	3.825	1.675	0.4784	12	-0.14	291.30	0
291	Acid Soluble Ni (ppm)	0220	3.750	0.1000	3.825	1.675	0.4784	12	-0.04	291.99	0
291	Acid Soluble Ni (ppm)	0524	3.914	0.1859	3.825	1.675	0.4784	12	0.05	291.30	0
291	Acid Soluble Ni (ppm)	0220	4.450	0.1000	3.825	1.675	0.4784	12	0.37	291.32	0
291	Acid Soluble Ni (ppm)	0523	4.988	0.0320	3.825	1.675	0.4784	12	0.69	291.30	0
291	Acid Soluble Ni (ppm)	0405	6.000	2.000	3.825	1.675	0.4784	12	1.30	291.32	0
291	Acid Soluble Ni (ppm)	0515	12.10	0.9600	3.825	1.675	0.4784	12	4.94	291.33	0
291	Acid Soluble Ni (ppm)	0255	41.81	13.42	3.825	1.675	0.4784	12	22.68	291.99	1
291	Acid Soluble Ni (ppm)	0136	< 2.5		3.825	1.675	0.4784	12		291.33	5
291	Acid Soluble Ni (ppm)	0498	< 10		3.825	1.675	0.4784	12		291.00	5
301	Acid Soluble Se (ppm)	0572	1.680	0.1000	2.130	0.5856	0.1577	7	-0.77	301.99	0
301	Acid Soluble Se (ppm)	0220	1.700	0.2000	2.130	0.5856	0.1577	7	-0.73	301.32	0
301	Acid Soluble Se (ppm)	0220	1.800	0.4000	2.130	0.5856	0.1577	7	-0.56	301.99	0
301	Acid Soluble Se (ppm)	0523	1.912	0.0040	2.130	0.5856	0.1577	7	-0.37	301.30	0
301	Acid Soluble Se (ppm)	0524	2.145	0.0179	2.130	0.5856	0.1577	7	0.03	301.30	0
301	Acid Soluble Se (ppm)	0515	2.664	0.2010	2.130	0.5856	0.1577	7	0.91	301.34	0
301	Acid Soluble Se (ppm)	0515	6.810	0.2030	2.130	0.5856	0.1577	7	7.99	301.33	0
301	Acid Soluble Se (ppm)	0255	0.0000	0.0000	2.130	0.5856	0.1577	7		301.99	4
301	Acid Soluble Se (ppm)	0527	< 0.01		2.130	0.5856	0.1577	7		301.33	5
301	Acid Soluble Se (ppm)	0498	< 0.5		2.130	0.5856	0.1577	7		301.00	5
301	Acid Soluble Se (ppm)	0605	< 6.25		2.130	0.5856	0.1577	7		301.30	5

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				
301	Acid Soluble Se (ppm)	0405	< 10		2.130	0.5856	0.1577	7		301.32	5
311	Sodium (%)	0422	0.0046	0.0000	0.0137	0.0142	0.0002	3	-0.64	311.32	0
311	Sodium (%)	0527	0.0064	0.0002	0.0137	0.0142	0.0002	3	-0.51	311.33	0
311	Sodium (%)	0354	0.0300	0.0000	0.0137	0.0142	0.0002	3	1.15	311.99	0
321	Acid Soluble Zn (%)	0220	0.0009	0.0001	0.0011	0.0003	0.0001	10	-0.84	321.32	0
321	Acid Soluble Zn (%)	0136	0.0009	0.0001	0.0011	0.0003	0.0001	10	-0.84	321.33	0
321	Acid Soluble Zn (%)	0524	0.0009	0.0001	0.0011	0.0003	0.0001	10	-0.84	321.99	0
321	Acid Soluble Zn (%)	0405	0.0010	0.0001	0.0011	0.0003	0.0001	10	-0.47	321.32	0
321	Acid Soluble Zn (%)	0515	0.0010	0.0003	0.0011	0.0003	0.0001	10	-0.47	321.99	0
321	Acid Soluble Zn (%)	0572	0.0010	0.0000	0.0011	0.0003	0.0001	10	-0.29	321.99	0
321	Acid Soluble Zn (%)	0515	0.0012	0.0003	0.0011	0.0003	0.0001	10	0.26	321.33	0
321	Acid Soluble Zn (%)	0394	0.0013	0.0002	0.0011	0.0003	0.0001	10	0.81	321.33	0
321	Acid Soluble Zn (%)	0422	0.0014	0.0000	0.0011	0.0003	0.0001	10	1.18	321.30	0
321	Acid Soluble Zn (%)	0523	0.0070	0.0000	0.0011	0.0003	0.0001	10	21.71	321.99	0
321	Acid Soluble Zn (%)	0255	0.0015	0.0010	0.0011	0.0003	0.0001	10	1.54	321.30	1
321	Acid Soluble Zn (%)	0527	< 0.001		0.0011	0.0003	0.0001	10		321.33	5
321	Acid Soluble Zn (%)	0498	< 0.01		0.0011	0.0003	0.0001	10		321.03	5
321	Acid Soluble Zn (%)	0354	< 0.01		0.0011	0.0003	0.0001	10		321.30	5
321	Acid Soluble Zn (%)	0481	< 0.01		0.0011	0.0003	0.0001	10		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.