

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 171011

Epsom Salts

### Statistical Summary

# Methods: 101

# Labs Reporting: 81

Issue Date : 11/30/2017

Method Code	Analyte & Method	# 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	IA %RSD	Average Range (R-bar)	Horwitz %RSD
010.60	Total Nitrogen, Combustion (%)	3	3	0.1427	0.0832	0.1427		0.0832	0.0600	58.29%		0.0120	5.36%
010.99	Total Nitrogen, Other (%)	1		0.0504									
020.50	Total Phosphorus as P2O5, ICP (%)	2	2	0.0022	0.0017								
020.99	Total Phosphorus as P2O5, Other (%)	1		0.0000									
041.50	Direct Available Phosphorus as P2O5, ICP (%)	1		0.1500									
041.60	Direct Available Phosphorus as P2O5, Citrate-EDTA ... (%)	1		0.0210									
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	1		0.0570									
050.99	Soluble Potassium as K2O, Other (%)	3	3	0.0783	0.1062	0.0783		0.1062	0.0766	135.69%		0.0000	5.87%
060.00	Water (Free), Vacuum Oven (%)	1		1.862									
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 hours,... (%)	2	2	19.35	22.70								
060.99	Water (Free), Other (%)	2	2	22.37	18.90								
101.00	Acid Soluble Calcium, AA, inorganic 965.09 (%)	2	2	0.0225	0.0113								
101.03	Acid Soluble Calcium, AA, 965.09, test portion 200... (%)	1		0.0125									
101.30	Acid Soluble Calcium, ICP, test portion inorganic ... (%)	3	3	0.0488	0.0322	0.0488		0.0322	0.0232	65.91%		0.0030	6.30%
101.32	Acid Soluble Calcium, ICP, test portion 2006.03A-C (%)	1		0.0232									
101.33	Acid Soluble Calcium, ICP, test portion 2006.03A-C... (%)	3	3	0.0276	0.0028	0.0276		0.0028	0.0020	10.16%		0.0028	6.87%
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 (9.8%)	11	11	9.454	1.096	9.689	0.6972	0.4589	0.1729	4.74%	3.60%	0.1876	2.84%
121.03	Acid Soluble Magnesium, AA, 965.09, test portion 2... (9.8%)	1		10.51									
121.30	Acid Soluble Magnesium, ICP, test portion inorgani... (9.8%)	25	25	10.20	0.7612	10.13	0.6972	0.6878	0.1720	6.79%	3.44%	0.2003	2.82%
121.32	Acid Soluble Magnesium, ICP, test portion 2006.03A... (9.8%)	5	5	10.15	0.7482	10.15	0.6972	0.7482	0.4182	7.37%	3.43%	0.0490	2.82%
121.33	Acid Soluble Magnesium, ICP, test portion 2006.03A... (9.8%)	14	14	9.715	0.5240	9.771	0.6972	0.4647	0.1552	4.76%	3.57%	0.2582	2.84%
121.70	Acid Soluble Magnesium, Titrimetric (EDTA) (9.8%)	2	2	9.912	0.2649								
121.99	Acid Soluble Magnesium, Other (9.8%)	10	10	9.996	0.7645	9.996	0.6972	0.8669	0.3427	8.67%	3.49%	0.2207	2.83%
131.00	Water Soluble Magnesium, AA (%)	1		10.38									
131.30	Water Soluble Magnesium, ICP (%)	2	2	10.30	0.6017								
131.70	Water Soluble Magnesium, Titrimetric (EDTA) (%)	2	2	10.04	0.2641								
131.99	Water Soluble Magnesium, Other (%)	1		9.850									
143.00	Elemental Sulfur, Gravimetric Sulfur - carbon disu... (%)	1		0.0165									
143.99	Elemental Sulfur, Other (%)	4	4	13.05	0.5112	13.05		0.5112	0.3195	3.92%		0.2850	2.72%
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulfur - ... (%)	8	7	13.33	0.4979	13.33		0.5646	0.2668	4.24%		0.1078	2.71%
145.99	Sulfate Sulfur, HCl soluble, Other (%)	2	2	12.95	0.3500								

Method Code	Analyte & Method	# 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	IA %RSD	Average Range (R-bar)	Horwitz %RSD
146.99	Total Sulfur in Liquid, Other (%)	1		12.84									
148.00	Total Sulfur, Combustion (13%)	8	8	12.83	0.5787	12.89	0.8594	0.5081	0.2246	3.94%	3.33%	0.2338	2.72%
148.01	Total Sulfur, Gravimetric - sulfate and elemental... (13%)	17	16	13.30	0.4104	13.29	0.8594	0.4560	0.1425	3.43%	3.23%	0.1305	2.71%
148.04	Total Sulfur, ICP, w/Br digestion (13%)	1		13.30									
148.07	Total Sulfur, ICP, test portion as in 2006.03 modi... (13%)	14	13	13.24	0.6167	13.22	0.8594	0.6545	0.2269	4.95%	3.25%	0.2055	2.71%
148.99	Total Sulfur, Other (13%)	13	12	13.06	0.7100	13.09	0.8594	0.7557	0.2727	5.77%	3.28%	0.1660	2.72%
149.04	Sulfur - HNO3 soluble, ICP (%)	4	4	13.38	0.8676	13.38		0.8676	0.5423	6.48%		0.1575	2.71%
151.30	Acid Soluble Arsenic , ICP (ppm)	5	5	1.056	1.398	1.056		1.398	0.7816	132.41%		0.6308	15.87%
151.33	Acid Soluble Arsenic , ICP, 2006.03 modified w/9:3... (ppm)	2	1	0.5945									
151.34	Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
151.99	Acid Soluble Arsenic , Other (ppm)	1		0.2300									
165.30	Acid Soluble Boron , ICP, test portion in 982.01 (%)	2	2	0.0028	0.0025								
165.99	Acid Soluble Boron , Other (%)	2	1	0.0015									
181.00	Acid Soluble Cadmium , AA, test portion as in 2006... (	1		0.0495									
181.30	Acid Soluble Cadmium , ICP (ppm)	7	3	0.0306	0.0349	0.0306		0.0349	0.0252	113.92%		0.0113	27.03%
181.33	Acid Soluble Cadmium , ICP, 2006.03 modified w/9:3..	2	1	0.0040									
181.34	Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
181.99	Acid Soluble Cadmium , Other (ppm)	1		0.0100									
191.30	Acid Soluble Chromium , ICP (ppm)	6	5	0.9649	1.508	0.9649		1.508	0.8432	156.32%		0.2450	16.08%
191.33	Acid Soluble Chromium , ICP, 2006.03 modified w/9:...	3	2	1.890	2.459	1.890		2.459	2.173	130.12%		0.0810	14.54%
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppn	1		0.1617									
191.99	Acid Soluble Chromium , Other (ppm)	3	3	0.7286	0.4601	0.7286		0.4601	0.3321	63.16%		0.2429	16.78%
202.30	Acid Soluble Cobalt , ICP (ppm)	4	4	0.4833	0.2085	0.4833		0.2085	0.1303	43.14%		0.0566	17.85%
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified w/9:3 ... (p	2	1	0.2575									
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	2	1	0.2470									
202.99	Acid Soluble Cobalt , Other (ppm)	3	3	0.2228	0.0190	0.2228		0.0189	0.0137	8.50%		0.0447	20.05%
221.00	Acid Soluble Copper , AA, inorganic 965.09 (%)	2	2	0.0003	0.0001								
221.30	Acid Soluble Copper , ICP, test portion inorganic ... (%)	4	3	0.0011	0.0008	0.0011		0.0008	0.0006	74.43%		0.0000	11.13%
221.32	Acid Soluble Copper , ICP, test portion 2006.03A-C (%)	2	2	0.0002	0.0001								
221.33	Acid Soluble Copper , ICP, test portion 2006.03A-C... (	2	2	0.0003	0.0001								
221.99	Acid Soluble Copper , Other (%)	3	2	0.0052	0.0068	0.0052		0.0068	0.0060	130.54%		0.0001	8.83%
241.00	Acid Soluble Iron, AA, inorganic 965.09 (%)	2	1	0.0023									
241.30	Acid Soluble Iron, ICP, test portion inorganic 965... (%)	2	2	0.0013	0.0004								
241.32	Acid Soluble Iron, ICP, test portion 2006.03A-C (%)	1		0.0006									
241.33	Acid Soluble Iron, ICP, test portion 2006.03A-C, w... (%)	2	2	0.0031	0.0007								
241.99	Acid Soluble Iron, Other (%)	2	1	0.0005									
251.00	Acid Soluble Lead , AA, test portion as in 2006.03... (p	1		3.900									
251.30	Acid Soluble Lead , ICP (ppm)	6	5	0.1536	0.0988	0.1536		0.0988	0.0552	64.31%		0.1083	21.21%
251.33	Acid Soluble Lead , ICP, 2006.03 modified w/9:3 HN...	2	1	0.0360									
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	1		0.0000									
251.99	Acid Soluble Lead , Other (ppm)	1		0.1950									
261.12	Acid Soluble Manganese , AA, inorganic 965.09 (%)	2	2	0.0017	0.0015								

Method Code	Analyte & Method	# 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	IA %RSD	Average Range (R-bar)	Horwitz %RSD
261.15	Acid Soluble Manganese , AA, 965.09, test portion ... (	1		0.0021									
261.30	Acid Soluble Manganese , ICP, test portion 972.02a (%)	3	3	0.0016	0.0003	0.0016		0.0003	0.0002	21.05%		0.0004	10.52%
261.34	Acid Soluble Manganese , ICP, test portion 2006.03...	1		0.0012									
261.35	Acid Soluble Manganese , ICP, test portion 2006.03...	3	2	0.0013	0.0004	0.0013		0.0004	0.0004	32.64%		0.0001	10.87%
261.99	Acid Soluble Manganese , Other (%)	3	2	0.0017	0.0004	0.0017		0.0004	0.0003	22.55%		0.0001	10.42%
281.30	Acid Soluble Mercury , ICP (ppm)	4	2	0.0043	0.0025	0.0043		0.0025	0.0022	58.23%		0.0015	36.39%
281.99	Acid Soluble Mercury , Other (ppm)	1		0.0100									
289.30	Acid Soluble Molybdenum , ICP (ppm)	10	9	1.313	0.6593	1.244		0.4383	0.1826	35.25%		0.0572	15.48%
289.32	Acid Soluble Molybdenum , ICP, 2006.03 (ppm)	1		1.221									
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modified w/..	5	4	1.228	0.2276	1.228		0.2276	0.1423	18.53%		0.0537	15.51%
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/6010C (p	2	2	2.507	1.442								
289.99	Acid Soluble Molybdenum , Other (ppm)	2	2	1.527	0.3149								
291.30	Acid Soluble Nickel , ICP (ppm)	7	6	0.5851	0.4230	0.5851		0.4796	0.2448	81.98%		0.1187	17.34%
291.33	Acid Soluble Nickel , ICP, 2006.03 modified w/9:3 ... (p	3	2	0.5453	0.1672	0.5453		0.1672	0.1478	30.67%		0.0295	17.53%
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	2	1	0.3665									
291.99	Acid Soluble Nickel , Other (ppm)	5	4	1.398	1.916	1.398		1.916	1.197	137.06%		0.1807	15.21%
301.30	Acid Soluble Selenium , ICP (ppm)	4	2	0.7788	1.091	0.7788		1.091	0.9641	140.06%		0.2305	16.61%
301.33	Acid Soluble Selenium , ICP, 2006.03 modified w/9:...	2	2	0.7054	0.6192								
301.34	Acid Soluble Selenium , ICP, EPA 3050B/6010C (ppm)	1		0.6315									
301.99	Acid Soluble Selenium , Other (ppm)	3	3	37.48	64.54	37.48		64.54	46.58	172.21%		2.024	9.27%
311.32	Sodium, ICP, 2006.03 test portion (%)	1		0.0031									
311.33	Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl test .	1		0.0025									
311.99	Sodium, Other (%)	2	2	0.0120	0.0042								
321.00	Acid Soluble Zinc , AA, inorganic 965.09 (%)	4	4	0.0029	0.0021	0.0029		0.0021	0.0013	72.56%		0.0004	9.63%
321.30	Acid Soluble Zinc , ICP, test portion inorganic 96... (%)	3	1	0.0020		0.0029		0.0021	0.0026	72.56%		0.0000	9.63%
321.32	Acid Soluble Zinc , ICP, test portion 2006.03A-C (%)	3	2	0.0005	0.0002	0.0005		0.0002	0.0002	47.14%		0.0000	12.76%
321.33	Acid Soluble Zinc , ICP, test portion 2006.03A-C, ... (%)	3	3	0.0004	0.0005	0.0004		0.0005	0.0004	121.39%		0.0000	12.90%
321.99	Acid Soluble Zinc , Other (%)	4	2	0.0004	0.0005	0.0004		0.0005	0.0004	108.15%		0.0001	12.87%

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 171011

### Method Precision Report

Epsom Salts

Issue Date : 11/30/2017

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
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 (9.8%)	11	9	9.743	0.3856	0.3755	0.1241	0.3955	3.85%	1.27%	4.06%	3.187
121.30	Acid Soluble Magnesium, ICP, test portion inorganic 965.09 (9.8%)	25	23	10.15	0.6730	0.6638	0.1566	0.6820	6.54%	1.54%	6.72%	4.356
121.33	Acid Soluble Magnesium, ICP, test portion 2006.03A-C, w/dual acid (9.8%)	14	14	9.715	0.5240	0.4972	0.2338	0.5494	5.12%	2.41%	5.66%	2.350
121.99	Acid Soluble Magnesium, Other (9.8%)	10	10	9.996	0.7645	0.7502	0.2079	0.7785	7.51%	2.08%	7.79%	3.745
148.00	Total Sulfur, Combustion (13%)	8	8	12.83	0.5787	0.5629	0.1905	0.5942	4.39%	1.48%	4.63%	3.120
148.01	Total Sulfur, Gravimetric - sulfate and elemental (13%)	17	16	13.30	0.4104	0.3993	0.1342	0.4213	3.00%	1.01%	3.17%	3.139
148.07	Total Sulfur, ICP, test portion as in 2006.03 modified w/9:3 HNO3:HCl (13%)	14	13	13.24	0.6167	0.6018	0.1902	0.6312	4.55%	1.44%	4.77%	3.318
148.99	Total Sulfur, Other (13%)	13	11	13.02	0.7234	0.7174	0.1307	0.7292	5.51%	1.00%	5.60%	5.580

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)

# Methods: 101

Sample # 171011

Lab Values

# Labs Reporting: 81

Epsom Salts

Issue Date : 11/30/2017

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010.60	Total Nitrogen, Combustion (%)	0354	0.0895	0.0090	0.1427	0.0832	0.0120	3	-0.64	19%	0
010.60	Total Nitrogen, Combustion (%)	0325	0.1000	0.0000	0.1427	0.0832	0.0120	3	-0.51	15%	0
010.60	Total Nitrogen, Combustion (%)	0472	0.2385	0.0270	0.1427	0.0832	0.0120	3	1.15	34%	0
010.99	Total Nitrogen, Other (%)	0524	0.0504	0.0069				1			0
020.50	Total Phosphorus as P2O5, ICP (%)	0524	0.0011	0.0003				2			0
020.50	Total Phosphorus as P2O5, ICP (%)	0521	0.0034	0.0000				2			0
020.99	Total Phosphorus as P2O5, Other (%)	0515	0.0000	0.0000				0			4
041.50	Direct Available Phosphorus as P2O5, ICP (%)	0325	0.1500	0.1000				1			0
041.60	Direct Available Phosphorus as P2O5, Citrate-... (%)	0354	0.0210	0.0000				1			0
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	0354	0.0570	0.0020				1			0
050.99	Soluble Potassium as K2O, Other (%)	0524	0.0046	0.0000	0.0783	0.1062	0.0000	3	-0.69	47%	0
050.99	Soluble Potassium as K2O, Other (%)	0521	0.0302	0.0000	0.0783	0.1062	0.0000	3	-0.45	31%	0
050.99	Soluble Potassium as K2O, Other (%)	0325	0.2000	0.0000	0.0783	0.1062	0.0000	3	1.15	78%	0
060.00	Water (Free), Vacuum Oven (%)	0416	1.862	0.1155				1			0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 h... (%)	0518	3.300	0.4000				2			0
060.30	Water (Free), AFPC No. 2B (105°C oven for 2 h... (%)	0055	35.40	0.8000				2			0
060.99	Water (Free), Other (%)	0510	9.002	0.2340				2			0
060.99	Water (Free), Other (%)	0055	35.74	0.3100				2			0
101.00	Acid Soluble Calcium, AA, inorganic 965.09 (%)	0105	0.0145	0.0070				2			0
101.00	Acid Soluble Calcium, AA, inorganic 965.09 (%)	0535	0.0305	0.0010				2			0
101.03	Acid Soluble Calcium, AA, 965.09, test portio... (%)	0105	0.0125	0.0130				1			0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0482	0.0300	0.0000	0.0488	0.0322	0.0030	3	-0.59	19%	0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0096	0.0305	0.0010	0.0488	0.0322	0.0030	3	-0.57	19%	0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0354	0.0860	0.0080	0.0488	0.0322	0.0030	3	1.15	38%	0
101.32	Acid Soluble Calcium, ICP, test portion 2006.... (%)	0521	0.0232	0.0000				1			0
101.33	Acid Soluble Calcium, ICP, test portion 2006.... (%)	0117	0.0249	0.0000	0.0276	0.0028	0.0028	3	-0.96	5%	0
101.33	Acid Soluble Calcium, ICP, test portion 2006.... (%)	0494	0.0274	0.0054	0.0276	0.0028	0.0028	3	-0.07	0%	0
101.33	Acid Soluble Calcium, ICP, test portion 2006.... (%)	0527	0.0305	0.0030	0.0276	0.0028	0.0028	3	1.03	5%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0535	6.325*	0.1500	9.689	0.4589	0.1876	11	-6.86	17%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0481	9.395	0.1700	9.689	0.4589	0.1876	11	-0.60	2%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0516	9.415	0.0060	9.689	0.4589	0.1876	11	-0.56	1%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0534	9.500	0.0800	9.689	0.4589	0.1876	11	-0.39	1%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0043	9.615	0.0700	9.689	0.4589	0.1876	11	-0.15	0%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0157	9.635	0.1700	9.689	0.4589	0.1876	11	-0.11	0%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0040	9.640	0.1200	9.689	0.4589	0.1876	11	-0.10	0%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0169	9.700	0.0800	9.689	0.4589	0.1876	11	0.02	0%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0485	9.981	0.6180	9.689	0.4589	0.1876	11	0.60	2%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0029	10.32	0.2400	9.689	0.4589	0.1876	11	1.29	3%	0
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 ... (9.8%)	0105	10.47	0.3600	9.689	0.4589	0.1876	11	1.59	4%	0
121.03	Acid Soluble Magnesium, AA, 965.09, test port... (9.8%)	0105	10.51	0.3400				1			0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0102	9.451	0.0650	10.13	0.6878	0.2003	25	-0.99	3%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0230	9.500	0.0600	10.13	0.6878	0.2003	25	-0.92	3%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0041	9.510	0.7800	10.13	0.6878	0.2003	25	-0.90	3%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0157	9.525	0.0700	10.13	0.6878	0.2003	25	-0.88	3%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0255	9.551	0.0140	10.13	0.6878	0.2003	25	-0.84	3%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0096	9.580	0.0300	10.13	0.6878	0.2003	25	-0.80	3%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0307	9.654	0.3320	10.13	0.6878	0.2003	25	-0.69	2%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0360	9.690	0.0000	10.13	0.6878	0.2003	25	-0.64	2%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0390	9.690	0.3400	10.13	0.6878	0.2003	25	-0.64	2%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0231	9.700	0.0200	10.13	0.6878	0.2003	25	-0.63	2%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0433	9.890	0.1800	10.13	0.6878	0.2003	25	-0.35	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0371	9.950	0.0200	10.13	0.6878	0.2003	25	-0.26	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0324	9.955	0.6900	10.13	0.6878	0.2003	25	-0.26	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0377	9.970	0.1000	10.13	0.6878	0.2003	25	-0.24	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0482	10.01	0.1900	10.13	0.6878	0.2003	25	-0.18	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0291	10.21	0.0100	10.13	0.6878	0.2003	25	0.11	0%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0354	10.28	0.1250	10.13	0.6878	0.2003	25	0.22	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0444	10.39	0.2500	10.13	0.6878	0.2003	25	0.37	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0035	10.50	0.2000	10.13	0.6878	0.2003	25	0.54	2%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0234	10.55	0.1000	10.13	0.6878	0.2003	25	0.61	2%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0452	11.10	0.0600	10.13	0.6878	0.2003	25	1.41	5%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0049	11.16	0.1807	10.13	0.6878	0.2003	25	1.50	5%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0483	11.30	0.4000	10.13	0.6878	0.2003	25	1.70	6%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0472	11.97	0.0900	10.13	0.6878	0.2003	25	2.66	9%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (9.8%)	0325	12.05	0.7000	10.13	0.6878	0.2003	25	2.79	9%	0
121.32	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0541	9.105*	0.1700	10.15	0.7482	0.0490	5	-1.40	5%	0
121.32	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0423	9.893	0.0550	10.15	0.7482	0.0490	5	-0.34	1%	0
121.32	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0292	10.00	0.0200	10.15	0.7482	0.0490	5	-0.20	1%	0
121.32	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0394	10.80	0.0000	10.15	0.7482	0.0490	5	0.87	3%	0
121.32	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0521	10.95	0.0000	10.15	0.7482	0.0490	5	1.07	4%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0106	8.590*	0.6998	9.771	0.4647	0.2582	14	-2.54	6%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0117	8.769*	0.0390	9.771	0.4647	0.2582	14	-2.16	5%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0486	9.225*	0.1300	9.771	0.4647	0.2582	14	-1.18	3%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0037	9.650	0.0300	9.771	0.4647	0.2582	14	-0.26	1%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0177	9.723	0.1632	9.771	0.4647	0.2582	14	-0.11	0%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0055	9.790	0.0200	9.771	0.4647	0.2582	14	0.04	0%	0

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			Value	Range	Rob Mean	Rob SD	R-bar				
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0515	9.804	0.4662	9.771	0.4647	0.2582	14	0.07	0%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0233	9.831	0.2310	9.771	0.4647	0.2582	14	0.13	0%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0397	9.907	0.2685	9.771	0.4647	0.2582	14	0.29	1%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0421	9.920	0.0600	9.771	0.4647	0.2582	14	0.32	1%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0136	9.970	0.4200	9.771	0.4647	0.2582	14	0.43	1%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0023	10.12	0.2460	9.771	0.4647	0.2582	14	0.75	2%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0494	10.30	0.5896	9.771	0.4647	0.2582	14	1.14	3%	0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (9.8%)	0527	10.41	0.2520	9.771	0.4647	0.2582	14	1.37	3%	0
121.70	Acid Soluble Magnesium, Titrimetric (EDTA) (9.8%)	0416	9.725	0.0100				2			0
121.70	Acid Soluble Magnesium, Titrimetric (EDTA) (9.8%)	0476	10.10	0.0901				2			0
121.99	Acid Soluble Magnesium, Other (9.8%)	0501	8.720*	0.0000	9.996	0.8669	0.2207	10	-1.37	6%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0415	9.049*	0.2093	9.996	0.8669	0.2207	10	-1.02	5%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0515	9.454	0.5916	9.996	0.8669	0.2207	10	-0.58	3%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0519	9.785	0.0700	9.996	0.8669	0.2207	10	-0.23	1%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0368	9.938	0.1296	9.996	0.8669	0.2207	10	-0.06	0%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0027	10.07	0.2900	9.996	0.8669	0.2207	10	0.07	0%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0523	10.46	0.5200	9.996	0.8669	0.2207	10	0.50	2%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0493	10.70	0.1000	9.996	0.8669	0.2207	10	0.76	4%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0524	10.71	0.0069	9.996	0.8669	0.2207	10	0.77	4%	0
121.99	Acid Soluble Magnesium, Other (9.8%)	0042	11.08	0.2900	9.996	0.8669	0.2207	10	1.16	5%	0
131.00	Water Soluble Magnesium, AA (%)	0500	10.38	0.0000				1			0
131.30	Water Soluble Magnesium, ICP (%)	0543	9.874	0.6160				2			0
131.30	Water Soluble Magnesium, ICP (%)	0444	10.73	0.3500				2			0
131.70	Water Soluble Magnesium, Titrimetric (EDTA) (%)	0518	9.850	0.1000				2			0
131.70	Water Soluble Magnesium, Titrimetric (EDTA) (%)	0510	10.22	0.0287				2			0
131.99	Water Soluble Magnesium, Other (%)	0506	9.850	0.3000				1			0
143.00	Elemental Sulfur, Gravimetric Sulfur - carbon... (%)	0405	0.0165	0.0000				1			0
143.99	Elemental Sulfur, Other (%)	0390	12.45	0.7400	13.05	0.5112	0.2850	4	-1.16	2%	0
143.99	Elemental Sulfur, Other (%)	0472	12.80	0.0100	13.05	0.5112	0.2850	4	-0.49	1%	0
143.99	Elemental Sulfur, Other (%)	0255	13.40	0.3700	13.05	0.5112	0.2850	4	0.68	1%	0
143.99	Elemental Sulfur, Other (%)	0291	13.54	0.0200	13.05	0.5112	0.2850	4	0.97	2%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0444	12.68	0.3000	13.33	0.5646	0.1078	7	-1.04	2%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0106	12.82	0.1400	13.33	0.5646	0.1078	7	-0.82	2%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0544	13.18	0.2300	13.33	0.5646	0.1078	7	-0.25	1%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0405	13.20	0.0047	13.33	0.5646	0.1078	7	-0.22	1%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0220	13.70	0.0100	13.33	0.5646	0.1078	7	0.58	1%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0043	13.76	0.0500	13.33	0.5646	0.1078	7	0.68	2%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0027	14.00	0.0200	13.33	0.5646	0.1078	7	1.07	3%	0
145.00	Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%)	0233	12.93	0.9200	13.33	0.5646	0.1078	7	-0.64	2%	1
145.99	Sulfate Sulfur, HCl soluble, Other (%)	0444	12.71	0.0300				2			0
145.99	Sulfate Sulfur, HCl soluble, Other (%)	0518	13.20	0.2000				2			0
146.99	Total Sulfur in Liquid, Other (%)	0131	12.84	0.0200				1			0
148.00	Total Sulfur, Combustion (13%)	0360	11.65*	0.2500	12.89	0.5081	0.2338	8	-2.24	5%	0

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			Value	Range	Rob Mean	Rob SD	R-bar				
148.00	Total Sulfur, Combustion (13%)	0451	12.45	0.5000	12.89	0.5081	0.2338	8	-0.79	2%	0
148.00	Total Sulfur, Combustion (13%)	0025	12.75	0.2200	12.89	0.5081	0.2338	8	-0.25	1%	0
148.00	Total Sulfur, Combustion (13%)	0493	12.80	0.2000	12.89	0.5081	0.2338	8	-0.16	0%	0
148.00	Total Sulfur, Combustion (13%)	0029	13.00	0.0800	12.89	0.5081	0.2338	8	0.20	0%	0
148.00	Total Sulfur, Combustion (13%)	0136	13.28	0.0600	12.89	0.5081	0.2338	8	0.70	2%	0
148.00	Total Sulfur, Combustion (13%)	0157	13.30	0.2000	12.89	0.5081	0.2338	8	0.74	2%	0
148.00	Total Sulfur, Combustion (13%)	0049	13.41	0.3600	12.89	0.5081	0.2338	8	0.94	2%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0230	12.70	0.0000	13.29	0.4560	0.1305	16	-1.30	2%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0444	12.96	0.0000	13.29	0.4560	0.1305	16	-0.73	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0231	12.98	0.1600	13.29	0.4560	0.1305	16	-0.69	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0371	13.00	0.0100	13.29	0.4560	0.1305	16	-0.66	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0481	13.00	0.2000	13.29	0.4560	0.1305	16	-0.65	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0073	13.02	0.4100	13.29	0.4560	0.1305	16	-0.61	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0500	13.09	0.0200	13.29	0.4560	0.1305	16	-0.45	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0105	13.12	0.3300	13.29	0.4560	0.1305	16	-0.39	1%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0405	13.21	0.0000	13.29	0.4560	0.1305	16	-0.18	0%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0029	13.29	0.0200	13.29	0.4560	0.1305	16	-0.01	0%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0040	13.35	0.1000	13.29	0.4560	0.1305	16	0.12	0%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0157	13.40	0.4000	13.29	0.4560	0.1305	16	0.23	0%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0055	13.73	0.0500	13.29	0.4560	0.1305	16	0.94	2%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0534	13.92	0.0600	13.29	0.4560	0.1305	16	1.37	2%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0324	14.00	0.2000	13.29	0.4560	0.1305	16	1.55	3%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0476	14.03	0.1287	13.29	0.4560	0.1305	16	1.61	3%	0
148.01	Total Sulfur, Gravimetric - sulfate and elem... (13%)	0114	13.74	2.350	13.29	0.4560	0.1305	16	0.97	2%	1
148.04	Total Sulfur, ICP, w/Br digestion (13%)	0394	13.30	0.0000				1			0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0117	12.55	0.1100	13.22	0.6545	0.2055	13	-1.03	3%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0444	12.57	0.5300	13.22	0.6545	0.2055	13	-1.00	2%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0486	12.76	0.2100	13.22	0.6545	0.2055	13	-0.71	2%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0177	12.78	0.2147	13.22	0.6545	0.2055	13	-0.66	2%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0292	12.83	0.0100	13.22	0.6545	0.2055	13	-0.60	1%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0494	12.98	0.0106	13.22	0.6545	0.2055	13	-0.36	1%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0541	13.06	0.2100	13.22	0.6545	0.2055	13	-0.25	1%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0037	13.18	0.0680	13.22	0.6545	0.2055	13	-0.06	0%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0023	13.26	0.0960	13.22	0.6545	0.2055	13	0.06	0%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0102	13.73	0.1336	13.22	0.6545	0.2055	13	0.79	2%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0421	13.75	0.3000	13.22	0.6545	0.2055	13	0.81	2%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0527	14.27	0.1780	13.22	0.6545	0.2055	13	1.60	4%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0483	14.40	0.6000	13.22	0.6545	0.2055	13	1.81	4%	0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (13%)	0515	11.23*	1.892	13.22	0.6545	0.2055	13	-3.03	8%	1
148.99	Total Sulfur, Other (13%)	0523	11.69*	0.0000	13.09	0.7557	0.1660	12	-1.85	5%	0
148.99	Total Sulfur, Other (13%)	0501	12.19*	0.4770	13.09	0.7557	0.1660	12	-1.19	3%	0
148.99	Total Sulfur, Other (13%)	0506	12.30*	0.2000	13.09	0.7557	0.1660	12	-1.04	3%	0
148.99	Total Sulfur, Other (13%)	0368	12.83	0.1520	13.09	0.7557	0.1660	12	-0.34	1%	0



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			Value	Range	Rob Mean	Rob SD	R-bar				
148.99	Total Sulfur, Other (13%)	0096	12.92	0.0400	13.09	0.7557	0.1660	12	-0.22	1%	0
148.99	Total Sulfur, Other (13%)	0508	12.96	0.0400	13.09	0.7557	0.1660	12	-0.17	0%	0
148.99	Total Sulfur, Other (13%)	0433	13.36	0.0300	13.09	0.7557	0.1660	12	0.36	1%	0
148.99	Total Sulfur, Other (13%)	0482	13.60	0.6000	13.09	0.7557	0.1660	12	0.68	2%	0
148.99	Total Sulfur, Other (13%)	0452	13.65	0.0200	13.09	0.7557	0.1660	12	0.75	2%	0
148.99	Total Sulfur, Other (13%)	0377	13.66	0.2400	13.09	0.7557	0.1660	12	0.76	2%	0
148.99	Total Sulfur, Other (13%)	0354	13.70	0.1430	13.09	0.7557	0.1660	12	0.81	2%	0
148.99	Total Sulfur, Other (13%)	0220	13.93	0.0500	13.09	0.7557	0.1660	12	1.11	3%	0
148.99	Total Sulfur, Other (13%)	0307	17.07	1.449	13.09	0.7557	0.1660	12	5.28	15%	1
149.04	Sulfur - HNO3 soluble, ICP (%)	0423	12.80	0.1000	13.38	0.8676	0.1575	4	-0.67	2%	0
149.04	Sulfur - HNO3 soluble, ICP (%)	0521	13.02	0.0000	13.38	0.8676	0.1575	4	-0.42	1%	0
149.04	Sulfur - HNO3 soluble, ICP (%)	0519	13.03	0.2000	13.38	0.8676	0.1575	4	-0.40	1%	0
149.04	Sulfur - HNO3 soluble, ICP (%)	0524	14.67	0.3300	13.38	0.8676	0.1575	4	1.49	5%	0
151.30	Acid Soluble Arsenic , ICP (ppm)	0501	0.0150	0.0020	1.056	1.398	0.6308	5	-0.74	49%	0
151.30	Acid Soluble Arsenic , ICP (ppm)	0394	0.0400	0.0000	1.056	1.398	0.6308	5	-0.73	48%	0
151.30	Acid Soluble Arsenic , ICP (ppm)	0255	0.0900	0.0220	1.056	1.398	0.6308	5	-0.69	46%	0
151.30	Acid Soluble Arsenic , ICP (ppm)	0368	2.250	0.9000	1.056	1.398	0.6308	5	0.85	57%	0
151.30	Acid Soluble Arsenic , ICP (ppm)	0541	2.885	2.230	1.056	1.398	0.6308	5	1.31	87%	0
151.33	Acid Soluble Arsenic , ICP, 2006.03 modified ... (ppm)	0527	0.5945	0.0030				1			0
151.33	Acid Soluble Arsenic , ICP, 2006.03 modified ... (ppm)	0515	0.2015	0.4029				1			4
151.34	Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
151.99	Acid Soluble Arsenic , Other (ppm)	0519	0.2300	0.0600				1			0
165.30	Acid Soluble Boron , ICP, test portion in 982... (%)	0521	0.0010	0.0000				2			0
165.30	Acid Soluble Boron , ICP, test portion in 982... (%)	0354	0.0045	0.0010				2			0
165.99	Acid Soluble Boron , Other (%)	0527	0.0015	0.0010				1			0
165.99	Acid Soluble Boron , Other (%)	0515	0.0000	0.0000				1			4
181.00	Acid Soluble Cadmium , AA, test portion as in... (ppm)	0037	0.0495	0.0030				1			0
181.30	Acid Soluble Cadmium , ICP (ppm)	0501	0.0035	0.0010	0.0306	0.0349	0.0113	3	-0.63	44%	0
181.30	Acid Soluble Cadmium , ICP (ppm)	0524	0.0184	0.0130	0.0306	0.0349	0.0113	3	-0.28	20%	0
181.30	Acid Soluble Cadmium , ICP (ppm)	0394	0.0700	0.0200	0.0306	0.0349	0.0113	3	0.91	64%	0
181.30	Acid Soluble Cadmium , ICP (ppm)	0368	0.0000	0.0000	0.0306	0.0349	0.0113	3			4
181.30	Acid Soluble Cadmium , ICP (ppm)	0377	0.0000	0.0000	0.0306	0.0349	0.0113	3			4
181.30	Acid Soluble Cadmium , ICP (ppm)	0255	0.0120	0.0240	0.0306	0.0349	0.0113	3			4
181.30	Acid Soluble Cadmium , ICP (ppm)	0541	0.0230	0.0460	0.0306	0.0349	0.0113	3			4
181.33	Acid Soluble Cadmium , ICP, 2006.03 modified ... (ppm)	0527	0.0040	0.0000				1			0
181.33	Acid Soluble Cadmium , ICP, 2006.03 modified ... (ppm)	0515	0.2018	0.4035				1			4
181.34	Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
181.99	Acid Soluble Cadmium , Other (ppm)	0519	0.0100	0.0000				1			0
191.30	Acid Soluble Chromium , ICP (ppm)	0501	0.0545	0.0050	0.9649	1.508	0.2450	5	-0.53	47%	0
191.30	Acid Soluble Chromium , ICP (ppm)	0368	0.3000	0.0000	0.9649	1.508	0.2450	5	-0.38	34%	0
191.30	Acid Soluble Chromium , ICP (ppm)	0394	0.3650	0.1100	0.9649	1.508	0.2450	5	-0.35	31%	0
191.30	Acid Soluble Chromium , ICP (ppm)	0541	0.4550	0.7100	0.9649	1.508	0.2450	5	-0.30	26%	0
191.30	Acid Soluble Chromium , ICP (ppm)	0035	3.650	0.4000	0.9649	1.508	0.2450	5	1.55	139%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
191.30	Acid Soluble Chromium , ICP (ppm)	0377	0.0000	0.0000	0.9649	1.508	0.2450	5			4
191.33	Acid Soluble Chromium , ICP, 2006.03 modified... (ppm)	0037	0.1510	0.0120				2			0
191.33	Acid Soluble Chromium , ICP, 2006.03 modified... (ppm)	0527	3.628	0.1500				2			0
191.33	Acid Soluble Chromium , ICP, 2006.03 modified... (ppm)	0515	2.357	4.714				2			4
191.34	Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppm)	0515	0.1617	0.3234				0			4
191.99	Acid Soluble Chromium , Other (ppm)	0220	0.3500	0.5000	0.7286	0.4601	0.2429	3	-0.82	26%	0
191.99	Acid Soluble Chromium , Other (ppm)	0519	0.5950	0.0700	0.7286	0.4601	0.2429	3	-0.29	9%	0
191.99	Acid Soluble Chromium , Other (ppm)	0476	1.241	0.1588	0.7286	0.4601	0.2429	3	1.11	35%	0
202.30	Acid Soluble Cobalt , ICP (ppm)	0377	0.2000	0.0000	0.4833	0.2085	0.0566	4	-1.36	29%	0
202.30	Acid Soluble Cobalt , ICP (ppm)	0524	0.4862	0.0023	0.4833	0.2085	0.0566	4	0.01	0%	0
202.30	Acid Soluble Cobalt , ICP (ppm)	0368	0.5500	0.1000	0.4833	0.2085	0.0566	4	0.32	7%	0
202.30	Acid Soluble Cobalt , ICP (ppm)	0035	0.6970	0.1240	0.4833	0.2085	0.0566	4	1.03	22%	0
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified w... (ppm)	0527	0.2575	0.0170				1			0
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified w... (ppm)	0515	0.0000	0.0000				1			4
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	0501	0.2470	0.0200				1			0
202.34	Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				1			4
202.99	Acid Soluble Cobalt , Other (ppm)	0476	0.2025	0.0022	0.2228	0.0189	0.0447	3	-1.07	5%	0
202.99	Acid Soluble Cobalt , Other (ppm)	0255	0.2260	0.0920	0.2228	0.0189	0.0447	3	0.17	1%	0
202.99	Acid Soluble Cobalt , Other (ppm)	0519	0.2400	0.0400	0.2228	0.0189	0.0447	3	0.91	4%	0
221.00	Acid Soluble Copper , AA, inorganic 965.09 (%)	0043	0.0002	0.0000				2			0
221.00	Acid Soluble Copper , AA, inorganic 965.09 (%)	0531	0.0003	0.0000				2			0
221.30	Acid Soluble Copper , ICP, test portion inorg... (%)	0377	0.0004	0.0001	0.0011	0.0008	0.0000	3	-0.92	34%	0
221.30	Acid Soluble Copper , ICP, test portion inorg... (%)	0255	0.0010	0.0000	0.0011	0.0008	0.0000	3	-0.14	5%	0
221.30	Acid Soluble Copper , ICP, test portion inorg... (%)	0354	0.0020	0.0000	0.0011	0.0008	0.0000	3	1.06	40%	0
221.30	Acid Soluble Copper , ICP, test portion inorg... (%)	0541	0.0000	0.0000	0.0011	0.0008	0.0000	3			4
221.32	Acid Soluble Copper , ICP, test portion 2006.... (%)	0521	0.0001	0.0000				2			0
221.32	Acid Soluble Copper , ICP, test portion 2006.... (%)	0394	0.0003	0.0000				2			0
221.33	Acid Soluble Copper , ICP, test portion 2006.... (%)	0515	0.0002	0.0001				2			0
221.33	Acid Soluble Copper , ICP, test portion 2006.... (%)	0527	0.0004	0.0001				2			0
221.99	Acid Soluble Copper , Other (%)	0368	0.0004	0.0002				2			0
221.99	Acid Soluble Copper , Other (%)	0519	0.0100	0.0000				2			0
221.99	Acid Soluble Copper , Other (%)	0515	0.0001	0.0002				2			4
241.00	Acid Soluble Iron, AA, inorganic 965.09 (%)	0531	0.0023	0.0001				1			0
241.00	Acid Soluble Iron, AA, inorganic 965.09 (%)	0105	0.0003	0.0005				1			4
241.30	Acid Soluble Iron, ICP, test portion inorgani... (%)	0354	0.0010	0.0000				2			0
241.30	Acid Soluble Iron, ICP, test portion inorgani... (%)	0035	0.0016	0.0008				2			0
241.32	Acid Soluble Iron, ICP, test portion 2006.03A... (%)	0521	0.0006	0.0000				1			0
241.33	Acid Soluble Iron, ICP, test portion 2006.03A... (%)	0494	0.0026	0.0004				2			0
241.33	Acid Soluble Iron, ICP, test portion 2006.03A... (%)	0515	0.0036	0.0056				2			0
241.99	Acid Soluble Iron, Other (%)	0524	0.0005	0.0000				1			0
241.99	Acid Soluble Iron, Other (%)	0515	0.0030	0.0060				1			4
251.00	Acid Soluble Lead , AA, test portion as in 20... (ppm)	0481	3.900	0.2000				1			0
251.30	Acid Soluble Lead , ICP (ppm)	0501	0.0335	0.0030	0.1536	0.0988	0.1083	5	-1.06	39%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
251.30	Acid Soluble Lead , ICP (ppm)	0255	0.0920	0.0460	0.1536	0.0988	0.1083	5	-0.54	20%	0
251.30	Acid Soluble Lead , ICP (ppm)	0524	0.1724	0.0724	0.1536	0.0988	0.1083	5	0.17	6%	0
251.30	Acid Soluble Lead , ICP (ppm)	0394	0.1750	0.0300	0.1536	0.0988	0.1083	5	0.19	7%	0
251.30	Acid Soluble Lead , ICP (ppm)	0541	0.2950	0.3900	0.1536	0.0988	0.1083	5	1.25	46%	0
251.30	Acid Soluble Lead , ICP (ppm)	0368	0.4500	0.9000	0.1536	0.0988	0.1083	5			4
251.33	Acid Soluble Lead , ICP, 2006.03 modified w/9... (ppm)	0527	0.0360	0.0020				1			0
251.33	Acid Soluble Lead , ICP, 2006.03 modified w/9... (ppm)	0515	0.0000	0.0000				1			4
251.34	Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)	0515	0.0000	0.0000				0			4
251.99	Acid Soluble Lead , Other (ppm)	0519	0.1950	0.0500				1			0
261.12	Acid Soluble Manganese , AA, inorganic 965.09 (%)	0531	0.0006	0.0000				2			0
261.12	Acid Soluble Manganese , AA, inorganic 965.09 (%)	0105	0.0027	0.0000				2			0
261.15	Acid Soluble Manganese , AA, 965.09, test por... (%)	0105	0.0021	0.0000				1			0
261.30	Acid Soluble Manganese , ICP, test portion 97... (%)	0096	0.0014	0.0001	0.0016	0.0003	0.0004	3	-0.78	8%	0
261.30	Acid Soluble Manganese , ICP, test portion 97... (%)	0354	0.0015	0.0010	0.0016	0.0003	0.0004	3	-0.34	4%	0
261.30	Acid Soluble Manganese , ICP, test portion 97... (%)	0035	0.0020	0.0002	0.0016	0.0003	0.0004	3	1.13	12%	0
261.34	Acid Soluble Manganese , ICP, test portion 20... (%)	0521	0.0012	0.0000				1			0
261.35	Acid Soluble Manganese , ICP, test portion 20... (%)	0527	0.0010	0.0000				2			0
261.35	Acid Soluble Manganese , ICP, test portion 20... (%)	0494	0.0016	0.0002				2			0
261.35	Acid Soluble Manganese , ICP, test portion 20... (%)	0515	0.0000	0.0000				2			4
261.99	Acid Soluble Manganese , Other (%)	0524	0.0015	0.0001				2			0
261.99	Acid Soluble Manganese , Other (%)	0501	0.0020	0.0000				2			0
261.99	Acid Soluble Manganese , Other (%)	0515	0.0000	0.0000				2			4
281.30	Acid Soluble Mercury , ICP (ppm)	0527	0.0025	0.0010				2			0
281.30	Acid Soluble Mercury , ICP (ppm)	0394	0.0060	0.0020				2			0
281.30	Acid Soluble Mercury , ICP (ppm)	0515	0.0000	0.0000				2			4
281.30	Acid Soluble Mercury , ICP (ppm)	0541	0.3000	0.6000				2			4
281.99	Acid Soluble Mercury , Other (ppm)	0519	0.0100	0.0000				1			0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0433	0.3360	0.0320	1.244	0.4383	0.0572	9	-1.91	36%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0368	0.8000	0.0000	1.244	0.4383	0.0572	9	-0.93	18%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0035	1.215	0.0700	1.244	0.4383	0.0572	9	-0.06	1%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0377	1.215	0.2500	1.244	0.4383	0.0572	9	-0.06	1%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0521	1.229	0.0000	1.244	0.4383	0.0572	9	-0.03	1%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0524	1.295	0.0191	1.244	0.4383	0.0572	9	0.11	2%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0096	1.350	0.1000	1.244	0.4383	0.0572	9	0.22	4%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0519	1.600	0.0400	1.244	0.4383	0.0572	9	0.75	14%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0255	2.779	0.0040	1.244	0.4383	0.0572	9	3.23	62%	0
289.30	Acid Soluble Molybdenum , ICP (ppm)	0541	1.905	0.4100	1.244	0.4383	0.0572	9	1.39	27%	1
289.32	Acid Soluble Molybdenum , ICP, 2006.03 (ppm)	0394	1.221	0.1700				1			0
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm)	0106	1.000	0.0000	1.228	0.2276	0.0537	4	-1.00	9%	0
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm)	0494	1.074	0.0776	1.228	0.2276	0.0537	4	-0.68	6%	0
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm)	0527	1.364	0.0660	1.228	0.2276	0.0537	4	0.60	6%	0
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm)	0037	1.476	0.0710	1.228	0.2276	0.0537	4	1.09	10%	0
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm)	0515	0.8985	1.797	1.228	0.2276	0.0537	4			4

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/6010... (ppm)	0501	1.488	0.0710				2			0
289.34	Acid Soluble Molybdenum , ICP, EPA 3050B/6010... (ppm)	0515	3.527	5.013				2			0
289.99	Acid Soluble Molybdenum , Other (ppm)	0476	1.305	0.0338				2			0
289.99	Acid Soluble Molybdenum , Other (ppm)	0220	1.750	0.1000				2			0
291.30	Acid Soluble Nickel , ICP (ppm)	0521	0.0384	0.0000	0.5851	0.4796	0.1187	6	-1.02	47%	0
291.30	Acid Soluble Nickel , ICP (ppm)	0377	0.2500	0.1000	0.5851	0.4796	0.1187	6	-0.62	29%	0
291.30	Acid Soluble Nickel , ICP (ppm)	0394	0.5700	0.0600	0.5851	0.4796	0.1187	6	-0.03	1%	0
291.30	Acid Soluble Nickel , ICP (ppm)	0524	0.6171	0.0219	0.5851	0.4796	0.1187	6	0.06	3%	0
291.30	Acid Soluble Nickel , ICP (ppm)	0541	0.7850	0.2300	0.5851	0.4796	0.1187	6	0.37	17%	0
291.30	Acid Soluble Nickel , ICP (ppm)	0368	1.250	0.3000	0.5851	0.4796	0.1187	6	1.23	57%	0
291.30	Acid Soluble Nickel , ICP (ppm)	0035	1.625	1.090	0.5851	0.4796	0.1187	6	1.93	89%	1
291.33	Acid Soluble Nickel , ICP, 2006.03 modified w... (ppm)	0527	0.4270	0.0060				2			0
291.33	Acid Soluble Nickel , ICP, 2006.03 modified w... (ppm)	0037	0.6635	0.0530				2			0
291.33	Acid Soluble Nickel , ICP, 2006.03 modified w... (ppm)	0515	0.0000	0.0000				2			4
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	0501	0.3665	0.0450				1			0
291.34	Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)	0515	0.1334	0.2668				1			4
291.99	Acid Soluble Nickel , Other (ppm)	0476	0.2767	0.0129	1.398	1.916	0.1807	4	-0.59	40%	0
291.99	Acid Soluble Nickel , Other (ppm)	0220	0.4500	0.1000	1.398	1.916	0.1807	4	-0.49	34%	0
291.99	Acid Soluble Nickel , Other (ppm)	0519	0.6000	0.0600	1.398	1.916	0.1807	4	-0.42	29%	0
291.99	Acid Soluble Nickel , Other (ppm)	0506	4.265	0.5500	1.398	1.916	0.1807	4	1.50	103%	0
291.99	Acid Soluble Nickel , Other (ppm)	0255	0.0015	0.0030	1.398	1.916	0.1807	4			4
301.30	Acid Soluble Selenium , ICP (ppm)	0501	0.0075	0.0010				2			0
301.30	Acid Soluble Selenium , ICP (ppm)	0524	1.550	0.4600				2			0
301.30	Acid Soluble Selenium , ICP (ppm)	0368	0.0000	0.0000				2			4
301.30	Acid Soluble Selenium , ICP (ppm)	0541	0.1500	0.3000				2			4
301.33	Acid Soluble Selenium , ICP, 2006.03 modified... (ppm)	0527	0.2675	0.0550				2			0
301.33	Acid Soluble Selenium , ICP, 2006.03 modified... (ppm)	0515	1.143	1.644				2			0
301.34	Acid Soluble Selenium , ICP, EPA 3050B/6010C (ppm)	0515	0.6315	0.1710				1			0
301.99	Acid Soluble Selenium , Other (ppm)	0255	0.1585	0.0530	37.48	64.54	2.024	3	-0.58	50%	0
301.99	Acid Soluble Selenium , Other (ppm)	0519	0.2700	0.0200	37.48	64.54	2.024	3	-0.58	50%	0
301.99	Acid Soluble Selenium , Other (ppm)	0506	112.0	6.000	37.48	64.54	2.024	3	1.15	99%	0
311.32	Sodium, ICP, 2006.03 test portion (%)	0521	0.0031	0.0000				1			0
311.33	Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl ... (%)	0494	0.0025	0.0008				1			0
311.99	Sodium, Other (%)	0354	0.0090	0.0160				2			0
311.99	Sodium, Other (%)	0096	0.0150	0.0100				2			0
321.00	Acid Soluble Zinc , AA, inorganic 965.09 (%)	0105	0.0005	0.0007	0.0029	0.0021	0.0004	4	-1.17	42%	0
321.00	Acid Soluble Zinc , AA, inorganic 965.09 (%)	0531	0.0024	0.0002	0.0029	0.0021	0.0004	4	-0.24	9%	0
321.00	Acid Soluble Zinc , AA, inorganic 965.09 (%)	0428	0.0033	0.0003	0.0029	0.0021	0.0004	4	0.16	6%	0
321.00	Acid Soluble Zinc , AA, inorganic 965.09 (%)	0043	0.0056	0.0005	0.0029	0.0021	0.0004	4	1.25	45%	0
321.30	Acid Soluble Zinc , ICP, test portion inorgan... (%)	0354	0.0020	0.0000				1			0
321.30	Acid Soluble Zinc , ICP, test portion inorgan... (%)	0255	0.0000	0.0000				1			4
321.30	Acid Soluble Zinc , ICP, test portion inorgan... (%)	0377	0.0000	0.0000				1			4
321.32	Acid Soluble Zinc , ICP, test portion 2006.03... (%)	0521	0.0003	0.0000				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
321.32	Acid Soluble Zinc , ICP, test portion 2006.03... (%)	0394	0.0006	0.0000				2			0
321.32	Acid Soluble Zinc , ICP, test portion 2006.03... (%)	0541	0.0000	0.0000				2			4
321.33	Acid Soluble Zinc , ICP, test portion 2006.03... (%)	0494	0.0001	0.0000	0.0004	0.0005	0.0000	3	-0.63	38%	0
321.33	Acid Soluble Zinc , ICP, test portion 2006.03... (%)	0515	0.0002	0.0001	0.0004	0.0005	0.0000	3	-0.53	32%	0
321.33	Acid Soluble Zinc , ICP, test portion 2006.03... (%)	0527	0.0010	0.0000	0.0004	0.0005	0.0000	3	1.15	70%	0
321.99	Acid Soluble Zinc , Other (%)	0501	0.0001	0.0000				2			0
321.99	Acid Soluble Zinc , Other (%)	0220	0.0008	0.0001				2			0
321.99	Acid Soluble Zinc , Other (%)	0515	0.0001	0.0002				2			4
321.99	Acid Soluble Zinc , Other (%)	0368	0.0008	0.0016				2			4

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier and a 4 flag indicates rejected due to 0 value submitted. 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 included for information only (Grey). An offset lab value with an asterix indicates that the value is lower than the Analyte value less the IA. Method or Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.