



## Analyte Proficiency Testing Report Minerals Program

**Sample # 201554**  
**Dairy Feed**

**# Labs Reporting: 12**  
**Issue Date : 01/31/2016**

Method Group	Analyte Group (Units)	Lab Code	Lab Data		Method Values				AAFCO CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Horwitz SD	R-bar	# Labs			
003	Fat (%)	0508	0.67920	1.3584			1.3584	0			4
015	Aluminum (mg / kg (ppm))	0510	163.00	6.0000	373.28	24.489	30.640		-8.59	015.43	0
015	Aluminum (mg / kg (ppm))	0098	358.50	40.200	373.28	24.489	30.640		-0.60	015.43	0
015	Aluminum (mg / kg (ppm))	0553	405.00	18.000	373.28	24.489	30.640		1.30	015.53	0
015	Aluminum (mg / kg (ppm))	0208	426.50	43.000	373.28	24.489	30.640		2.17	015.41	0
015	Aluminum (mg / kg (ppm))	0042	442.00	46.000	373.28	24.489	30.640		2.81	015.42	0
017	Boron (mg / kg (ppm))	0208	43.900	0.80000	50.150	4.4505	7.1700		-1.40	017.44	0
017	Boron (mg / kg (ppm))	0510	52.500	1.0000	50.150	4.4505	7.1700		0.53	017.43	0
017	Boron (mg / kg (ppm))	0098	52.665	3.4500	50.150	4.4505	7.1700		0.57	017.43	0
017	Boron (mg / kg (ppm))	0553	60.300	6.6000	50.150	4.4505	7.1700		2.28	017.53	0
017	Boron (mg / kg (ppm))	0027	71.000	24.000	50.150	4.4505	7.1700		4.68	017.99	0
019	Calcium (%)	0555	2.0200	0.04000	2.3063	0.08134	0.06060	5	-3.52	019.42	0
019	Calcium (%)	0510	2.1100	0.02000	2.3063	0.08134	0.06060	5	-2.41	019.43	0
019	Calcium (%)	0964	2.3965	0.13900	2.3063	0.08134	0.06060	5	1.11	019.43	0
019	Calcium (%)	0208	2.4750	0.06400	2.3063	0.08134	0.06060	5	2.07	019.41	0
019	Calcium (%)	0042	2.5300	0.04000	2.3063	0.08134	0.06060	5	2.75	019.42	0
021	Cobalt (mg / kg (ppm))	0042	3.9900	0.12000	5.1812	0.64705	0.40481	10	-1.84	021.42	0
021	Cobalt (mg / kg (ppm))	0510	4.3850	0.03000	5.1812	0.64705	0.40481	10	-1.23	021.43	0
021	Cobalt (mg / kg (ppm))	0555	4.6500	0.30000	5.1812	0.64705	0.40481	10	-0.82	021.52	0
021	Cobalt (mg / kg (ppm))	0227	4.8000	0.20000	5.1812	0.64705	0.40481	10	-0.59	021.31	0
021	Cobalt (mg / kg (ppm))	0563	5.0000	0.20000	5.1812	0.64705	0.40481	10	-0.28	021.31	0
021	Cobalt (mg / kg (ppm))	0033	5.1750	0.73000	5.1812	0.64705	0.40481	10	-0.01	021.53	0
021	Cobalt (mg / kg (ppm))	0098	5.7260	1.4640	5.1812	0.64705	0.40481	10	0.84	021.43	0
021	Cobalt (mg / kg (ppm))	0208	5.8600	0.10000	5.1812	0.64705	0.40481	10	1.05	021.31	0
021	Cobalt (mg / kg (ppm))	0964	6.0256	0.02410	5.1812	0.64705	0.40481	10	1.30	021.43	0
021	Cobalt (mg / kg (ppm))	0027	6.2000	0.88000	5.1812	0.64705	0.40481	10	1.57	021.43	0
022	Copper (mg / kg (ppm))	0098	266.90	3.2000	284.04	19.417	15.218	12	-0.88	022.53	0
022	Copper (mg / kg (ppm))	0227	270.50	3.0000	284.04	19.417	15.218	12	-0.70	022.41	0
022	Copper (mg / kg (ppm))	0553	271.00	12.000	284.04	19.417	15.218	12	-0.67	022.53	0
022	Copper (mg / kg (ppm))	0510	276.50	1.0000	284.04	19.417	15.218	12	-0.39	022.43	0
022	Copper (mg / kg (ppm))	0208	278.00	12.000	284.04	19.417	15.218	12	-0.31	022.31	0

Method Group	Analyte Group (Units)	Lab Code	Lab Data		Method Values				AAFCO CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Horwitz SD	R-bar	# Labs			
022	Copper (mg / kg (ppm))	0555	280.50	35.000	284.04	19.417	15.218	12	-0.18	022.52	0
022	Copper (mg / kg (ppm))	0563	281.50	9.0000	284.04	19.417	15.218	12	-0.13	022.31	0
022	Copper (mg / kg (ppm))	0555	292.50	15.000	284.04	19.417	15.218	12	0.44	022.42	0
022	Copper (mg / kg (ppm))	0208	292.70	29.000	284.04	19.417	15.218	12	0.45	022.41	0
022	Copper (mg / kg (ppm))	0042	293.00	18.000	284.04	19.417	15.218	12	0.46	022.42	0
022	Copper (mg / kg (ppm))	0964	300.25	9.9400	284.04	19.417	15.218	12	0.83	022.43	0
022	Copper (mg / kg (ppm))	0027	329.95	35.480	284.04	19.417	15.218	12	2.36	022.43	0
023	Fluorine (mg / kg (ppm))	0208	41.600	0.60000	47.431	4.2446	0.94593	3		023.01	0
023	Fluorine (mg / kg (ppm))	0563	45.692	0.23780	47.431	4.2446	0.94593	3		023.01	0
023	Fluorine (mg / kg (ppm))	0555	55.000	2.0000	47.431	4.2446	0.94593	3		023.01	0
024	Iodine (mg / kg (ppm))	0208	11.650	1.1000			1.1000	1			0
025	Iron (mg / kg (ppm))	0555	518.00	78.000	592.49	36.259	31.147	6	-2.05	025.52	0
025	Iron (mg / kg (ppm))	0555	544.50	51.000	592.49	36.259	31.147	6	-1.32	025.42	0
025	Iron (mg / kg (ppm))	0510	565.50	1.0000	592.49	36.259	31.147	6	-0.74	025.43	0
025	Iron (mg / kg (ppm))	0042	608.00	8.0000	592.49	36.259	31.147	6	0.43	025.42	0
025	Iron (mg / kg (ppm))	0964	634.26	12.980	592.49	36.259	31.147	6	1.15	025.43	0
025	Iron (mg / kg (ppm))	0208	684.65	35.900	592.49	36.259	31.147	6	2.54	025.41	0
027	Magnesium (%)	0555	0.54835	0.00330	0.59525	0.02574	0.02150	5	-1.82	027.42	0
027	Magnesium (%)	0510	0.55000	0.02000	0.59525	0.02574	0.02150	5	-1.76	027.43	0
027	Magnesium (%)	0964	0.60490	0.02020	0.59525	0.02574	0.02150	5	0.37	027.43	0
027	Magnesium (%)	0042	0.63400	0.02200	0.59525	0.02574	0.02150	5	1.51	027.42	0
027	Magnesium (%)	0208	0.63900	0.04200	0.59525	0.02574	0.02150	5	1.70	027.41	0
028	Manganese (mg / kg (ppm))	0510	469.50	7.0000	512.79	32.072	15.651	6	-1.35	028.43	0
028	Manganese (mg / kg (ppm))	0208	506.25	35.500	512.79	32.072	15.651	6	-0.20	028.41	0
028	Manganese (mg / kg (ppm))	0555	509.50	23.000	512.79	32.072	15.651	6	-0.10	028.52	0
028	Manganese (mg / kg (ppm))	0555	514.50	9.0000	512.79	32.072	15.651	6	0.05	028.42	0
028	Manganese (mg / kg (ppm))	0042	522.50	15.000	512.79	32.072	15.651	6	0.30	028.42	0
028	Manganese (mg / kg (ppm))	0964	542.46	4.4060	512.79	32.072	15.651	6	0.92	028.43	0
031	Phosphorus (%)	0510	1.0800	0.02000	1.1804	0.04605	0.03000	6	-2.18	031.43	0
031	Phosphorus (%)	0042	1.1500	0.02000	1.1804	0.04605	0.03000	6	-0.66	031.42	0
031	Phosphorus (%)	0555	1.1557	0.05130	1.1804	0.04605	0.03000	6	-0.54	031.42	0
031	Phosphorus (%)	0227	1.2050	0.01000	1.1804	0.04605	0.03000	6	0.53	031.41	0
031	Phosphorus (%)	0964	1.2260	0.03070	1.1804	0.04605	0.03000	6	0.99	031.43	0
031	Phosphorus (%)	0208	1.2500	0.04800	1.1804	0.04605	0.03000	6	1.51	031.41	0
032	Potassium (%)	0227	1.3550	0.01000	1.3751	0.05242	0.03908	6	-0.38	032.41	0
032	Potassium (%)	0042	1.3600	0.02000	1.3751	0.05242	0.03908	6	-0.29	032.42	0
032	Potassium (%)	0964	1.3677	0.08210	1.3751	0.05242	0.03908	6	-0.14	032.43	0
032	Potassium (%)	0208	1.3775	0.06300	1.3751	0.05242	0.03908	6	0.05	032.41	0
032	Potassium (%)	0510	1.3950	0.03000	1.3751	0.05242	0.03908	6	0.38	032.43	0
032	Potassium (%)	0555	1.3953	0.02940	1.3751	0.05242	0.03908	6	0.39	032.42	0
033	Salt as chloride (%)	0510	3.0750	0.01000			0.07000	2		033.01	0
033	Salt as chloride (%)	0227	3.2650	0.13000			0.07000	2		033.01	0

Method Group	Analyte Group (Units)	Lab Code	Lab Data		Method Values				AAFCO CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Horwitz SD	R-bar	# Labs			
034	Selenium (mg / kg (ppm))	0553	3.1800	0.02000	3.4652	0.45975	0.13167	9	-0.62	034.53	0
034	Selenium (mg / kg (ppm))	0555	3.2000	0.20000	3.4652	0.45975	0.13167	9	-0.58	034.99	0
034	Selenium (mg / kg (ppm))	0555	3.2500	0.10000	3.4652	0.45975	0.13167	9	-0.47	034.52	0
034	Selenium (mg / kg (ppm))	0227	3.3650	0.09000	3.4652	0.45975	0.13167	9	-0.22	034.04	0
034	Selenium (mg / kg (ppm))	0033	3.3650	0.43000	3.4652	0.45975	0.13167	9	-0.22	034.53	0
034	Selenium (mg / kg (ppm))	0208	3.5600	0.10000	3.4652	0.45975	0.13167	9	0.21	034.52	0
034	Selenium (mg / kg (ppm))	0098	3.7215	0.16100	3.4652	0.45975	0.13167	9	0.56	034.53	0
034	Selenium (mg / kg (ppm))	0964	3.7685	0.07400	3.4652	0.45975	0.13167	9	0.66	034.43	0
034	Selenium (mg / kg (ppm))	0563	4.0450	0.01000	3.4652	0.45975	0.13167	9	1.26	034.04	0
034	Selenium (mg / kg (ppm))	0027	4.3550	0.73000	3.4652	0.45975	0.13167	9	1.94	034.43	1
035	Sodium (%)	0510	0.87850	0.00900	1.0241	0.04081	0.02385	6	-3.57	035.43	0
035	Sodium (%)	0227	0.99400	0.00200	1.0241	0.04081	0.02385	6	-0.74	035.41	0
035	Sodium (%)	0555	1.0217	0.01530	1.0241	0.04081	0.02385	6	-0.06	035.42	0
035	Sodium (%)	0042	1.0250	0.03000	1.0241	0.04081	0.02385	6	0.02	035.42	0
035	Sodium (%)	0964	1.0573	0.03080	1.0241	0.04081	0.02385	6	0.81	035.43	0
035	Sodium (%)	0208	1.1230	0.05600	1.0241	0.04081	0.02385	6	2.42	035.41	0
036	Sulfur (%)	0098	0.42000	0.01800	0.44018	0.01992	0.02182	6	-1.01	036.43	0
036	Sulfur (%)	0555	0.43110	0.00220	0.44018	0.01992	0.02182	6	-0.46	036.42	0
036	Sulfur (%)	0208	0.44000	0.04400	0.44018	0.01992	0.02182	6	-0.01	036.00	0
036	Sulfur (%)	0553	0.44250	0.05100	0.44018	0.01992	0.02182	6	0.12	036.53	0
036	Sulfur (%)	0510	0.44500	0.01000	0.44018	0.01992	0.02182	6	0.24	036.43	0
036	Sulfur (%)	0964	0.46665	0.00570	0.44018	0.01992	0.02182	6	1.33	036.43	0
037	Zinc (mg / kg (ppm))	0510	634.00	6.0000	675.02	40.508	16.817	7	-1.01	037.43	0
037	Zinc (mg / kg (ppm))	0208	665.75	36.500	675.02	40.508	16.817	7	-0.23	037.41	0
037	Zinc (mg / kg (ppm))	0227	667.00	2.0000	675.02	40.508	16.817	7	-0.20	037.41	0
037	Zinc (mg / kg (ppm))	0042	679.00	18.000	675.02	40.508	16.817	7	0.10	037.42	0
037	Zinc (mg / kg (ppm))	0555	682.50	19.000	675.02	40.508	16.817	7	0.18	037.52	0
037	Zinc (mg / kg (ppm))	0964	687.10	13.218	675.02	40.508	16.817	7	0.30	037.43	0
037	Zinc (mg / kg (ppm))	0555	691.50	23.000	675.02	40.508	16.817	7	0.41	037.42	0
038	Molybdenum (mg / kg (ppm))	0027	123.58	2.9900	143.21	10.853	9.3303	11	-1.81	038.43	0
038	Molybdenum (mg / kg (ppm))	0563	128.50	1.0000	143.21	10.853	9.3303	11	-1.36	038.34	0
038	Molybdenum (mg / kg (ppm))	0510	131.30	2.6000	143.21	10.853	9.3303	11	-1.10	038.43	0
038	Molybdenum (mg / kg (ppm))	0042	134.50	1.0000	143.21	10.853	9.3303	11	-0.80	038.42	0
038	Molybdenum (mg / kg (ppm))	0098	144.30	8.2000	143.21	10.853	9.3303	11	0.10	038.53	0
038	Molybdenum (mg / kg (ppm))	0964	146.04	1.8430	143.21	10.853	9.3303	11	0.26	038.43	0
038	Molybdenum (mg / kg (ppm))	0555	148.50	17.000	143.21	10.853	9.3303	11	0.49	038.42	0
038	Molybdenum (mg / kg (ppm))	0555	148.50	27.000	143.21	10.853	9.3303	11	0.49	038.52	0
038	Molybdenum (mg / kg (ppm))	0553	151.00	10.000	143.21	10.853	9.3303	11	0.72	038.53	0
038	Molybdenum (mg / kg (ppm))	0208	152.50	23.000	143.21	10.853	9.3303	11	0.86	038.41	0
038	Molybdenum (mg / kg (ppm))	0033	155.00	8.0000	143.21	10.853	9.3303	11	1.09	038.53	0
040	Barium (mg / kg (ppm))	0555	9.2500	0.90000			0.90000	1			0
041	Vanadium (mg / kg (ppm))	0208	36.150	2.9000	49.800	4.4241	2.1900		-3.09	041.41	0

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041	Vanadium (mg / kg (ppm))	0555	41.500	5.0000	49.800	4.4241	2.1900		-1.88	041.52	0
041	Vanadium (mg / kg (ppm))	0098	46.325	1.5500	49.800	4.4241	2.1900		-0.79	041.43	0
041	Vanadium (mg / kg (ppm))	0563	50.750	0.50000	49.800	4.4241	2.1900		0.21	041.31	0
041	Vanadium (mg / kg (ppm))	0553	50.800	1.0000	49.800	4.4241	2.1900		0.23	041.53	0
516	Arsenic, total (mg / kg (ppm))	0964	1.2372	0.01560	1.4475	0.21902	0.08995	8	-0.96	516.43	0
516	Arsenic, total (mg / kg (ppm))	0553	1.2900	0.02000	1.4475	0.21902	0.08995	8	-0.72	516.53	0
516	Arsenic, total (mg / kg (ppm))	0227	1.3400	0.08000	1.4475	0.21902	0.08995	8	-0.49	516.53	0
516	Arsenic, total (mg / kg (ppm))	0208	1.4150	0.05000	1.4475	0.21902	0.08995	8	-0.15	516.52	0
516	Arsenic, total (mg / kg (ppm))	0555	1.4500	0.10000	1.4475	0.21902	0.08995	8	0.01	516.52	0
516	Arsenic, total (mg / kg (ppm))	0033	1.4600	0.18000	1.4475	0.21902	0.08995	8	0.06	516.53	0
516	Arsenic, total (mg / kg (ppm))	0027	1.8150	0.25000	1.4475	0.21902	0.08995	8	1.68	516.43	0
516	Arsenic, total (mg / kg (ppm))	0098	1.8840	0.02400	1.4475	0.21902	0.08995	8	1.99	516.53	0
516	Arsenic, total (mg / kg (ppm))	0555	0.60000	1.2000	1.4475	0.21902	0.08995	8	-3.87	516.42	4
518	Cadmium (mg / kg (ppm))	0098	0.31650	0.03900	0.45196	0.08148	0.03289	8	-1.66	518.53	0
518	Cadmium (mg / kg (ppm))	0964	0.41015	0.01810	0.45196	0.08148	0.03289	8	-0.51	518.43	0
518	Cadmium (mg / kg (ppm))	0227	0.41250	0.04300	0.45196	0.08148	0.03289	8	-0.48	518.53	0
518	Cadmium (mg / kg (ppm))	0208	0.44450	0.01300	0.45196	0.08148	0.03289	8	-0.09	518.52	0
518	Cadmium (mg / kg (ppm))	0553	0.47200	0.04000	0.45196	0.08148	0.03289	8	0.25	518.53	0
518	Cadmium (mg / kg (ppm))	0033	0.47500	0.03000	0.45196	0.08148	0.03289	8	0.28	518.53	0
518	Cadmium (mg / kg (ppm))	0555	0.48500	0.05000	0.45196	0.08148	0.03289	8	0.41	518.52	0
518	Cadmium (mg / kg (ppm))	0563	0.57500	0.03000	0.45196	0.08148	0.03289	8	1.51	518.34	0
518	Cadmium (mg / kg (ppm))	0555	0.22000	0.44000	0.45196	0.08148	0.03289	8	-2.85	518.42	4
520	Chromium (mg / kg (ppm))	0227	3.6000	0.20000	5.3294	0.66274	0.53545	10	-2.61	520.31	0
520	Chromium (mg / kg (ppm))	0555	3.7500	1.5000	5.3294	0.66274	0.53545	10	-2.38	520.52	0
520	Chromium (mg / kg (ppm))	0027	4.0050	0.53000	5.3294	0.66274	0.53545	10	-2.00	520.43	0
520	Chromium (mg / kg (ppm))	0042	4.5650	0.21000	5.3294	0.66274	0.53545	10	-1.15	520.42	0
520	Chromium (mg / kg (ppm))	0098	5.0700	1.0200	5.3294	0.66274	0.53545	10	-0.39	520.43	0
520	Chromium (mg / kg (ppm))	0553	5.7300	0.32000	5.3294	0.66274	0.53545	10	0.60	520.53	0
520	Chromium (mg / kg (ppm))	0033	6.2700	0.48000	5.3294	0.66274	0.53545	10	1.42	520.53	0
520	Chromium (mg / kg (ppm))	0964	6.4689	0.12450	5.3294	0.66274	0.53545	10	1.72	520.43	0
520	Chromium (mg / kg (ppm))	0510	6.7950	0.27000	5.3294	0.66274	0.53545	10	2.21	520.43	0
520	Chromium (mg / kg (ppm))	0208	7.0400	0.70000	5.3294	0.66274	0.53545	10	2.58	520.41	0
526	Lead (mg / kg (ppm))	0042	25.350	1.5000	28.873	2.7843	0.98491	9	-1.27	526.42	0
526	Lead (mg / kg (ppm))	0227	27.400	1.6000	28.873	2.7843	0.98491	9	-0.53	526.53	0
526	Lead (mg / kg (ppm))	0033	28.250	1.3000	28.873	2.7843	0.98491	9	-0.22	526.53	0
526	Lead (mg / kg (ppm))	0098	28.250	0.70000	28.873	2.7843	0.98491	9	-0.22	526.53	0
526	Lead (mg / kg (ppm))	0964	28.970	0.26420	28.873	2.7843	0.98491	9	0.03	526.43	0
526	Lead (mg / kg (ppm))	0208	29.000	1.4000	28.873	2.7843	0.98491	9	0.05	526.52	0
526	Lead (mg / kg (ppm))	0553	29.550	1.1000	28.873	2.7843	0.98491	9	0.24	526.53	0
526	Lead (mg / kg (ppm))	0555	30.500	1.0000	28.873	2.7843	0.98491	9	0.58	526.52	0
526	Lead (mg / kg (ppm))	0563	34.000	0.00000	28.873	2.7843	0.98491	9	1.84	526.34	0
529	Mercury (µg / kg (ppb))	0227	48.500	1.0000	51.000	11.220	1.7400		-0.22	529.99	0

Method Group	Analyte Group (Units)	Lab Code	Lab Data		Method Values				AAFCO CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Horwitz SD	R-bar	# Labs			
529	Mercury (µg / kg (ppb))	0098	50.000	0.00000	<b>51.000</b>	<b>11.220</b>	1.7400		-0.09	529.00	0
529	Mercury (µg / kg (ppb))	0208	52.400	2.4000	<b>51.000</b>	<b>11.220</b>	1.7400		0.12	529.99	0
529	Mercury (µg / kg (ppb))	0563	53.850	1.9000	<b>51.000</b>	<b>11.220</b>	1.7400		0.25	529.99	0
529	Mercury (µg / kg (ppb))	0553	55.300	3.4000	<b>51.000</b>	<b>11.220</b>	1.7400		0.38	529.99	0
529	Mercury (µg / kg (ppb))	0555	0.00000	0.00000	<b>51.000</b>	<b>11.220</b>	1.7400		-4.55	529.99	4
539	Nickel (mg / kg (ppm))	0098	2.0100	0.16000	3.1140	0.41986	0.24220	6	-2.63	539.53	0
539	Nickel (mg / kg (ppm))	0042	2.8450	0.31000	3.1140	0.41986	0.24220	6	-0.64	539.42	0
539	Nickel (mg / kg (ppm))	0027	2.9950	0.39000	3.1140	0.41986	0.24220	6	-0.28	539.43	0
539	Nickel (mg / kg (ppm))	0555	3.3000	0.40000	3.1140	0.41986	0.24220	6	0.44	539.52	0
539	Nickel (mg / kg (ppm))	0553	3.6000	0.16000	3.1140	0.41986	0.24220	6	1.16	539.53	0
539	Nickel (mg / kg (ppm))	0964	3.6365	0.03320	3.1140	0.41986	0.24220	6	1.24	539.43	0

Notes: 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 outlier, 8 = Analyst data exempt and 4 = zeros submitted as values. Robust statistics not used if < 6 labs reporting, in this case the Z Scores may be included for information only (Grey, No Action!). Flag 9 indicates no statistics calculated for this dataset. To review the problem please see all submitted data for this test. Values in bold blue are calculated from the original sample and known spike. Z-scores are assessed against this value.