



AAFCO
Proficiency Testing Program



Animal Feed Scheme

Llama Feed

Test Material Code # 201931

Method Summary Report

(Precision Report Follows)

Labs Reporting: 184

Methods Reported: 379

Issue Date : 12/31/2019

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	6.150							
001.00	Loss on Drying, Vac 95°C 5 hr (%)	5	4	7.740	0.1737	7.740	0.1737	0.0869	2.24%	0.1240	2.94%
001.03	Loss on Drying, Low temp. methods (%)	6	5	7.923	0.2197	7.923	0.2197	0.0338	2.77%	0.0311	2.93%
001.05	Loss on Drying, LECO (%)	1	1	7.560							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	48	47	7.847	0.3001	7.826	0.2507	0.0457	3.20%	0.0756	2.93%
001.99	Loss on Drying, Miscellaneous (%)	21	19	7.668	0.4914	7.685	0.4440	0.1273	5.78%	0.0986	2.94%
002.00	Protein, Crude, Crude (%)	1	1	23.28							
002.01	Protein, Crude, Auto Kjell-Foss (%)	14	13	23.62	0.3203	23.61	0.3527	0.1223	1.49%	0.0849	2.06%
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	2	2	23.75	0.2932						
002.03	Protein, Crude, Hach Method (%)	1	1	24.07							
002.04	Protein, Crude, Copper Catalyst (%)	3	3	23.59	0.5123	23.59	0.5123	0.2958	2.17%	0.3100	2.06%
002.05	Protein, Crude, Copper, Boric Acid (%)	33	32	23.56	0.3587	23.55	0.3270	0.0723	1.39%	0.1405	2.06%
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	125	123	24.00	0.4347	24.01	0.3087	0.0348	1.29%	0.1805	2.04%
002.08	Protein, Crude, Cu/Ti (%)	2	2	23.79	0.0682						
002.11	Protein, Crude, NIR (%)	5	4	27.72	1.513	27.72	1.513	0.7564	5.46%	0.0313	1.90%
002.99	Protein, Crude, Miscellaneous (%)	1	1	22.97							
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	9	9	3.101	2.148	2.436	0.2601	0.1084	10.68%	0.1567	3.50%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	3	3	2.797	0.5931	2.797	0.5931	0.3424	21.21%	0.0267	3.43%
003.06	Fat, Crude, Pet Ether (%)	14	14	2.513	0.1430	2.506	0.1329	0.0444	5.30%	0.0695	3.48%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	14	14	2.515	0.2355	2.521	0.2272	0.0759	9.01%	0.0755	3.48%
003.10	Fat, Crude, Randall, Pet Ether (%)	28	26	2.343	0.3135	2.281	0.1644	0.0403	7.21%	0.0814	3.53%
003.11	Fat, Crude, NIR (%)	5	5	2.148	0.8141	2.148	0.8141	0.3641	37.90%	0.0240	3.57%
003.12	Fat, Crude, Hexane Ext (%)	4	4	2.259	0.2344	2.259	0.2344	0.1172	10.37%	0.0277	3.54%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	8	8	2.404	0.1625	2.396	0.1655	0.0731	6.90%	0.1173	3.51%
003.14	Fat, Crude, Ankom (%)	52	50	2.375	0.2525	2.376	0.2149	0.0380	9.05%	0.1115	3.51%
003.99	Fat, Crude, Miscellaneous (%)	5	4	2.560	0.2033	2.560	0.2033	0.1016	7.94%	0.0450	3.47%
004.00	Fiber, Crude, Asbestos Free (%)	15	15	17.38	0.7184	17.36	0.7808	0.2520	4.50%	0.1640	2.40%
004.01	Fiber, Crude, Sing Filt (%)	2	2	9.105	8.408						
004.03	Fiber, Crude, Fritted Glass (%)	5	5	17.49	1.494	17.49	1.494	0.6680	8.54%	0.4780	2.39%
004.06	Fiber, Crude, Fibertec (%)	20	19	16.52	3.889	17.35	1.255	0.3598	7.23%	0.1336	2.40%

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
004.07	Fiber, Crude, ANKOM (%)	73	71	17.13	1.742	17.22	1.272	0.1887	7.39%	0.2687	2.41%
004.11	Fiber, Crude, NIR (%)	6	6	16.85	1.578	16.82	1.714	0.8748	10.19%	0.1892	2.44%
004.99	Fiber, Crude, Miscellaneous (%)	2	2	15.70	1.100						
005.00	Ash, 2h @ 600°C (%)	95	92	16.69	0.2682	16.69	0.2282	0.0297	1.37%	0.1273	2.45%
005.02	Ash, LECO (%)	1	1	16.94							
005.05	Ash, 3h @ 550°C (%)	31	29	16.91	0.3334	16.89	0.2380	0.0552	1.41%	0.0716	2.43%
005.11	Ash, NIR (%)	3	3	12.78	6.447	12.78	6.447	3.722	50.46%	0.0467	2.73%
005.99	Ash, Miscellaneous (%)	11	10	16.95	0.5066	16.90	0.4255	0.1682	2.52%	0.1729	2.43%
006.00	Total Sugars, As sucrose (%)	3	3	2.818	2.142	2.818	2.142	1.514	76.00%	0.4837	3.42%
006.99	Total Sugars, Miscellaneous (%)	2	2	5.473	0.5268						
008.02	Fiber, Acid Detergent, Crucible (%)	13	13	23.40	1.092	23.47	1.043	0.3617	4.45%	0.5233	2.06%
008.05	Fiber, Acid Detergent, Acid Detergent-Hach (%)	1	1	26.55							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	45	44	22.81	1.802	22.74	1.844	0.3475	8.11%	0.3733	2.10%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	3	3	22.36	1.106	22.36	1.106	0.6385	4.95%	0.1567	2.11%
009.04	Fiber, Neutral Detergent, Neutral Det-No ENZ Pretreat (%)	2	2	37.56	4.009						
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	12	12	34.97	2.376	35.00	2.127	0.7674	6.08%	0.5520	1.69%
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	42	41	33.94	1.754	33.91	1.856	0.3623	5.47%	0.4912	1.72%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	3	3	28.95	8.421	28.95	8.421	4.862	29.08%	0.1883	1.86%
010.03	Moisture, Karl-Fischer (%)	2	2	7.543	0.4773						
010.11	Moisture, NIR (%)	3	3	8.189	0.5977	8.189	0.5977	0.3451	7.30%	0.0167	2.91%
010.99	Moisture, Miscellaneous (%)	18	17	7.990	0.6846	7.928	0.4612	0.1398	5.82%	0.1171	2.93%
011.01	Loss on Drying, 135°C 2hr (%)	67	67	8.871	0.3938	8.890	0.4022	0.0614	4.52%	0.1267	2.88%
011.02	Loss on Drying, 130°C for 2 hours (%)	1	1	8.605							
011.99	Loss on Drying, High Temp. Methods Miscellaneous (%)	1	1	8.550							
012.00	Starch, Polarimetric (Ewers) (%)	14	13	7.250	0.3918	7.229	0.3938	0.1365	5.45%	0.1215	2.97%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	10	6.640	1.531	6.273	0.7324	0.2895	11.68%	0.1937	3.03%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	4	4	6.476	1.031	6.476	1.031	0.5154	15.92%	0.2013	3.02%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	5	5	5.960	0.7922	5.960	0.7922	0.3543	13.29%	0.3640	3.06%
012.11	Starch, NIR (%)	3	3	5.147	3.166	5.147	3.166	1.828	61.52%	0.0467	3.13%
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	17	17	3.365	0.5456	3.366	0.5918	0.1794	17.58%	0.1649	3.33%
013.02	Fat, Acid Pretreat, Mojonnier, Bak Ext (%)	20	19	3.684	0.4343	3.705	0.4405	0.1263	11.89%	0.1544	3.28%
013.08	Fat, Base Pretreat, Roese-Gottlieb Modified (%)	1	1	3.040							
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	6	6	3.129	0.4132	3.129	0.4686	0.2391	14.97%	0.1377	3.37%
013.12	Fat, Acid Pretreat, NIR- Acid Hydrolysis (%)	1	1	1.758							
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	6	6	4.107	0.8059	4.107	0.9139	0.4664	22.25%	0.2992	3.23%
015.41	Aluminum, ICP, Dry ash (mg / kg (ppm))	5	5	1,620	363.3	1,620	363.3	162.5	22.43%	50.23	5.26%
015.42	Aluminum, ICP, Open vessel (mg / kg (ppm))	2	2	1,101	654.9						
015.43	Aluminum, ICP, Microwave (mg / kg (ppm))	6	6	1,609	243.9	1,609	276.6	141.1	17.19%	21.62	5.27%
015.52	Aluminum, ICP-MS, Open vessel (mg / kg (ppm))	1	1	407.0							
015.53	Aluminum, ICP-MS, Microwave (mg / kg (ppm))	2	2	2,014	75.66						

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
017.41	Boron, ICP, Dry ash (mg / kg (ppm))	6	5	21.00	1.974	21.00	1.974	1.103	9.40%	0.8420	10.12%
017.42	Boron, ICP, Open vessel (mg / kg (ppm))	4	4	21.53	1.448	21.53	1.448	0.7239	6.73%	1.947	10.08%
017.43	Boron, ICP, Microwave (mg / kg (ppm))	5	4	21.61	3.705	21.61	3.705	1.852	17.14%	0.5305	10.07%
017.44	Boron, ICP, Dry ash (mg / kg (ppm))	1	1	21.32							
017.53	Boron, ICP-MS, Microwave (mg / kg (ppm))	1	1	24.30							
019.00	Calcium, Ox-Mn04 Vol. (%)	12	12	2.079	0.2455	2.136	0.0836	0.0302	3.91%	0.0569	3.57%
019.02	Calcium, Hach Method (%)	2	2	2.096	0.0509						
019.03	Calcium, Semiauto (Autoanalyzer) (%)	1	1	2.235							
019.08	Calcium, EDTA (%)	9	8	2.095	0.0847	2.095	0.0960	0.0424	4.58%	0.0078	3.58%
019.31	Calcium, AAS, Dry ash (%)	22	22	2.151	0.2027	2.129	0.1333	0.0355	6.26%	0.0511	3.57%
019.32	Calcium, AAS, Open vessel (%)	1	1	2.125							
019.41	Calcium, ICP, Dry ash (%)	32	31	2.143	0.1007	2.145	0.1069	0.0240	4.98%	0.0472	3.57%
019.42	Calcium, ICP, Open vessel (%)	19	18	2.152	0.1038	2.158	0.1036	0.0305	4.80%	0.0699	3.56%
019.43	Calcium, ICP, Microwave (%)	24	24	2.105	0.2521	2.144	0.1484	0.0379	6.92%	0.0415	3.57%
019.44	Calcium, ICP, Dry ash (%)	5	4	2.168	0.0864	2.168	0.0864	0.0432	3.98%	0.0558	3.56%
019.52	Calcium, ICP-MS, Open vessel (%)	4	4	2.129	0.0911	2.129	0.0911	0.0455	4.28%	0.0578	3.57%
019.53	Calcium, ICP-MS, Microwave (%)	4	4	2.111	0.1055	2.111	0.1055	0.0527	5.00%	0.0775	3.57%
019.99	Calcium, Miscellaneous (%)	6	6	1.883	0.5473	2.031	0.2344	0.1196	11.54%	0.0517	3.60%
021.31	Cobalt, AAS, Dry ash (mg / kg (ppm))	6	6	7.300	4.063	6.010	1.172	0.5983	19.51%	0.3164	12.21%
021.41	Cobalt, ICP, Dry ash (mg / kg (ppm))	5	5	5.014	1.536	5.014	1.536	0.6871	30.64%	0.1751	12.55%
021.42	Cobalt, ICP, Open vessel (mg / kg (ppm))	2	2	5.153	0.2369						
021.43	Cobalt, ICP, Microwave (mg / kg (ppm))	8	7	6.101	0.9825	6.101	1.114	0.5264	18.26%	0.1511	12.18%
021.52	Cobalt, ICP-MS, Open vessel (mg / kg (ppm))	4	4	3.929	0.3713	3.929	0.3713	0.1857	9.45%	0.0775	13.02%
021.53	Cobalt, ICP-MS, Microwave (mg / kg (ppm))	3	3	6.105	0.3454	6.105	0.3454	0.1994	5.66%	0.5567	12.18%
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	14	13	52.39	11.78	50.01	5.443	1.887	10.88%	1.679	8.88%
022.32	Copper, AAS, Open vessel (mg / kg (ppm))	2	2	52.60	1.627						
022.33	Copper, AAS, Microwave (mg / kg (ppm))	2	2	55.77	0.2440						
022.34	Copper, AAS, Graphite furnace (mg / kg (ppm))	1	1	30.36							
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	24	24	48.69	7.511	48.57	7.214	1.841	14.85%	2.421	8.92%
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	19	18	57.77	3.861	57.74	4.220	1.243	7.31%	1.867	8.69%
022.43	Copper, ICP, Microwave (mg / kg (ppm))	18	18	56.05	4.593	55.68	4.325	1.274	7.77%	1.559	8.74%
022.44	Copper, ICP, Dry ash (mg / kg (ppm))	5	5	50.26	4.845	50.26	4.845	2.167	9.64%	2.748	8.87%
022.52	Copper, ICP-MS, Open vessel (mg / kg (ppm))	3	3	52.17	2.026	52.17	2.026	1.170	3.88%	1.540	8.82%
022.53	Copper, ICP-MS, Microwave (mg / kg (ppm))	3	3	52.50	0.5090	52.50	0.5090	0.2939	0.97%	1.343	8.81%
022.99	Copper, Miscellaneous (mg / kg (ppm))	4	4	52.00	6.195	52.00	6.195	3.097	11.91%	1.533	8.83%
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	19	19	1,268	231.0	1,285	218.0	62.51	16.96%	38.47	5.45%
025.32	Iron, AAS, Open vessel (mg / kg (ppm))	1	1	385.4							
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	28	27	1,248	168.2	1,263	148.3	35.68	11.75%	31.94	5.46%
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	15	14	906.8	332.7	906.8	377.3	126.0	41.60%	41.39	5.74%
025.43	Iron, ICP, Microwave (mg / kg (ppm))	19	19	1,258	173.8	1,269	158.4	45.43	12.48%	50.54	5.46%

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
025.52	Iron, ICP-MS, Open vessel (mg / kg (ppm))	3	3	917.6	249.8	917.6	249.8	144.2	27.22%	86.51	5.73%
025.53	Iron, ICP-MS, Microwave (mg / kg (ppm))	2	2	1,384	36.42						
025.99	Iron, Miscellaneous (mg / kg (ppm))	4	3	1,075	21.45	1,075	21.45	12.38	2.00%	71.83	5.59%
027.31	Magnesium, AAS, Dry ash (%)	17	17	0.4140	0.0714	0.4036	0.0226	0.0068	5.59%	0.0072	4.58%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.4250							
027.33	Magnesium, AAS, Microwave (%)	3	3	0.4306	0.0264	0.4306	0.0264	0.0152	6.13%	0.0124	4.54%
027.41	Magnesium, ICP, Dry ash (%)	25	25	0.4134	0.0290	0.4102	0.0244	0.0061	5.95%	0.0077	4.57%
027.42	Magnesium, ICP, Open vessel (%)	20	20	0.4022	0.0336	0.4063	0.0234	0.0066	5.77%	0.0152	4.58%
027.43	Magnesium, ICP, Microwave (%)	21	20	0.4057	0.0559	0.4168	0.0222	0.0062	5.32%	0.0080	4.56%
027.44	Magnesium, ICP, Dry ash (%)	4	4	0.4161	0.0291	0.4161	0.0291	0.0145	6.98%	0.0238	4.56%
027.52	Magnesium, ICP-MS, Open vessel (%)	4	3	0.4001	0.0115	0.4001	0.0115	0.0066	2.87%	0.0056	4.59%
027.53	Magnesium, ICP-MS, Microwave (%)	3	3	0.4328	0.0506	0.4328	0.0506	0.0292	11.68%	0.0043	4.54%
027.99	Magnesium, Miscellaneous (%)	3	3	0.4317	0.0176	0.4317	0.0176	0.0101	4.07%	0.0167	4.54%
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	15	15	460.0	47.00	462.1	48.34	15.60	10.46%	7.156	6.35%
028.32	Manganese, AAS, Open vessel (mg / kg (ppm))	2	2	466.0	5.694						
028.33	Manganese, AAS, Microwave (mg / kg (ppm))	1	1	456.7							
028.34	Manganese, AAS, Dry ash (mg / kg (ppm))	1	1	318.5							
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	23	22	466.0	30.21	466.4	33.40	8.900	7.16%	10.79	6.34%
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	19	489.3	35.89	493.3	27.32	7.834	5.54%	25.43	6.29%
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	20	20	491.4	34.23	490.4	33.51	9.366	6.83%	16.58	6.30%
028.44	Manganese, ICP, Dry ash (mg / kg (ppm))	5	4	443.6	3.014	443.6	3.014	1.507	0.68%	23.13	6.39%
028.52	Manganese, ICP-MS, Open vessel (mg / kg (ppm))	3	3	476.8	11.41	476.8	11.41	6.585	2.39%	23.60	6.32%
028.53	Manganese, ICP-MS, Microwave (mg / kg (ppm))	3	3	494.2	7.848	494.2	7.848	4.531	1.59%	41.67	6.29%
028.99	Manganese, Miscellaneous (mg / kg (ppm))	5	5	492.5	18.47	492.5	18.47	8.261	3.75%	21.33	6.29%
031.00	Phosphorus, Vol (%)	1	1	1.310							
031.01	Phosphorus, Photometric (%)	44	42	1.229	0.0941	1.229	0.0536	0.0103	4.36%	0.0205	3.88%
031.02	Phosphorus, GQMP (AOAC 935.13-Extraction) (%)	1	1	1.105							
031.03	Phosphorus, Autoanalyzer (%)	3	3	1.248	0.0212	1.248	0.0212	0.0122	1.70%	0.0112	3.87%
031.06	Phosphorus, Hach Method (%)	1	1	1.175							
031.41	Phosphorus, ICP, Dry ash (%)	28	28	1.229	0.0596	1.229	0.0646	0.0153	5.26%	0.0364	3.88%
031.42	Phosphorus, ICP, Open vessel (%)	19	18	1.188	0.0747	1.198	0.0603	0.0178	5.04%	0.0317	3.89%
031.43	Phosphorus, ICP, Microwave (%)	22	21	1.239	0.0562	1.238	0.0599	0.0163	4.84%	0.0251	3.87%
031.44	Phosphorus, ICP, Dry ash (%)	6	5	1.200	0.0532	1.200	0.0532	0.0298	4.44%	0.0194	3.89%
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	1.169	0.0870						
031.53	Phosphorus, ICP-MS, Microwave (%)	3	3	1.245	0.0492	1.245	0.0492	0.0284	3.96%	0.0767	3.87%
031.99	Phosphorus, Miscellaneous (%)	4	4	1.154	0.0626	1.154	0.0626	0.0313	5.43%	0.0475	3.91%
032.02	Potassium, Flame Emission (%)	1	1	1.540							
032.31	Potassium, AAS, Dry ash (%)	13	13	1.740	0.1940	1.698	0.0675	0.0234	3.98%	0.0423	3.69%
032.32	Potassium, AAS, Open vessel (%)	2	2	1.033	0.9228						
032.41	Potassium, ICP, Dry ash (%)	28	27	1.700	0.1106	1.704	0.1087	0.0261	6.38%	0.0372	3.69%

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
032.42	Potassium, ICP, Open vessel (%)	19	18	1.726	0.1009	1.733	0.0952	0.0280	5.49%	0.0534	3.68%
032.43	Potassium, ICP, Microwave (%)	22	22	1.668	0.1958	1.699	0.0959	0.0256	5.65%	0.0326	3.69%
032.44	Potassium, ICP, Dry ash (%)	5	5	1.706	0.0865	1.706	0.0865	0.0387	5.07%	0.0920	3.69%
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	1.628	0.1712	1.628	0.1712	0.0988	10.52%	0.0352	3.72%
032.53	Potassium, ICP-MS, Microwave (%)	3	3	1.932	0.3547	1.932	0.3547	0.2048	18.36%	0.0767	3.62%
032.99	Potassium, Miscellaneous (%)	4	3	1.750	0.0312	1.750	0.0312	0.0180	1.78%	0.0113	3.68%
033.00	Salt as chloride, Sol Cl (%)	24	23	3.545	0.2176	3.563	0.1923	0.0501	5.40%	0.0538	3.30%
033.01	Salt as chloride, Poten Cl (%)	29	28	3.729	0.1032	3.732	0.0810	0.0191	2.17%	0.0434	3.28%
033.03	Salt as chloride, Quantab (%)	5	4	3.440	0.4813	3.440	0.4813	0.2779	13.99%	0.0300	3.32%
033.05	Salt as chloride, Ion Sel Electrode (%)	5	5	3.667	0.1251	3.667	0.1251	0.0560	3.41%	0.0940	3.29%
033.99	Salt, Miscellaneous (%)	11	10	3.556	0.4051	3.584	0.3921	0.1550	10.94%	0.0512	3.30%
034.01	Selenium, Fluor (mg / kg (ppm))	1	1	10.68							
034.04	Selenium, AA, Hydride (mg / kg (ppm))	3	3	10.47	0.7716	10.47	0.7716	0.4455	7.37%	0.1104	11.23%
034.41	Selenium, ICP, Dry ash (mg / kg (ppm))	3	3	8.545	1.618	8.545	1.618	0.9340	18.93%	0.6433	11.58%
034.42	Selenium, ICP, Open vessel (mg / kg (ppm))	3	2	10.30	3.884	10.30	3.884			0.3555	11.26%
034.43	Selenium, ICP, Microwave (mg / kg (ppm))	5	5	10.45	2.390	10.45	2.390	1.069	22.87%	0.2230	11.24%
034.52	Selenium, ICP-MS, Open vessel (mg / kg (ppm))	5	4	10.64	0.4676	10.64	0.4676	0.2338	4.40%	0.3475	11.21%
034.53	Selenium, ICP-MS, Microwave (mg / kg (ppm))	8	7	11.22	1.760	11.22	1.996	0.9428	17.79%	0.2251	11.12%
034.99	Selenium, Miscellaneous (mg / kg (ppm))	2	2	10.31	1.899						
035.01	Sodium, Ion-selective electrode (%)	2	2	1.244	0.0028						
035.02	Sodium, Em Spect (%)	1	1	1.130							
035.05	Sodium, Flame Emission (%)	2	2	1.183	0.0177						
035.31	Sodium, AAS, Dry ash (%)	14	13	1.261	0.1661	1.221	0.0764	0.0265	6.26%	0.0206	3.88%
035.32	Sodium, AAS, Open vessel (%)	1	1	1.290							
035.41	Sodium, ICP, Dry ash (%)	31	30	1.215	0.0693	1.215	0.0785	0.0179	6.46%	0.0374	3.88%
035.42	Sodium, ICP, Open vessel (%)	15	14	1.260	0.1001	1.274	0.0648	0.0216	5.09%	0.0362	3.86%
035.43	Sodium, ICP, Microwave (%)	20	19	1.206	0.1710	1.232	0.1149	0.0330	9.33%	0.0198	3.88%
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	1.274	0.0154						
035.53	Sodium, ICP-MS, Microwave (%)	4	3	1.257	0.0301	1.257	0.0301	0.0174	2.40%	0.0467	3.86%
035.99	Sodium, Miscellaneous (%)	5	4	1.246	0.0838	1.246	0.0838	0.0419	6.72%	0.0575	3.87%
036.04	Sulfur, LECO (%)	4	4	0.5541	0.0235	0.5541	0.0235	0.0118	4.24%	0.0108	4.37%
036.42	Sulfur, ICP, Open vessel (%)	20	19	0.5417	0.0434	0.5450	0.0340	0.0098	6.24%	0.0146	4.38%
036.43	Sulfur, ICP, Microwave (%)	13	13	0.5673	0.1029	0.5801	0.0646	0.0224	11.14%	0.0121	4.34%
036.52	Sulfur, ICP-MS, Open vessel (%)	2	2	0.5241	0.0176						
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.5495							
036.99	Sulfur, Miscellaneous (%)	2	2	0.5400	0.0354						
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	17	17	1,501	420.7	1,554	189.0	57.31	12.16%	54.60	5.29%
037.32	Zinc, AAS, Open vessel (mg / kg (ppm))	2	2	877.1	996.2						
037.33	Zinc, AAS, Microwave (mg / kg (ppm))	4	3	1,640	67.19	1,640	67.19	38.79	4.10%	37.89	5.25%
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	24	24	1,512	121.3	1,517	123.9	31.61	8.16%	52.72	5.31%

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	17	17	1,660	84.10	1,662	78.43	23.78	4.72%	74.93	5.24%
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	21	20	1,703	130.0	1,700	135.2	37.79	7.95%	33.00	5.22%
037.44	Zinc, ICP, Dry ash (mg / kg (ppm))	5	5	1,773	387.5	1,773	387.5	173.3	21.85%	51.97	5.19%
037.52	Zinc, ICP-MS, Open vessel (mg / kg (ppm))	3	3	1,713	305.8	1,713	305.8	216.2	17.86%	31.97	5.22%
037.53	Zinc, ICP-MS, Microwave (mg / kg (ppm))	3	3	1,852	125.0	1,852	125.0	72.18	6.75%	130.3	5.16%
037.99	Zinc, Miscellaneous (mg / kg (ppm))	5	4	1,583	94.87	1,583	94.87	47.44	6.00%	20.65	5.28%
038.41	Molybdenum, ICP, Dry ash (mg / kg (ppm))	4	3	17.80	3.751	17.80	3.751	2.166	21.07%	0.4417	10.37%
038.42	Molybdenum, ICP, Open vessel (mg / kg (ppm))	4	3	17.89	2.540	17.89	2.540	1.467	14.20%	1.859	10.36%
038.43	Molybdenum, ICP, Microwave (mg / kg (ppm))	7	7	18.77	1.892	18.77	2.145	1.014	11.43%	0.6280	10.29%
038.52	Molybdenum, ICP-MS, Open vessel (mg / kg (ppm))	3	3	20.44	0.8837	20.44	0.8837	0.5102	4.32%	0.9633	10.16%
038.53	Molybdenum, ICP-MS, Microwave (mg / kg (ppm))	4	4	20.51	0.8114	20.51	0.8114	0.4057	3.96%	1.463	10.15%
040.42	Barium, ICP, Open vessel (mg / kg (ppm))	1	1	37.77							
041.53	Vanadium, ICP-MS, Microwave (mg / kg (ppm))	1	1	4.355							
042.00	Chloride, Titrimetric (%)	2	2	2.258	0.0035						
042.01	Chloride, Ion-selective electrode (%)	1	1	2.070							
042.02	Chloride, Ion Chromatography (%)	1	1	2.170							
042.99	Chloride, Miscellaneous (%)	2	2	2.158	0.1439						
101.99	Choline Chloride, Miscellaneous (mg / kg (ppm))	1	1	1,020							
102.01	Niacin, Microbiological (mg / kg (ppm))	1	1	66.25							
103.01	Pantothenic Acid, Microbiological (mg / kg (ppm))	1	1	22.05							
104.00	Riboflavin, Fluorometric (mg / kg (ppm))	1	1	5.570							
104.03	Riboflavin, LC (mg / kg (ppm))	3	3	4.622	1.338	4.622	1.338	0.7726	28.95%	0.4300	12.71%
105.00	Thiamine, LC (mg / kg (ppm))	2	2	109.7	7.297						
105.01	Thiamine, Fluorometer (mg / kg (ppm))	1	1	208.0							
106.00	Vitamin A, Color (KU / kg)	2	2	70.48	37.16						
106.01	Vitamin A, UV (KU / kg)	1	1	95.60							
106.02	Vitamin A, LC (KU / kg)	19	19	73.43	11.76	72.94	10.84	3.109	14.87%	5.041	
107.00	Vitamin B12, Microbiological (µg / kg (ppb))	1	1	22.55							
108.02	Vitamin D3, LC (KU / kg)	6	5	18.64	4.435	18.64	4.435	2.479	23.79%	0.9708	
108.99	Vitamin D3, Miscellaneous (KU / kg)	2	2	19.64	1.849						
109.02	Vitamin E, LC (IU / kg)	17	17	3,126	573.2	3,213	427.1	129.5	13.30%	76.71	
109.99	Vitamin E, Miscellaneous (IU / kg)	1	1	3,250							
112.01	Pyridoxine, LC (µg / g)	1	1	4.585							
113.99	Folic acid, Miscellaneous (mg / kg (ppm))	1	1	4.465							
114.01	Biotin, Microbiological (mg / kg (ppm))	1	1	0.8140							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	5	5	3.296	3.086	3.296	3.086	1.380	93.63%	0.0560	3.34%
115.99	Non Protein N (NPN), Miscellaneous (%)	2	2	8.175	1.520						
118.99	Peroxide value, Miscellaneous (meq/kg)	1	1	5.215							
120.00	Alanine, Post-col Ninhydrin Der (%)	25	25	0.8632	0.1928	0.8067	0.0477	0.0119	5.91%	0.0160	4.13%
120.02	Alanine, Post-col OPA Der (%)	1	1	0.8090							

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
120.05	Alanine, Pre-col AQC Der (%)	5	5	0.7757	0.1214	0.7757	0.1214	0.0543	15.65%	0.0338	4.16%
120.99	Alanine, Miscellaneous (%)	3	3	0.5858	0.3467	0.5858	0.3467	0.2452	59.19%	0.0050	4.33%
121.00	Arginine, Post-col Ninhydrin Der (%)	26	26	1.090	0.1881	1.044	0.0572	0.0140	5.48%	0.0187	3.97%
121.02	Arginine, Post-col OPA Der (%)	1	1	1.020							
121.05	Arginine, Pre-col AQC Der (%)	4	4	1.078	0.0857	1.078	0.0857	0.0428	7.95%	0.0385	3.96%
121.99	Arginine, Miscellaneous (%)	2	2	0.9288	0.1573						
122.00	Aspartic, Post-col Ninhydrin Der (%)	25	24	1.737	0.2774	1.670	0.0872	0.0222	5.22%	0.0306	3.70%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.696							
122.05	Aspartic, Pre-col AQC Der (%)	4	4	1.709	0.1880	1.709	0.1880	0.0940	11.00%	0.0813	3.69%
122.99	Aspartic, Miscellaneous (%)	3	3	1.473	0.2566	1.473	0.2566	0.1481	17.42%	0.0917	3.77%
124.00	Cysteine/Cystine, PAO Post-col Ninhytri (%)	27	26	0.2641	0.0402	0.2587	0.0272	0.0067	10.53%	0.0119	4.90%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.2670							
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	5	5	0.2196	0.0980	0.2196	0.0980	0.0438	44.60%	0.0055	5.02%
124.99	Cysteine/Cystine, Miscellaneous (%)	2	2	0.2375	0.1662						
125.00	Glutamic, Post-col Ninhydrin Der (%)	25	25	2.825	0.3885	2.753	0.2424	0.0606	8.81%	0.0530	3.43%
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.685							
125.05	Glutamic, Pre-col AQC Der (%)	5	5	2.599	0.3891	2.599	0.3891	0.1740	14.97%	0.1543	3.46%
125.99	Glutamic, Miscellaneous (%)	3	3	2.513	0.2542	2.513	0.2542	0.1468	10.11%	0.1033	3.48%
126.00	Glycine, Post-col Ninhydrin Der (%)	25	25	0.8633	0.1577	0.8152	0.0380	0.0095	4.66%	0.0156	4.12%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.8025							
126.05	Glycine, Pre-col AQC Der (%)	5	5	0.8159	0.1026	0.8159	0.1026	0.0459	12.57%	0.0369	4.12%
126.99	Glycine, Miscellaneous (%)	3	3	0.6192	0.3270	0.6192	0.3270	0.1888	52.81%	0.0117	4.30%
127.00	Histidine, Post-col Ninhydrin Der (%)	26	25	0.4148	0.0715	0.3999	0.0317	0.0079	7.93%	0.0109	4.59%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.3775							
127.05	Histidine, Pre-col AQC Der (%)	5	4	0.3983	0.0184	0.3983	0.0184	0.0092	4.62%	0.0033	4.59%
127.99	Histidine, Miscellaneous (%)	2	2	0.3238	0.1149						
128.00	Isoleucine, Post-col Ninhydrin Der (%)	26	26	0.6604	0.1191	0.6443	0.0705	0.0173	10.94%	0.0151	4.27%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.6460							
128.05	Isoleucine, Pre-col AQC Der (%)	5	5	0.6754	0.0791	0.6754	0.0791	0.0354	11.71%	0.0422	4.24%
128.99	Isoleucine, Miscellaneous (%)	3	3	0.5650	0.1314	0.5650	0.1314	0.0929	23.26%	0.0033	4.36%
129.00	Leucine, Post-col Ninhydrin Der (%)	26	26	1.199	0.2521	1.137	0.0658	0.0161	5.78%	0.0170	3.92%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.133							
129.05	Leucine, Pre-col AQC Der (%)	5	5	1.159	0.1154	1.159	0.1154	0.0516	9.96%	0.0476	3.91%
129.99	Leucine, Miscellaneous (%)	3	3	1.054	0.1263	1.054	0.1263	0.0729	11.98%	0.0217	3.97%
130.00	L-Lysine, Post-col Ninhydrin Der (%)	26	26	0.8884	0.1641	0.8573	0.0474	0.0116	5.53%	0.0198	4.09%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.8285							
130.05	L-Lysine, Pre-col AQC Der (%)	5	5	0.8318	0.1173	0.8318	0.1173	0.0525	14.10%	0.0471	4.11%
130.99	L-Lysine, Miscellaneous (%)	4	4	0.9056	0.0482	0.9056	0.0482	0.0241	5.33%	0.0648	4.06%
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	27	26	0.3711	0.0681	0.3685	0.0303	0.0074	8.22%	0.0173	4.65%
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.3660							

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
131.05	Methionine, PAO Pre-col AQC Der (%)	6	5	0.3135	0.0685	0.3135	0.0685	0.0383	21.84%	0.0073	4.76%
131.99	Methionine, Miscellaneous (%)	1	1	0.1700							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	26	26	0.7818	0.1313	0.7542	0.0483	0.0119	6.41%	0.0199	4.17%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.7440							
132.05	Phenylalanine, Pre-col AQC Der (%)	5	5	0.7714	0.0683	0.7714	0.0683	0.0306	8.86%	0.0182	4.16%
132.99	Phenylalanine, Miscellaneous (%)	3	3	0.7142	0.0472	0.7142	0.0472	0.0272	6.61%	0.0150	4.21%
133.00	Proline, Post-col Ninhydrin Der (%)	25	25	1.018	0.3522	0.9206	0.0682	0.0171	7.41%	0.0161	4.05%
133.05	Proline, Pre-col AQC Der (%)	5	5	0.9276	0.0747	0.9276	0.0747	0.0334	8.05%	0.0458	4.05%
133.99	Proline, Miscellaneous (%)	3	3	0.8000	0.1916	0.8000	0.1916	0.1106	23.95%	0.0400	4.14%
134.00	Serine, Post-col Ninhydrin Der (%)	25	25	0.8277	0.1287	0.7989	0.0647	0.0162	8.09%	0.0204	4.14%
134.02	Serine, Post-col OPA Der (%)	1	1	0.7310							
134.05	Serine, Pre-col AQC Der (%)	5	5	0.7747	0.0196	0.7747	0.0196	0.0088	2.53%	0.0363	4.16%
134.99	Serine, Miscellaneous (%)	3	3	0.8258	0.1602	0.8258	0.1602	0.0925	19.40%	0.0250	4.12%
135.00	Threonine, Post-col Ninhydrin Der (%)	26	26	0.6663	0.1355	0.6323	0.0387	0.0095	6.12%	0.0139	4.29%
135.02	Threonine, Post-col OPA Der (%)	1	1	0.6140							
135.05	Threonine, Pre-col AQC Der (%)	5	5	0.6219	0.0405	0.6219	0.0405	0.0181	6.50%	0.0274	4.30%
135.99	Threonine, Miscellaneous (%)	2	2	0.6963	0.0796						
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	7	7	0.2232	0.0329	0.2232	0.0373	0.0176	16.72%	0.0057	5.01%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	5	5	0.2066	0.0266	0.2066	0.0266	0.0119	12.88%	0.0048	5.07%
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.2120							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	6	0.2382	0.0226	0.2357	0.0197	0.0101	8.37%	0.0053	4.97%
136.05	Tryptophan, Pre-col AQC Der (%)	2	2	0.1062	0.0429						
136.99	Tryptophan, Miscellaneous (%)	2	2	0.3613	0.2422						
137.00	Tyrosine, Post-col Ninhydrin Der (%)	19	18	0.5169	0.1286	0.5065	0.0955	0.0281	18.85%	0.0198	4.43%
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.5255							
137.05	Tyrosine, Pre-col AQC Der (%)	5	4	0.5099	0.1307	0.5099	0.1307	0.0653	25.62%	0.0184	4.43%
137.99	Tyrosine, Miscellaneous (%)	3	3	0.5158	0.0356	0.5158	0.0356	0.0205	6.89%	0.0183	4.42%
138.00	Valine, Post-col Ninhydrin Der (%)	26	26	0.8155	0.1714	0.7753	0.0748	0.0183	9.65%	0.0190	4.16%
138.02	Valine, Post-col OPA Der (%)	1	1	0.8205							
138.05	Valine, Pre-col AQC Der (%)	5	4	0.7726	0.0215	0.7726	0.0215	0.0108	2.79%	0.0327	4.16%
138.99	Valine, Miscellaneous (%)	3	3	0.7133	0.1550	0.7133	0.1550	0.0895	21.72%	0.0067	4.21%
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.1475	0.0813						
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0055							
139.99	Taurine, Miscellaneous (%)	1	1	0.0300							
140.01	Lysine Free, LC-PCD (%)	1	1	0.8166							
141.00	Methionine Free, LC-PCD (%)	1	1	0.4123							
160.10	Fructose, HPAEC PAD (%)	1	1	0.1075							
160.99	Fructose, Miscellaneous (%)	1	1	0.6800							
161.10	Galactose, HPAEC PAD (%)	1		0.0000							

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
162.10	Glucose, HPAEC PAD (%)	1	1	0.0930							
162.99	Glucose, Miscellaneous (%)	1	1	0.3000							
163.10	Lactose, HPAEC PAD (%)	1		0.0000							
163.99	Lactose, Miscellaneous (%)	1		0.1500							
164.10	Maltose, HPAEC PAD (%)	1	1	0.1055							
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.10	Sucrose, HPAEC PAD (%)	1	1	1.777							
165.99	Sucrose, Miscellaneous (%)	1	1	2.140							
166.10	Raffinose, HPAEC PAD (%)	1	1	0.5000							
166.99	Raffinose, Miscellaneous (%)	1	1	0.5500							
167.10	Stachyose, HPAEC PAD (%)	1	1	0.7250							
167.99	Stachyose, Miscellaneous (%)	1	1	0.7700							
400.01	Water Activity, Aqualab chilled mirror (Units)	7	7	0.4976	0.0191	0.4973	0.0209	0.0099	4.20%	0.0055	
400.99	Water Activity, Miscellaneous (Units)	3	3	0.5273	0.0626	0.5273	0.0626	0.0361	11.86%	0.0027	
412.01	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	5.925							
516.00	Arsenic, Total, AA, Hydride (mg / kg (ppm))	1	1	0.4050							
516.43	Arsenic, Total, ICP, Microwave (mg / kg (ppm))	2	1	1.412							
516.52	Arsenic, Total, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.4670	0.0396						
516.53	Arsenic, Total, ICP-MS, Microwave (mg / kg (ppm))	4	4	0.4889	0.0187	0.4889	0.0187	0.0093	3.82%	0.0133	17.82%
518.31	Cadmium, AAS, Dry ash (mg / kg (ppm))	1	1	0.1500							
518.41	Cadmium, ICP, Dry ash (mg / kg (ppm))	2	2	0.2713	0.0146						
518.43	Cadmium, ICP, Microwave (mg / kg (ppm))	3	3	0.2937	0.0090	0.2937	0.0090	0.0063	3.05%	0.0100	19.24%
518.52	Cadmium, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.3195	0.0149						
518.53	Cadmium, ICP-MS, Microwave (mg / kg (ppm))	4	4	0.3186	0.0119	0.3186	0.0119	0.0060	3.74%	0.0098	19.00%
520.41	Chromium, ICP, Dry ash (mg / kg (ppm))	2	2	7.608	0.9185						
520.42	Chromium, ICP, Open vessel (mg / kg (ppm))	2	2	13.21	0.4993						
520.43	Chromium, ICP, Microwave (mg / kg (ppm))	4	3	14.48	3.400	14.48	3.400	2.404	23.49%	0.1120	10.70%
520.52	Chromium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	7.070							
520.53	Chromium, ICP-MS, Microwave (mg / kg (ppm))	3	3	16.19	1.004	16.19	1.004	0.7099	6.20%	0.1733	10.52%
526.31	Lead, AAS, Dry ash (mg / kg (ppm))	1	1	1.600							
526.41	Lead, ICP, Dry ash (mg / kg (ppm))	2	2	0.9040	0.0509						
526.43	Lead, ICP, Microwave (mg / kg (ppm))	3	2	1.161	0.2683	1.161	0.2683			0.2154	15.64%
526.52	Lead, ICP-MS, Open vessel (mg / kg (ppm))	2	2	1.298	0.0530						
526.53	Lead, ICP-MS, Microwave (mg / kg (ppm))	4	4	1.230	0.0923	1.230	0.0923	0.0461	7.50%	0.0435	15.51%
529.00	Mercury, Cold vapor (µg / kg (ppb))	1	1	2.950							
529.99	Mercury, Miscellaneous (µg / kg (ppb))	3	2	31.13	40.12	31.13	40.12			4.603	22.00%
539.41	Nickel, ICP, Dry ash (mg / kg (ppm))	2	2	5.711	0.0102						
539.43	Nickel, ICP, Microwave (mg / kg (ppm))	2	2	6.612	0.2294						
539.52	Nickel, ICP-MS, Open vessel (mg / kg (ppm))	1	1	3.415							
539.53	Nickel, ICP-MS, Microwave (mg / kg (ppm))	2	2	6.908	0.1874						

Test Material Code # 201931

(Precision Report Follows)

Issue Date : 12/31/2019

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	3	1								
714.99	Myristic Acid (14:0), Miscellaneous (% (w/w))	3	2	0.2725	0.3712	0.2725	0.3712			0.0060	
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	3	3	6.260	10.06	6.260	10.06	7.116	160.74%	0.1467	
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	4	3	0.1163	0.1764	0.1163	0.1764	0.1247	151.65%	0.0147	
720.99	Margaric acid (17:0), Miscellaneous (% (w/w))	1	1	0.3200							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	3	3	1.944	3.158	1.944	3.158	2.233	162.49%	0.0703	
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	3	3	5.852	9.499	5.852	9.499	6.717	162.32%	0.0353	
726.02	Linoleic Acid (9c,12c-18:2), Direct Methylation by Acid-Alkali Hydrolysis & GC	1	1	0.9850							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	4	3	0.9730	0.0383	0.9730	0.0383	0.0221	3.94%	0.0240	
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	4	3	0.1342	0.0081	0.1342	0.0081	0.0057	6.04%	0.0030	
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	3	2	0.2358	0.3171	0.2358	0.3171			0.0305	
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	2	1	0.0090							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (% (w/w))	1		0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w))	2		0.0000							
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	3	2	0.2533	0.3348	0.2533	0.3348			0.0115	
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1		0.0050							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (% (w/w))	1		0.0050							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	2	2	0.2268	0.2874						
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (% (w/w))	2	1	0.3750							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	1		0.0050							
754.02	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Direct Methylation by Acid-Alkali Hydrolysis & GC	1	1	0.1495							
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Miscellaneous (% (w/w))	2	2	0.1350	0.0071						
756.01	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Direct Methylation by Alkali Hydrolysis & GC	1	1	0.9850							
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (% (w/w))	2	2	0.9775	0.0601						
758.99	Total Saturated Fatty Acids, Miscellaneous (% (w/w))	1	1	0.7050							
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	0.4450							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	1.090							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (% (w/w))	1	1	2.370							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	2	2	2.138	0.1863						

Notes: Robust statistics not used if < 6 labs reporting, in this case means and SD's may be reported based on Raw Data with obvious blunders removed.

Animal Feed Scheme

Methods Reported: 87

Llama Feed

Method Precision Report

Labs Reporting: 184

Test Material Code # 201931

Issue Date : 12/31/2019

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rstd	Reproducibility %RSD	sR/sr
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	48	43	7.847	0.3001	0.2297	0.0584	0.2370	2.94%	0.75%	3.03%	4.057
001.99	Loss on Drying, Miscellaneous (%)	21	17	7.668	0.4914	0.4178	0.0746	0.4244	5.40%	0.96%	5.48%	5.689
002.01	Protein, Crude, Auto Kjel-Foss (%)	14	13	23.62	0.3203	0.3152	0.0804	0.3253	1.33%	0.34%	1.38%	4.046
002.05	Protein, Crude, Copper, Boric Acid (%)	33	30	23.56	0.3587	0.2827	0.1111	0.3038	1.20%	0.47%	1.29%	2.734
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	125	117	24.00	0.4347	0.2899	0.1535	0.3280	1.21%	0.64%	1.37%	2.137
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	9	8	3.101	2.148	0.1521	0.1583	0.2195	6.37%	6.63%	9.20%	1.387
003.06	Fat, Crude, Pet Ether (%)	14	14	2.513	0.1430	0.1330	0.0745	0.1524	5.29%	2.96%	6.07%	2.047
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	14	13	2.515	0.2355	0.2329	0.0572	0.2398	9.20%	2.26%	9.47%	4.189
003.10	Fat, Crude, Randall, Pet Ether (%)	28	23	2.343	0.3135	0.1244	0.0674	0.1415	5.47%	2.97%	6.23%	2.098
003.14	Fat, Crude, Ankom (%)	52	47	2.375	0.2525	0.2008	0.1003	0.2244	8.46%	4.23%	9.46%	2.238
004.00	Fiber, Crude, Asbestos Free (%)	15	15	17.38	0.7184	0.7095	0.1594	0.7271	4.08%	0.92%	4.18%	4.561
004.06	Fiber, Crude, Fibertec (%)	20	18	16.52	3.889	1.649	0.1595	1.657	9.51%	0.92%	9.56%	10.39
004.07	Fiber, Crude, ANKOM (%)	73	67	17.13	1.742	1.188	0.2469	1.214	6.89%	1.43%	7.04%	4.916
005.00	Ash, 2h @ 600°C (%)	95	85	16.69	0.2682	0.1796	0.1072	0.2091	1.08%	0.64%	1.25%	1.951
005.05	Ash, 3h @ 550°C (%)	31	27	16.91	0.3334	0.2300	0.0564	0.2368	1.36%	0.33%	1.40%	4.202
005.99	Ash, Miscellaneous (%)	11	9	16.95	0.5066	0.3300	0.1314	0.3552	1.96%	0.78%	2.11%	2.703
008.02	Fiber, Acid Detergent, Crucible (%)	13	13	23.40	1.092	1.028	0.5215	1.152	4.39%	2.23%	4.92%	2.210
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	45	43	22.81	1.802	1.638	0.3402	1.673	7.22%	1.50%	7.37%	4.918
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	12	12	34.97	2.376	2.345	0.5385	2.406	6.71%	1.54%	6.88%	4.469
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	42	39	33.94	1.754	1.736	0.3894	1.779	5.11%	1.15%	5.24%	4.570
010.99	Moisture, Miscellaneous (%)	18	16	7.990	0.6846	0.5232	0.1161	0.5360	6.64%	1.47%	6.80%	4.618
011.01	Loss on Drying, 135°C 2hr (%)	67	66	8.871	0.3938	0.3656	0.1225	0.3856	4.11%	1.38%	4.34%	3.148
012.00	Starch, Polarimetric (Ewers) (%)	14	12	7.250	0.3918	0.3576	0.0916	0.3691	4.90%	1.25%	5.06%	4.029
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	9	6.640	1.531	0.6683	0.1572	0.6866	10.78%	2.54%	11.07%	4.367
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	17	16	3.365	0.5456	0.5544	0.1319	0.5699	16.43%	3.91%	16.89%	4.321
013.02	Fat, Acid Pretreat, Mojonier, Bak Ext (%)	20	19	3.684	0.4343	0.4207	0.1523	0.4474	11.42%	4.13%	12.15%	2.938
019.00	Calcium, Ox-Mn04 Vol. (%)	12	10	2.079	0.2455	0.0501	0.0464	0.0683	2.35%	2.17%	3.20%	1.473
019.31	Calcium, AAS, Dry ash (%)	22	20	2.151	0.2027	0.1188	0.0465	0.1275	5.61%	2.19%	6.02%	2.745
019.41	Calcium, ICP, Dry ash (%)	32	31	2.143	0.1007	0.0940	0.0511	0.1070	4.39%	2.39%	4.99%	2.092
019.42	Calcium, ICP, Open vessel (%)	19	17	2.152	0.1038	0.0663	0.0775	0.1020	3.06%	3.58%	4.71%	1.316
019.43	Calcium, ICP, Microwave (%)	24	23	2.105	0.2521	0.1331	0.0382	0.1384	6.19%	1.78%	6.44%	3.628
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	14	12	52.39	11.78	4.125	1.762	4.486	8.36%	3.57%	9.09%	2.546
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	24	24	48.69	7.511	7.341	2.242	7.676	15.08%	4.60%	15.77%	3.424

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	19	17	57.77	3.861	3.483	0.6978	3.553	6.07%	1.22%	6.20%	5.091
022.43	Copper, ICP, Microwave (mg / kg (ppm))	18	16	56.05	4.593	3.225	1.095	3.406	5.87%	1.99%	6.20%	3.110
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	19	18	1,268	231.0	181.4	37.82	185.3	13.93%	2.91%	14.23%	4.898
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	28	26	1,248	168.2	135.9	30.47	139.3	10.73%	2.41%	10.99%	4.571
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	15	13	906.8	332.7	344.5	27.44	345.6	38.31%	3.05%	38.43%	12.59
025.43	Iron, ICP, Microwave (mg / kg (ppm))	19	17	1,258	173.8	136.0	39.65	141.7	10.57%	3.08%	11.01%	3.574
027.31	Magnesium, AAS, Dry ash (%)	17	15	0.4140	0.0714	0.0283	0.0062	0.0290	7.10%	1.55%	7.26%	4.694
027.41	Magnesium, ICP, Dry ash (%)	25	24	0.4134	0.0290	0.0218	0.0077	0.0231	5.31%	1.88%	5.64%	2.999
027.42	Magnesium, ICP, Open vessel (%)	20	18	0.4022	0.0336	0.0171	0.0122	0.0210	4.15%	2.97%	5.11%	1.718
027.43	Magnesium, ICP, Microwave (%)	21	19	0.4057	0.0559	0.0207	0.0078	0.0221	4.97%	1.87%	5.31%	2.845
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	15	15	460.0	47.00	46.72	7.210	47.28	10.16%	1.57%	10.28%	6.557
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	23	22	466.0	30.21	29.21	10.89	31.17	6.27%	2.34%	6.69%	2.863
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	18	489.3	35.89	16.28	26.60	31.19	3.29%	5.37%	6.30%	1.172
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	20	20	491.4	34.23	32.44	15.44	35.92	6.60%	3.14%	7.31%	2.327
031.01	Phosphorus, Photometric (%)	44	40	1.229	0.0941	0.0724	0.0168	0.0743	5.84%	1.36%	5.99%	4.422
031.41	Phosphorus, ICP, Dry ash (%)	28	28	1.229	0.0596	0.0549	0.0329	0.0640	4.47%	2.68%	5.21%	1.944
031.42	Phosphorus, ICP, Open vessel (%)	19	18	1.188	0.0747	0.0712	0.0317	0.0780	6.00%	2.67%	6.56%	2.458
031.43	Phosphorus, ICP, Microwave (%)	22	21	1.239	0.0562	0.0535	0.0244	0.0588	4.31%	1.97%	4.74%	2.409
032.31	Potassium, AAS, Dry ash (%)	13	11	1.740	0.1940	0.0567	0.0229	0.0612	3.36%	1.35%	3.62%	2.677
032.41	Potassium, ICP, Dry ash (%)	28	25	1.700	0.1106	0.0970	0.0316	0.1020	5.68%	1.85%	5.97%	3.229
032.42	Potassium, ICP, Open vessel (%)	19	16	1.726	0.1009	0.0696	0.0374	0.0791	4.02%	2.16%	4.56%	2.112
032.43	Potassium, ICP, Microwave (%)	22	20	1.668	0.1958	0.0742	0.0284	0.0795	4.37%	1.67%	4.68%	2.801
033.00	Salt as chloride, Sol Cl (%)	24	21	3.545	0.2176	0.1470	0.0482	0.1547	4.10%	1.34%	4.31%	3.210
033.01	Salt as chloride, Poten Cl (%)	29	26	3.729	0.1032	0.0812	0.0328	0.0876	2.17%	0.88%	2.34%	2.670
033.99	Salt, Miscellaneous (%)	11	9	3.556	0.4051	0.3963	0.0331	0.3977	10.99%	0.92%	11.03%	12.01
035.31	Sodium, AAS, Dry ash (%)	14	12	1.261	0.1661	0.0885	0.0179	0.0903	7.24%	1.46%	7.39%	5.055
035.41	Sodium, ICP, Dry ash (%)	31	29	1.215	0.0693	0.0629	0.0315	0.0703	5.19%	2.60%	5.81%	2.233
035.42	Sodium, ICP, Open vessel (%)	15	13	1.260	0.1001	0.0516	0.0280	0.0587	4.02%	2.18%	4.58%	2.097
035.43	Sodium, ICP, Microwave (%)	20	18	1.206	0.1710	0.1015	0.0195	0.1034	8.20%	1.58%	8.35%	5.293
036.42	Sulfur, ICP, Open vessel (%)	20	18	0.5417	0.0434	0.0308	0.0138	0.0337	5.61%	2.51%	6.14%	2.449
036.43	Sulfur, ICP, Microwave (%)	13	12	0.5673	0.1029	0.0574	0.0112	0.0584	9.70%	1.89%	9.88%	5.222
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	17	15	1,501	420.7	195.7	45.03	200.8	12.42%	2.86%	12.74%	4.459
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	24	22	1,512	121.3	97.90	43.68	107.2	6.44%	2.88%	7.06%	2.454
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	17	17	1,660	84.10	63.25	78.38	100.7	3.81%	4.72%	6.07%	1.285
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	21	20	1,703	130.0	128.0	32.23	132.0	7.51%	1.89%	7.75%	4.094
106.02	Vitamin A, LC (KU / kg)	19	18	73.43	11.76	9.060	3.992	9.900	12.63%	5.56%	13.80%	2.480
109.02	Vitamin E, LC (IU / kg)	17	16	3,126	573.2	420.1	71.63	426.1	13.03%	2.22%	13.22%	5.949
120.00	Alanine, Post-col Ninhydrin Der (%)	25	22	0.8632	0.1928	0.1006	0.0126	0.1014	12.31%	1.55%	12.41%	8.024
121.00	Arginine, Post-col Ninhydrin Der (%)	26	24	1.090	0.1881	0.1326	0.0143	0.1334	12.35%	1.33%	12.42%	9.336
122.00	Aspartic, Post-col Ninhydrin Der (%)	25	21	1.737	0.2774	0.0673	0.0237	0.0713	4.07%	1.43%	4.31%	3.012
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	27	23	0.2641	0.0402	0.0208	0.0107	0.0234	8.11%	4.19%	9.13%	2.178
125.00	Glutamic, Post-col Ninhydrin Der (%)	25	22	2.825	0.3885	0.2105	0.0399	0.2143	7.68%	1.46%	7.82%	5.369
126.00	Glycine, Post-col Ninhydrin Der (%)	25	23	0.8633	0.1577	0.1211	0.0116	0.1216	14.36%	1.38%	14.43%	10.46

Test Material Code # 201931

Issue Date : 12/31/2019

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
127.00	Histidine, Post-col Ninhydrin Der (%)	26	23	0.4148	0.0715	0.0375	0.0086	0.0385	9.39%	2.14%	9.63%	4.492
128.00	Isoleucine, Post-col Ninhydrin Der (%)	26	24	0.6604	0.1191	0.0671	0.0120	0.0682	10.62%	1.89%	10.78%	5.702
129.00	Leucine, Post-col Ninhydrin Der (%)	26	25	1.199	0.2521	0.1812	0.0142	0.1818	15.57%	1.22%	15.61%	12.81
130.00	L-Lysine, Post-col Ninhydrin Der (%)	26	25	0.8884	0.1641	0.0898	0.0161	0.0913	10.43%	1.87%	10.59%	5.674
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	27	24	0.3711	0.0681	0.0222	0.0165	0.0277	6.04%	4.49%	7.53%	1.675
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	26	24	0.7818	0.1313	0.0896	0.0160	0.0910	11.60%	2.07%	11.78%	5.690
133.00	Proline, Post-col Ninhydrin Der (%)	25	23	1.018	0.3522	0.0767	0.0129	0.0778	8.34%	1.40%	8.46%	6.027
134.00	Serine, Post-col Ninhydrin Der (%)	25	24	0.8277	0.1287	0.1065	0.0175	0.1080	13.11%	2.15%	13.28%	6.169
135.00	Threonine, Post-col Ninhydrin Der (%)	26	25	0.6663	0.1355	0.0859	0.0128	0.0868	13.30%	1.98%	13.45%	6.802
137.00	Tyrosine, Post-col Ninhydrin Der (%)	19	16	0.5169	0.1286	0.0893	0.0130	0.0903	18.03%	2.63%	18.22%	6.932
138.00	Valine, Post-col Ninhydrin Der (%)	26	25	0.8155	0.1714	0.1299	0.0172	0.1310	16.38%	2.17%	16.52%	7.612

Notes: Precision Calculations provided for methods with 8 or more labs used in calculations.