



AAFCO
Association of American Feed Control Officials



Animal Feed Scheme
Milk Replacer, Medicated
Test Material Code # 202229

Method Summary Report
(Precision Report Follows)

Labs Reporting: 169
Methods Reported: 380
Issue Date : 10/31/2022

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO #fp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Thompson Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.7500							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	47	45	4.708	0.4683	4.655	0.3528	0.0657	7.58%	0.1434	3.17%
001.99	Loss on Drying, Miscellaneous (%)	16	15	4.881	1.473	4.706	0.6024	0.1944	12.80%	0.1086	3.17%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	4	4	4.329	0.6690	4.329	0.6690	0.3345	15.45%	0.0425	3.21%
001.03	Loss on Drying, Low temp. methods (%)	3	3	4.306	1.021	4.306	1.021	0.5892	23.70%	0.2057	3.21%
001.05	Loss on Drying, LECO (%)	1	1	4.299							
001.08	Loss on Drying, 102°C 16 hr, in meat (%)	1	1	4.779							
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	113	111	19.85	0.4209	19.86	0.3903	0.0463	1.97%	0.2816	2.24%
002.05	Protein, Crude, Copper, Boric Acid (%)	24	23	19.50	0.5199	19.47	0.5215	0.1359	2.68%	0.0992	2.27%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	15	15	19.39	0.3818	19.39	0.4329	0.1397	2.23%	0.2517	2.27%
002.11	Protein, Crude, NIR (%)	3	3	19.39	0.3754	19.39	0.3754	0.2167	1.94%	0.2967	2.27%
002.00	Protein, Crude, Crude (%)	2	2	18.94	1.679						
002.08	Protein, Crude, Cu/Ti (%)	2	2	19.80	0.3230						
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	1	1	19.42							
002.04	Protein, Crude, Copper Catalyst (%)	1	1	19.62							
003.14	Fat, Crude, Ankom (%)	40	39	13.74	1.531	13.63	1.267	0.2535	9.29%	0.3857	2.70%
003.10	Fat, Crude, Randall, Pet Ether (%)	23	23	9.106	5.352	8.098	3.796	0.9893	46.87%	0.4270	2.92%
003.06	Fat, Crude, Pet Ether (%)	11	11	9.789	4.921	7.969	1.104	0.4160	13.85%	0.1952	2.93%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	7	7	10.86	4.129	10.86	4.683	2.212	43.13%	0.3062	2.79%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	6	5	12.26	5.170	12.26	5.170	2.890	42.19%	0.0686	2.74%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	4	4	10.67	3.186	10.67	3.186	1.593	29.86%	0.1388	2.80%
003.11	Fat, Crude, NIR (%)	3	3	17.35	6.383	17.35	6.383	3.685	36.78%	0.2200	2.40%
003.99	Fat, Crude, Miscellaneous (%)	3	3	19.71	4.192	19.71	4.192	2.964	21.27%	0.1000	2.25%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	1	1	16.35							
003.12	Fat, Crude, Hexane Ext (%)	1	1	10.69							
004.07	Fiber, Crude, ANKOM (%)	54	47	0.5589	0.3925	0.5201	0.3471	0.0633	66.74%	0.0953	4.41%
004.06	Fiber, Crude, Fibertec (%)	12	8	0.5019	0.3442	0.4539	0.2683	0.1186	59.11%	0.0188	4.50%
004.00	Fiber, Crude, Asbestos Free (%)	7	5	0.2696	0.0893	0.2696	0.0893	0.0499	33.12%	0.0572	4.87%
004.03	Fiber, Crude, Fritted Glass (%)	2	2	0.9125	0.1591						

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004.11	Fiber, Crude, NIR (%)	1	1	1.425							
004.99	Fiber, Crude, Miscellaneous (%)	1	1	1.142							
005.00	Ash, 2h @ 600°C (%)	84	83	9.778	0.1446	9.775	0.1249	0.0171	1.28%	0.0593	2.84%
005.05	Ash, 3h @ 550°C (%)	25	25	9.832	0.1257	9.818	0.0868	0.0217	0.88%	0.0616	2.84%
005.99	Ash, Miscellaneous (%)	6	6	9.773	0.0760	9.773	0.0862	0.0440	0.88%	0.0867	2.84%
005.11	Ash, NIR (%)	4	3	9.253	2.109	9.253	2.109	1.218	22.79%	0.1800	2.86%
005.02	Ash, LECO (%)	1	1	10.20							
005.03	Ash, Microwave furnace (%)	1	1	9.450							
005.04	Ash, Acid insoluble (%)	1	1	9.885							
006.99	Total Sugars, Miscellaneous (%)	10	10	29.37	7.424	29.47	8.207	3.244	27.85%	1.349	1.84%
006.00	Total Sugars, As sucrose (%)	1	1	30.27							
006.01	Total Sugars, Mod. Fehling Soln (%)	1	1	29.00							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	25	18	0.4679	0.3876	0.4350	0.3640	0.1072	83.67%	0.0424	4.53%
008.02	Fiber, Acid Detergent, Crucible (%)	6	4	0.8186	0.7995	0.8186	0.7995	0.4997	97.66%	0.0075	4.12%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	2	2	1.167	0.3932						
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	24	20	0.5994	0.5678	0.5251	0.4044	0.1130	77.02%	0.1186	4.41%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	7	4	1.098	0.5954	1.098	0.5954	0.3721	54.24%	0.0480	3.94%
010.99	Moisture, Miscellaneous (%)	15	15	4.753	0.6486	4.705	0.6120	0.1975	13.01%	0.0548	3.17%
010.03	Moisture, Karl-Fischer (%)	2	2	5.250	0.5162						
010.11	Moisture, NIR (%)	2	2	7.258	5.321						
011.01	Loss on Drying, HT, 135°C 2hr (%)	58	57	9.452	2.433	9.723	1.921	0.3180	19.75%	0.2409	2.84%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	2	2	8.713	0.3642						
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	1	1	6.925							
012.00	Starch, Polarimetric (Ewers) (%)	10	8	7.893	4.913	7.893	5.571	2.462	70.58%	0.0290	2.93%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	9	6	0.5580	0.4619	0.5580	0.5238	0.2673	93.88%	0.0747	4.37%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	6	5	0.8205	0.6944	0.8205	0.6944	0.2625	84.64%	0.0922	4.12%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	3	3	0.8560	0.7570	0.8560	0.7570	0.4371	88.43%	0.0968	4.09%
012.11	Starch, NIR (%)	1	1	1.290							
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	0.5250							
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	19	19	19.54	1.275	19.64	1.171	0.3358	5.96%	0.4009	2.26%
013.02	Fat, Acid Pretreat, Mojonniier, Bak Ext (%)	14	14	20.40	0.7678	20.46	0.7432	0.2483	3.63%	0.2855	2.21%
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	12	12	19.06	0.9831	19.14	0.8098	0.2922	4.23%	0.3512	2.29%
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	10	10	19.08	1.255	19.39	0.4427	0.1750	2.28%	0.1528	2.27%
013.03	Fat, Base Pretreat, Roese-Gottlieb (%)	6	6	19.31	1.603	19.86	0.3199	0.1632	1.61%	0.2450	2.24%
013.08	Fat, Base Pretreat, Roese-Gottlieb Modified (%)	3	3	20.03	0.1458	20.03	0.1458	0.0842	0.73%	0.2500	2.23%
013.99	Fat, Acid Pretreat, Pretreatment, Misc (%)	1	1	18.55							
015.43	Aluminum, ICP, Microwave (ppm)	6	6	30.87	5.421	30.87	6.148	3.137	19.92%	3.108	9.55%
015.41	Aluminum, ICP, Dry ash (ppm)	5	5	40.75	10.97	40.75	10.97	4.904	26.91%	1.543	9.16%
015.42	Aluminum, ICP, Open vessel (ppm)	2	2	25.39	3.628						
015.53	Aluminum, ICP-MS, Microwave (ppm)	1	1	31.01							

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015.99	Aluminum, Miscellaneous (ppm)	1	1	26.45							
017.42	Boron, ICP, Open vessel (ppm)	6	6	3.456	1.061	3.302	0.8247	0.4208	24.97%	0.1565	13.36%
017.43	Boron, ICP, Microwave (ppm)	6	5	3.438	1.655	3.438	1.655	0.9252	48.14%	0.4689	13.28%
017.41	Boron, ICP, Dry ash (ppm)	5	4	2.951	0.3533	2.951	0.3533	0.1767	11.97%	0.2098	13.59%
017.53	Boron, ICP-MS, Microwave (ppm)	1	1	2.616							
017.99	Boron, Miscellaneous (ppm)	1	1	3.140							
019.43	Calcium, ICP, Microwave (%)	25	25	1.088	0.0580	1.082	0.0440	0.0110	4.07%	0.0264	3.95%
019.41	Calcium, ICP, Dry ash (%)	22	21	1.068	0.0355	1.067	0.0375	0.0102	3.51%	0.0182	3.96%
019.42	Calcium, ICP, Open vessel (%)	20	19	1.098	0.0679	1.096	0.0644	0.0185	5.88%	0.0166	3.94%
019.31	Calcium, AAS, Dry ash (%)	18	16	1.060	0.0619	1.062	0.0483	0.0151	4.55%	0.0273	3.96%
019.08	Calcium, EDTA (%)	10	10	1.092	0.0405	1.089	0.0373	0.0147	3.42%	0.0180	3.95%
019.00	Calcium, Ox-Mn04 Vol. (%)	6	6	1.048	0.0936	1.048	0.1062	0.0542	10.14%	0.0283	3.97%
019.99	Calcium, Miscellaneous (%)	5	5	1.066	0.0850	1.066	0.0850	0.0380	7.98%	0.0280	3.96%
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	1.074	0.0726	1.074	0.0726	0.0419	6.76%	0.0863	3.96%
019.53	Calcium, ICP-MS, Microwave (%)	2	2	1.054	0.0298						
019.02	Calcium, Hach Method (%)	1	1	1.330							
019.09	Calcium, Ion-selective electrode (%)	1	1	0.9710							
019.32	Calcium, AAS, Open vessel (%)	1	1	0.9800							
019.44	Calcium, ICP, Dry ash (%)	1	1	1.035							
021.41	Cobalt, ICP, Dry ash (ppm)	5	4	0.1698	0.1214	0.1698	0.1214	0.0607	71.52%	0.0122	20.89%
021.43	Cobalt, ICP, Microwave (ppm)	7	4	0.3980	0.2900	0.3980	0.2900	0.1812	72.86%	0.0235	18.38%
021.53	Cobalt, ICP-MS, Microwave (ppm)	4	4	0.1243	0.0529	0.1243	0.0529	0.0264	42.56%	0.0074	21.89%
021.52	Cobalt, ICP-MS, Open vessel (ppm)	2	2	0.1420	0.0184						
021.31	Cobalt, AAS, Dry ash (ppm)	1		5.000							
021.42	Cobalt, ICP, Open vessel (ppm)	1		0.5000							
022.43	Copper, ICP, Microwave (ppm)	24	23	11.62	1.198	11.58	1.236	0.3221	10.67%	0.4806	11.06%
022.42	Copper, ICP, Open vessel (ppm)	21	20	12.01	1.324	12.02	1.397	0.3906	11.62%	0.3750	11.00%
022.41	Copper, ICP, Dry ash (ppm)	16	16	12.22	1.854	12.13	1.784	0.5575	14.71%	0.6591	10.99%
022.31	Copper, AAS, Dry ash (ppm)	8	7	13.09	3.245	12.29	1.529	0.7224	12.44%	0.1532	10.97%
022.99	Copper, Miscellaneous (ppm)	3	3	11.62	0.5393	11.62	0.5393	0.3813	4.64%	0.1000	11.06%
022.33	Copper, AAS, Microwave (ppm)	2	2	13.11	1.114						
022.44	Copper, ICP, Dry ash (ppm)	2	2	11.23	0.3217						
022.52	Copper, ICP-MS, Open vessel (ppm)	2	2	12.54	0.4738						
022.53	Copper, ICP-MS, Microwave (ppm)	2	2	10.86	0.3169						
025.43	Iron, ICP, Microwave (ppm)	22	22	117.0	8.702	117.0	7.651	2.039	6.54%	7.079	7.81%
025.42	Iron, ICP, Open vessel (ppm)	18	17	127.2	14.45	125.9	12.99	3.938	10.32%	3.781	7.73%
025.41	Iron, ICP, Dry ash (ppm)	17	16	117.3	11.75	117.3	12.89	4.028	10.99%	2.263	7.81%
025.31	Iron, AAS, Dry ash (ppm)	11	11	105.2	38.30	112.0	23.40	8.820	20.90%	1.384	7.86%
025.99	Iron, Miscellaneous (ppm)	3	3	123.2	17.32	123.2	17.32	12.25	14.06%	11.00	7.75%
025.52	Iron, ICP-MS, Open vessel (ppm)	2	2	93.36	18.98						

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025.53	Iron, ICP-MS, Microwave (ppm)	2	2	109.7	0.4700						
027.43	Magnesium, ICP, Microwave (%)	22	21	0.1320	0.0108	0.1310	0.0094	0.0026	7.18%	0.0034	5.43%
027.42	Magnesium, ICP, Open vessel (%)	21	20	0.1326	0.0099	0.1324	0.0107	0.0030	8.07%	0.0033	5.42%
027.41	Magnesium, ICP, Dry ash (%)	17	16	0.1297	0.0074	0.1295	0.0080	0.0025	6.18%	0.0022	5.44%
027.31	Magnesium, AAS, Dry ash (%)	9	8	0.1336	0.0100	0.1325	0.0088	0.0039	6.61%	0.0027	5.42%
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.1298	0.0070	0.1298	0.0070	0.0040	5.38%	0.0063	5.44%
027.99	Magnesium, Miscellaneous (%)	3	3	0.1283	0.0029	0.1283	0.0029	0.0020	2.25%	0.0033	5.45%
027.53	Magnesium, ICP-MS, Microwave (%)	2	2	0.1409	0.0058						
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.1250							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.1200							
027.44	Magnesium, ICP, Dry ash (%)	1	1	0.1285							
028.43	Manganese, ICP, Microwave (ppm)	24	23	47.82	4.558	48.00	4.634	1.208	9.65%	1.874	8.93%
028.42	Manganese, ICP, Open vessel (ppm)	21	20	49.31	4.336	49.33	4.871	1.362	9.88%	1.948	8.90%
028.41	Manganese, ICP, Dry ash (ppm)	16	16	47.02	3.338	47.02	3.785	1.183	8.05%	2.219	8.96%
028.31	Manganese, AAS, Dry ash (ppm)	9	9	46.19	6.465	47.15	4.803	2.001	10.19%	1.612	8.96%
028.53	Manganese, ICP-MS, Microwave (ppm)	3	3	50.31	1.356	50.31	1.356	0.7830	2.70%	3.292	8.87%
028.99	Manganese, Miscellaneous (ppm)	3	3	49.35	2.494	49.35	2.494	1.440	5.05%	3.167	8.90%
028.44	Manganese, ICP, Dry ash (ppm)	2	2	42.69	8.224						
028.52	Manganese, ICP-MS, Open vessel (ppm)	2	2	52.61	0.7849						
028.32	Manganese, AAS, Open vessel (ppm)	1	1	51.00							
028.33	Manganese, AAS, Microwave (ppm)	1	1	42.01							
030.01	Nitrate, Ion-selective electrode (%)	1	1	0.0145							
031.01	Phosphorus, Photometric (%)	30	28	0.7342	0.0281	0.7347	0.0294	0.0070	4.01%	0.0081	4.19%
031.43	Phosphorus, ICP, Microwave (%)	25	25	0.7442	0.0465	0.7432	0.0428	0.0107	5.76%	0.0183	4.18%
031.42	Phosphorus, ICP, Open vessel (%)	22	22	0.7472	0.0464	0.7471	0.0506	0.0135	6.77%	0.0243	4.18%
031.41	Phosphorus, ICP, Dry ash (%)	21	20	0.7246	0.0308	0.7246	0.0350	0.0098	4.83%	0.0193	4.20%
031.99	Phosphorus, Miscellaneous (%)	3	3	0.7233	0.0275	0.7233	0.0275	0.0159	3.81%	0.0133	4.20%
031.03	Phosphorus, Autoanalyzer (%)	2	2	0.7209	0.0154						
031.44	Phosphorus, ICP, Dry ash (%)	2	2	0.7003	0.0251						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	0.7314	0.0438						
031.53	Phosphorus, ICP-MS, Microwave (%)	2	2	0.7610	0.0509						
031.06	Phosphorus, Hach Method (%)	1	1	0.8000							
032.43	Potassium, ICP, Microwave (%)	23	22	2.273	0.0909	2.274	0.0901	0.0240	3.96%	0.0400	3.53%
032.42	Potassium, ICP, Open vessel (%)	20	19	2.367	0.1372	2.372	0.1451	0.0416	6.12%	0.0494	3.51%
032.41	Potassium, ICP, Dry ash (%)	18	17	2.308	0.0818	2.312	0.0772	0.0234	3.34%	0.0293	3.53%
032.31	Potassium, AAS, Dry ash (%)	8	7	2.394	0.0834	2.394	0.0945	0.0447	3.95%	0.0209	3.51%
032.99	Potassium, Miscellaneous (%)	5	5	2.262	0.1033	2.262	0.1033	0.0462	4.57%	0.1236	3.54%
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	2.228	0.2250	2.228	0.2250	0.1299	10.10%	0.0551	3.55%
032.53	Potassium, ICP-MS, Microwave (%)	2	2	2.333	0.0809						
032.08	Potassium, Ion-selective electrode (%)	1	1	1.660							

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032.32	Potassium, AAS, Open vessel (%)	1	1	1.820							
032.44	Potassium, ICP, Dry ash (%)	1	1	2.235							
033.01	Salt as chloride, Poten Cl (%)	27	26	2.839	0.1101	2.833	0.0801	0.0196	2.83%	0.0404	3.42%
033.00	Salt as chloride, Sol Cl (%)	21	20	2.657	0.4962	2.740	0.2508	0.0701	9.15%	0.0389	3.44%
033.99	Salt, Miscellaneous (%)	7	6	2.679	0.3233	2.679	0.3667	0.1871	13.69%	0.0243	3.45%
033.03	Salt as chloride, Quantab (%)	4	3	1.237	0.0982	1.237	0.0982			0.0000	3.87%
033.05	Salt as chloride, Ion Sel Electrode (%)	2	2	2.750	0.0071						
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	8	8	0.6342	0.1383	0.6312	0.1502	0.0664	23.80%	0.0943	17.14%
034.04	Selenium, Total (Se), AA, Hydride (ppm)	4	4	0.4819	0.0573	0.4819	0.0573	0.0286	11.88%	0.0526	17.85%
034.43	Selenium, Total (Se), ICP, Microwave (ppm)	5	3	0.5933	0.1461	0.5933	0.1461	0.1033	24.63%	0.0407	17.30%
034.41	Selenium, Total (Se), ICP, Dry ash (ppm)	2	2	0.6463	0.2464						
034.52	Selenium, Total (Se), ICP-MS, Open vessel (ppm)	2	2	0.6083	0.1390						
034.01	Selenium, Total (Se), Fluor (ppm)	1	1	0.5010							
034.99	Selenium, Total (Se), Miscellaneous (ppm)	1	1	0.8040							
035.43	Sodium, ICP, Microwave (%)	23	22	0.9052	0.0335	0.9037	0.0272	0.0073	3.01%	0.0132	4.06%
035.41	Sodium, ICP, Dry ash (%)	19	18	0.9119	0.0305	0.9120	0.0342	0.0101	3.75%	0.0139	4.06%
035.42	Sodium, ICP, Open vessel (%)	19	18	0.9107	0.0586	0.9164	0.0499	0.0147	5.44%	0.0198	4.05%
035.31	Sodium, AAS, Dry ash (%)	10	10	0.9303	0.1160	0.9377	0.1141	0.0451	12.17%	0.0591	4.04%
035.99	Sodium, Miscellaneous (%)	3	3	0.8900	0.0350	0.8900	0.0350	0.0202	3.93%	0.0400	4.07%
035.01	Sodium, Ion-selective electrode (%)	2	2	0.7850	0.2475						
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.9059	0.0523						
035.53	Sodium, ICP-MS, Microwave (%)	2	2	0.8965	0.0192						
035.05	Sodium, Flame Emission (%)	1	1	1.005							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.7200							
036.42	Sulfur, ICP, Open vessel (%)	20	20	0.3270	0.0423	0.3303	0.0366	0.0102	11.08%	0.0097	4.73%
036.43	Sulfur, ICP, Microwave (%)	18	17	0.3565	0.0363	0.3522	0.0267	0.0081	7.58%	0.0139	4.68%
036.04	Sulfur, LECO (%)	6	6	0.3435	0.0272	0.3414	0.0240	0.0123	7.04%	0.0106	4.70%
036.00	Sulfur, Gravimetric (%)	1	1	0.3360							
036.52	Sulfur, ICP-MS, Open vessel (%)	1	1	0.3652							
036.99	Sulfur, Miscellaneous (%)	1	1	0.3200							
037.43	Zinc, ICP, Microwave (ppm)	26	26	63.03	7.715	62.47	7.332	1.798	11.74%	3.133	8.59%
037.42	Zinc, ICP, Open vessel (ppm)	20	20	64.02	9.054	62.91	7.021	1.962	11.16%	3.267	8.58%
037.41	Zinc, ICP, Dry ash (ppm)	17	17	62.87	4.382	62.78	4.545	1.378	7.24%	2.284	8.58%
037.31	Zinc, AAS, Dry ash (ppm)	8	8	60.54	2.805	60.56	2.717	1.201	4.49%	1.087	8.63%
037.99	Zinc, Miscellaneous (ppm)	3	3	58.02	3.025	58.02	3.025	1.746	5.21%	2.433	8.68%
037.33	Zinc, AAS, Microwave (ppm)	2	2	62.53	2.022						
037.44	Zinc, ICP, Dry ash (ppm)	2	2	54.00	5.660						
037.52	Zinc, ICP-MS, Open vessel (ppm)	2	2	58.72	13.90						
037.53	Zinc, ICP-MS, Microwave (ppm)	2	2	58.11	2.004						
037.32	Zinc, AAS, Open vessel (ppm)	1	1	103.2							

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037.34	Zinc, AAS, Dry ash (ppm)	1	1	68.03							
038.43	Molybdenum, ICP, Microwave (ppm)	6	6	0.6124	0.1179	0.6124	0.1336	0.0682	21.82%	0.0537	17.22%
038.41	Molybdenum, ICP, Dry ash (ppm)	4	4	0.6401	0.0586	0.6401	0.0586	0.0293	9.16%	0.0342	17.11%
038.42	Molybdenum, ICP, Open vessel (ppm)	4	3	0.6467	0.0839	0.6467	0.0839	0.0484	12.97%	0.1133	17.08%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	3	3	0.6881	0.0899	0.6881	0.0899	0.0519	13.07%	0.0298	16.92%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	2	2	0.6198	0.1418						
038.99	Molybdenum, Miscellaneous (ppm)	1	1	0.7900							
040.43	Barium, ICP, Microwave (ppm)	1	1	0.2600							
040.53	Barium, ICP-MS, Microwave (ppm)	1	1	0.2343							
041.53	Vanadium, ICP-MS, Microwave (ppm)	1	1	0.0476							
042.00	Chloride, Titrimetric (%)	3	3	1.677	0.0729	1.677	0.0729	0.0515	4.35%	0.1400	3.70%
042.01	Chloride, Ion-selective electrode (%)	1	1	0.7100							
042.99	Chloride, Miscellaneous (%)	1	1	1.840							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	3,420							
102.01	Niacin, Microbiological (ppm)	1	1	26.40							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	64.10							
104.03	Riboflavin, LC (ppm)	1	1	23.70							
105.00	Thiamine, LC (ppm)	1	1	6.085							
106.02	Vitamin A, LC (KU / kg)	11	11	61.92	12.12	62.50	11.61	4.376	18.58%	3.870	
106.00	Vitamin A, Color (KU / kg)	1	1	61.05							
107.00	Vitamin B12, Microbiological (ppb)	1	1	145.5							
107.99	Vitamin B12, Miscellaneous (ppb)	1	1	475.0							
108.02	Vitamin D3, LC (KU / kg)	5	5	20.69	4.890	20.69	4.890	2.187	23.64%	0.9480	
108.99	Vitamin D3, Miscellaneous (KU / kg)	1	1	19.15							
109.02	Vitamin E, LC (IU / kg)	11	11	420.6	109.0	425.7	93.64	35.29	22.00%	18.71	
109.99	Vitamin E, Miscellaneous (IU / kg)	1	1	437.0							
111.00	Vitamin C, Phosphorylated, LC (ppm)	1	1	522.5							
111.98	Vitamin C, Ascorbic Acid, Miscellaneous (ppm)	1	1	444.5							
113.01	Folic Acid, Micro (ppm)	1	1	9.230							
114.01	Biotin, Microbiological (ppm)	1	1	0.3545							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	2	2	0.5613	0.5215						
115.99	Non Protein N (NPN), Miscellaneous (%)	1	1	3.012							
118.01	Peroxide value, Titrimetric Method (meq/kg)	3	2	14.16	14.88	14.16	14.88			0.2750	
120.00	Alanine, Post-col Ninhydrin Der (%)	15	14	0.8548	0.0418	0.8564	0.0437	0.0146	5.10%	0.0119	4.09%
120.05	Alanine, Pre-col AQC Der (%)	7	7	0.8776	0.1317	0.8450	0.0613	0.0290	7.26%	0.0108	4.10%
120.02	Alanine, Post-col OPA Der (%)	1	1	0.7925							
120.99	Alanine, Miscellaneous (%)	1	1	0.9100							
121.00	Arginine, Post-col Ninhydrin Der (%)	15	14	0.4504	0.1347	0.4207	0.0241	0.0081	5.73%	0.0106	4.56%
121.05	Arginine, Pre-col AQC Der (%)	7	6	0.3993	0.0339	0.3993	0.0384	0.0196	9.63%	0.0017	4.59%
121.02	Arginine, Post-col OPA Der (%)	1	1	0.4065							

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121.99	Arginine, Miscellaneous (%)	1	1	0.4150							
122.00	Aspartic, Post-col Ninhydrin Der (%)	15	14	1.852	0.1070	1.854	0.0860	0.0287	4.64%	0.0279	3.64%
122.05	Aspartic, Pre-col AQC Der (%)	7	7	1.802	0.1377	1.802	0.1561	0.0738	8.66%	0.0394	3.66%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.835							
122.99	Aspartic, Miscellaneous (%)	1	1	1.945							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	15	15	0.3978	0.0277	0.3995	0.0250	0.0081	6.26%	0.0111	4.59%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	7	7	0.3860	0.0753	0.3720	0.0491	0.0232	13.20%	0.0112	4.64%
124.99	Cysteine/Cystine, Miscellaneous (%)	2	2	0.4824	0.1872						
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.4330							
125.00	Glutamic, Post-col Ninhydrin Der (%)	15	14	3.001	0.1692	3.012	0.1667	0.0557	5.54%	0.0346	3.39%
125.05	Glutamic, Pre-col AQC Der (%)	7	7	2.938	0.1790	2.926	0.1762	0.0833	6.02%	0.0704	3.40%
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.897							
125.99	Glutamic, Miscellaneous (%)	1	1	3.105							
126.00	Glycine, Post-col Ninhydrin Der (%)	15	14	0.3466	0.0213	0.3461	0.0184	0.0061	5.31%	0.0057	4.69%
126.05	Glycine, Pre-col AQC Der (%)	7	7	0.4654	0.1220	0.4654	0.1383	0.0653	29.72%	0.0166	4.49%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.3315							
126.99	Glycine, Miscellaneous (%)	1	1	0.3400							
127.00	Histidine, Post-col Ninhydrin Der (%)	15	15	0.3455	0.1160	0.3195	0.0256	0.0083	8.02%	0.0074	4.75%
127.05	Histidine, Pre-col AQC Der (%)	7	7	0.3208	0.0577	0.3177	0.0583	0.0275	18.34%	0.0090	4.75%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.2925							
127.99	Histidine, Miscellaneous (%)	1	1	0.3200							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	15	14	1.046	0.0607	1.049	0.0623	0.0208	5.94%	0.0164	3.97%
128.05	Isoleucine, Pre-col AQC Der (%)	7	7	1.004	0.0706	1.007	0.0719	0.0340	7.14%	0.0236	4.00%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	1.023							
128.99	Isoleucine, Miscellaneous (%)	1	1	1.080							
129.00	Leucine, Post-col Ninhydrin Der (%)	15	14	1.774	0.0920	1.775	0.0753	0.0252	4.24%	0.0175	3.67%
129.05	Leucine, Pre-col AQC Der (%)	7	7	1.715	0.0910	1.707	0.0825	0.0390	4.84%	0.0164	3.69%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.714							
129.99	Leucine, Miscellaneous (%)	1	1	1.865							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	16	14	2.779	0.2475	2.805	0.2086	0.0697	7.44%	0.1648	3.42%
130.05	L-Lysine, Pre-col AQC Der (%)	7	7	2.640	0.4447	2.556	0.2864	0.1353	11.20%	0.2314	3.47%
130.99	L-Lysine, Miscellaneous (%)	3	3	2.424	0.5482	2.424	0.5482	0.3165	22.61%	0.2173	3.50%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	3.102							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	16	15	0.5645	0.1334	0.5543	0.1104	0.0356	19.91%	0.0215	4.37%
131.05	Methionine, PAO Pre-col AQC Der (%)	7	7	0.5491	0.0944	0.5491	0.1071	0.0506	19.50%	0.0360	4.38%
131.99	Methionine, Miscellaneous (%)	2	2	0.5803	0.0146						
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.5080							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	15	14	0.5579	0.0319	0.5557	0.0300	0.0100	5.39%	0.0096	4.37%
132.05	Phenylalanine, Pre-col AQC Der (%)	7	7	0.5404	0.0327	0.5404	0.0371	0.0175	6.87%	0.0105	4.39%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.5150							

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132.99	Phenylalanine, Miscellaneous (%)	1	1	0.5550							
133.00	Proline, Post-col Ninhydrin Der (%)	15	14	1.014	0.0576	1.011	0.0570	0.0190	5.63%	0.0292	3.99%
133.05	Proline, Pre-col AQC Der (%)	7	7	0.9597	0.0579	0.9597	0.0657	0.0310	6.84%	0.0282	4.02%
133.99	Proline, Miscellaneous (%)	1	1	1.075							
134.00	Serine, Post-col Ninhydrin Der (%)	15	13	0.8504	0.0587	0.8555	0.0545	0.0189	6.37%	0.0074	4.09%
134.05	Serine, Pre-col AQC Der (%)	7	7	0.8673	0.0780	0.8673	0.0885	0.0418	10.20%	0.0118	4.09%
134.02	Serine, Post-col OPA Der (%)	1	1	0.7300							
134.99	Serine, Miscellaneous (%)	1	1	0.8850							
135.00	Threonine, Post-col Ninhydrin Der (%)	15	14	1.294	0.0692	1.301	0.0631	0.0211	4.85%	0.0248	3.84%
135.05	Threonine, Pre-col AQC Der (%)	7	7	1.299	0.1117	1.296	0.1197	0.0565	9.24%	0.0327	3.85%
135.99	Threonine, Miscellaneous (%)	2	2	1.373	0.0041						
135.02	Threonine, Post-col OPA Der (%)	1	1	1.242							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	6	0.3320	0.0424	0.3229	0.0250	0.0127	7.73%	0.0044	4.74%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	4	4	0.3203	0.0503	0.3203	0.0503	0.0252	15.71%	0.0095	4.75%
136.05	Tryptophan, Pre-col AQC Der (%)	2	2	0.2191	0.0614						
136.99	Tryptophan, Miscellaneous (%)	2	2	0.2637	0.0584						
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	1	1	0.3195							
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.2985							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	11	11	0.4692	0.0632	0.4742	0.0593	0.0224	12.51%	0.0071	4.48%
137.05	Tyrosine, Pre-col AQC Der (%)	7	7	0.4606	0.0429	0.4606	0.0487	0.0230	10.57%	0.0129	4.49%
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.4080							
137.99	Tyrosine, Miscellaneous (%)	1	1	0.4150							
138.00	Valine, Post-col Ninhydrin Der (%)	15	14	0.9909	0.0817	0.9902	0.0619	0.0207	6.25%	0.0221	4.01%
138.05	Valine, Pre-col AQC Der (%)	7	7	0.9296	0.0548	0.9296	0.0621	0.0293	6.68%	0.0286	4.04%
138.02	Valine, Post-col OPA Der (%)	1	1	0.9860							
138.99	Valine, Miscellaneous (%)	1	1	1.130							
139.00	Taurine, Post-col Ninhydrin Der (%)	1	1	0.1700							
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0125							
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
139.99	Taurine, Miscellaneous (%)	1		0.0100							
160.10	Fructose, HPAEC PAD (%)	1	1	0.0800							
160.99	Fructose, Miscellaneous (%)	3	1								
161.10	Galactose, HPAEC PAD (%)	1	1	0.3250							
162.99	Glucose, Miscellaneous (%)	3	2	0.5625	0.3217	0.5625	0.3217			0.0550	4.36%
162.10	Glucose, HPAEC PAD (%)	1		0.0950							
163.99	Lactose, Miscellaneous (%)	11	11	37.57	3.828	37.29	3.670	1.383	9.84%	1.578	1.64%
163.10	Lactose, HPAEC PAD (%)	1	1	31.77							
164.99	Maltose, Miscellaneous (%)	2	1	0.4650							
164.10	Maltose, HPAEC PAD (%)	1		0.0000							
165.99	Sucrose, Miscellaneous (%)	3	1								

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165.10	Sucrose, HPAEC PAD (%)	1		0.0700							
166.10	Raffinose, HPAEC PAD (%)	1		0.0000							
166.99	Raffinose, Miscellaneous (%)	1		0.0500							
167.99	Stachyose, Miscellaneous (%)	1	1	0.1250							
167.10	Stachyose, HPAEC PAD (%)	1		0.0000							
361.03	Lasalocid Sodium, LC (UV or FL) (ppm)	9	9	81.81	8.340	81.02	7.529	3.137	9.29%	2.882	8.26%
361.02	Lasalocid Sodium, LC (ppm)	8	8	79.25	6.899	80.35	4.978	2.200	6.20%	4.454	8.27%
361.05	Lasalocid Sodium, LC-MS/MS (ppm)	5	4	78.35	2.274	78.35	2.274	1.137	2.90%	5.083	8.30%
361.01	Lasalocid Sodium, Spectrophotometer (ppm)	1	1	75.00							
400.01	Water Activity, Aqualab chilled mirror (Units)	12	12	0.3653	0.0871	0.3386	0.0169	0.0061	4.99%	0.0054	
400.99	Water Activity, Miscellaneous (Units)	3	3	0.3275	0.0140	0.3275	0.0140	0.0081	4.27%	0.0021	
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	1		20.00							
516.52	Arsenic, Total (As), ICP-MS, Open vessel (ppm)	2		0.0500							
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	1		0.0100							
518.41	Cadmium, ICP, Dry ash (ppm)	2	1	0.0151							
518.43	Cadmium, ICP, Microwave (ppm)	3	1								
518.53	Cadmium, ICP-MS, Microwave (ppm)	2	1	0.0025							
518.52	Cadmium, ICP-MS, Open vessel (ppm)	2		0.0200							
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	3	3	0.1649	0.0481	0.1649	0.0481	0.0277	29.15%	0.0226	20.98%
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	2	2	0.2833	0.0873						
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	4	2	0.2895	0.1315	0.2895	0.1315			0.0350	19.28%
520.52	Chromium, Total (Cr), ICP-MS, Open vessel (ppm)	1	1	0.1565							
526.53	Lead, ICP-MS, Microwave (ppm)	3	3	0.0234	0.0211	0.0234	0.0211	0.0122	90.16%	0.0019	22.00%
526.41	Lead, ICP, Dry ash (ppm)	2	1	0.1051							
526.43	Lead, ICP, Microwave (ppm)	2	1	0.1376							
526.52	Lead, ICP-MS, Open vessel (ppm)	2		0.0500							
529.99	Mercury, Miscellaneous (ppb)	3	1								
539.43	Nickel, ICP, Microwave (ppm)	3	3	0.5012	0.4535	0.5012	0.4535	0.3207	90.48%	0.0005	17.75%
539.41	Nickel, ICP, Dry ash (ppm)	2	2	0.1104	0.0430						
539.53	Nickel, ICP-MS, Microwave (ppm)	2	2	0.5569	0.6391						
539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	0.1355							
702.00	Butyric Acid (4:0), Miscellaneous GC (%)	1		0.0000							
704.00	Caproic Acid (6:0) , Miscellaneous GC (%)	1	1	0.0290							
706.01	Caprylic acid (8:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0225							
708.01	Capric acid (10:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0550							
710.01	Lauric Acid (12:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0620							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	1	1	0.0532							
714.01	Myristic Acid (14:0) , Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.3940							
714.99	Myristic Acid (14:0) , Miscellaneous (% (w/w))	1	1	0.3629							
716.01	Palmitic Acid (16:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	5.050							

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716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	1	1	4.661							
718.01	Palmitoleic Acid (9c-16:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.4295							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	1	1	0.4181							
722.01	Stearic Acid (18:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	2.470							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	1	1	2.490							
724.01	Oleic Acid (9c-18:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	6.650							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	1	1	6.943							
726.01	Linoleic Acid (9c,12c-18:2), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	2.795							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	1	1	2.794							
728.01	alpha-Linolenic Acid (9c,12c,15c-18:3), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.1280							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	1	1	0.1413							
730.01	Arachidic Acid (20:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0475							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	1	1	0.0441							
732.01	Gondoic Acid (11c-20:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.1490							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	1	1	0.1352							
736.01	Arachidonic Acid (5c,8c,11c,14c-20:4), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0490							
738.01	Mead Acid (11c,14c,17c-20:3), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
740.01	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w))	1	1	0.0050							
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	1	1	0.0165							
744.01	Erucic Acid (13c-22:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1	1	0.0050							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (% (w/w))	1	1	0.0089							
746.01	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	1	1	0.0113							
750.01	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (% (w/w))	1	1	0.0050							
752.01	Nervonic Acid (24:1) isomers, Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	1	1	0.0050							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (% (w/w))	1	1	16.72							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	1	1	18.08							

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. Robust Assigned Values indicated in bold font.



Animal Feed Scheme

Milk Replacer, Medicated

Test Material Code # 202229

Method Precision Report

Methods Reported: 122

Labs Reporting: 169

Issue Date : 10/31/2022

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
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	47	43	4.708	0.4683	0.3609	0.1376	0.3862	7.75%	2.95%	8.29%	2.807
001.99	Loss on Drying, Miscellaneous (%)	16	14	4.881	1.473	0.6905	0.0965	0.6972	15.20%	2.12%	15.35%	7.224
002.01	Protein, Crude, Auto Kjeld-Foss (%)	15	14	19.39	0.3818	0.3690	0.2040	0.4216	1.90%	1.05%	2.17%	2.066
002.05	Protein, Crude, Copper, Boric Acid (%)	24	21	19.50	0.5199	0.4378	0.0815	0.4454	2.25%	0.42%	2.29%	5.464
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	113	107	19.85	0.4209	0.3023	0.2638	0.4012	1.52%	1.33%	2.02%	1.521
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	7	7	10.86	4.129	4.124	0.3039	4.135	37.98%	2.80%	38.09%	13.61
003.06	Fat, Crude, Pet Ether (%)	11	10	9.789	4.921	3.494	0.1509	3.497	40.19%	1.74%	40.23%	23.17
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	6	5	12.26	5.170	5.170	0.0678	5.171	42.18%	0.55%	42.19%	76.21
003.10	Fat, Crude, Randall, Pet Ether (%)	23	21	9.106	5.352	4.592	0.3948	4.609	53.33%	4.59%	53.52%	11.67
003.14	Fat, Crude, Ankom (%)	40	38	13.74	1.531	1.451	0.3682	1.497	10.62%	2.69%	10.95%	4.064
004.00	Fiber, Crude, Asbestos Free (%)	7	5	0.2696	0.0893	0.0815	0.0514	0.0964	30.25%	19.07%	35.76%	1.875
004.06	Fiber, Crude, Fibertec (%)	12	7	0.5019	0.3442	0.1855	0.0080	0.1857	46.80%	2.02%	46.85%	23.16
004.07	Fiber, Crude, ANKOM (%)	54	45	0.5589	0.3925	0.3465	0.0933	0.3588	65.58%	17.67%	67.92%	3.845
005.00	Ash, 2h @ 600°C (%)	84	80	9.778	0.1446	0.1217	0.0554	0.1337	1.24%	0.57%	1.37%	2.414
005.05	Ash, 3h @ 550°C (%)	25	22	9.832	0.1257	0.0733	0.0441	0.0856	0.75%	0.45%	0.87%	1.940
005.99	Ash, Miscellaneous (%)	6	6	9.773	0.0760	0.0548	0.0745	0.0925	0.56%	0.76%	0.95%	1.241
006.99	Total Sugars, Miscellaneous (%)	10	10	29.37	7.424	7.346	1.515	7.501	25.01%	5.16%	25.54%	4.951
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	25	16	0.4679	0.3876	0.3696	0.0251	0.3705	89.30%	6.07%	89.51%	14.76
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	24	18	0.5994	0.5678	0.3484	0.0672	0.3548	71.20%	13.74%	72.52%	5.277
010.99	Moisture, Miscellaneous (%)	15	13	4.753	0.6486	0.5029	0.0363	0.5042	10.90%	0.79%	10.93%	13.88
011.01	Loss on Drying, HT, 135°C 2hr (%)	58	55	9.452	2.433	2.359	0.2258	2.370	25.07%	2.40%	25.19%	10.50
012.00	Starch, Polarimetric (Ewers) (%)	10	8	7.893	4.913	4.912	0.0318	4.913	62.24%	0.40%	62.24%	154.5
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	9	5	0.5580	0.4619	0.3186	0.0113	0.3188	77.78%	2.76%	77.83%	28.24
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	19	17	19.54	1.275	0.9641	0.2730	1.002	4.87%	1.38%	5.07%	3.670
013.02	Fat, Acid Pretreat, Mojonnier, Bak Ext (%)	14	14	20.40	0.7678	0.7418	0.2803	0.7930	3.64%	1.37%	3.89%	2.829
013.03	Fat, Base Pretreat, Roesse-Gottlieb (%)	6	5	19.31	1.603	0.1059	0.1958	0.2226	0.53%	0.98%	1.12%	1.137
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	10	9	19.08	1.255	0.3065	0.1805	0.3557	1.57%	0.93%	1.83%	1.970
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	12	10	19.06	0.9831	0.6382	0.2171	0.6741	3.32%	1.13%	3.51%	3.105
015.41	Aluminum, ICP, Dry ash (ppm)	5	5	40.75	10.97	10.90	1.635	11.03	26.76%	4.01%	27.06%	6.742
015.43	Aluminum, ICP, Microwave (ppm)	6	5	30.87	5.421	5.514	1.559	5.730	18.35%	5.19%	19.07%	3.675
017.42	Boron, ICP, Open vessel (ppm)	6	5	3.456	1.061	0.4374	0.1463	0.4612	14.32%	4.79%	15.10%	3.152
017.43	Boron, ICP, Microwave (ppm)	6	5	3.438	1.655	1.631	0.3944	1.678	47.45%	11.47%	48.82%	4.256
019.00	Calcium, Ox-Mn04 Vol. (%)	6	6	1.048	0.0936	0.0920	0.0243	0.0952	8.79%	2.32%	9.09%	3.912
019.08	Calcium, EDTA (%)	10	9	1.092	0.0405	0.0264	0.0128	0.0294	2.44%	1.18%	2.71%	2.290
019.31	Calcium, AAS, Dry ash (%)	18	14	1.060	0.0619	0.0334	0.0183	0.0381	3.15%	1.72%	3.59%	2.083
019.41	Calcium, ICP, Dry ash (%)	22	20	1.068	0.0355	0.0350	0.0141	0.0377	3.28%	1.32%	3.53%	2.673

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
019.42	Calcium, ICP, Open vessel (%)	20	18	1.098	0.0679	0.0691	0.0123	0.0702	6.29%	1.12%	6.39%	5.690
019.43	Calcium, ICP, Microwave (%)	25	23	1.088	0.0580	0.0469	0.0221	0.0518	4.34%	2.04%	4.80%	2.347
019.99	Calcium, Miscellaneous (%)	5	5	1.066	0.0850	0.0831	0.0253	0.0869	7.80%	2.37%	8.15%	3.435
022.31	Copper, AAS, Dry ash (ppm)	8	6	13.09	3.245	0.9702	0.1616	0.9836	8.15%	1.36%	8.26%	6.086
022.41	Copper, ICP, Dry ash (ppm)	16	16	12.22	1.854	1.790	0.6867	1.917	14.64%	5.62%	15.68%	2.791
022.42	Copper, ICP, Open vessel (ppm)	21	20	12.01	1.324	1.302	0.3424	1.346	10.85%	2.85%	11.21%	3.932
022.43	Copper, ICP, Microwave (ppm)	24	22	11.62	1.198	1.183	0.4322	1.259	10.16%	3.71%	10.82%	2.913
025.31	Iron, AAS, Dry ash (ppm)	11	9	105.2	38.30	18.27	1.389	18.33	15.61%	1.19%	15.65%	13.19
025.41	Iron, ICP, Dry ash (ppm)	17	15	117.3	11.75	11.81	1.719	11.94	10.13%	1.47%	10.23%	6.944
025.42	Iron, ICP, Open vessel (ppm)	18	15	127.2	14.45	9.893	2.997	10.34	7.87%	2.38%	8.22%	3.449
025.43	Iron, ICP, Microwave (ppm)	22	21	117.0	8.702	7.916	5.750	9.784	6.77%	4.92%	8.37%	1.702
027.31	Magnesium, AAS, Dry ash (%)	9	7	0.1336	0.0100	0.0101	0.0016	0.0102	7.46%	1.19%	7.56%	6.365
027.41	Magnesium, ICP, Dry ash (%)	17	14	0.1297	0.0074	0.0076	0.0012	0.0077	5.83%	0.91%	5.90%	6.463
027.42	Magnesium, ICP, Open vessel (%)	21	19	0.1326	0.0099	0.0099	0.0031	0.0104	7.45%	2.36%	7.82%	3.319
027.43	Magnesium, ICP, Microwave (%)	22	20	0.1320	0.0108	0.0074	0.0036	0.0083	5.71%	2.75%	6.34%	2.309
028.31	Manganese, AAS, Dry ash (ppm)	9	7	46.19	6.465	3.556	1.165	3.742	7.45%	2.44%	7.84%	3.211
028.41	Manganese, ICP, Dry ash (ppm)	16	16	47.02	3.338	2.941	2.233	3.693	6.26%	4.75%	7.85%	1.654
028.42	Manganese, ICP, Open vessel (ppm)	21	20	49.31	4.336	4.150	1.776	4.514	8.42%	3.60%	9.15%	2.542
028.43	Manganese, ICP, Microwave (ppm)	24	22	47.82	4.558	3.788	1.464	4.061	7.84%	3.03%	8.40%	2.773
031.01	Phosphorus, Photometric (%)	30	27	0.7342	0.0281	0.0281	0.0076	0.0291	3.82%	1.03%	3.96%	3.823
031.41	Phosphorus, ICP, Dry ash (%)	21	19	0.7246	0.0308	0.0290	0.0138	0.0321	3.99%	1.91%	4.42%	2.318
031.42	Phosphorus, ICP, Open vessel (%)	22	21	0.7472	0.0464	0.0428	0.0208	0.0475	5.70%	2.77%	6.34%	2.286
031.43	Phosphorus, ICP, Microwave (%)	25	23	0.7442	0.0465	0.0388	0.0146	0.0415	5.25%	1.98%	5.61%	2.832
032.31	Potassium, AAS, Dry ash (%)	8	6	2.394	0.0834	0.0838	0.0087	0.0842	3.48%	0.36%	3.50%	9.701
032.41	Potassium, ICP, Dry ash (%)	18	16	2.308	0.0818	0.0803	0.0227	0.0835	3.49%	0.98%	3.62%	3.681
032.42	Potassium, ICP, Open vessel (%)	20	18	2.367	0.1372	0.1358	0.0405	0.1417	5.72%	1.71%	5.97%	3.500
032.43	Potassium, ICP, Microwave (%)	23	22	2.273	0.0909	0.0869	0.0375	0.0947	3.82%	1.65%	4.16%	2.525
032.99	Potassium, Miscellaneous (%)	5	5	2.262	0.1033	0.0709	0.1063	0.1278	3.13%	4.70%	5.65%	1.202
033.00	Salt as chloride, Sol Cl (%)	21	18	2.657	0.4962	0.3592	0.0312	0.3606	13.24%	1.15%	13.28%	11.56
033.01	Salt as chloride, Poten Cl (%)	27	24	2.839	0.1101	0.0805	0.0311	0.0863	2.85%	1.10%	3.06%	2.777
033.99	Salt, Miscellaneous (%)	7	6	2.679	0.3233	0.3230	0.0223	0.3237	12.06%	0.83%	12.08%	14.50
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	8	7	0.6342	0.1383	0.0977	0.0502	0.1098	16.31%	8.38%	18.33%	2.189
035.31	Sodium, AAS, Dry ash (%)	10	9	0.9303	0.1160	0.1007	0.0505	0.1127	11.04%	5.54%	12.35%	2.231
035.41	Sodium, ICP, Dry ash (%)	19	18	0.9119	0.0305	0.0287	0.0147	0.0322	3.14%	1.61%	3.53%	2.193
035.42	Sodium, ICP, Open vessel (%)	19	16	0.9107	0.0586	0.0403	0.0133	0.0425	4.39%	1.45%	4.62%	3.183
035.43	Sodium, ICP, Microwave (%)	23	20	0.9052	0.0335	0.0251	0.0089	0.0266	2.78%	0.99%	2.95%	2.992
036.04	Sulfur, LECO (%)	6	6	0.3435	0.0272	0.0264	0.0090	0.0279	7.69%	2.61%	8.12%	3.106
036.42	Sulfur, ICP, Open vessel (%)	20	18	0.3270	0.0423	0.0333	0.0079	0.0342	9.94%	2.37%	10.22%	4.322
036.43	Sulfur, ICP, Microwave (%)	18	16	0.3565	0.0363	0.0244	0.0101	0.0264	6.96%	2.89%	7.54%	2.606
037.31	Zinc, AAS, Dry ash (ppm)	8	7	60.54	2.805	2.951	0.6622	3.024	4.89%	1.10%	5.01%	4.567
037.41	Zinc, ICP, Dry ash (ppm)	17	16	62.87	4.382	4.123	1.939	4.556	6.59%	3.10%	7.28%	2.349
037.42	Zinc, ICP, Open vessel (ppm)	20	19	64.02	9.054	6.474	2.983	7.128	10.34%	4.76%	11.38%	2.389
037.43	Zinc, ICP, Microwave (ppm)	26	24	63.03	7.715	6.479	2.696	7.018	10.43%	4.34%	11.29%	2.603
038.43	Molybdenum, ICP, Microwave (ppm)	6	6	0.6124	0.1179	0.1102	0.0590	0.1250	18.00%	9.64%	20.41%	2.118
106.02	Vitamin A, LC (KU / kg)	11	11	61.92	12.12	11.88	3.404	12.36	19.19%	5.50%	19.96%	3.631
108.02	Vitamin D3, LC (KU / kg)	5	5	20.69	4.890	4.858	0.7899	4.922	23.49%	3.82%	23.79%	6.231

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
109.02	Vitamin E, LC (IU / kg)	11	11	420.6	109.0	108.4	16.79	109.7	25.76%	3.99%	26.07%	6.532
120.00	Alanine, Post-col Ninhydrin Der (%)	15	14	0.8548	0.0418	0.0410	0.0121	0.0427	4.79%	1.41%	4.99%	3.542
120.05	Alanine, Pre-col AQC Der (%)	7	5	0.8776	0.1317	0.0303	0.0067	0.0310	3.60%	0.80%	3.69%	4.629
121.00	Arginine, Post-col Ninhydrin Der (%)	15	12	0.4504	0.1347	0.0265	0.0048	0.0269	6.35%	1.15%	6.46%	5.623
121.05	Arginine, Pre-col AQC Der (%)	7	6	0.3993	0.0339	0.0339	0.0018	0.0339	8.48%	0.45%	8.49%	19.06
122.00	Aspartic, Post-col Ninhydrin Der (%)	15	13	1.852	0.1070	0.1083	0.0234	0.1109	5.83%	1.26%	5.97%	4.729
122.05	Aspartic, Pre-col AQC Der (%)	7	6	1.802	0.1377	0.1382	0.0223	0.1400	7.59%	1.22%	7.68%	6.283
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	15	15	0.3978	0.0277	0.0268	0.0103	0.0287	6.73%	2.60%	7.21%	2.773
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	7	6	0.3860	0.0753	0.0304	0.0107	0.0323	8.46%	2.97%	8.97%	3.021
125.00	Glutamic, Post-col Ninhydrin Der (%)	15	13	3.001	0.1692	0.1740	0.0231	0.1755	5.81%	0.77%	5.86%	7.612
125.05	Glutamic, Pre-col AQC Der (%)	7	7	2.938	0.1790	0.1721	0.0695	0.1856	5.86%	2.36%	6.32%	2.673
126.00	Glycine, Post-col Ninhydrin Der (%)	15	13	0.3466	0.0213	0.0214	0.0045	0.0219	6.15%	1.29%	6.29%	4.865
126.05	Glycine, Pre-col AQC Der (%)	7	7	0.4654	0.1220	0.1215	0.0145	0.1224	26.11%	3.12%	26.30%	8.425
127.00	Histidine, Post-col Ninhydrin Der (%)	15	14	0.3455	0.1160	0.0313	0.0059	0.0319	9.89%	1.88%	10.06%	5.361
127.05	Histidine, Pre-col AQC Der (%)	7	6	0.3208	0.0577	0.0371	0.0044	0.0374	12.24%	1.46%	12.33%	8.462
128.00	Isoleucine, Post-col Ninhydrin Der (%)	15	13	1.046	0.0607	0.0619	0.0110	0.0628	5.93%	1.06%	6.02%	5.704
128.05	Isoleucine, Pre-col AQC Der (%)	7	7	1.004	0.0706	0.0687	0.0228	0.0724	6.85%	2.28%	7.22%	3.171
129.00	Leucine, Post-col Ninhydrin Der (%)	15	14	1.774	0.0920	0.0914	0.0156	0.0927	5.15%	0.88%	5.23%	5.953
129.05	Leucine, Pre-col AQC Der (%)	7	7	1.715	0.0910	0.0902	0.0175	0.0918	5.26%	1.02%	5.35%	5.250
130.00	L-Lysine, Post-col Ninhydrin Der (%)	16	13	2.779	0.2475	0.1260	0.1550	0.1997	4.45%	5.48%	7.06%	1.288
130.05	L-Lysine, Pre-col AQC Der (%)	7	5	2.640	0.4447	0.1867	0.1065	0.2149	7.47%	4.26%	8.60%	2.018
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	16	14	0.5645	0.1334	0.0939	0.0203	0.0961	17.41%	3.76%	17.81%	4.742
131.05	Methionine, PAO Pre-col AQC Der (%)	7	7	0.5491	0.0944	0.0916	0.0322	0.0971	16.69%	5.86%	17.69%	3.017
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	15	14	0.5579	0.0319	0.0314	0.0084	0.0325	5.62%	1.50%	5.82%	3.877
132.05	Phenylalanine, Pre-col AQC Der (%)	7	7	0.5404	0.0327	0.0317	0.0117	0.0338	5.86%	2.17%	6.25%	2.880
133.00	Proline, Post-col Ninhydrin Der (%)	15	14	1.014	0.0576	0.0538	0.0289	0.0611	5.30%	2.85%	6.02%	2.111
133.05	Proline, Pre-col AQC Der (%)	7	7	0.9597	0.0579	0.0551	0.0255	0.0607	5.74%	2.65%	6.32%	2.383
134.00	Serine, Post-col Ninhydrin Der (%)	15	12	0.8504	0.0587	0.0609	0.0054	0.0612	7.15%	0.63%	7.18%	11.33
134.05	Serine, Pre-col AQC Der (%)	7	7	0.8673	0.0780	0.0775	0.0127	0.0785	8.93%	1.46%	9.05%	6.185
135.00	Threonine, Post-col Ninhydrin Der (%)	15	12	1.294	0.0692	0.0454	0.0168	0.0484	3.45%	1.28%	3.68%	2.882
135.05	Threonine, Pre-col AQC Der (%)	7	6	1.299	0.1117	0.1209	0.0183	0.1223	9.34%	1.41%	9.45%	6.693
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	5	0.3320	0.0424	0.0134	0.0034	0.0138	4.24%	1.09%	4.38%	4.036
137.00	Tyrosine, Post-col Ninhydrin Der (%)	11	11	0.4692	0.0632	0.0630	0.0071	0.0634	13.43%	1.51%	13.52%	8.929
137.05	Tyrosine, Pre-col AQC Der (%)	7	7	0.4606	0.0429	0.0420	0.0125	0.0438	9.12%	2.71%	9.51%	3.517
138.00	Valine, Post-col Ninhydrin Der (%)	15	14	0.9909	0.0817	0.0800	0.0234	0.0834	8.07%	2.36%	8.41%	3.566
138.05	Valine, Pre-col AQC Der (%)	7	7	0.9296	0.0548	0.0505	0.0299	0.0587	5.43%	3.21%	6.31%	1.964
163.99	Lactose, Miscellaneous (%)	11	10	37.57	3.828	3.696	1.268	3.907	9.74%	3.34%	10.29%	3.081
361.02	Lasalocid Sodium, LC (ppm)	8	7	79.25	6.899	1.593	4.318	4.603	1.96%	5.30%	5.65%	1.066
361.03	Lasalocid Sodium, LC (UV or FL) (ppm)	9	9	81.81	8.340	8.149	2.514	8.528	9.96%	3.07%	10.42%	3.392
400.01	Water Activity, Aqualab chilled mirror (Units)	12	11	0.3653	0.0871	0.0275	0.0048	0.0280	8.07%	1.41%	8.19%	5.806

Notes: Precision Calculations provided for methods with 5 or more labs contributing to calculations.