

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 190411

Grade 0-0-25-17S

Statistical Summary

Methods: 114

Labs Reporting: 91

Issue Date : 05/31/2019

Method Code	Analyte & Method Sample # 190411	# 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
001.99	Ammoniacal N, Other (%)	1		0.0023									
010.60	Total N, Combustion (%)	3	2	0.0728	0.0880	0.0728	0.4900	0.0880	0.0778	121.01%	0.42	0.0055	5.93%
020.50	Total P2O5, ICP (%)	7	3	0.0218	0.0292	0.0218		0.0291	0.0210	133.72%		0.0033	7.11%
020.99	Total P2O5, Other (%)	1		0.0016									
041.50	Direct Available P2O5, ICP (%)	1		0.0000									
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (%)	1		0.1500									
041.60	Direct Available P2O5, Citrate-EDTA Ext. (%)	1		0.0185									
050.00	Soluble K2O, STPB Oxalate (25%)	11	10	24.77	1.591	25.21	1.2463	0.3201	0.1265	1.27%	0.60	0.1160	2.46%
050.30	Soluble K2O, AA (Oxalate) (25%)	3	3	24.69	0.5375	24.69	1.2308	0.5375	0.3879	2.18%	1.02	1.123	2.47%
050.31	Soluble K2O, AA (Citrate) (25%)	1		23.32									
050.32	Soluble K2O, AA (Citrate-EDTA) (25%)	1		25.01									
050.50	Soluble K2O, ICP (Oxalate) (25%)	10	10	22.92	6.749	24.87	1.2361	1.060	0.4189	4.26%	2.00	0.5998	2.47%
050.51	Soluble K2O, ICP (Citrate) (25%)	5	5	25.38	0.3946	25.38	1.2513	0.3946	0.2206	1.56%	0.73	0.4540	2.46%
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	11	10	25.30	0.3658	25.27	1.2481	0.3423	0.1353	1.35%	0.64	0.3274	2.46%
050.60	Soluble K2O, Flame Photometric (Oxalate) (25%)	4	4	19.65	11.39	19.65	1.0678	11.39	7.116	57.94%	24.85	0.6467	2.55%
050.61	Soluble K2O, Flame Photometric (Citrate) (25%)	3	3	24.87	0.2369	24.87	1.2361	0.2369	0.1710	0.95%	0.45	0.4250	2.47%
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	7	7	25.11	0.5412	25.21	1.2463	0.3646	0.1723	1.45%	0.68	0.2041	2.46%
050.99	Soluble K2O, Other (25%)	39	38	25.16	1.043	25.27	1.2480	0.6940	0.1407	2.75%	1.30	0.2766	2.46%
101.00	Acid Soluble Ca, AA, inorganic 965.09 (%)	1		0.0082									
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	2	2	0.1099	0.0355								
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	5	3	0.0063	0.0084	0.0063	0.2003	0.0084	0.0061	132.94%	0.10	0.0028	8.57%
101.99	Acid Soluble Ca, Other (%)	2	2	0.0313	0.0407								
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	1		0.0020									
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	2	2	0.0183	0.0118								
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	3	1	0.0005		0.0183	0.2009	0.0118	0.0147	64.25%	0.14	0.0004	7.30%
121.99	Acid Soluble Mg, Other (%)	3	2	0.0002	0.0001	0.0002	0.2000	0.0001	0.0001	47.14%	0.00	0.0001	14.16%
131.00	Water Soluble Mg, AA (%)	1		0.0077									
143.99	Elemental S, Other (%)	6	5	16.90	0.8650	16.90		0.8650	0.4836	5.12%		0.1120	2.61%
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	9	9	14.32	8.213	14.33		9.293	3.872	64.86%		0.1864	2.68%
145.99	Sulfate S, HCl soluble, Other (%)	1		17.76									
146.00	Total S in Liquid, Gravimetric - sulfate, sulfite, thiosulfate, a... (17%)	3	3	17.37	0.6366	17.37	1.0000	0.6366	0.4594	3.67%	1.48	0.2368	2.60%
146.99	Total S in Liquid, Other (17%)	1		17.06									
148.00	Total S, Combustion (17%)	7	7	16.41	1.409	16.63	1.0000	1.044	0.4930	6.28%	2.43	0.2739	2.62%

Method Code	Analyte & Method Sample # 190411	# 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)	Howitz %RSD
148.01	Total S, Gravimetric - sulfate and elemental (17%)	8	7	17.16	0.1399	17.14	1.0000	0.1223	0.0578	0.71%	0.28	0.1821	2.61%
148.07	Total S, ICP, test portion as in 2017.02 (17%)	15	15	17.08	0.9419	17.14	1.0000	0.9298	0.3001	5.43%	2.17	0.8059	2.61%
148.99	Total S, Other (17%)	13	13	17.08	0.5989	17.13	1.0000	0.5564	0.1929	3.25%	1.30	0.1649	2.61%
149.02	S - HNO3 soluble, Turbidimetric, modification of JAOAC 63.845 (%)	1		17.05									
149.04	S - HNO3 soluble, ICP (%)	5	5	17.88	2.690	17.88		2.690	1.504	15.04%		0.6605	2.59%
151.00	Acid Soluble As, AA, test portion 2006.03 modified w/dual acid (ppm)	2	0	0.0800									
151.30	Acid Soluble As, ICP (ppm)	3	1	0.0400		17.88		2.690	3.362	15.04%		0.0060	10.36%
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	1		12.50									
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	3	2	0.4278	0.1658	0.4278		0.1658	0.1466	38.76%		0.0697	18.18%
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	1		8.648									
151.99	Acid Soluble As, Other (ppm)	2	1	0.2300									
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	3	2	0.9050	1.266	0.9050	0.1388	1.266	1.119	139.86%	21.25	0.2000	4.06%
165.99	Acid Soluble B, Other (%)	1		0.0000									
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid (ppm)	2	1	0.0400									
181.30	Acid Soluble Cd, ICP (ppm)	6	2	0.0073	0.0002	0.0073		0.0002	0.0002	3.38%		0.0031	33.53%
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	1		12.50									
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	3	0	0.0001		0.0073		0.0002		3.38%		0.0000	33.53%
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	1		0.0406									
181.99	Acid Soluble Cd, Other (ppm)	2	1	0.0900									
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid (ppm)	3	2	0.4120	0.4214	0.4120		0.4214	0.3725	102.29%		0.0400	18.28%
191.30	Acid Soluble Cr, ICP (ppm)	4	3	1.587	1.801	1.587		1.801	1.299	113.48%		0.1867	14.92%
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	1		0.0001									
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	1		0.1000									
191.99	Acid Soluble Cr, Other (ppm)	3	2	0.4728	0.1524	0.4728		0.1524	0.1347	32.23%		0.0235	17.91%
202.00	Acid Soluble Co, AA, test portion 2006.03 modified w/dual acid (ppm)	1		0.0100									
202.30	Acid Soluble Co, ICP (ppm)	3	0	0.0000		0.4728	1.1418	0.1524		32.23%	0.31	0.0000	17.91%
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	1		12.50									
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	4	0	0.0001		0.4728	1.1418	0.1524		32.23%	0.31	0.0000	17.91%
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	1		1.305									
202.99	Acid Soluble Co, Other (ppm)	3	2	0.0910	0.1259	0.0910	1.0273	0.1259	0.1113	138.31%	0.29	0.0000	22.95%
221.00	Acid Soluble Cu, AA, inorganic 965.09 (%)	2	2	0.0003	0.0001								
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	3	1	0.0020		0.0003	0.0050	0.0001	0.0002	47.14%	0.07	0.0000	13.56%
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	1		0.0000									
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	4	1	0.0003		0.0003	0.0050	0.0001	0.0002	47.14%	0.07	0.0001	13.56%
221.99	Acid Soluble Cu, Other (%)	5	2	0.0017	0.0012	0.0017	0.0052	0.0012	0.0010	69.66%	0.53	0.0003	10.47%
241.00	Acid Soluble Fe, AA, inorganic 965.09 (%)	1		0.0020									
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	2	0	0.0050									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	3	2	0.0003	0.0001	0.0003	0.0050	0.0001	0.0001	32.64%	0.05	0.0002	13.40%
241.99	Acid Soluble Fe, Other (%)	2	1	0.0002									
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid (ppm)	2	1	0.2115									
251.30	Acid Soluble Pb, ICP (ppm)	5	3	0.0681	0.0271	0.0681		0.0271	0.0195	39.73%		0.0115	23.97%
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	1		12.50									
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	3	0	0.0001		0.0681		0.0271		39.73%		0.0000	23.97%
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	1		0.7000									

Method Code	Analyte & Method Sample # 190411	# 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
251.99	Acid Soluble Pb, Other (ppm)	3	2	0.3525	0.2722	0.3525		0.2722	0.2406	77.23%		0.0320	18.71%
261.00	Acid Soluble Mn, AA, Mn2+ only (%)	1		0.0008									
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	1		0.0100									
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	1		0.0000									
261.34	Acid Soluble Mn, ICP, test portion 2006.03A-C (%)	1		0.0000									
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	2	0	0.0001									
281.00	Acid Soluble Hg, AA (ppm)	2	0	0.0010									
281.30	Acid Soluble Hg, ICP (ppm)	1		0.0001									
281.99	Acid Soluble Hg, Other (ppm)	3	1	0.0200		0.3525		0.2722	0.3403	77.23%		0.0000	18.71%
289.00	Acid Soluble Mo, AA, test portion 2006.03 modified w/dual acid (ppm)	2	1	0.1910									
289.30	Acid Soluble Mo, ICP (ppm)	3	2	2.153	2.599	2.153	1.6458	2.599	2.297	120.73%	3.68	0.0250	14.25%
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	1		0.0013									
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	2	1	0.2763									
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	1		0.1000									
289.99	Acid Soluble Mo, Other (ppm)	1		62.00									
291.00	Acid Soluble Ni, AA, test portion 2006.03 modified w/dual acid (ppm)	1		0.6000									
291.30	Acid Soluble Ni, ICP (ppm)	5	2	1.155	1.470	1.155		1.470	1.300	127.28%		0.1255	15.65%
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	1		12.50									
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	2	0	0.0001									
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	1		0.2000									
291.99	Acid Soluble Ni, Other (ppm)	3	1	0.3400		1.155		1.470	1.838	127.28%		0.0000	15.65%
301.00	Acid Soluble Se, AA, test portion 2006.03 modified w/dual acid (ppm)	2	0	0.0800									
301.30	Acid Soluble Se, ICP (ppm)	1		0.0000									
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	1		12.50									
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	1		0.0010									
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	1		1.300									
301.99	Acid Soluble Se, Other (ppm)	3	2	0.5788	0.2033	0.5788		0.2033	0.1797	35.13%		0.0765	17.37%
311.33	Sodium, ICP, test portion as in 2017.02 (%)	5	5	0.0376	0.0169	0.0376	0.0088	0.0169	0.0094	44.92%	4.49	0.0041	6.55%
311.99	Sodium, Other (%)	3	3	0.0544	0.0228	0.0544	0.0104	0.0227	0.0164	41.79%	5.08	0.0036	6.20%
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	2	2	0.0003	0.0002								
321.03	Acid Soluble Zn, AA, 965.09, test portion 2006.03A-C w/dual acid (%)	1		0.6606									
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	4	1	0.0027		0.0003	0.0050	0.0002	0.0002	54.39%	0.08	0.0006	13.40%
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	2	0	0.0000									
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	2	0	0.0005									
321.99	Acid Soluble Zn, Other (%)	4	1	0.0010		0.0003	0.0050	0.0002	0.0002	54.39%	0.08	0.0000	13.40%
325.00	Water Soluble Zn, AA (%)	1		0.0050									
325.30	Water Soluble Zn, ICP (%)	1		0.0012									

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.

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STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 190411

Method Precision Report

Grade 0-0-25-17S

Issue Date : 05/31/2019

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
050.00	Soluble K2O, STPB Oxalate (25%)	11	8	25.23	0.2385	0.2312	0.0829	0.2456	0.92%	0.33%	0.97%	2.964
050.50	Soluble K2O, ICP (Oxalate) (25%)	10	9	25.05	0.7946	0.6785	0.5850	0.8959	2.71%	2.34%	3.58%	1.531
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	11	9	25.34	0.3611	0.3333	0.1968	0.3870	1.32%	0.78%	1.53%	1.966
050.99	Soluble K2O, Other (25%)	39	35	25.28	0.6562	0.6415	0.1951	0.6705	2.54%	0.77%	2.65%	3.437
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	9	8	13.88	8.667	8.667	0.1159	8.667	62.44%	0.83%	62.44%	74.78
148.07	Total S, ICP, test portion as in 2017.02 (17%)	15	13	17.14	0.6796	0.6545	0.2587	0.7038	3.82%	1.51%	4.11%	2.720
148.99	Total S, Other (17%)	13	11	17.29	0.3525	0.3386	0.1387	0.3659	1.96%	0.80%	2.12%	2.638

Notes: Precision data calculated when 8 or more Tests included.

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 190411

Grade 0-0-25-17S

Lab Values

Methods: 114

Labs Reporting: 91

Issue Date : 05/31/2019

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001.99	Ammoniacal N, Other (%)	0524	0.0023	0.0002				1			0
010.60	Total N, Combustion (%)	0354	0.0105	0.0010				2			0
010.60	Total N, Combustion (%)	0325	0.1350	0.0100				2			0
010.60	Total N, Combustion (%)	0422	0.0000	0.0000				2			4
020.50	Total P2O5, ICP (%)	0524	0.0004	0.0000	0.0218	0.0291	0.0033	3	-0.60		0
020.50	Total P2O5, ICP (%)	0483	0.0100	0.0000	0.0218	0.0291	0.0033	3	-0.33		0
020.50	Total P2O5, ICP (%)	0472	0.0550	0.0100	0.0218	0.0291	0.0033	3	0.92		0
020.50	Total P2O5, ICP (%)	0422	0.0000	0.0000	0.0218	0.0291	0.0033	3			4
020.50	Total P2O5, ICP (%)	0542	0.0000	0.0000	0.0218	0.0291	0.0033	3			4
020.50	Total P2O5, ICP (%)	0552	0.0000	0.0000	0.0218	0.0291	0.0033	3			4
020.50	Total P2O5, ICP (%)	0527	< 0.01		0.0218	0.0291	0.0033	3			5
020.99	Total P2O5, Other (%)	0515	0.0016	0.0006				1			0
041.50	Direct Available P2O5, ICP (%)	0325	0.0000	0.0000				0			4
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (%)	0494	0.1500	0.2000				1			0
041.60	Direct Available P2O5, Citrate-EDTA Ext. (%)	0354	0.0185	0.0070				1			0
050.00	Soluble K2O, STPB Oxalate (25%)	0522	20.29	0.0300	25.21	0.3201	0.1160	10	-14.31	Low	0
050.00	Soluble K2O, STPB Oxalate (25%)	0444	24.93	0.1400	25.21	0.3201	0.1160	10	-0.81	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0544	24.96	0.0100	25.21	0.3201	0.1160	10	-0.74	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0550	25.06	0.1600	25.21	0.3201	0.1160	10	-0.44	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0055	25.22	0.1600	25.21	0.3201	0.1160	10	0.03	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0405	25.30	0.0200	25.21	0.3201	0.1160	10	0.26	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0231	25.39	0.0500	25.21	0.3201	0.1160	10	0.51	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0494	25.43	0.1900	25.21	0.3201	0.1160	10	0.62	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0102	25.50	0.4000	25.21	0.3201	0.1160	10	0.84	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0049	25.60	0.0000	25.21	0.3201	0.1160	10	1.13	OK	0
050.00	Soluble K2O, STPB Oxalate (25%)	0114	25.79	1.100	25.21	0.3201	0.1160	10	1.68	OK	1
050.30	Soluble K2O, AA (Oxalate) (25%)	0136	24.10	2.600	24.69	0.5375	1.123	3	-1.10		0
050.30	Soluble K2O, AA (Oxalate) (25%)	0309	24.83	0.6700	24.69	0.5375	1.123	3	0.25		0
050.30	Soluble K2O, AA (Oxalate) (25%)	0040	25.15	0.1000	24.69	0.5375	1.123	3	0.85		0
050.31	Soluble K2O, AA (Citrate) (25%)	0472	23.32	1.240				1			0
050.32	Soluble K2O, AA (Citrate-EDTA) (25%)	0185	25.01	1.370				1			0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0292	3.835	0.0100	24.87	1.060	0.5998	10	-18.46	Low	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0086	23.70	1.000	24.87	1.060	0.5998	10	-1.03	OK	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0390	23.94	0.4700	24.87	1.060	0.5998	10	-0.82	OK	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0324	25.00	1.400	24.87	1.060	0.5998	10	0.12	OK	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0106	25.06	0.1300	24.87	1.060	0.5998	10	0.16	OK	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
050.50	Soluble K2O, ICP (Oxalate) (25%)	0397	25.12	0.1582	24.87	1.060	0.5998	10	0.22	OK	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0230	25.30	0.8000	24.87	1.060	0.5998	10	0.38	OK	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0055	25.36	0.4900	24.87	1.060	0.5998	10	0.43	OK	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0422	25.72	1.430	24.87	1.060	0.5998	10	0.74	OK	0
050.50	Soluble K2O, ICP (Oxalate) (25%)	0444	26.23	0.1100	24.87	1.060	0.5998	10	1.19	High	0
050.51	Soluble K2O, ICP (Citrate) (25%)	0555	24.96	1.710	25.38	0.3946	0.4540	5	-1.06		0
050.51	Soluble K2O, ICP (Citrate) (25%)	0547	25.15	0.3000	25.38	0.3946	0.4540	5	-0.57		0
050.51	Soluble K2O, ICP (Citrate) (25%)	0483	25.18	0.2400	25.38	0.3946	0.4540	5	-0.49		0
050.51	Soluble K2O, ICP (Citrate) (25%)	0452	25.75	0.0100	25.38	0.3946	0.4540	5	0.94		0
050.51	Soluble K2O, ICP (Citrate) (25%)	0291	25.85	0.0100	25.38	0.3946	0.4540	5	1.19		0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0485	24.91	0.0930	25.27	0.3423	0.3274	10	-0.97	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0117	24.92	1.021	25.27	0.3423	0.3274	10	-0.95	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0377	25.00	0.2800	25.27	0.3423	0.3274	10	-0.73	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0354	25.05	0.1000	25.27	0.3423	0.3274	10	-0.60	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0025	25.20	0.4000	25.27	0.3423	0.3274	10	-0.19	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0494	25.30	0.3800	25.27	0.3423	0.3274	10	0.08	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0360	25.48	0.3700	25.27	0.3423	0.3274	10	0.56	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0023	25.49	0.0900	25.27	0.3423	0.3274	10	0.59	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0486	25.57	0.3200	25.27	0.3423	0.3274	10	0.82	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0423	26.08	0.2200	25.27	0.3423	0.3274	10	2.20	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (25%)	0233	25.40	3.600	25.27	0.3423	0.3274	10	0.36	OK	1
050.60	Soluble K2O, Flame Photometric (Oxalate) (25%)	0041	2.575	0.0300	19.65	11.39	0.6467	4	-1.50		0
050.60	Soluble K2O, Flame Photometric (Oxalate) (25%)	0510	25.16	0.2263	19.65	11.39	0.6467	4	0.48		0
050.60	Soluble K2O, Flame Photometric (Oxalate) (25%)	0526	25.22	2.061	19.65	11.39	0.6467	4	0.49		0
050.60	Soluble K2O, Flame Photometric (Oxalate) (25%)	0105	25.65	0.2700	19.65	11.39	0.6467	4	0.53		0
050.61	Soluble K2O, Flame Photometric (Citrate) (25%)	0035	24.64	0.5800	24.87	0.2369	0.4250	3	-0.98		0
050.61	Soluble K2O, Flame Photometric (Citrate) (25%)	0456	24.86	0.1400	24.87	0.2369	0.4250	3	-0.05		0
050.61	Soluble K2O, Flame Photometric (Citrate) (25%)	0131	25.11	0.5550	24.87	0.2369	0.4250	3	1.02		0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	0513	23.99	0.0700	25.21	0.3646	0.2041	7	-3.04	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	0034	24.97	0.2230	25.21	0.3646	0.2041	7	-0.58	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	0018	25.05	0.1000	25.21	0.3646	0.2041	7	-0.40	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	0029	25.35	0.1400	25.21	0.3646	0.2041	7	0.35	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	0037	25.43	0.4060	25.21	0.3646	0.2041	7	0.54	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	0095	25.48	0.3700	25.21	0.3646	0.2041	7	0.66	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (25%)	0105	25.53	0.1200	25.21	0.3646	0.2041	7	0.79	OK	0
050.99	Soluble K2O, Other (25%)	0553	20.33	0.9500	25.27	0.6940	0.2766	38	-7.12	Low	0
050.99	Soluble K2O, Other (25%)	0255	23.52	0.0920	25.27	0.6940	0.2766	38	-2.51	Low	0
050.99	Soluble K2O, Other (25%)	0506	24.15	0.7000	25.27	0.6940	0.2766	38	-1.61	OK	0
050.99	Soluble K2O, Other (25%)	0451	24.45	0.0200	25.27	0.6940	0.2766	38	-1.18	OK	0
050.99	Soluble K2O, Other (25%)	0482	24.60	1.600	25.27	0.6940	0.2766	38	-0.96	OK	0
050.99	Soluble K2O, Other (25%)	0389	24.61	0.0900	25.27	0.6940	0.2766	38	-0.95	OK	0
050.99	Soluble K2O, Other (25%)	0518	24.73	0.2500	25.27	0.6940	0.2766	38	-0.78	OK	0
050.99	Soluble K2O, Other (25%)	0516	24.74	0.6400	25.27	0.6940	0.2766	38	-0.76	OK	0
050.99	Soluble K2O, Other (25%)	0523	24.75	0.3000	25.27	0.6940	0.2766	38	-0.75	OK	0
050.99	Soluble K2O, Other (25%)	0498	24.80	0.0000	25.27	0.6940	0.2766	38	-0.67	OK	0
050.99	Soluble K2O, Other (25%)	0519	24.89	0.0400	25.27	0.6940	0.2766	38	-0.54	OK	0
050.99	Soluble K2O, Other (25%)	0394	24.91	0.1660	25.27	0.6940	0.2766	38	-0.52	OK	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
050.99	Soluble K2O, Other (25%)	0476	24.99	0.2162	25.27	0.6940	0.2766	38	-0.40	OK	0
050.99	Soluble K2O, Other (25%)	0481	25.02	0.0100	25.27	0.6940	0.2766	38	-0.36	OK	0
050.99	Soluble K2O, Other (25%)	0096	25.03	0.1200	25.27	0.6940	0.2766	38	-0.34	OK	0
050.99	Soluble K2O, Other (25%)	0531	25.08	0.2300	25.27	0.6940	0.2766	38	-0.28	OK	0
050.99	Soluble K2O, Other (25%)	0551	25.08	0.0500	25.27	0.6940	0.2766	38	-0.28	OK	0
050.99	Soluble K2O, Other (25%)	0537	25.12	0.4300	25.27	0.6940	0.2766	38	-0.22	OK	0
050.99	Soluble K2O, Other (25%)	0559	25.14	0.0600	25.27	0.6940	0.2766	38	-0.18	OK	0
050.99	Soluble K2O, Other (25%)	0493	25.20	0.1000	25.27	0.6940	0.2766	38	-0.10	OK	0
050.99	Soluble K2O, Other (25%)	0545	25.28	0.0500	25.27	0.6940	0.2766	38	0.01	OK	0
050.99	Soluble K2O, Other (25%)	0501	25.34	0.0400	25.27	0.6940	0.2766	38	0.10	OK	0
050.99	Soluble K2O, Other (25%)	0177	25.42	0.1798	25.27	0.6940	0.2766	38	0.22	OK	0
050.99	Soluble K2O, Other (25%)	0325	25.45	0.1000	25.27	0.6940	0.2766	38	0.26	OK	0
050.99	Soluble K2O, Other (25%)	0520	25.45	0.1000	25.27	0.6940	0.2766	38	0.26	OK	0
050.99	Soluble K2O, Other (25%)	0433	25.52	0.0600	25.27	0.6940	0.2766	38	0.36	OK	0
050.99	Soluble K2O, Other (25%)	0552	25.54	0.8800	25.27	0.6940	0.2766	38	0.39	OK	0
050.99	Soluble K2O, Other (25%)	0234	25.60	0.2000	25.27	0.6940	0.2766	38	0.48	OK	0
050.99	Soluble K2O, Other (25%)	0402	25.73	0.0800	25.27	0.6940	0.2766	38	0.67	OK	0
050.99	Soluble K2O, Other (25%)	0546	25.83	0.1430	25.27	0.6940	0.2766	38	0.81	OK	0
050.99	Soluble K2O, Other (25%)	0527	25.85	0.1627	25.27	0.6940	0.2766	38	0.84	OK	0
050.99	Soluble K2O, Other (25%)	0521	25.89	0.0000	25.27	0.6940	0.2766	38	0.90	OK	0
050.99	Soluble K2O, Other (25%)	0534	26.03	0.1400	25.27	0.6940	0.2766	38	1.10	OK	0
050.99	Soluble K2O, Other (25%)	0444	26.23	0.1100	25.27	0.6940	0.2766	38	1.38	OK	0
050.99	Soluble K2O, Other (25%)	0368	26.30	0.1907	25.27	0.6940	0.2766	38	1.49	OK	0
050.99	Soluble K2O, Other (25%)	0542	26.36	1.300	25.27	0.6940	0.2766	38	1.57	OK	0
050.99	Soluble K2O, Other (25%)	0524	26.44	0.3992	25.27	0.6940	0.2766	38	1.69	OK	0
050.99	Soluble K2O, Other (25%)	0027	26.71	0.3100	25.27	0.6940	0.2766	38	2.07	High	0
050.99	Soluble K2O, Other (25%)	0515	29.84	2.712	25.27	0.6940	0.2766	38	6.59	High	1
101.00	Acid Soluble Ca, AA, inorganic 965.09 (%)	0553	0.0082	0.0000				1			0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0483	0.0848	0.1105				2			0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0354	0.1350	0.0300				2			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0494	0.0012	0.0002	0.0063	0.0084	0.0028	3	-0.61		0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0086	0.0018	0.0007	0.0063	0.0084	0.0028	3	-0.54		0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0515	0.0161	0.0075	0.0063	0.0084	0.0028	3	1.15		0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0136	< 0.0005		0.0063	0.0084	0.0028	3			5
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0527	< 0.05		0.0063	0.0084	0.0028	3			5
101.99	Acid Soluble Ca, Other (%)	0389	0.0025	0.0010				2			0
101.99	Acid Soluble Ca, Other (%)	0552	0.0600	0.0000				2			0
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	0553	0.0020	0.0000				1			0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0354	0.0100	0.0000				2			0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0483	0.0267	0.0057				2			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0086	0.0005	0.0004				1			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0136	< 0.0005					1			5
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0527	< 0.01					1			5
121.99	Acid Soluble Mg, Other (%)	0524	0.0002	0.0001				2			0
121.99	Acid Soluble Mg, Other (%)	0389	0.0003	0.0000				2			0
121.99	Acid Soluble Mg, Other (%)	0552	0.0000	0.0000				2			4
131.00	Water Soluble Mg, AA (%)	0553	0.0077	0.0000				1			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
143.99	Elemental S, Other (%)	0472	15.71	0.0200	16.90	0.8650	0.1120	5	-1.20		0
143.99	Elemental S, Other (%)	0481	16.25	0.3700	16.90	0.8650	0.1120	5	-0.66		0
143.99	Elemental S, Other (%)	0255	17.50	0.0000	16.90	0.8650	0.1120	5	0.60		0
143.99	Elemental S, Other (%)	0291	17.52	0.0100	16.90	0.8650	0.1120	5	0.62		0
143.99	Elemental S, Other (%)	0389	17.54	0.1600	16.90	0.8650	0.1120	5	0.64		0
143.99	Elemental S, Other (%)	0390	22.83	1.380	16.90	0.8650	0.1120	5	5.98		1
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0550	0.3030	0.0000	14.33	9.293	0.1864	9	-1.39	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0106	0.7850	0.3300	14.33	9.293	0.1864	9	-1.35	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0444	16.56	0.2100	14.33	9.293	0.1864	9	0.22	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0544	16.98	0.0700	14.33	9.293	0.1864	9	0.26	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0397	17.06	0.2072	14.33	9.293	0.1864	9	0.27	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0095	17.25	0.0400	14.33	9.293	0.1864	9	0.29	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0233	17.27	0.0500	14.33	9.293	0.1864	9	0.29	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0027	17.82	0.6700	14.33	9.293	0.1864	9	0.35	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0498	24.85	0.1000	14.33	9.293	0.1864	9	1.05	NA	0
145.99	Sulfate S, HCl soluble, Other (%)	0444	17.76	0.0400				1			0
146.00	Total S in Liquid, Gravimetric - sulfate, sulfite, thiosulfate, a... (17%)	0522	16.96	0.1000	17.37	0.6366	0.2368	3	-0.64		0
146.00	Total S in Liquid, Gravimetric - sulfate, sulfite, thiosulfate, a... (17%)	0177	17.04	0.0103	17.37	0.6366	0.2368	3	-0.51		0
146.00	Total S in Liquid, Gravimetric - sulfate, sulfite, thiosulfate, a... (17%)	0324	18.10	0.6000	17.37	0.6366	0.2368	3	1.15		0
146.99	Total S in Liquid, Other (17%)	0555	17.06	1.570				1			0
148.00	Total S, Combustion (17%)	0136	13.53	0.1100	16.63	1.044	0.2739	7	-2.69	Low	0
148.00	Total S, Combustion (17%)	0131	15.72	0.7470	16.63	1.044	0.2739	7	-0.79	OK	0
148.00	Total S, Combustion (17%)	0029	16.66	0.2700	16.63	1.044	0.2739	7	0.02	OK	0
148.00	Total S, Combustion (17%)	0025	16.81	0.2600	16.63	1.044	0.2739	7	0.16	OK	0
148.00	Total S, Combustion (17%)	0451	17.20	0.2000	16.63	1.044	0.2739	7	0.50	OK	0
148.00	Total S, Combustion (17%)	0114	17.42	0.1500	16.63	1.044	0.2739	7	0.68	OK	0
148.00	Total S, Combustion (17%)	0049	17.53	0.1800	16.63	1.044	0.2739	7	0.78	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0534	17.05	0.3000	17.14	0.1223	0.1821	7	-0.68	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0230	17.05	0.1000	17.14	0.1223	0.1821	7	-0.68	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0231	17.05	0.1000	17.14	0.1223	0.1821	7	-0.68	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0028	17.11	0.1400	17.14	0.1223	0.1821	7	-0.24	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0029	17.18	0.0300	17.14	0.1223	0.1821	7	0.24	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0476	17.23	0.2448	17.14	0.1223	0.1821	7	0.68	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0055	17.43	0.3600	17.14	0.1223	0.1821	7	2.13	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0485	5.759	0.0888	17.14	0.1223	0.1821	7	-84.18	Low	2
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0483	14.90	4.200	17.14	0.9298	0.8059	15	-2.41	Low	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0542	16.01	0.3700	17.14	0.9298	0.8059	15	-1.22	Low	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0117	16.07	0.8090	17.14	0.9298	0.8059	15	-1.15	Low	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0023	16.43	0.3000	17.14	0.9298	0.8059	15	-0.76	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0040	16.80	0.2000	17.14	0.9298	0.8059	15	-0.36	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0086	16.83	0.2400	17.14	0.9298	0.8059	15	-0.33	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0177	17.16	0.1652	17.14	0.9298	0.8059	15	0.03	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0402	17.21	0.5600	17.14	0.9298	0.8059	15	0.08	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0486	17.24	0.1200	17.14	0.9298	0.8059	15	0.11	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0527	17.52	0.0699	17.14	0.9298	0.8059	15	0.41	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0292	17.74	0.0100	17.14	0.9298	0.8059	15	0.64	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0546	17.79	0.2030	17.14	0.9298	0.8059	15	0.70	OK	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0494	17.97	0.6000	17.14	0.9298	0.8059	15	0.90	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0102	18.02	0.0000	17.14	0.9298	0.8059	15	0.95	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0515	18.52	4.242	17.14	0.9298	0.8059	15	1.49	High	0
148.99	Total S, Other (17%)	0354	15.70	0.0000	17.13	0.5564	0.1649	13	-2.58	Low	0
148.99	Total S, Other (17%)	0506	16.25	0.7000	17.13	0.5564	0.1649	13	-1.59	OK	0
148.99	Total S, Other (17%)	0368	16.66	0.0132	17.13	0.5564	0.1649	13	-0.85	OK	0
148.99	Total S, Other (17%)	0096	16.69	0.2200	17.13	0.5564	0.1649	13	-0.80	OK	0
148.99	Total S, Other (17%)	0501	17.03	0.0200	17.13	0.5564	0.1649	13	-0.19	OK	0
148.99	Total S, Other (17%)	0523	17.18	0.0200	17.13	0.5564	0.1649	13	0.08	OK	0
148.99	Total S, Other (17%)	0516	17.39	0.2700	17.13	0.5564	0.1649	13	0.45	OK	0
148.99	Total S, Other (17%)	0520	17.41	0.0200	17.13	0.5564	0.1649	13	0.50	OK	0
148.99	Total S, Other (17%)	0405	17.45	0.1500	17.13	0.5564	0.1649	13	0.56	OK	0
148.99	Total S, Other (17%)	0433	17.53	0.0300	17.13	0.5564	0.1649	13	0.70	OK	0
148.99	Total S, Other (17%)	0482	17.55	0.5000	17.13	0.5564	0.1649	13	0.75	OK	0
148.99	Total S, Other (17%)	0422	17.60	0.1600	17.13	0.5564	0.1649	13	0.84	OK	0
148.99	Total S, Other (17%)	0452	17.67	0.0400	17.13	0.5564	0.1649	13	0.96	OK	0
149.02	S - HNO3 soluble, Turbidimetric, modification of JAOAC 63.845 (%)	0518	17.05	0.3000				1			0
149.04	S - HNO3 soluble, ICP (%)	0521	15.83	0.0000	17.88	2.690	0.6605	5	-0.76		0
149.04	S - HNO3 soluble, ICP (%)	0524	16.51	0.1325	17.88	2.690	0.6605	5	-0.51		0
149.04	S - HNO3 soluble, ICP (%)	0519	16.89	0.0200	17.88	2.690	0.6605	5	-0.37		0
149.04	S - HNO3 soluble, ICP (%)	0423	17.63	0.2500	17.88	2.690	0.6605	5	-0.10		0
149.04	S - HNO3 soluble, ICP (%)	0325	22.55	2.900	17.88	2.690	0.6605	5	1.74		0
151.00	Acid Soluble As, AA, test portion 2006.03 modified w/dual acid (ppm)	0550	< 0.08					0			5
151.00	Acid Soluble As, AA, test portion 2006.03 modified w/dual acid (ppm)	0526	< 50					0			5
151.30	Acid Soluble As, ICP (ppm)	0255	0.0400	0.0060				1			0
151.30	Acid Soluble As, ICP (ppm)	0555	0.0000	0.0000				1			4
151.30	Acid Soluble As, ICP (ppm)	0027	< 10					1			5
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0095	< 12.5					0			5
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0136	0.3105	0.0630				2			0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0527	0.5450	0.0764				2			0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0117	< 10					2			5
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0368	8.648	0.2251				1			0
151.99	Acid Soluble As, Other (ppm)	0519	0.2300	0.0000				1			0
151.99	Acid Soluble As, Other (ppm)	0481	< 0.5					1			5
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0354	0.0100	0.0000				2			0
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0136	1.800	0.4000				2			0
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0542	0.0000	0.0000				2			4
165.99	Acid Soluble B, Other (%)	0552	0.0000	0.0000				0			4
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid (ppm)	0550	0.0400	0.0120				1			0
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid (ppm)	0526	< 0.0028					1			5
181.30	Acid Soluble Cd, ICP (ppm)	0524	0.0072	0.0031				2			0
181.30	Acid Soluble Cd, ICP (ppm)	0255	0.0075	0.0030				2			0
181.30	Acid Soluble Cd, ICP (ppm)	0555	0.0000	0.0000				2			4
181.30	Acid Soluble Cd, ICP (ppm)	0389	< 0.05					2			5
181.30	Acid Soluble Cd, ICP (ppm)	0394	< 0.13					2			5
181.30	Acid Soluble Cd, ICP (ppm)	0027	< 10					2			5
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0095	< 12.5					0			5

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0527	< 0.0001					0			5
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0136	< 0.1					0			5
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0117	< 5					0			5
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0368	0.0406	0.0083				1			0
181.99	Acid Soluble Cd, Other (ppm)	0519	0.0900	0.0000				1			0
181.99	Acid Soluble Cd, Other (ppm)	0481	< 0.5					1			5
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid (ppm)	0550	0.1140	0.0200				2			0
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid (ppm)	0498	0.7100	0.0600				2			0
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid (ppm)	0526	< 0.0054					2			5
191.30	Acid Soluble Cr, ICP (ppm)	0394	0.0550	0.0100	1.587	1.801	0.1867	3	-0.85		0
191.30	Acid Soluble Cr, ICP (ppm)	0555	1.135	0.4500	1.587	1.801	0.1867	3	-0.25		0
191.30	Acid Soluble Cr, ICP (ppm)	0444	3.570	0.1000	1.587	1.801	0.1867	3	1.10		0
191.30	Acid Soluble Cr, ICP (ppm)	0389	< 0.05		1.587	1.801	0.1867	3			5
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0527	< 0.0001					0			5
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0368	< 0.1					0			5
191.99	Acid Soluble Cr, Other (ppm)	0519	0.3650	0.0100				2			0
191.99	Acid Soluble Cr, Other (ppm)	0506	0.5805	0.0370				2			0
191.99	Acid Soluble Cr, Other (ppm)	0481	< 13					2			5
202.00	Acid Soluble Co, AA, test portion 2006.03 modified w/dual acid (ppm)	0526	< 0.01					0			5
202.30	Acid Soluble Co, ICP (ppm)	0555	0.0000	0.0000				0			4
202.30	Acid Soluble Co, ICP (ppm)	0389	< 0.05					0			5
202.30	Acid Soluble Co, ICP (ppm)	0027	< 10					0			5
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0095	< 12.5					0			5
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0527	< 0.0001					0			5
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0546	< 0.01					0			5
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0550	< 0.09					0			5
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0136	< 5					0			5
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0368	1.305	0.0985				1			0
202.99	Acid Soluble Co, Other (ppm)	0255	0.0020	0.0000				2			0
202.99	Acid Soluble Co, Other (ppm)	0519	0.1800	0.0000				2			0
202.99	Acid Soluble Co, Other (ppm)	0481	< 10					2			5
221.00	Acid Soluble Cu, AA, inorganic 965.09 (%)	0550	0.0002	0.0002				2			0
221.00	Acid Soluble Cu, AA, inorganic 965.09 (%)	0553	0.0004	0.0000				2			0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0255	0.0020	0.0000				1			0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				1			4
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					1			5
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	0095	0.0000	0.0000				0			4
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0515	0.0003	0.0001				1			0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0555	0.0001	0.0001				1			4
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0527	< 0.0001					1			5
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0136	< 0.0005					1			5
221.99	Acid Soluble Cu, Other (%)	0515	0.0009	0.0005				2			0
221.99	Acid Soluble Cu, Other (%)	0519	0.0025	0.0000				2			0
221.99	Acid Soluble Cu, Other (%)	0368	< 0.0001					2			5
221.99	Acid Soluble Cu, Other (%)	0481	< 0.001					2			5
221.99	Acid Soluble Cu, Other (%)	0027	< 0.002					2			5
241.00	Acid Soluble Fe, AA, inorganic 965.09 (%)	0553	0.0020	0.0000				1			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0552	0.0050	0.0100				0			4
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					0			5
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0086	0.0003	0.0001				2			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0527	0.0004	0.0002				2			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0136	< 0.0005					2			5
241.99	Acid Soluble Fe, Other (%)	0389	0.0002	0.0001				1			0
241.99	Acid Soluble Fe, Other (%)	0027	< 0.005					1			5
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid (ppm)	0550	0.2115	0.1910				1			0
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid (ppm)	0526	< 0.013					1			5
251.30	Acid Soluble Pb, ICP (ppm)	0394	0.0390	0.0200	0.0681	0.0271	0.0115	3	-1.08		0
251.30	Acid Soluble Pb, ICP (ppm)	0524	0.0728	0.0074	0.0681	0.0271	0.0115	3	0.17		0
251.30	Acid Soluble Pb, ICP (ppm)	0255	0.0925	0.0070	0.0681	0.0271	0.0115	3	0.90		0
251.30	Acid Soluble Pb, ICP (ppm)	0555	0.0000	0.0000	0.0681	0.0271	0.0115	3			4
251.30	Acid Soluble Pb, ICP (ppm)	0389	< 0.05		0.0681	0.0271	0.0115	3			5
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0095	< 12.5					0			5
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0527	< 0.0001					0			5
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0136	< 0.1					0			5
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0117	< 5					0			5
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0368	< 0.7					0			5
251.99	Acid Soluble Pb, Other (ppm)	0506	0.1600	0.0540				2			0
251.99	Acid Soluble Pb, Other (ppm)	0519	0.5450	0.0100				2			0
251.99	Acid Soluble Pb, Other (ppm)	0481	< 0.5					2			5
261.00	Acid Soluble Mn, AA, Mn2+ only (%)	0553	0.0008	0.0000				1			0
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	0354	< 0.01					0			5
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				0			4
261.34	Acid Soluble Mn, ICP, test portion 2006.03A-C (%)	0542	0.0000	0.0000				0			4
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0527	< 0.0001					0			5
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0136	< 0.0005					0			5
281.00	Acid Soluble Hg, AA (ppm)	0550	< 0.001					0			5
281.00	Acid Soluble Hg, AA (ppm)	0526	< 60					0			5
281.30	Acid Soluble Hg, ICP (ppm)	0527	< 0.0001					0			5
281.99	Acid Soluble Hg, Other (ppm)	0519	0.0200	0.0000				1			0
281.99	Acid Soluble Hg, Other (ppm)	0368	< 0.01					1			5
281.99	Acid Soluble Hg, Other (ppm)	0481	< 0.5					1			5
289.00	Acid Soluble Mo, AA, test portion 2006.03 modified w/dual acid (ppm)	0550	0.1910	0.1820				1			0
289.00	Acid Soluble Mo, AA, test portion 2006.03 modified w/dual acid (ppm)	0526	< 0.021					1			5
289.30	Acid Soluble Mo, ICP (ppm)	0255	0.3150	0.0300				2			0
289.30	Acid Soluble Mo, ICP (ppm)	0519	3.990	0.0200				2			0
289.30	Acid Soluble Mo, ICP (ppm)	0555	0.0000	0.0000				2			4
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0095	< 0.0013					0			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0546	0.2763	0.3064				1			0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0527	< 0.0001					1			5
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0368	< 0.1					0			5
289.99	Acid Soluble Mo, Other (ppm)	0481	< 62					0			5
291.00	Acid Soluble Ni, AA, test portion 2006.03 modified w/dual acid (ppm)	0550	< 0.6					0			5
291.30	Acid Soluble Ni, ICP (ppm)	0394	0.1155	0.0410				2			0
291.30	Acid Soluble Ni, ICP (ppm)	0444	2.195	0.2100				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
291.30	Acid Soluble Ni, ICP (ppm)	0555	0.0000	0.0000				2			4
291.30	Acid Soluble Ni, ICP (ppm)	0389	< 0.05					2			5
291.30	Acid Soluble Ni, ICP (ppm)	0027	< 10					2			5
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0095	< 12.5					0			5
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0527	< 0.0001					0			5
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0117	< 5					0			5
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0368	< 0.2					0			5
291.99	Acid Soluble Ni, Other (ppm)	0519	0.3400	0.0000				1			0
291.99	Acid Soluble Ni, Other (ppm)	0255	0.0000	0.0000				1			4
291.99	Acid Soluble Ni, Other (ppm)	0481	< 5					1			5
301.00	Acid Soluble Se, AA, test portion 2006.03 modified w/dual acid (ppm)	0550	< 0.08					0			5
301.00	Acid Soluble Se, AA, test portion 2006.03 modified w/dual acid (ppm)	0526	< 0.23					0			5
301.30	Acid Soluble Se, ICP (ppm)	0555	0.0000	0.0000				0			4
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0095	< 12.5					0			5
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0527	< 0.001					0			5
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0368	< 1.3					0			5
301.99	Acid Soluble Se, Other (ppm)	0519	0.4350	0.0100				2			0
301.99	Acid Soluble Se, Other (ppm)	0255	0.7225	0.1430				2			0
301.99	Acid Soluble Se, Other (ppm)	0481	< 0.15					2			5
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0136	0.0200	0.0000	0.0376	0.0169	0.0041	5	-1.04		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	0.0302	0.0012	0.0376	0.0169	0.0041	5	-0.44		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0423	0.0315	0.0010	0.0376	0.0169	0.0041	5	-0.36		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0086	0.0418	0.0068	0.0376	0.0169	0.0041	5	0.25		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0515	0.0645	0.0115	0.0376	0.0169	0.0041	5	1.59		0
311.99	Sodium, Other (%)	0482	0.0300	0.0000	0.0544	0.0227	0.0036	3	-1.07		0
311.99	Sodium, Other (%)	0515	0.0583	0.0008	0.0544	0.0227	0.0036	3	0.17		0
311.99	Sodium, Other (%)	0354	0.0750	0.0100	0.0544	0.0227	0.0036	3	0.90		0
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	0550	0.0002	0.0002				2			0
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	0553	0.0005	0.0001				2			0
321.03	Acid Soluble Zn, AA, 965.09, test portion 2006.03A-C w/dual acid (%)	0526	0.6606	0.0000				1			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0096	0.0027	0.0006				1			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				1			4
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0255	0.0005	0.0010				1			4
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					1			5
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0542	0.0000	0.0000				0			4
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0095	< 0.0013					0			5
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0136	< 0.0005					0			5
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0527	< 0.001					0			5
321.99	Acid Soluble Zn, Other (%)	0519	0.0010	0.0000				1			0
321.99	Acid Soluble Zn, Other (%)	0368	< 0.0001					1			5
321.99	Acid Soluble Zn, Other (%)	0481	< 0.001					1			5
321.99	Acid Soluble Zn, Other (%)	0027	< 0.002					1			5
325.00	Water Soluble Zn, AA (%)	0027	< 0.005					0			5
325.30	Water Soluble Zn, ICP (%)	0555	0.0012	0.0001				1			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, 3 = removed from stats, 4 = rejected due to 0s submitted and 5 = LOD. A 9 flag indicates a data problem - scores not calculated. Robust statistics not used if < 6 labs used in calculations, in this case the Z Scores are grey and included for information only. IA Status

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				

describes where your result is relative to the Assigned Value \pm IA. Red indicates Higher or Lower, Green indicates within the IA range. 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.