



**AAFCO**  
Proficiency Testing Program



**Animal Feed Scheme**

**Fish Meal**

**Test Material Code # 201726**

**Method Summary Report**

(Precision Report Follows)

**# Methods Reported: 405**

**# Labs Reporting: 195**

**Issue Date : 07/31/2017**

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value - Robust Mean	AAFCO PT fp - Robust sd	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.75000							
001.00	Loss on Drying, Vac 95°C 5 hr (%)	7	6	6.6531	0.40998	6.6531	0.46492	0.23725	6.99%	0.06735	3.01%
001.02	Loss on Drying, Vac on sand (%)	2	2	5.9575	1.2127						
001.03	Loss on Drying, Low temp. methods (%)	9	8	6.6212	0.18266	6.6038	0.16491	0.07288	2.50%	0.00943	3.01%
001.05	Loss on Drying, LECO (%)	3	3	6.6583	0.07654	6.6583	0.07654	0.04419	1.15%	0.04333	3.01%
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	37	36	6.6793	0.52053	6.6869	0.23818	0.04962	3.56%	0.08643	3.00%
001.08	Loss on Drying, 102°C 16 hr, in meat (%)	2	2	6.7500	0.07071						
001.99	Loss on Drying, Miscellaneous (%)	25	25	6.4877	0.74165	6.6381	0.47551	0.11888	7.16%	0.12824	3.01%
002.00	Protein, Crude (%)	3	3	60.667	0.81002	60.667	0.81002	0.46767	1.34%	0.68667	1.28%
002.01	Protein, Auto Kjel-Foss (%)	12	10	60.435	1.2554	60.435	1.4237	0.56275	2.36%	0.26560	1.29%
002.02	Protein, Semiauto Autoanalyzer (%)	2	2	60.870	1.5486						
002.04	Protein, Copper Catalyst (%)	5	5	59.335	2.5544	59.335	2.5544	1.1424	4.31%	0.38200	1.30%
002.05	Protein, Copper, Boric Acid (%)	40	39	60.694	0.72524	60.720	0.72989	0.14610	1.20%	0.27505	1.28%
002.06	Protein, Combustion Nitrogen Analyzer (%)	122	119	61.565	0.87974	61.544	0.77983	0.08936	1.27%	0.52900	1.27%
002.08	Protein, Cu/Ti (%)	2	2	60.629	0.51021						
002.10	Protein, Block dig/distillation (%)	1	1	58.830							
002.11	Protein, NIR (%)	6	5	58.170	3.7469	58.170	3.7469	2.0946	6.44%	0.04000	1.31%
002.12	Protein, Crude Dig % Crude Protein (%)	1	1	94.660							
002.99	Protein, Miscellaneous (%)	3	3	62.140	1.7303	62.140	1.7303	0.99899	2.78%	0.22000	1.27%
003.00	Fat, Eth Ext., Direct (%)	9	9	9.3462	0.23388	9.3462	0.26522	0.11051	2.84%	0.16243	2.86%
003.01	Fat, Ind Eth Ext (13th ed.), Indirect (%)	1	1	9.1900							
003.06	Fat, Pet Ether (%)	20	20	9.5656	0.24941	9.5752	0.26149	0.07309	2.73%	0.12312	2.85%
003.09	Fat, Soxtec, Eth Ext (%)	16	16	9.0722	0.58849	9.1586	0.41831	0.13072	4.57%	0.16814	2.87%
003.10	Fat, Soxtec, Pet Ether (%)	28	26	9.0338	0.62229	9.1050	0.35389	0.08676	3.89%	0.15388	2.87%
003.11	Fat, NIR (%)	6	6	10.132	0.77033	10.132	0.87355	0.44578	8.62%	0.09667	2.82%
003.12	Fat, Hexane Ext (%)	6	5	9.4126	0.14773	9.4126	0.14773	0.08258	1.57%	0.03218	2.85%
003.13	Fat, Soxtec, Hexane Ext. (%)	7	7	9.4847	0.39829	9.4431	0.35041	0.16555	3.71%	0.15857	2.85%
003.14	Fat, Ankom (%)	38	37	9.2251	0.42399	9.2384	0.36006	0.07399	3.90%	0.15578	2.86%
003.99	Fat, Miscellaneous (%)	5	5	8.9230	3.5328	8.9230	3.5328	1.7664	39.59%	0.53400	2.88%
004.00	Fiber, Crude, Asbestos Free (%)	16	15	0.41487	0.21557	0.39854	0.18955	0.06118	47.56%	0.07513	4.59%

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004.01	Fiber, Sing Filt (%)	1	1	0.60000							
004.03	Fiber, Fritted Glass (%)	5	5	0.45327	0.36491	0.45327	0.36491	0.16319	80.51%	0.19158	4.51%
004.06	Fiber, Fibertec (%)	21	20	0.38540	0.23527	0.36434	0.20594	0.05756	56.52%	0.05959	4.66%
004.07	Fiber, ANKOM (%)	51	49	0.88236	0.51224	0.86582	0.54271	0.09691	62.68%	0.15363	4.09%
004.11	Fiber, NIR (%)	3	3	0.46167	0.31545	0.46167	0.31545	0.22306	68.33%	0.02333	4.49%
004.99	Fiber, Miscellaneous (%)	2	2	0.29000	0.01414						
005.00	Ash, 2h @ 600°C (%)	92	91	21.472	0.32591	21.477	0.26698	0.03498	1.24%	0.25437	2.16%
005.02	Ash, LECO (%)	3	3	21.793	0.48676	21.793	0.48676	0.28103	2.23%	0.30000	2.14%
005.05	Ash, 3h @ 550°C (%)	37	36	21.644	0.22965	21.638	0.22028	0.04589	1.02%	0.11887	2.15%
005.11	Ash, NIR (%)	5	5	21.472	4.2090	21.472	4.2090	2.1045	19.60%	0.20400	2.16%
005.99	Ash, Miscellaneous (%)	12	12	21.489	0.36079	21.511	0.35715	0.12887	1.66%	0.21963	2.16%
006.01	Total sugars, Mod. Fehling Soln (%)	1	1	2.2865							
006.99	Total sugars, Miscellaneous (%)	1		0.00000							
008.02	Fiber, Acid Detergent (%)	8	6	1.1266	0.26698	1.1169	0.27994	0.14286	25.06%	0.10157	3.93%
008.05	Fiber, Acid Detergent-Hach (%)	1	1	3.7000							
008.08	Fiber, Acid Detergent, ANKOM (%)	19	19	2.5187	1.7594	2.2960	1.4460	0.41468	62.98%	0.28423	3.53%
008.99	Fiber, Acid Detergent Miscellaneous (%)	1		0.00000							
009.04	Fiber, Neutral Det-No ENZ Pretreat (%)	1	1	19.170							
009.07	Fiber, Neutral Det-ENZ Pretreat (%)	5	4	10.075	6.4945	10.075	6.4945	3.2473	64.46%	0.22590	2.83%
009.09	Fiber, Neutral Detergent, ANKOM (%)	22	21	16.862	7.1296	16.639	6.4565	1.7611	38.80%	0.55772	2.45%
009.99	Fiber, Neutral Det Miscellaneous (%)	2	1	6.5100							
010.03	Moisture, Karl-Fischer (%)	3	3	6.8350	0.35500	6.8350	0.35500	0.20496	5.19%	0.11667	3.00%
010.11	Moisture, NIR (%)	5	5	6.5290	0.11065	6.5290	0.11065	0.04948	1.69%	0.02600	3.02%
010.99	Moisture, Miscellaneous (%)	22	21	6.8947	0.45332	6.8671	0.38641	0.10540	5.63%	0.08478	2.99%
011.01	Loss on Drying, 135°C 2hr (%)	63	62	7.4871	0.49536	7.5078	0.38287	0.06078	5.10%	0.11630	2.95%
011.02	Loss on Drying, 130°C for 2 hours (%)	3	3	7.3150	0.15977	7.3150	0.15977	0.09224	2.18%	0.10333	2.96%
011.99	Loss on Drying, High Temp. Methods Miscellaneo	3	3	7.4500	1.0828	7.4500	1.0828	0.62515	14.53%	0.22667	2.96%
012.00	Starch, Polarimetric (Ewers) (%)	2	1	0.33000							
012.01	Starch, Megazyme (%)	6	5	0.79000	0.93902	0.60000	0.96695	0.54054	161.16%	0.26400	4.32%
012.03	Starch, Enzymatic (%)	2	1	0.20000							
012.04	Starch, YSI Analyzer (%)	1	1	0.40000							
012.11	Starch, NIR (%)	2		0.00000							
013.00	Fat, Acid hydrolysis (%)	21	21	10.840	0.89519	10.926	0.73802	0.20131	6.75%	0.27800	2.79%
013.02	Fat, Mojonier, Bak Ext (%)	24	24	11.308	0.77328	11.423	0.51545	0.13152	4.51%	0.26316	2.77%
013.08	Fat, Roese-Gottlieb Modified (%)	1	1	7.4750							
013.10	Fat, Soxtec-Acid Hydrolysis (%)	6	6	10.185	1.2549	10.185	1.4231	0.72622	13.97%	0.41667	2.82%
013.13	Fat, Ankom- Acid Hydrolysis (%)	7	7	9.8633	1.1261	9.8633	1.2770	0.60335	12.95%	0.47714	2.83%
015.41	Aluminum, ICP, Dry ash (mg / kg (ppm))	4	4	495.72	77.774	495.72	77.774	44.903	15.69%	10.955	6.29%

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015.42	Aluminum, ICP, Open vessel (mg / kg (ppm))	1	1	457.00							
015.43	Aluminum, ICP, Microwave (mg / kg (ppm))	6	6	441.01	182.56	455.21	173.01	88.287	38.01%	16.721	6.37%
015.52	Aluminum, ICP-MS, Open vessel (mg / kg (ppm))	1	1	296.50							
015.53	Aluminum, ICP-MS, Microwave (mg / kg (ppm))	1	1	656.00							
017.41	Boron, ICP, Dry ash (mg / kg (ppm))	3	3	2.8650	0.59492	2.8650	0.59492	0.34348	20.77%	0.36333	13.65%
017.42	Boron, ICP, Open vessel (mg / kg (ppm))	4	4	2.3638	1.6226	2.3638	1.6226	0.81130	68.64%	0.11620	14.05%
017.43	Boron, ICP, Microwave (mg / kg (ppm))	5	4	3.0400	0.67037	3.0400	0.67037	0.38704	22.05%	0.54000	13.53%
017.52	Boron, ICP-MS, Open vessel (mg / kg (ppm))	1	1	1.8064							
019.00	Calcium, Ox-Mn04 Vol. (%)	16	15	6.2920	0.21273	6.3116	0.15070	0.04864	2.39%	0.06553	3.03%
019.02	Calcium, Hach Method (%)	1	1	8.3900							
019.08	Calcium, EDTA (%)	8	8	6.3009	0.27098	6.3009	0.30729	0.13581	4.88%	0.12890	3.03%
019.09	Calcium, Ion-selective electrode (%)	1	1	6.5995							
019.31	Calcium, AAS, Dry ash (%)	25	24	6.1575	0.41444	6.2113	0.31562	0.08053	5.08%	0.12845	3.04%
019.32	Calcium, AAS, Open vessel (%)	5	5	6.0996	1.5006	6.0996	1.5006	0.75030	24.60%	0.11638	3.05%
019.33	Calcium, AAS, Microwave (%)	2	2	6.1650	0.90510						
019.41	Calcium, ICP, Dry ash (%)	30	30	6.3826	0.63974	6.4246	0.33809	0.07716	5.26%	0.14667	3.02%
019.42	Calcium, ICP, Open vessel (%)	20	20	6.4667	0.54095	6.4928	0.52140	0.14574	8.03%	0.31069	3.02%
019.43	Calcium, ICP, Microwave (%)	23	23	6.4045	0.36732	6.3814	0.34147	0.08900	5.35%	0.18638	3.03%
019.44	Calcium, ICP, Dry ash (%)	2	2	6.5000	0.03536						
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	6.1747	0.80414	6.1747	0.80414	0.46427	13.02%	0.31367	3.04%
019.53	Calcium, ICP-MS, Microwave (%)	4	4	6.5778	0.61716	6.5778	0.61716	0.30858	9.38%	0.33000	3.01%
019.99	Calcium, Miscellaneous (%)	4	4	5.7211	1.3758	5.7211	1.3758	0.79432	24.05%	0.15175	3.08%
021.31	Cobalt, AAS, Dry ash (mg / kg (ppm))	2	2	2.3750	1.3789						
021.41	Cobalt, ICP, Dry ash (mg / kg (ppm))	3	3	0.14743	0.06100	0.14743	0.06100	0.03522	41.38%	0.00967	21.34%
021.42	Cobalt, ICP, Open vessel (mg / kg (ppm))	3	3	0.12208	0.02851	0.12208	0.02851	0.02016	23.35%	0.03930	21.95%
021.43	Cobalt, ICP, Microwave (mg / kg (ppm))	4	4	0.36478	0.20044	0.36478	0.20044	0.10022	54.95%	0.03815	18.62%
021.52	Cobalt, ICP-MS, Open vessel (mg / kg (ppm))	3	3	0.25247	0.11469	0.25247	0.11469	0.08110	45.43%	0.01920	19.68%
021.53	Cobalt, ICP-MS, Microwave (mg / kg (ppm))	4	4	0.38489	0.23591	0.38489	0.23591	0.11796	61.29%	0.00228	18.47%
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	9	9	7.0732	2.2730	7.0732	2.5776	1.0740	36.44%	0.38633	11.92%
022.32	Copper, AAS, Open vessel (mg / kg (ppm))	2	2	7.7358	3.2021						
022.33	Copper, AAS, Microwave (mg / kg (ppm))	1	1	6.8000							
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	23	21	5.4478	1.6614	5.2874	1.3956	0.38067	26.39%	0.39232	12.45%
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	16	16	4.8612	0.99079	4.7269	0.74405	0.23252	15.74%	0.43491	12.66%
022.43	Copper, ICP, Microwave (mg / kg (ppm))	22	21	4.6991	0.93872	4.6763	0.89077	0.24298	19.05%	0.25306	12.68%
022.44	Copper, ICP, Dry ash (mg / kg (ppm))	1	1	5.0105							
022.51	Copper, ICP-MS, Dry ash (mg / kg (ppm))	1	1	4.7000							
022.52	Copper, ICP-MS, Open vessel (mg / kg (ppm))	3	3	5.2151	0.86783	5.2151	0.86783	0.50104	16.64%	0.17197	12.48%
022.53	Copper, ICP-MS, Microwave (mg / kg (ppm))	4	4	4.3000	0.88992	4.3000	0.88992	0.44496	20.70%	0.76000	12.84%

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022.99	Copper, Miscellaneous (mg / kg (ppm))	4	4	3.8825	0.68421	3.8825	0.68421	0.39503	17.62%	0.55500	13.04%
023.01	Fluorine, Ion Sel Elect (mg / kg (ppm))	2	2	89.075	39.138						
024.01	Iodine, Elm-Cald (mg / kg (ppm))	1	1	9.5000							
024.03	Iodine, Ion-selective electrode (mg / kg (ppm))	1	1	0.65000							
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	14	13	489.26	40.357	483.99	32.913	11.410	6.80%	14.165	6.31%
025.32	Iron, AAS, Open vessel (mg / kg (ppm))	2	2	402.95	227.62						
025.33	Iron, AAS, Microwave (mg / kg (ppm))	1	1	676.52							
025.34	Iron, AAS, Dry ash (mg / kg (ppm))	1	1	426.50							
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	26	26	508.46	49.591	511.03	42.522	10.424	8.32%	19.891	6.26%
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	17	17	472.10	65.233	470.47	68.854	20.874	14.64%	22.746	6.34%
025.43	Iron, ICP, Microwave (mg / kg (ppm))	22	22	516.33	62.468	511.13	40.141	10.697	7.85%	24.339	6.26%
025.52	Iron, ICP-MS, Open vessel (mg / kg (ppm))	4	4	462.76	41.595	462.76	41.595	24.015	8.99%	16.290	6.35%
025.53	Iron, ICP-MS, Microwave (mg / kg (ppm))	3	3	524.70	63.868	524.70	63.868	36.874	12.17%	17.067	6.23%
025.99	Iron, Miscellaneous (mg / kg (ppm))	2	2	458.25	3.8891						
027.31	Magnesium, AAS, Dry ash (%)	17	17	0.18692	0.01616	0.18812	0.01517	0.00460	8.06%	0.00643	5.14%
027.32	Magnesium, AAS, Open vessel (%)	5	5	0.18205	0.05035	0.18205	0.05035	0.02518	27.66%	0.00574	5.17%
027.33	Magnesium, AAS, Microwave (%)	1	1	0.18450							
027.34	Magnesium, AAS, Dry ash (%)	1	1	0.19500							
027.41	Magnesium, ICP, Dry ash (%)	26	25	0.19145	0.01283	0.19015	0.00932	0.00233	4.90%	0.00567	5.13%
027.42	Magnesium, ICP, Open vessel (%)	19	19	0.19698	0.01336	0.19627	0.01285	0.00369	6.55%	0.00700	5.11%
027.43	Magnesium, ICP, Microwave (%)	23	23	0.19469	0.01865	0.19320	0.01412	0.00368	7.31%	0.00426	5.12%
027.44	Magnesium, ICP, Dry ash (%)	2	2	0.18375	0.00106						
027.52	Magnesium, ICP-MS, Open vessel (%)	4	4	0.18873	0.02309	0.18873	0.02309	0.01155	12.23%	0.00770	5.14%
027.53	Magnesium, ICP-MS, Microwave (%)	3	2	0.20300	0.00141	0.20300	0.00141			0.02200	5.08%
027.99	Magnesium, Miscellaneous (%)	4	4	0.19250	0.00866	0.19250	0.00866	0.00433	4.50%	0.00500	5.13%
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	13	13	36.238	3.9968	37.209	2.1326	0.73934	5.73%	1.2390	9.28%
028.32	Manganese, AAS, Open vessel (mg / kg (ppm))	2	2	39.995	2.8214						
028.33	Manganese, AAS, Microwave (mg / kg (ppm))	1	1	36.037							
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	23	23	37.012	4.7776	36.935	4.2622	1.1109	11.54%	1.0137	9.29%
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	19	38.702	5.1758	39.287	3.7697	1.0810	9.60%	2.3653	9.21%
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	23	23	37.977	4.8895	37.301	2.9447	0.76751	7.89%	0.96036	9.28%
028.44	Manganese, ICP, Dry ash (mg / kg (ppm))	2	2	35.673	7.2450						
028.51	Manganese, ICP-MS, Dry ash (mg / kg (ppm))	1	1	38.600							
028.52	Manganese, ICP-MS, Open vessel (mg / kg (ppm))	3	3	42.641	5.0539	42.641	5.0539	2.9179	11.85%	1.2413	9.09%
028.53	Manganese, ICP-MS, Microwave (mg / kg (ppm))	3	3	39.265	3.1285	39.265	3.1285	1.8062	7.97%	0.60333	9.21%
028.99	Manganese, Miscellaneous (mg / kg (ppm))	3	3	40.717	0.70059	40.717	0.70059	0.40449	1.72%	3.3667	9.16%
031.00	Phosphorus, Vol (%)	2	2	3.6225	0.10960						
031.01	Phosphorus, Photometric (%)	43	41	3.5481	0.18293	3.5546	0.13519	0.02639	3.80%	0.04571	3.30%

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031.02	Phosphorus, GQMP (AOAC 935.13-Extraction) (%)	3	3	3.6400	0.03969	3.6400	0.03969	0.02292	1.09%	0.06000	3.29%
031.03	Phosphorus, Autoanalyzer (%)	3	3	3.5357	0.21242	3.5357	0.21242	0.12264	6.01%	0.03867	3.31%
031.06	Phosphorus, Hach Method (%)	1	1	3.7350							
031.41	Phosphorus, ICP, Dry ash (%)	29	28	3.5336	0.34663	3.5507	0.23002	0.05434	6.48%	0.05317	3.31%
031.42	Phosphorus, ICP, Open vessel (%)	22	22	3.6289	0.25184	3.6481	0.22778	0.06070	6.24%	0.17168	3.29%
031.43	Phosphorus, ICP, Microwave (%)	23	23	3.6104	0.22489	3.6103	0.22378	0.05833	6.20%	0.12678	3.30%
031.44	Phosphorus, ICP, Dry ash (%)	2	2	3.7175	0.03889						
031.51	Phosphorus, ICP-MS, Dry ash (%)	1	1	3.5575							
031.52	Phosphorus, ICP-MS, Open vessel (%)	1	1	3.0388							
031.53	Phosphorus, ICP-MS, Microwave (%)	4	4	3.5648	0.30224	3.5648	0.30224	0.17450	8.48%	0.17400	3.30%
031.99	Phosphorus, Miscellaneous (%)	5	5	3.0881	0.68474	3.0881	0.68474	0.30623	22.17%	0.12780	3.38%
032.02	Potassium, Flame Emission (%)	1	1	0.78000							
032.31	Potassium, AAS, Dry ash (%)	18	18	0.77916	0.11464	0.75976	0.06430	0.01895	8.46%	0.01321	4.17%
032.32	Potassium, AAS, Open vessel (%)	3	3	0.66647	0.26119	0.66647	0.26119	0.15080	39.19%	0.00747	4.25%
032.41	Potassium, ICP, Dry ash (%)	26	26	0.77863	0.04272	0.77937	0.04680	0.01147	6.01%	0.02436	4.15%
032.42	Potassium, ICP, Open vessel (%)	20	20	0.83495	0.09313	0.82327	0.04778	0.01335	5.80%	0.01565	4.12%
032.43	Potassium, ICP, Microwave (%)	21	21	0.81945	0.04487	0.81992	0.04832	0.01318	5.89%	0.01190	4.12%
032.44	Potassium, ICP, Dry ash (%)	2	2	0.83050	0.11243						
032.51	Potassium, ICP-MS, Dry ash (%)	1	1	0.77550							
032.52	Potassium, ICP-MS, Open vessel (%)	2	2	0.83920	0.10083						
032.53	Potassium, ICP-MS, Microwave (%)	3	3	0.93450	0.10787	0.93450	0.10787	0.06228	11.54%	0.04100	4.04%
032.99	Potassium, Miscellaneous (%)	4	3	0.74383	0.07736	0.74383	0.07736	0.04466	10.40%	0.01167	4.18%
033.00	Salt as chloride, Sol Cl (%)	22	20	0.86526	0.13534	0.88400	0.09773	0.02732	11.06%	0.01870	4.07%
033.01	Salt as chloride, Poten Cl (%)	24	24	0.93409	0.09981	0.94446	0.04290	0.01095	4.54%	0.01446	4.03%
033.03	Salt as chloride, Quantab (%)	2	2	1.0975	0.06010						
033.05	Salt as chloride, Ion Sel Electrode (%)	3	3	0.95333	0.04311	0.95333	0.04311	0.02489	4.52%	0.02667	4.03%
033.99	Salt, Miscellaneous (%)	5	5	1.0330	0.41156	1.0330	0.41156	0.20578	39.84%	0.05400	3.98%
034.04	Selenium, AA, Hydride (mg / kg (ppm))	7	6	1.4933	0.26398	1.4933	0.29936	0.15277	20.05%	0.08908	15.06%
034.31	Selenium, AAS, Dry ash (mg / kg (ppm))	1	1	0.18000							
034.41	Selenium, ICP, Dry ash (mg / kg (ppm))	1	1	1.4300							
034.42	Selenium, ICP, Open vessel (mg / kg (ppm))	1	1	1.6000							
034.43	Selenium, ICP, Microwave (mg / kg (ppm))	2	2	1.5693	0.09288						
034.52	Selenium, ICP-MS, Open vessel (mg / kg (ppm))	4	4	1.6253	0.24035	1.6253	0.24035	0.12018	14.79%	0.09148	14.87%
034.53	Selenium, ICP-MS, Microwave (mg / kg (ppm))	5	5	1.7609	0.30074	1.7609	0.30074	0.15037	17.08%	0.06288	14.69%
035.01	Sodium, Ion-selective electrode (%)	2	2	0.54700	0.00566						
035.02	Sodium, Em Spect (%)	1	1	0.60000							
035.05	Sodium, Flame Emission (%)	3	3	0.63217	0.07202	0.63217	0.07202	0.04158	11.39%	0.00500	4.29%
035.31	Sodium, AAS, Dry ash (%)	18	18	0.63081	0.03868	0.62968	0.03705	0.01092	5.88%	0.01112	4.29%

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035.32	Sodium, AAS, Open vessel (%)	3	3	0.54620	0.19193	0.54620	0.19193	0.11081	35.14%	0.00840	4.38%
035.33	Sodium, AAS, Microwave (%)	1	1	0.60500							
035.41	Sodium, ICP, Dry ash (%)	27	26	0.65346	0.04198	0.65053	0.03808	0.00933	5.85%	0.01614	4.27%
035.42	Sodium, ICP, Open vessel (%)	16	15	0.65604	0.04331	0.65198	0.03879	0.01252	5.95%	0.01151	4.27%
035.43	Sodium, ICP, Microwave (%)	19	18	0.62933	0.04729	0.63046	0.04303	0.01268	6.83%	0.01157	4.29%
035.52	Sodium, ICP-MS, Open vessel (%)	3	3	0.68058	0.07095	0.68058	0.07095	0.05017	10.42%	0.02743	4.24%
035.53	Sodium, ICP-MS, Microwave (%)	3	3	0.66467	0.06754	0.66467	0.06754	0.04776	10.16%	0.01200	4.25%
035.99	Sodium, Miscellaneous (%)	5	5	0.52100	0.18369	0.52100	0.18369	0.08215	35.26%	0.02600	4.41%
036.04	Sulfur, LECO (%)	2	2	0.69250	0.03889						
036.42	Sulfur, ICP, Open vessel (%)	17	17	0.71788	0.05901	0.71228	0.05176	0.01569	7.27%	0.02321	4.21%
036.43	Sulfur, ICP, Microwave (%)	12	12	0.68396	0.03926	0.68558	0.04079	0.01472	5.95%	0.01613	4.23%
036.52	Sulfur, ICP-MS, Open vessel (%)	1	1	0.82300							
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.72850							
036.99	Sulfur, Miscellaneous (%)	2	2	0.76375	0.07601						
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	15	15	118.08	14.113	116.67	12.125	3.9134	10.39%	5.7930	7.82%
037.32	Zinc, AAS, Open vessel (mg / kg (ppm))	2	2	127.83	8.7328						
037.33	Zinc, AAS, Microwave (mg / kg (ppm))	2	2	121.99	2.8076						
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	23	22	112.45	11.532	112.09	12.322	3.2839	10.99%	4.0118	7.86%
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	18	18	118.86	12.587	117.88	10.750	3.1672	9.12%	5.3978	7.80%
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	24	23	115.72	7.9681	115.46	7.6033	1.9817	6.59%	2.5728	7.83%
037.44	Zinc, ICP, Dry ash (mg / kg (ppm))	2	2	116.34	19.778						
037.51	Zinc, ICP-MS, Dry ash (mg / kg (ppm))	1	1	81.500							
037.52	Zinc, ICP-MS, Open vessel (mg / kg (ppm))	3	3	102.89	22.320	102.89	22.320	15.783	21.69%	4.7862	7.96%
037.53	Zinc, ICP-MS, Microwave (mg / kg (ppm))	3	3	118.47	16.345	118.47	16.345	9.4368	13.80%	4.7533	7.80%
037.99	Zinc, Miscellaneous (mg / kg (ppm))	5	5	124.10	16.998	124.10	16.998	7.6017	13.70%	7.4000	7.74%
038.41	Molybdenum, ICP, Dry ash (mg / kg (ppm))	1	1	0.07000							
038.42	Molybdenum, ICP, Open vessel (mg / kg (ppm))	2	2	0.47500	0.21920						
038.43	Molybdenum, ICP, Microwave (mg / kg (ppm))	4	2	0.56500	0.51619	0.56500	0.51619			0.00000	17.43%
038.52	Molybdenum, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.20213	0.05568						
038.53	Molybdenum, ICP-MS, Microwave (mg / kg (ppm))	3	3	0.15083	0.03790	0.15083	0.03790	0.02188	25.13%	0.01833	21.27%
040.42	Barium, ICP, Open vessel (mg / kg (ppm))	1	1	7.0050							
040.52	Barium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	6.8665							
040.53	Barium, ICP-MS, Microwave (mg / kg (ppm))	1	1	6.7546							
041.53	Vanadium, ICP-MS, Microwave (mg / kg (ppm))	1	1	2.1600							
042.00	Chloride, Titrimetric (%)	2	2	0.58500	0.00707						
042.02	Chloride, Ion Chromatography (%)	1	1	0.48000							
101.00	Choline Chloride, Microbiological (mg / kg (ppm))	2	2	2,158.3	9.5000						
101.01	Choline Chloride, Chem (mg / kg (ppm))	1	1	553.00							

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101.02	Choline Chloride, LC (mg / kg (ppm))	1	1	365.00							
102.01	Niacin, Microbiological (mg / kg (ppm))	1	1	63.250							
102.02	Niacin, LC (mg / kg (ppm))	1	1	11.000							
103.01	Pantothenic Acid, Microbiological (mg / kg (ppm))	1	1	6.2050							
103.02	Pantothenic Acid, LC (mg / kg (ppm))	1	1	25.370							
104.00	Riboflavin, Fluorometric (mg / kg (ppm))	1	1	4.5600							
104.03	Riboflavin, LC (mg / kg (ppm))	1	1	2.0050							
105.01	Thiamine, Fluorometer (mg / kg (ppm))	1	1	0.18750							
106.01	Vitamin A, UV (KU / kg)	1	1	26.100							
106.02	Vitamin A, LC (KU / kg)	7	5	20.065	5.2042	18.246	3.7496	2.0961	20.55%	0.49800	
107.00	Vitamin B12, Microbiological (µg / kg (ppb))	1	1	137.00							
108.01	Vitamin D3, LC, AOAC (KU / kg)	1		0.00000							
109.02	Vitamin E, LC (IU/kg)	5	3	13.650	6.5103	13.650	6.5103	3.7587	47.69%	0.96000	
111.01	Vitamin C, Ascorbic Acid, LC (mkg/kg (ppm))	1	1	2,671.5							
112.01	Pyridoxine, LC (µg / g)	1	1	1.4050							
113.01	Folic Acid, Micro (mg / kg (ppm))	1	1	1.2650							
114.01	Biotin, Microbiological (mg / kg (ppm))	1	1	0.26550							
120.00	Alanine, Post-col Ninhydrin Der (%)	18	17	4.1725	0.15239	4.1564	0.13439	0.04074	3.23%	0.04418	3.23%
120.01	Alanine, Pre-col OPA Der (%)	1	1	4.1000							
120.02	Alanine, Post-col OPA Der (%)	1	1	4.2700							
120.05	Alanine, Pre-col AQC Der (%)	3	3	3.9650	0.36138	3.9650	0.36138	0.20864	9.11%	0.03533	3.25%
120.99	Alanine, Miscellaneous (%)	2	2	3.3336	0.87345						
121.00	Arginine, Post-col Ninhydrin Der (%)	19	19	3.8402	0.21177	3.8231	0.19754	0.05665	5.17%	0.04346	3.27%
121.01	Arginine, Pre-col OPA Der (%)	1	1	3.8500							
121.02	Arginine, Post-col OPA Der (%)	1	1	3.8160							
121.05	Arginine, Pre-col AQC Der (%)	3	3	3.8890	0.28190	3.8890	0.28190	0.16276	7.25%	0.13467	3.26%
121.99	Arginine, Miscellaneous (%)	1	1	1.8550							
122.00	Aspartic, Post-col Ninhydrin Der (%)	18	17	5.1821	0.27376	5.1432	0.21036	0.06377	4.09%	0.05688	3.13%
122.01	Aspartic, Pre-col OPA Der (%)	1	1	4.8500							
122.02	Aspartic, Post-col OPA Der (%)	1	1	5.2700							
122.05	Aspartic, Pre-col AQC Der (%)	3	3	5.1738	0.41654	5.1738	0.41654	0.24049	8.05%	0.12300	3.12%
122.99	Aspartic, Miscellaneous (%)	2	2	3.6092	1.8634						
124.00	Cysteine/Cystine, PAO Post-col Ninhydry (%)	19	18	0.40454	0.04407	0.40263	0.04539	0.01337	11.27%	0.00763	4.59%
124.01	Cysteine/Cystine, PAO Pre-col OPA Der (%)	1	1	0.43100							
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.42150							
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	2	2	0.47650	0.04031						
124.99	Cysteine/Cystine, Miscellaneous (%)	3	3	1.1984	0.70844	1.1984	0.70844	0.40902	59.12%	0.03520	3.89%
125.00	Glutamic, Post-col Ninhydrin Der (%)	18	18	7.5839	0.28721	7.5684	0.28141	0.08291	3.72%	0.08687	2.95%

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125.01	Glutamic, Pre-col OPA Der (%)	1	1	7.0700							
125.02	Glutamic, Post-col OPA Der (%)	1	1	7.7450							
125.05	Glutamic, Pre-col AQC Der (%)	3	3	7.6237	0.54786	7.6237	0.54786	0.31631	7.19%	0.20933	2.95%
125.99	Glutamic, Miscellaneous (%)	2	2	5.2053	3.0176						
126.00	Glycine, Post-col Ninhydrin Der (%)	18	17	6.1081	0.27231	6.1250	0.27095	0.08214	4.42%	0.06529	3.04%
126.01	Glycine, Pre-col OPA Der (%)	1	1	6.1500							
126.02	Glycine, Post-col OPA Der (%)	1	1	6.2860							
126.05	Glycine, Pre-col AQC Der (%)	3	3	6.2597	0.33193	6.2597	0.33193	0.19164	5.30%	0.18333	3.03%
126.99	Glycine, Miscellaneous (%)	2	2	4.5507	1.7100						
127.00	Histidine, Post-col Ninhydrin Der (%)	18	18	1.1857	0.08933	1.1840	0.07165	0.02111	6.05%	0.01453	3.90%
127.01	Histidine, Pre-col OPA Der (%)	1	1	1.0250							
127.02	Histidine, Post-col OPA Der (%)	1	1	1.1385							
127.05	Histidine, Pre-col AQC Der (%)	3	3	1.1918	0.07643	1.1918	0.07643	0.04413	6.41%	0.02033	3.90%
127.99	Histidine, Miscellaneous (%)	1	1	0.53750							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	18	18	2.1493	0.11591	2.1460	0.11188	0.03296	5.21%	0.04926	3.57%
128.01	Isoleucine, Pre-col OPA Der (%)	1	1	2.1100							
128.02	Isoleucine, Post-col OPA Der (%)	1	1	2.2285							
128.05	Isoleucine, Pre-col AQC Der (%)	3	3	2.1987	0.12728	2.1987	0.12728	0.07349	5.79%	0.11067	3.55%
128.99	Isoleucine, Miscellaneous (%)	1	1	0.67250							
129.00	Leucine, Post-col Ninhydrin Der (%)	18	18	3.8103	0.19543	3.7958	0.18489	0.05447	4.87%	0.06031	3.27%
129.01	Leucine, Pre-col OPA Der (%)	1	1	3.5550							
129.02	Leucine, Post-col OPA Der (%)	1	1	3.7740							
129.05	Leucine, Pre-col AQC Der (%)	3	3	3.8678	0.28351	3.8678	0.28351	0.16368	7.33%	0.11300	3.26%
129.99	Leucine, Miscellaneous (%)	1	1	1.8625							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	18	18	4.0753	0.20687	4.0642	0.20673	0.06091	5.09%	0.05673	3.24%
130.01	L-Lysine, Pre-col OPA Der (%)	1	1	3.7200							
130.02	L-Lysine, Post-col OPA Der (%)	1	1	4.2870							
130.05	L-Lysine, Pre-col AQC Der (%)	5	5	4.2111	0.30323	4.2111	0.30323	0.13561	7.20%	0.16820	3.22%
130.99	L-Lysine, Miscellaneous (%)	4	4	3.9250	1.0863	3.9250	1.0863	0.54315	27.68%	0.07600	3.26%
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	18	18	1.4628	0.08978	1.4716	0.08152	0.02402	5.54%	0.03174	3.77%
131.01	Methionine, PAO Pre-col OPA Der (%)	1	1	1.4900							
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	1.4355							
131.05	Methionine, PAO Pre-col AQC Der (%)	5	5	1.6105	0.10549	1.6105	0.10549	0.04718	6.55%	0.02540	3.72%
131.99	Methionine, Miscellaneous (%)	4	4	1.7175	0.91329	1.7175	0.91329	0.45665	53.18%	0.05550	3.69%
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	18	17	2.1541	0.11772	2.1537	0.10562	0.03202	4.90%	0.02859	3.56%
132.01	Phenylalanine, Pre-col OPA Der (%)	1	1	2.0300							
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	2.1060							
132.05	Phenylalanine, Pre-col AQC Der (%)	3	3	2.1817	0.15476	2.1817	0.15476	0.08935	7.09%	0.06200	3.56%



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132.99	Phenylalanine, Miscellaneous (%)	1	1	0.95600							
133.00	Proline, Post-col Ninhydrin Der (%)	18	18	3.5558	0.26169	3.5437	0.22805	0.06719	6.44%	0.07690	3.31%
133.04	Proline, Pre-col FMOC Der (%)	1	1	3.6350							
133.05	Proline, Pre-col AQC Der (%)	3	3	3.6742	0.24324	3.6742	0.24324	0.14043	6.62%	0.04500	3.29%
133.99	Proline, Miscellaneous (%)	2	2	2.6756	1.0990						
134.00	Serine, Post-col Ninhydrin Der (%)	18	18	2.4076	0.16681	2.3967	0.13885	0.04091	5.79%	0.04588	3.51%
134.01	Serine, Pre-col OPA Der (%)	1	1	2.3000							
134.02	Serine, Post-col OPA Der (%)	1	1	2.3485							
134.05	Serine, Pre-col AQC Der (%)	3	3	2.4262	0.19014	2.4262	0.19014	0.10978	7.84%	0.04700	3.50%
134.99	Serine, Miscellaneous (%)	1	1	1.2825							
135.00	Threonine, Post-col Ninhydrin Der (%)	18	18	2.3877	0.13695	2.3600	0.07911	0.02331	3.35%	0.04013	3.51%
135.01	Threonine, Pre-col OPA Der (%)	1	1	2.2650							
135.02	Threonine, Post-col OPA Der (%)	1	1	2.3770							
135.05	Threonine, Pre-col AQC Der (%)	4	4	2.4411	0.21777	2.4411	0.21777	0.10889	8.92%	0.11275	3.50%
135.99	Threonine, Miscellaneous (%)	4	4	1.8251	0.78895	1.8251	0.78895	0.39448	43.23%	0.09525	3.65%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	6	6	0.48770	0.05068	0.48770	0.05747	0.02933	11.78%	0.01473	4.46%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	2	2	0.46725	0.03783						
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.47050							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	2	2	0.44200	0.04808						
136.99	Tryptophan, Miscellaneous (%)	3	3	0.50933	0.05368	0.50933	0.05368	0.03099	10.54%	0.02067	4.43%
137.00	Tyrosine, Post-col Ninhydrin Der (%)	15	14	1.5679	0.18506	1.5893	0.12866	0.04298	8.10%	0.02715	3.73%
137.01	Tyrosine, Pre-col OPA Der (%)	1	1	1.6650							
137.02	Tyrosine, Post-col OPA Der (%)	1	1	1.6410							
137.05	Tyrosine, Pre-col AQC Der (%)	3	3	1.7743	0.20533	1.7743	0.20533	0.11855	11.57%	0.07800	3.67%
137.99	Tyrosine, Miscellaneous (%)	2	2	1.1889	0.52874						
138.00	Valine, Post-col Ninhydrin Der (%)	18	18	2.5658	0.16285	2.5728	0.13964	0.04114	5.43%	0.05225	3.47%
138.01	Valine, Pre-col OPA Der (%)	1	1	2.4100							
138.02	Valine, Post-col OPA Der (%)	1	1	2.6755							
138.05	Valine, Pre-col AQC Der (%)	3	3	2.6965	0.24947	2.6965	0.24947	0.14403	9.25%	0.11033	3.45%
138.99	Valine, Miscellaneous (%)	2	2	3.0533	2.7673						
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.44750	0.01061						
139.02	Taurine, Post-col OPA Der (%)	1	1	0.44050							
139.99	Taurine, Miscellaneous (%)	1	1	0.25900							
357.00	Ethoxyquin, Fluorometric (mg/kg (ppm))	1	1	59.500							
357.01	Ethoxyquin, LC (mg/kg (ppm))	5	5	69.044	75.084	69.044	75.084	37.542	108.75%	4.8320	8.46%
357.02	Ethoxyquin, LC (UV or FL) (mg/kg (ppm))	1	1	24.015							
357.04	Ethoxyquin, LC-MS/MS (mg/kg (ppm))	2	2	28.821	11.920						
357.99	Ethoxyquin, Miscellaneous (mg/kg (ppm))	1	1	41.000							

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400.01	Water activity, Aqualab chilled mirror (Units)	7	7	0.53091	0.01345	0.53091	0.01526	0.00721	2.87%	0.00336	
400.99	Water activity, Miscellaneous (Units)	2	2	0.47650	0.01273						
412.01	#N/A	1	1	0.15000							
516.00	Arsenic, total, AA, Hydride (mg / kg (ppm))	2	2	1.3038	1.3665						
516.52	Arsenic, total, ICP-MS, Open vessel (mg / kg (ppm))	2	2	2.2301	0.04943						
516.53	Arsenic, total, ICP-MS, Microwave (mg / kg (ppm))	5	5	2.3841	0.25669	2.3841	0.25669	0.11480	10.77%	0.12686	14.04%
518.41	Cadmium, ICP, Dry ash (mg / kg (ppm))	2	2	0.41600	0.04808						
518.42	Cadmium, ICP, Open vessel (mg / kg (ppm))	1	1	0.16350							
518.43	Cadmium, ICP, Microwave (mg / kg (ppm))	1	1	0.41000							
518.52	Cadmium, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.45838	0.03376						
518.53	Cadmium, ICP-MS, Microwave (mg / kg (ppm))	5	5	0.46656	0.04273	0.46656	0.04273	0.01911	9.16%	0.03112	17.94%
520.41	Chromium, ICP, Dry ash (mg / kg (ppm))	2	2	1.8925	0.54801						
520.42	Chromium, ICP, Open vessel (mg / kg (ppm))	3	3	2.0589	0.60486	2.0589	0.60486	0.34922	29.38%	0.64863	14.35%
520.43	Chromium, ICP, Microwave (mg / kg (ppm))	2	2	1.8950	0.85560						
520.52	Chromium, ICP-MS, Open vessel (mg / kg (ppm))	2	2	1.4027	0.12396						
520.53	Chromium, ICP-MS, Microwave (mg / kg (ppm))	3	3	1.8232	0.37069	1.8232	0.37069	0.21402	20.33%	0.45740	14.61%
526.41	Lead, ICP, Dry ash (mg / kg (ppm))	2	2	0.44600	0.42992						
526.52	Lead, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.68210	0.07057						
526.53	Lead, ICP-MS, Microwave (mg / kg (ppm))	5	5	0.67470	0.06761	0.67470	0.06761	0.03024	10.02%	0.02564	16.97%
529.99	Mercury, Miscellaneous (µg / kg (ppb))	3	2	37.250	0.35355	37.250	0.35355			6.4000	22.00%
539.52	Nickel, ICP-MS, Open vessel (mg / kg (ppm))	2	2	1.1357	0.14245						
539.53	Nickel, ICP-MS, Microwave (mg / kg (ppm))	2	2	1.1898	0.31848						
702.00	Butyric Acid (4:0), Miscellaneous GC (%)	1	1	0.77475							
703.00	Valeric Acid (5:0), Miscellaneous GC (%)	1	1	1.2706							
710.02	Lauric Acid (12:0), Direct Methylation by Acid-Alk	1	1	0.06500							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	2	2	0.00800	0.00071						
714.02	Myristic Acid (14:0), Direct Methylation by Acid-Alk	1	1	3.7500							
714.99	Myristic Acid (14:0), Miscellaneous (% (w/w))	1	1	0.34200							
716.02	Palmitic Acid (16:0), Direct Methylation by Acid-Alk	1	1	19.555							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	1	1	1.7350							
718.02	Palmitoleic Acid (9c-16:1), Direct Methylation by A	1	1	5.4050							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	3	3	1.0722	0.96871	1.0722	0.96871	0.68498	90.35%	0.00567	
720.99	Margaric acid (17:0), Miscellaneous (% (w/w))	1	1	0.64000							
722.02	Stearic Acid (18:0), Direct Methylation by Acid-Alk	1	1	5.1350							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	2	2	0.26425	0.24643						
724.02	Oleic Acid (9c-18:1), Direct Methylation by Acid-Alk	1	1	30.735							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	2	2	1.2525	1.7006						
726.02	Linoleic Acid (9c,12c-18:2), Direct Methylation by	1	1	8.5550							

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value - Robust Mean	AAFCO PT ffp - Robust sd	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	3	3	1.7473	1.6599	1.7473	1.6599	0.95834	95.00%	0.01333	
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	4	4	0.08425	0.04625	0.08425	0.04625	0.02670	54.90%	0.00350	
730.02	Arachidic Acid (20:0), Direct Methylation by Acid-Alkaline	1	1	0.23000							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	2	2	0.02900	0.00141						
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	1	1	0.10650							
736.02	Arachidonic Acid (5c,8c,11c,14c-20:4), Direct Methylation	1	1	0.87500							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (% (w/w))	2	2	0.08100	0.10041						
738.99	Mead Acid (11c,14c,17c-20:3), Miscellaneous (% (w/w))	1	1	0.01000							
740.02	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Direct Methylation	2	2	2.4350	2.7294						
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w))	5	5	0.42260	0.09271	0.42260	0.09271	0.04636	21.94%	0.01480	
742.02	Behenic Acid (22:0), Direct Methylation by Acid-Alkaline	1	1	0.13000							
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	2	2	0.03650	0.03323						
744.02	Erucic Acid (13c-22:1), Direct Methylation by Acid-Alkaline	1	1	0.17000							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	2	2	0.05850	0.05869						
746.02	Docosapentaenoic Acid n-3 DPA (DHA)7c,10c,13c,16c,19c	1	1	0.83500							
746.99	Docosapentaenoic Acid n-3 DPA (DHA)7c,10c,13c,16c,19c	5	5	0.31680	0.31542	0.31680	0.31542	0.15771	99.56%	0.00320	
748.02	Lignoceric Acid (24:0), Direct Methylation by Acid-Alkaline	1	1	0.17000							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	2	2	0.02000	0.00000						
750.02	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c,22c)	3	3	1.9948	2.4263	1.9948	2.4263	1.4008	121.63%	0.06500	
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c,22c)	4	4	0.53138	0.10786	0.53138	0.10786	0.05393	20.30%	0.02575	
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	2	2	0.08375	0.03712						
754.02	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Direct Methylation	2	2	1.2700	0.12728						
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Miscellaneous (% (w/w))	4	4	1.3425	0.22392	1.3425	0.22392	0.12928	16.68%	0.01500	
756.02	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Direct Methylation	1	1	0.81000							
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (% (w/w))	3	3	1.1183	0.26040	1.1183	0.26040	0.15034	23.29%	0.02333	
758.02	Total Saturated Fatty Acids, Direct Methylation by Acid-Alkaline	1	1	2.7750							
758.99	Total Saturated Fatty Acids, Miscellaneous (% (w/w))	2	2	1.8325	0.64700						
762.02	Total Monounsaturated Fatty Acids, Direct Methylation by Acid-Alkaline	1	1	3.0250							
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (% (w/w))	2	2	3.9250	1.2445						
766.02	Total Polyunsaturated Fatty Acids, Direct Methylation by Acid-Alkaline	1	1	1.6200							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (% (w/w))	2	2	3.4975	2.1744						
772.02	Total Fatty Acids, Direct Methylation by Acid-Alkaline	1	1	7.4200							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	1	1	7.5670							

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.



**AAFCO**  
Proficiency Testing Program



**Animal Feed Scheme**

**Fish Meal**

**Test Material Code # 201726**

**Method Precision Report**

**# Methods Reported: 80**

**# Labs Reporting: 195**

**Issue Date : 07/31/2017**

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 (%)	37	32	6.6793	0.52053	0.29337	0.06730	0.30099	4.38%	1.004%	4.49%	4.4723
001.99	Loss on Drying, Miscellaneous (%)	25	23	6.4877	0.74165	0.62531	0.11026	0.63495	9.53%	1.681%	9.68%	5.7588
002.01	Protein, Auto Kjel-Foss (%)	12	10	60.435	1.2554	1.2426	0.25316	1.2681	2.06%	0.419%	2.10%	5.0092
002.05	Protein, Copper, Boric Acid (%)	40	36	60.694	0.72524	0.63247	0.22478	0.67123	1.04%	0.370%	1.10%	2.9861
002.06	Protein, Combustion Nitrogen Analyzer (%)	122	113	61.565	0.87974	0.66168	0.46800	0.81046	1.08%	0.761%	1.32%	1.7317
003.00	Fat, Eth Ext., Direct (%)	9	9	9.3462	0.23388	0.20824	0.15055	0.25696	2.23%	1.611%	2.75%	1.7069
003.06	Fat, Pet Ether (%)	20	19	9.5656	0.24941	0.24625	0.09684	0.26461	2.57%	1.012%	2.77%	2.7323
003.09	Fat, Soxtec, Eth Ext (%)	16	15	9.0722	0.58849	0.34134	0.17467	0.38344	3.71%	1.901%	4.17%	2.1952
003.10	Fat, Soxtec, Pet Ether (%)	28	24	9.0338	0.62229	0.31581	0.11746	0.33695	3.45%	1.284%	3.68%	2.8687
003.14	Fat, Ankom (%)	38	34	9.2251	0.42399	0.35429	0.11912	0.37378	3.83%	1.288%	4.04%	3.1378
004.00	Fiber, Crude, Asbestos Free (%)	16	14	0.41487	0.21557	0.15731	0.05827	0.16776	41.77%	15.470%	44.54%	2.8791
004.06	Fiber, Fibertec (%)	21	18	0.38540	0.23527	0.17276	0.04752	0.17918	49.22%	13.540%	51.05%	3.7702
004.07	Fiber, ANKOM (%)	51	47	0.88236	0.51224	0.49898	0.13197	0.51614	58.15%	15.379%	60.15%	3.9111
005.00	Ash, 2h @ 600°C (%)	92	87	21.472	0.32591	0.23419	0.21644	0.31889	1.09%	1.008%	1.49%	1.4733
005.05	Ash, 3h @ 550°C (%)	37	33	21.644	0.22965	0.18029	0.10177	0.20703	0.83%	0.471%	0.96%	2.0343
005.99	Ash, Miscellaneous (%)	12	12	21.489	0.36079	0.33680	0.18295	0.38328	1.57%	0.851%	1.78%	2.0950
008.08	Fiber, Acid Detergent, ANKOM (%)	19	18	2.5187	1.7594	1.4497	0.27540	1.4756	63.56%	12.075%	64.70%	5.3580
009.09	Fiber, Neutral Detergent, ANKOM (%)	22	19	16.862	7.1296	6.1831	0.45032	6.1995	38.14%	2.778%	38.24%	13.767
010.99	Moisture, Miscellaneous (%)	22	20	6.8947	0.45332	0.46292	0.06088	0.46691	6.72%	0.883%	6.77%	7.6697
011.01	Loss on Drying, 135°C 2hr (%)	63	56	7.4871	0.49536	0.40992	0.09457	0.42069	5.46%	1.259%	5.60%	4.4485
013.00	Fat, Acid hydrolysis (%)	21	19	10.840	0.89519	0.62763	0.18789	0.65515	5.72%	1.711%	5.97%	3.4869
013.02	Fat, Mojonnier, Bak Ext (%)	24	23	11.308	0.77328	0.47355	0.22614	0.52477	4.14%	1.978%	4.59%	2.3206
019.00	Calcium, Ox-MnO4 Vol. (%)	16	14	6.2920	0.21273	0.12888	0.06716	0.14533	2.03%	1.060%	2.29%	2.1639
019.31	Calcium, AAS, Dry ash (%)	25	23	6.1575	0.41444	0.33963	0.11468	0.35847	5.47%	1.848%	5.78%	3.1258
019.41	Calcium, ICP, Dry ash (%)	30	27	6.3826	0.63974	0.40326	0.13835	0.42633	6.18%	2.121%	6.54%	3.0815
019.42	Calcium, ICP, Open vessel (%)	20	19	6.4667	0.54095	0.42276	0.25529	0.49386	6.47%	3.907%	7.56%	1.9345
019.43	Calcium, ICP, Microwave (%)	23	20	6.4045	0.36732	0.29600	0.14097	0.32786	4.66%	2.218%	5.16%	2.3257
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	9	8	7.0732	2.2730	2.4215	0.28242	2.4379	34.18%	3.987%	34.41%	8.6324
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	23	20	5.4478	1.6614	1.1287	0.39509	1.1959	21.78%	7.623%	23.07%	3.0268
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	16	15	4.8612	0.99079	0.64557	0.39503	0.75684	13.79%	8.439%	16.17%	1.9159
022.43	Copper, ICP, Microwave (mg / kg (ppm))	22	21	4.6991	0.93872	0.91585	0.29124	0.96104	19.49%	6.198%	20.45%	3.2999
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	14	12	489.26	40.357	28.296	10.436	30.160	5.88%	2.169%	6.27%	2.8899

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
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	26	25	508.46	49.591	41.800	17.760	45.417	8.14%	3.459%	8.85%	2.5573
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	17	17	472.10	65.233	63.776	19.388	66.658	13.51%	4.107%	14.12%	3.4381
025.43	Iron, ICP, Microwave (mg / kg (ppm))	22	20	516.33	62.468	35.569	20.366	40.987	7.07%	4.048%	8.15%	2.0125
027.31	Magnesium, AAS, Dry ash (%)	17	16	0.18692	0.01616	0.01167	0.00598	0.01311	6.16%	3.153%	6.92%	2.1946
027.41	Magnesium, ICP, Dry ash (%)	26	22	0.19145	0.01283	0.00762	0.00445	0.00883	4.03%	2.358%	4.67%	1.9817
027.42	Magnesium, ICP, Open vessel (%)	19	17	0.19698	0.01336	0.00967	0.00583	0.01129	4.94%	2.973%	5.76%	1.9380
027.43	Magnesium, ICP, Microwave (%)	23	22	0.19469	0.01865	0.01323	0.00409	0.01385	6.89%	2.130%	7.21%	3.3859
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	13	12	36.238	3.9968	2.8637	1.2079	3.1080	7.74%	3.263%	8.40%	2.5731
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	23	23	37.012	4.7776	4.7333	0.91759	4.8214	12.79%	2.479%	13.03%	5.2544
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	17	38.702	5.1758	4.4574	1.5154	4.7080	11.35%	3.858%	11.98%	3.1068
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	23	21	37.977	4.8895	2.4249	0.87174	2.5768	6.55%	2.356%	6.97%	2.9559
031.01	Phosphorus, Photometric (%)	43	37	3.5481	0.18293	0.11763	0.03713	0.12335	3.30%	1.043%	3.46%	3.3224
031.41	Phosphorus, ICP, Dry ash (%)	29	26	3.5336	0.34663	0.27522	0.04725	0.27925	7.68%	1.318%	7.79%	5.9102
031.42	Phosphorus, ICP, Open vessel (%)	22	21	3.6289	0.25184	0.15506	0.19188	0.24670	4.24%	5.241%	6.74%	1.2857
031.43	Phosphorus, ICP, Microwave (%)	23	23	3.6104	0.22489	0.20381	0.13444	0.24416	5.64%	3.724%	6.76%	1.8160
032.31	Potassium, AAS, Dry ash (%)	18	17	0.77916	0.11464	0.06918	0.01237	0.07028	9.13%	1.634%	9.28%	5.6800
032.41	Potassium, ICP, Dry ash (%)	26	25	0.77863	0.04272	0.04121	0.01892	0.04534	5.29%	2.426%	5.82%	2.3970
032.42	Potassium, ICP, Open vessel (%)	20	19	0.83495	0.09313	0.09526	0.01262	0.09609	11.41%	1.511%	11.51%	7.6152
032.43	Potassium, ICP, Microwave (%)	21	20	0.81945	0.04487	0.04515	0.01031	0.04631	5.52%	1.259%	5.66%	4.4933
033.00	Salt as chloride, Sol Cl (%)	22	19	0.86526	0.13534	0.08721	0.01647	0.08875	9.81%	1.854%	9.99%	5.3869
033.01	Salt as chloride, Poten Cl (%)	24	22	0.93409	0.09981	0.04928	0.01257	0.05086	5.17%	1.318%	5.33%	4.0446
035.31	Sodium, AAS, Dry ash (%)	18	18	0.63081	0.03868	0.03814	0.00912	0.03921	6.05%	1.446%	6.22%	4.2991
035.41	Sodium, ICP, Dry ash (%)	27	24	0.65346	0.04198	0.03470	0.01330	0.03717	5.33%	2.042%	5.71%	2.7942
035.42	Sodium, ICP, Open vessel (%)	16	14	0.65604	0.04331	0.03107	0.01238	0.03345	4.79%	1.910%	5.16%	2.7007
035.43	Sodium, ICP, Microwave (%)	19	17	0.62933	0.04729	0.03832	0.00925	0.03942	6.03%	1.454%	6.20%	4.2624
036.42	Sulfur, ICP, Open vessel (%)	17	16	0.71788	0.05901	0.03968	0.02361	0.04617	5.61%	3.335%	6.52%	1.9559
036.43	Sulfur, ICP, Microwave (%)	12	12	0.68396	0.03926	0.03780	0.01500	0.04066	5.53%	2.193%	5.95%	2.7115
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	15	13	118.08	14.113	8.8675	4.2820	9.8473	7.62%	3.679%	8.46%	2.2997
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	23	21	112.45	11.532	10.467	3.3957	11.004	9.39%	3.047%	9.88%	3.2406
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	18	17	118.86	12.587	8.6558	4.3286	9.6777	7.41%	3.707%	8.29%	2.2358
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	24	22	115.72	7.9681	6.4384	2.6691	6.9697	5.61%	2.326%	6.07%	2.6112
120.00	Alanine, Post-col Ninhydrin Der (%)	18	15	4.1725	0.15239	0.12624	0.03276	0.13042	3.04%	0.790%	3.14%	3.9810
121.00	Arginine, Post-col Ninhydrin Der (%)	19	17	3.8402	0.21177	0.17421	0.03775	0.17826	4.58%	0.992%	4.68%	4.7215
122.00	Aspartic, Post-col Ninhydrin Der (%)	18	16	5.1821	0.27376	0.19205	0.06047	0.20135	3.74%	1.178%	3.92%	3.3299
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	19	18	0.40454	0.04407	0.04381	0.00678	0.04433	10.83%	1.675%	10.96%	6.5419
125.00	Glutamic, Post-col Ninhydrin Der (%)	18	17	7.5839	0.28721	0.28478	0.07443	0.29434	3.75%	0.980%	3.87%	3.9548
126.00	Glycine, Post-col Ninhydrin Der (%)	18	17	6.1081	0.27231	0.26911	0.05881	0.27546	4.41%	0.963%	4.51%	4.6840
127.00	Histidine, Post-col Ninhydrin Der (%)	18	17	1.1857	0.08933	0.06947	0.01563	0.07121	5.93%	1.334%	6.08%	4.5544
128.00	Isoleucine, Post-col Ninhydrin Der (%)	18	18	2.1493	0.11591	0.11016	0.05098	0.12139	5.13%	2.372%	5.65%	2.3810
129.00	Leucine, Post-col Ninhydrin Der (%)	18	18	3.8103	0.19543	0.18998	0.06483	0.20074	4.99%	1.701%	5.27%	3.0963

**Test Material Code # 201726**

**Issue Date : 07/31/2017**

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
130.00	L-Lysine, Post-col Ninhydrin Der (%)	18	17	4.0753	0.20687	0.16360	0.06610	0.17644	4.04%	1.634%	4.36%	2.6695
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	18	17	1.4628	0.08978	0.09078	0.02542	0.09427	6.21%	1.738%	6.44%	3.7090
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	18	16	2.1541	0.11772	0.12030	0.02311	0.12250	5.58%	1.072%	5.68%	5.3017
133.00	Proline, Post-col Ninhydrin Der (%)	18	17	3.5558	0.26169	0.19925	0.06521	0.20965	5.67%	1.855%	5.96%	3.2149
134.00	Serine, Post-col Ninhydrin Der (%)	18	17	2.4076	0.16681	0.15414	0.03768	0.15868	6.45%	1.576%	6.64%	4.2112
135.00	Threonine, Post-col Ninhydrin Der (%)	18	16	2.3877	0.13695	0.10220	0.03725	0.10878	4.32%	1.574%	4.59%	2.9199
137.00	Tyrosine, Post-col Ninhydrin Der (%)	15	14	1.5679	0.18506	0.18400	0.02806	0.18612	11.74%	1.789%	11.87%	6.6342
138.00	Valine, Post-col Ninhydrin Der (%)	18	16	2.5658	0.16285	0.12067	0.04731	0.12962	4.67%	1.833%	5.02%	2.7395

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