



AAFCO
Proficiency Testing Program



Animal Feed Scheme

Fish Food, Carnivore

Test Material Code # 201732

Method Summary Report

(Precision Report Follows)

Methods Reported: 380

Labs Reporting: 195

Issue Date : 01/31/2018

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	0.50000							
001.00	Loss on Drying, Vac 95°C 5 hr (%)	6	6	4.7433	0.38821	4.8092	0.27596	0.14082	5.74%	0.10400	3.16%
001.03	Loss on Drying, Low temp. methods (%)	7	7	4.9605	0.13289	4.9684	0.13218	0.06245	2.66%	0.01461	3.14%
001.05	Loss on Drying, LECO (%)	2	2	4.8925	0.20153						
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	42	41	4.9105	0.34379	4.9289	0.18196	0.03552	3.69%	0.07677	3.15%
001.99	Loss on Drying, Miscellaneous (%)	20	19	4.6918	0.46013	4.7377	0.37746	0.10825	7.97%	0.11999	3.16%
002.00	Protein, Crude (%)	2	2	51.258	0.47023						
002.01	Protein, Auto Kjel-Foss (%)	10	10	50.762	2.7717	51.420	0.89534	0.35391	1.74%	0.26380	1.39%
002.02	Protein, Semiauto Autoanalyzer (%)	4	4	51.390	0.85868	51.390	0.85868	0.53668	1.67%	0.21045	1.39%
002.04	Protein, Copper Catalyst (%)	5	5	50.215	1.8249	50.215	1.8249	1.0202	3.63%	0.69860	1.41%
002.05	Protein, Copper, Boric Acid (%)	32	31	51.261	0.78201	51.309	0.66283	0.14881	1.29%	0.13835	1.40%
002.06	Protein, Combustion Nitrogen Analyzer (%)	127	126	52.106	0.61703	52.074	0.40113	0.04467	0.77%	0.29077	1.39%
002.08	Protein, Cu/Ti (%)	2	2	52.021	1.4016						
002.10	Protein, Block dig/distillation (%)	1	1	51.495							
002.11	Protein, NIR (%)	5	4	51.516	1.3473	51.516	1.3473	0.84206	2.62%	0.30750	1.39%
002.99	Protein, Miscellaneous (%)	3	3	51.565	0.42329	51.565	0.42329	0.30548	0.82%	0.10333	1.39%
003.00	Fat, Eth Ext., Direct (%)	10	10	18.309	0.24815	18.309	0.28141	0.11124	1.54%	0.27388	2.34%
003.01	Fat, Ind Eth Ext (13th ed.), Indirect (%)	1	1	18.020							
003.06	Fat, Pet Ether (%)	19	18	18.123	0.21685	18.115	0.18974	0.05590	1.05%	0.15709	2.35%
003.09	Fat, Soxtec, Eth Ext (%)	18	18	18.049	0.50622	17.969	0.25897	0.07630	1.44%	0.17620	2.36%
003.10	Fat, Soxtec, Pet Ether (%)	29	29	17.971	0.43684	17.924	0.28529	0.06622	1.59%	0.23375	2.36%
003.11	Fat, NIR (%)	6	6	17.562	3.4468	17.562	3.9087	1.9946	22.26%	0.38000	2.39%
003.12	Fat, Hexane Ext (%)	6	6	18.170	0.32098	18.170	0.36399	0.18575	2.00%	0.09695	2.35%
003.13	Fat, Soxtec, Hexane Ext. (%)	7	7	18.051	0.21788	18.092	0.14309	0.06761	0.79%	0.28857	2.35%
003.14	Fat, Ankom (%)	37	36	18.001	0.61370	18.036	0.32107	0.06689	1.78%	0.15046	2.35%
003.99	Fat, Miscellaneous (%)	7	6	19.302	1.2662	19.302	1.4358	0.73272	7.44%	0.26333	2.28%
004.00	Fiber, Crude, Asbestos Free (%)	17	16	1.1759	0.32944	1.1288	0.18322	0.05726	16.23%	0.04948	3.93%
004.01	Fiber, Sing Filt (%)	1	1	0.70000							
004.03	Fiber, Fritted Glass (%)	5	5	1.3214	0.34978	1.3214	0.34978	0.19553	26.47%	0.19440	3.84%
004.06	Fiber, Fibertec (%)	25	23	1.2326	0.21297	1.2210	0.21074	0.05493	17.26%	0.06673	3.88%

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004.07	Fiber, ANKOM (%)	59	58	1.4759	1.3055	1.2672	0.48411	0.07946	38.20%	0.17846	3.86%
004.11	Fiber, NIR (%)	2	1	1.7000							
004.99	Fiber, Miscellaneous (%)	3	3	1.1933	0.51866	1.1933	0.51866	0.37431	43.46%	0.05333	3.89%
005.00	Ash, 2h @ 600°C (%)	95	94	10.807	0.16049	10.800	0.11611	0.01497	1.08%	0.07611	2.80%
005.02	Ash, LECO (%)	1	1	10.770							
005.03	Ash, Microwave furnace (%)	1	1	10.850							
005.05	Ash, 3h @ 550°C (%)	34	34	10.896	0.11012	10.894	0.11583	0.02483	1.06%	0.05125	2.79%
005.11	Ash, NIR (%)	5	5	10.929	3.5758	10.929	3.5758	1.9989	32.72%	0.15000	2.79%
005.99	Ash, Miscellaneous (%)	12	12	10.899	0.20384	10.923	0.16886	0.06093	1.55%	0.05608	2.79%
006.00	Total sugars, As sucrose (%)	1	1	0.85000							
006.01	Total sugars, Mod. Fehling Soln (%)	1	1	0.24000							
006.99	Total sugars, Miscellaneous (%)	2	1	0.55000							
008.02	Fiber, Acid Detergent (%)	11	11	2.7675	1.1525	2.5469	0.74831	0.28203	29.38%	0.12149	3.47%
008.05	Fiber, Acid Detergent-Hach (%)	1	1	5.9000							
008.08	Fiber, Acid Detergent, ANKOM (%)	37	36	3.9704	1.4996	3.9367	1.6271	0.33899	41.33%	0.23977	3.25%
008.99	Fiber, Acid Detergent Miscellaneous (%)	2	2	1.9450	1.9870						
009.07	Fiber, Neutral Det-ENZ Pretreat (%)	9	8	13.341	5.9208	13.341	6.7142	2.9673	50.33%	0.76618	2.71%
009.09	Fiber, Neutral Detergent, ANKOM (%)	39	38	12.313	6.0963	11.310	4.3440	0.88085	38.41%	0.63323	2.78%
009.99	Fiber, Neutral Det Miscellaneous (%)	2	1	8.9400							
010.03	Moisture, Karl-Fischer (%)	2	2	4.5950	0.47376						
010.11	Moisture, NIR (%)	5	4	4.5363	1.1598	4.5363	1.1598	0.72488	25.57%	0.03750	3.19%
010.99	Moisture, Miscellaneous (%)	19	19	4.9429	0.34924	4.9347	0.26243	0.07526	5.32%	0.04564	3.15%
011.01	Loss on Drying, 135°C 2hr (%)	72	71	5.3611	0.32355	5.3764	0.29221	0.04335	5.44%	0.11414	3.11%
011.02	Loss on Drying, 130°C for 2 hours (%)	3	3	5.2483	0.09544	5.2483	0.09544	0.06888	1.82%	0.04333	3.12%
011.99	Loss on Drying, High Temp. Methods Miscellaneo	2	2	5.5400	0.69296						
012.00	Starch, Polarimetric (Ewers) (%)	9	9	8.0493	4.0920	6.9637	1.3107	0.54613	18.82%	0.24486	2.99%
012.01	Starch, Megazyme (%)	9	9	8.1215	1.2171	8.4079	0.53707	0.22378	6.39%	0.19171	2.90%
012.03	Starch, Enzymatic (%)	3	3	7.7507	0.89089	7.7507	0.89089	0.64294	11.49%	0.10920	2.94%
012.04	Starch, YSI Analyzer (%)	5	5	8.7900	0.69238	8.7900	0.69238	0.38705	7.88%	0.26000	2.88%
012.11	Starch, NIR (%)	1		0.00000							
013.00	Fat, Acid hydrolysis (%)	24	24	19.687	0.79255	19.613	0.66034	0.16849	3.37%	0.37920	2.26%
013.02	Fat, Mojonnier, Bak Ext (%)	23	22	20.054	0.73656	20.032	0.78403	0.20895	3.91%	0.24613	2.23%
013.08	Fat, Roese-Gottlieb Modified (%)	2	2	18.491	0.75766						
013.10	Fat, Soxtec-Acid Hydrolysis (%)	6	6	18.697	0.95959	18.697	1.0882	0.55531	5.82%	0.23288	2.31%
013.13	Fat, Ankom- Acid Hydrolysis (%)	9	9	19.691	1.5956	19.691	1.8094	0.75392	9.19%	0.27273	2.25%
015.41	Aluminum, ICP, Dry ash (mg / kg (ppm))	4	3	342.37	11.102	342.37	11.102	8.0122	3.24%	8.2667	6.65%
015.42	Aluminum, ICP, Open vessel (mg / kg (ppm))	1	1	361.10							
015.43	Aluminum, ICP, Microwave (mg / kg (ppm))	7	7	358.91	33.963	358.00	36.426	17.210	10.17%	15.084	6.60%

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015.52	Aluminum, ICP-MS, Open vessel (mg / kg (ppm))	1	1	245.00							
015.53	Aluminum, ICP-MS, Microwave (mg / kg (ppm))	2	2	390.75	35.002						
017.41	Boron, ICP, Dry ash (mg / kg (ppm))	4	4	2.1088	0.44780	2.1088	0.44780	0.27988	21.23%	0.34250	14.30%
017.42	Boron, ICP, Open vessel (mg / kg (ppm))	4	3	2.1248	0.17357	2.1248	0.17357	0.12526	8.17%	0.32367	14.28%
017.43	Boron, ICP, Microwave (mg / kg (ppm))	6	4	3.0267	0.55163	3.0267	0.55163	0.24298	18.23%	0.07715	13.54%
017.53	Boron, ICP-MS, Microwave (mg / kg (ppm))	1	1	2.5500							
019.00	Calcium, Ox-Mn04 Vol. (%)	11	11	2.7697	0.11480	2.7697	0.13018	0.04906	4.70%	0.03084	3.43%
019.02	Calcium, Hach Method (%)	1	1	2.3300							
019.03	Calcium, Semiauto (Autoanalyzer) (%)	1	1	2.8865							
019.08	Calcium, EDTA (%)	8	8	2.8894	0.48575	2.7684	0.16144	0.07135	5.83%	0.04576	3.43%
019.09	Calcium, Ion-selective electrode (%)	1	1	2.7045							
019.31	Calcium, AAS, Dry ash (%)	21	20	2.7687	0.17414	2.7548	0.13062	0.03651	4.74%	0.04972	3.43%
019.32	Calcium, AAS, Open vessel (%)	1		0.00000							
019.33	Calcium, AAS, Microwave (%)	1	1	2.9450							
019.41	Calcium, ICP, Dry ash (%)	24	24	2.8147	0.18139	2.8155	0.19131	0.04881	6.79%	0.08890	3.42%
019.42	Calcium, ICP, Open vessel (%)	18	18	2.7938	0.20439	2.8180	0.15571	0.04588	5.53%	0.09504	3.42%
019.43	Calcium, ICP, Microwave (%)	24	24	2.8396	0.17728	2.8411	0.15093	0.03851	5.31%	0.07518	3.42%
019.44	Calcium, ICP, Dry ash (%)	1	1	2.6700							
019.52	Calcium, ICP-MS, Open vessel (%)	2	2	2.6661	0.11862						
019.53	Calcium, ICP-MS, Microwave (%)	3	3	2.9917	0.13512	2.9917	0.13512	0.09751	4.52%	0.10333	3.39%
019.99	Calcium, Miscellaneous (%)	5	5	2.5911	0.43337	2.5911	0.43337	0.24226	16.73%	0.04070	3.47%
021.31	Cobalt, AAS, Dry ash (mg / kg (ppm))	3	3	8.5183	0.83547	8.5183	0.83547	0.60295	9.81%	0.32333	11.59%
021.41	Cobalt, ICP, Dry ash (mg / kg (ppm))	1	1	8.2400							
021.42	Cobalt, ICP, Open vessel (mg / kg (ppm))	4	4	9.1475	0.97280	9.1475	0.97280	0.60800	10.63%	0.79300	11.46%
021.43	Cobalt, ICP, Microwave (mg / kg (ppm))	7	7	8.8688	1.2566	8.8688	1.4250	0.67324	16.07%	0.74540	11.52%
021.52	Cobalt, ICP-MS, Open vessel (mg / kg (ppm))	2	2	10.095	0.84146						
021.53	Cobalt, ICP-MS, Microwave (mg / kg (ppm))	4	4	10.817	1.2747	10.817	1.2747	0.79669	11.78%	0.46950	11.18%
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	13	13	71.851	8.2486	73.503	3.8781	1.3445	5.28%	2.0645	8.38%
022.33	Copper, AAS, Microwave (mg / kg (ppm))	1	1	77.237							
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	23	23	71.454	12.641	73.863	6.3597	1.6576	8.61%	2.1652	8.37%
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	21	21	77.478	6.1024	77.586	4.5677	1.2459	5.89%	1.2923	8.31%
022.43	Copper, ICP, Microwave (mg / kg (ppm))	23	23	75.541	4.0706	75.600	4.4482	1.1594	5.88%	3.2808	8.34%
022.44	Copper, ICP, Dry ash (mg / kg (ppm))	1	1	77.200							
022.52	Copper, ICP-MS, Open vessel (mg / kg (ppm))	3	3	66.065	13.626	66.065	13.626	9.8337	20.63%	3.7300	8.51%
022.53	Copper, ICP-MS, Microwave (mg / kg (ppm))	3	3	77.400	1.9255	77.400	1.9255	1.3896	2.49%	3.4667	8.31%
022.99	Copper, Miscellaneous (mg / kg (ppm))	5	5	75.085	2.2682	75.085	2.2682	1.2680	3.02%	0.56600	8.35%
023.01	Fluorine, Ion Sel Elect (mg / kg (ppm))	1	1	51.750							
024.03	Iodine, Ion-selective electrode (mg / kg (ppm))	1	1	8.8400							

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025.31	Iron, AAS, Dry ash (mg / kg (ppm))	14	13	545.73	127.04	571.96	55.884	19.374	9.77%	11.720	6.15%
025.33	Iron, AAS, Microwave (mg / kg (ppm))	1	1	747.77							
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	25	25	576.97	47.333	581.04	37.315	9.3288	6.42%	18.674	6.14%
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	18	18	573.83	57.156	576.84	45.559	13.423	7.90%	18.841	6.14%
025.43	Iron, ICP, Microwave (mg / kg (ppm))	22	21	605.63	53.497	601.30	43.971	11.994	7.31%	14.823	6.11%
025.52	Iron, ICP-MS, Open vessel (mg / kg (ppm))	2	2	540.19	10.165						
025.53	Iron, ICP-MS, Microwave (mg / kg (ppm))	2	2	660.25	10.253						
025.99	Iron, Miscellaneous (mg / kg (ppm))	3	3	557.11	29.637	557.11	29.637	21.389	5.32%	9.0100	6.18%
027.31	Magnesium, AAS, Dry ash (%)	16	16	0.16652	0.05026	0.15965	0.01083	0.00339	6.79%	0.00516	5.27%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.14000							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.16450							
027.41	Magnesium, ICP, Dry ash (%)	25	25	0.15967	0.01094	0.15960	0.01219	0.00305	7.64%	0.00492	5.27%
027.42	Magnesium, ICP, Open vessel (%)	20	20	0.16304	0.01101	0.16366	0.01092	0.00305	6.67%	0.00481	5.25%
027.43	Magnesium, ICP, Microwave (%)	25	25	0.16262	0.01160	0.16272	0.01182	0.00295	7.26%	0.00524	5.26%
027.44	Magnesium, ICP, Dry ash (%)	2	2	0.15775	0.00318						
027.52	Magnesium, ICP-MS, Open vessel (%)	2	2	0.16018	0.00612						
027.53	Magnesium, ICP-MS, Microwave (%)	3	3	0.16417	0.00382	0.16417	0.00382	0.00338	2.33%	0.00367	5.25%
027.99	Magnesium, Miscellaneous (%)	5	4	0.15955	0.01459	0.15955	0.01459	0.01053	9.14%	0.00010	5.27%
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	10	9	96.285	10.446	96.285	11.845	4.9355	12.30%	1.5800	8.04%
028.33	Manganese, AAS, Microwave (mg / kg (ppm))	1	1	86.454							
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	18	17	101.13	7.9448	100.17	6.6140	2.0052	6.60%	2.9851	8.00%
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	18	17	101.44	6.9675	100.97	6.6905	2.0283	6.63%	3.5608	7.99%
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	22	21	99.050	4.7471	99.077	5.1745	1.4115	5.22%	2.4954	8.01%
028.44	Manganese, ICP, Dry ash (mg / kg (ppm))	1	1	99.000							
028.52	Manganese, ICP-MS, Open vessel (mg / kg (ppm))	1	1	104.50							
028.53	Manganese, ICP-MS, Microwave (mg / kg (ppm))	3	3	103.27	0.25166	103.27	0.25166	0.18162	0.24%	3.4667	7.96%
028.99	Manganese, Miscellaneous (mg / kg (ppm))	3	3	103.33	3.6856	103.33	3.6856	2.6599	3.57%	1.3333	7.96%
031.00	Phosphorus, Vol (%)	2	2	1.7775	0.01768						
031.01	Phosphorus, Photometric (%)	40	38	1.7097	0.08707	1.7216	0.05839	0.01184	3.39%	0.02285	3.69%
031.02	Phosphorus, GQMP (AOAC 935.13-Extraction) (%)	2	2	1.7950	0.01414						
031.03	Phosphorus, Autoanalyzer (%)	2	2	1.7270	0.09468						
031.06	Phosphorus, Hach Method (%)	1	1	1.3400							
031.41	Phosphorus, ICP, Dry ash (%)	29	28	1.7336	0.11169	1.7344	0.06044	0.01428	3.48%	0.03213	3.68%
031.42	Phosphorus, ICP, Open vessel (%)	20	20	1.7468	0.09557	1.7449	0.08056	0.02252	4.62%	0.03757	3.68%
031.43	Phosphorus, ICP, Microwave (%)	26	26	1.7876	0.10163	1.7820	0.07968	0.01953	4.47%	0.03952	3.67%
031.44	Phosphorus, ICP, Dry ash (%)	2	2	1.7625	0.03889						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	1.6811	0.03387						
031.53	Phosphorus, ICP-MS, Microwave (%)	3	3	1.8717	0.10681	1.8717	0.10681	0.07708	5.71%	0.05667	3.64%

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031.99	Phosphorus, Miscellaneous (%)	8	7	1.5878	0.23875	1.5878	0.27074	0.12791	17.05%	0.01783	3.73%
032.31	Potassium, AAS, Dry ash (%)	15	15	0.55585	0.10347	0.56736	0.02707	0.00874	4.77%	0.01342	4.36%
032.32	Potassium, AAS, Open vessel (%)	1	1	0.52500							
032.41	Potassium, ICP, Dry ash (%)	25	24	0.56667	0.03726	0.56716	0.03977	0.01015	7.01%	0.01502	4.36%
032.42	Potassium, ICP, Open vessel (%)	19	19	0.58643	0.04030	0.58394	0.03926	0.01126	6.72%	0.01724	4.34%
032.43	Potassium, ICP, Microwave (%)	25	24	0.57115	0.02812	0.57004	0.02919	0.00745	5.12%	0.01298	4.35%
032.44	Potassium, ICP, Dry ash (%)	2	2	0.58025	0.04066						
032.52	Potassium, ICP-MS, Open vessel (%)	2	2	0.55725	0.00672						
032.53	Potassium, ICP-MS, Microwave (%)	3	3	0.61283	0.06480	0.61283	0.06480	0.04677	10.57%	0.02100	4.31%
032.99	Potassium, Miscellaneous (%)	3	3	0.42008	0.26851	0.42008	0.26851	0.19378	63.92%	0.02550	4.56%
033.00	Salt as chloride, Sol Cl (%)	19	18	1.2037	0.07131	1.2047	0.07892	0.02325	6.55%	0.02066	3.89%
033.01	Salt as chloride, Poten Cl (%)	26	25	1.2860	0.04856	1.2928	0.02503	0.00626	1.94%	0.01532	3.85%
033.03	Salt as chloride, Quantab (%)	2	2	1.3375	0.01061						
033.05	Salt as chloride, Ion Sel Electrode (%)	3	3	1.2198	0.05182	1.2198	0.05182	0.03740	4.25%	0.03033	3.88%
033.99	Salt, Miscellaneous (%)	8	7	1.1117	0.13373	1.1117	0.15165	0.07165	13.64%	0.01400	3.94%
034.01	Selenium, Fluor (mg / kg (ppm))	1	1	1.6500							
034.04	Selenium, AA, Hydride (mg / kg (ppm))	5	3	1.4717	0.14074	1.4717	0.14074	0.10157	9.56%	0.04333	15.09%
034.42	Selenium, ICP, Open vessel (mg / kg (ppm))	1	1	0.10000							
034.43	Selenium, ICP, Microwave (mg / kg (ppm))	2	2	1.6874	0.54111						
034.52	Selenium, ICP-MS, Open vessel (mg / kg (ppm))	2	2	2.0750	0.33941						
034.53	Selenium, ICP-MS, Microwave (mg / kg (ppm))	6	6	1.8038	0.26476	1.8038	0.30024	0.15322	16.65%	0.05980	14.64%
035.01	Sodium, Ion-selective electrode (%)	2	2	0.30500	0.00566						
035.02	Sodium, Em Spect (%)	1	1	0.36000							
035.05	Sodium, Flame Emission (%)	2	2	0.31250	0.06010						
035.31	Sodium, AAS, Dry ash (%)	17	16	0.34092	0.01690	0.34090	0.01537	0.00480	4.51%	0.00897	4.70%
035.32	Sodium, AAS, Open vessel (%)	1	1	0.30500							
035.33	Sodium, AAS, Microwave (%)	1	1	0.30000							
035.41	Sodium, ICP, Dry ash (%)	29	29	0.34444	0.02145	0.34568	0.01893	0.00440	5.48%	0.01057	4.69%
035.42	Sodium, ICP, Open vessel (%)	16	15	0.34882	0.01944	0.34919	0.02081	0.00672	5.96%	0.00669	4.69%
035.43	Sodium, ICP, Microwave (%)	23	23	0.34662	0.02500	0.34740	0.02271	0.00592	6.54%	0.00843	4.69%
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.35523	0.01948						
035.53	Sodium, ICP-MS, Microwave (%)	3	3	0.36100	0.00557	0.36100	0.00557	0.00402	1.54%	0.02467	4.66%
035.99	Sodium, Miscellaneous (%)	4	4	0.32189	0.08084	0.32189	0.08084	0.05053	25.11%	0.01458	4.74%
036.04	Sulfur, LECO (%)	3	3	0.82883	0.12340	0.82883	0.12340	0.08906	14.89%	0.04033	4.11%
036.42	Sulfur, ICP, Open vessel (%)	18	17	0.76258	0.05124	0.75989	0.05193	0.01574	6.83%	0.01019	4.17%
036.43	Sulfur, ICP, Microwave (%)	12	11	0.76094	0.04263	0.76071	0.04786	0.01804	6.29%	0.00812	4.17%
036.52	Sulfur, ICP-MS, Open vessel (%)	2	2	0.73740	0.02065						
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.76300							

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036.99	Sulfur, Miscellaneous (%)	2	2	0.78263	0.01785						
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	14	14	362.58	16.979	362.66	18.385	6.1421	5.07%	5.5761	6.59%
037.33	Zinc, AAS, Microwave (mg / kg (ppm))	1	1	403.86							
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	23	23	360.23	22.865	360.73	24.881	6.4851	6.90%	8.1280	6.59%
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	19	18	369.16	32.425	369.16	36.770	10.833	9.96%	8.4388	6.57%
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	23	22	369.24	32.395	364.90	21.149	5.6362	5.80%	9.5467	6.58%
037.44	Zinc, ICP, Dry ash (mg / kg (ppm))	2	2	357.00	15.556						
037.52	Zinc, ICP-MS, Open vessel (mg / kg (ppm))	2	2	332.62	61.345						
037.53	Zinc, ICP-MS, Microwave (mg / kg (ppm))	3	3	393.33	31.719	393.33	31.719	22.891	8.06%	12.667	6.51%
037.99	Zinc, Miscellaneous (mg / kg (ppm))	6	6	363.10	35.231	362.11	37.631	19.203	10.39%	6.8548	6.59%
038.41	Molybdenum, ICP, Dry ash (mg / kg (ppm))	2	2	0.60875	0.07955						
038.42	Molybdenum, ICP, Open vessel (mg / kg (ppm))	3	3	0.72017	0.15429	0.72017	0.15429	0.11135	21.42%	0.02767	16.81%
038.43	Molybdenum, ICP, Microwave (mg / kg (ppm))	8	8	0.70588	0.25383	0.70588	0.28784	0.12721	40.78%	0.15886	16.86%
038.52	Molybdenum, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.88250	0.16617						
038.53	Molybdenum, ICP-MS, Microwave (mg / kg (ppm))	4	4	0.72800	0.06512	0.72800	0.06512	0.04070	8.95%	0.04740	16.78%
040.42	Barium, ICP, Open vessel (mg / kg (ppm))	1	1	5.7050							
040.43	Barium, ICP, Microwave (mg / kg (ppm))	1	1	6.5036							
040.53	Barium, ICP-MS, Microwave (mg / kg (ppm))	1	1	4.8304							
041.43	Vanadium, ICP, Microwave (mg / kg (ppm))	1	1	2.5942							
041.53	Vanadium, ICP-MS, Microwave (mg / kg (ppm))	1	1	2.7500							
042.00	Chloride, Titrimetric (%)	4	4	0.74075	0.03161	0.74075	0.03161	0.01976	4.27%	0.01000	4.18%
101.00	Choline Chloride, Microbiological (mg / kg (ppm))	2	2	5,113.1	1,438.1						
101.01	Choline Chloride, Chem (mg / kg (ppm))	1	1	5,763.0							
101.02	Choline Chloride, LC (mg / kg (ppm))	1	1	6,211.0							
102.01	Niacin, Microbiological (mg / kg (ppm))	1	1	250.50							
103.01	Pantothenic Acid, Microbiological (mg / kg (ppm))	1	1	123.50							
103.02	Pantothenic Acid, LC (mg / kg (ppm))	1	1	1.3800							
104.00	Riboflavin, Fluorometric (mg / kg (ppm))	2	2	85.825	6.1165						
104.03	Riboflavin, LC (mg / kg (ppm))	1	1	63.825							
105.00	Thiamine, LC (mg / kg (ppm))	2	2	30.235	11.363						
105.01	Thiamine, Fluorometer (mg / kg (ppm))	1	1	24.800							
106.00	Vitamin A, Color (KU / kg)	1	1	4.1850							
106.01	Vitamin A, UV (KU / kg)	1	1	5.6100							
106.02	Vitamin A, LC (KU / kg)	20	19	5.6543	1.3096	5.5972	1.3577	0.38935	24.26%	0.78423	
107.00	Vitamin B12, Microbiological (µg / kg (ppb))	1	1	419.00							
108.01	Vitamin D3, LC, AOAC (KU / kg)	1	1	21.500							
108.02	Vitamin D3, LC (KU / kg)	6	4	2.0263	0.38513	2.0263	0.38513	0.24070	19.01%	0.02750	
108.99	Vitamin D3, Miscellaneous (KU / kg)	1	1	2.2750							

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109.02	Vitamin E, LC (IU/kg)	19	18	865.42	283.63	895.99	230.35	67.867	25.71%	35.342	
109.99	Vitamin E, Miscellaneous (IU/kg)	1	1	1,001.3							
111.01	Vitamin C, Ascorbic Acid, LC (mkg/kg (ppm))	3	3	36.233	8.0663	36.233	8.0663	5.8214	22.26%	2.1333	9.32%
112.01	Pyridoxine, LC (µg / g)	1	1	36.400							
113.01	Folic Acid, Micro (mg / kg (ppm))	1	1	13.350							
114.01	Biotin, Microbiological (mg / kg (ppm))	1	1	1.0850							
120.00	Alanine, Post-col Ninhydrin Der (%)	19	18	3.1820	0.13303	3.1691	0.11890	0.03503	3.75%	0.03455	3.36%
120.01	Alanine, Pre-col OPA Der (%)	1	1	2.7980							
120.02	Alanine, Post-col OPA Der (%)	1	1	3.0470							
120.05	Alanine, Pre-col AQC Der (%)	4	4	2.9661	0.12658	2.9661	0.12658	0.07911	4.27%	0.06975	3.40%
120.99	Alanine, Miscellaneous (%)	2	2	3.4676	0.73907						
121.00	Arginine, Post-col Ninhydrin Der (%)	19	18	2.8056	0.13224	2.8157	0.10882	0.03206	3.86%	0.03262	3.42%
121.01	Arginine, Pre-col OPA Der (%)	1	1	2.8990							
121.02	Arginine, Post-col OPA Der (%)	1	1	2.7815							
121.05	Arginine, Pre-col AQC Der (%)	4	4	2.8381	0.12751	2.8381	0.12751	0.07969	4.49%	0.09025	3.42%
121.99	Arginine, Miscellaneous (%)	1	1	2.8360							
122.00	Aspartic, Post-col Ninhydrin Der (%)	19	19	3.9796	0.13737	3.9735	0.13943	0.03998	3.51%	0.06162	3.25%
122.01	Aspartic, Pre-col OPA Der (%)	1	1	3.8470							
122.02	Aspartic, Post-col OPA Der (%)	1	1	3.9770							
122.05	Aspartic, Pre-col AQC Der (%)	4	4	3.9279	0.17268	3.9279	0.17268	0.10793	4.40%	0.13575	3.26%
122.99	Aspartic, Miscellaneous (%)	2	2	3.8170	0.50484						
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	19	19	0.65315	0.05479	0.64359	0.03511	0.01007	5.46%	0.01618	4.27%
124.01	Cysteine/Cystine, PAO Pre-col OPA Der (%)	1	1	0.67100							
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.64150							
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	3	3	0.64683	0.04243	0.64683	0.04243	0.03062	6.56%	0.02433	4.27%
124.99	Cysteine/Cystine, Miscellaneous (%)	2	2	0.63550	0.34578						
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	19	6.9077	0.26703	6.9077	0.19915	0.05711	2.88%	0.10913	2.99%
125.01	Glutamic, Pre-col OPA Der (%)	1	1	7.2320							
125.02	Glutamic, Post-col OPA Der (%)	1	1	6.7940							
125.05	Glutamic, Pre-col AQC Der (%)	4	4	6.9983	0.34855	6.9983	0.34855	0.21784	4.98%	0.14650	2.98%
125.99	Glutamic, Miscellaneous (%)	2	2	7.1229	1.3193						
126.00	Glycine, Post-col Ninhydrin Der (%)	19	19	3.7133	0.13928	3.7013	0.10119	0.02902	2.73%	0.04374	3.28%
126.01	Glycine, Pre-col OPA Der (%)	1	1	3.6840							
126.02	Glycine, Post-col OPA Der (%)	1	1	3.6810							
126.05	Glycine, Pre-col AQC Der (%)	4	4	3.5963	0.11559	3.5963	0.11559	0.07224	3.21%	0.08350	3.30%
126.99	Glycine, Miscellaneous (%)	2	2	2.9166	0.74020						
127.00	Histidine, Post-col Ninhydrin Der (%)	19	19	1.1497	0.06747	1.1498	0.05683	0.01630	4.94%	0.02303	3.92%
127.01	Histidine, Pre-col OPA Der (%)	1	1	1.0230							

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127.02	Histidine, Post-col OPA Der (%)	1	1	1.0935							
127.05	Histidine, Pre-col AQC Der (%)	4	4	1.1255	0.01847	1.1255	0.01847	0.01154	1.64%	0.03000	3.93%
127.99	Histidine, Miscellaneous (%)	1	1	0.83860							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	19	1.8427	0.08312	1.8443	0.07458	0.02139	4.04%	0.03746	3.65%
128.01	Isoleucine, Pre-col OPA Der (%)	1	1	1.9930							
128.02	Isoleucine, Post-col OPA Der (%)	1	1	1.8130							
128.05	Isoleucine, Pre-col AQC Der (%)	4	4	1.8788	0.07327	1.8788	0.07327	0.04579	3.90%	0.01600	3.64%
128.99	Isoleucine, Miscellaneous (%)	2	2	1.7811	0.03380						
129.00	Leucine, Post-col Ninhydrin Der (%)	19	19	4.0140	0.13572	4.0045	0.12718	0.03647	3.18%	0.05438	3.25%
129.01	Leucine, Pre-col OPA Der (%)	1	1	4.0075							
129.02	Leucine, Post-col OPA Der (%)	1	1	3.9345							
129.05	Leucine, Pre-col AQC Der (%)	4	4	4.0118	0.05118	4.0118	0.05118	0.03199	1.28%	0.02050	3.25%
129.99	Leucine, Miscellaneous (%)	2	2	4.0527	0.13813						
130.00	L-Lysine, Post-col Ninhydrin Der (%)	21	21	4.1765	0.23818	4.1931	0.22600	0.06165	5.39%	0.07489	3.22%
130.01	L-Lysine, Pre-col OPA Der (%)	1	1	4.3060							
130.02	L-Lysine, Post-col OPA Der (%)	1	1	4.4475							
130.05	L-Lysine, Pre-col AQC Der (%)	5	5	4.1657	0.20867	4.1657	0.20867	0.11665	5.01%	0.21220	3.23%
130.99	L-Lysine, Miscellaneous (%)	3	3	3.5303	0.88789	3.5303	0.88789	0.64078	25.15%	0.09610	3.31%
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	20	20	1.4544	0.13504	1.4399	0.09048	0.02529	6.28%	0.03169	3.79%
131.01	Methionine, PAO Pre-col OPA Der (%)	1	1	1.3845							
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	1.3560							
131.05	Methionine, PAO Pre-col AQC Der (%)	4	4	1.4210	0.09994	1.4210	0.09994	0.06246	7.03%	0.04600	3.79%
131.99	Methionine, Miscellaneous (%)	3	3	1.3570	0.35456	1.3570	0.35456	0.25588	26.13%	0.04000	3.82%
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	19	2.1518	0.11111	2.1641	0.09123	0.02616	4.22%	0.04446	3.56%
132.01	Phenylalanine, Pre-col OPA Der (%)	1	1	2.1130							
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	2.0715							
132.05	Phenylalanine, Pre-col AQC Der (%)	4	4	2.1140	0.05023	2.1140	0.05023	0.03139	2.38%	0.07450	3.57%
132.99	Phenylalanine, Miscellaneous (%)	1	1	1.8043							
133.00	Proline, Post-col Ninhydrin Der (%)	19	18	3.0560	0.32046	3.1215	0.10739	0.03164	3.44%	0.04595	3.37%
133.05	Proline, Pre-col AQC Der (%)	4	4	3.2045	0.11352	3.2045	0.11352	0.07095	3.54%	0.03650	3.36%
133.99	Proline, Miscellaneous (%)	2	2	2.9010	0.11459						
134.00	Serine, Post-col Ninhydrin Der (%)	19	18	2.4091	0.12925	2.4090	0.13722	0.04043	5.70%	0.04571	3.50%
134.01	Serine, Pre-col OPA Der (%)	1	1	2.5050							
134.02	Serine, Post-col OPA Der (%)	1	1	2.2530							
134.05	Serine, Pre-col AQC Der (%)	4	4	2.3760	0.18501	2.3760	0.18501	0.11563	7.79%	0.06100	3.51%
134.99	Serine, Miscellaneous (%)	2	2	2.8259	0.34072						
135.00	Threonine, Post-col Ninhydrin Der (%)	19	19	1.8984	0.10859	1.8850	0.09112	0.02613	4.83%	0.02699	3.64%
135.01	Threonine, Pre-col OPA Der (%)	1	1	1.9305							

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135.02	Threonine, Post-col OPA Der (%)	1	1	1.8470							
135.05	Threonine, Pre-col AQC Der (%)	4	4	1.8353	0.03984	1.8353	0.03984	0.02490	2.17%	0.06750	3.65%
135.99	Threonine, Miscellaneous (%)	3	3	1.8357	0.28408	1.8357	0.28408	0.20502	15.48%	0.11543	3.65%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	6	6	0.44345	0.03490	0.44195	0.03604	0.01839	8.15%	0.02007	4.52%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	4	3	0.38617	0.08590	0.38617	0.08590	0.06199	22.24%	0.00300	4.62%
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.44250							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	5	3	0.45983	0.00671	0.45983	0.00671	0.00484	1.46%	0.00367	4.50%
136.99	Tryptophan, Miscellaneous (%)	2	2	0.21918	0.15673						
137.00	Tyrosine, Post-col Ninhydrin Der (%)	14	14	1.4422	0.14648	1.4641	0.08362	0.02794	5.71%	0.03407	3.78%
137.01	Tyrosine, Pre-col OPA Der (%)	1	1	1.5120							
137.02	Tyrosine, Post-col OPA Der (%)	1	1	1.5050							
137.05	Tyrosine, Pre-col AQC Der (%)	4	4	1.5699	0.12275	1.5699	0.12275	0.07672	7.82%	0.06725	3.74%
137.99	Tyrosine, Miscellaneous (%)	1	1	1.2013							
138.00	Valine, Post-col Ninhydrin Der (%)	19	19	2.5190	0.11584	2.5179	0.12318	0.03533	4.89%	0.04772	3.48%
138.01	Valine, Pre-col OPA Der (%)	1	1	2.6465							
138.02	Valine, Post-col OPA Der (%)	1	1	2.5340							
138.05	Valine, Pre-col AQC Der (%)	4	4	2.5316	0.06150	2.5316	0.06150	0.03844	2.43%	0.02375	3.48%
138.99	Valine, Miscellaneous (%)	2	2	2.3348	0.41040						
139.00	Taurine, Post-col Ninhydrin Der (%)	4	4	0.27500	0.05100	0.27500	0.05100	0.03188	18.55%	0.01200	4.86%
139.02	Taurine, Post-col OPA Der (%)	1	1	0.26400							
139.99	Taurine, Miscellaneous (%)	1	1	0.23085							
357.01	Ethoxyquin, LC (mg/kg (ppm))	1	1	73.500							
357.99	Ethoxyquin, Miscellaneous (mg/kg (ppm))	1	1	74.000							
400.01	Water activity, Aqualab chilled mirror (Units)	7	7	0.40359	0.03151	0.40359	0.03573	0.01688	8.85%	0.00561	
400.99	Water activity, Miscellaneous (Units)	2	2	0.37175	0.01803						
412.01	Dietary Starch, Enzymatic-Colorimetric (%)	1	1	8.6500							
516.00	Arsenic, total, AA, Hydride (mg / kg (ppm))	2	2	1.5800	1.6476						
516.43	Arsenic, total, ICP, Microwave (mg / kg (ppm))	2	2	3.3119	0.08217						
516.52	Arsenic, total, ICP-MS, Open vessel (mg / kg (ppm))	3	3	2.8493	0.12127	2.8493	0.12127	0.08752	4.26%	0.12733	13.66%
516.53	Arsenic, total, ICP-MS, Microwave (mg / kg (ppm))	6	6	3.0464	0.14783	3.0464	0.16764	0.08555	5.50%	0.11865	13.53%
518.41	Cadmium, ICP, Dry ash (mg / kg (ppm))	1	1	0.11250							
518.42	Cadmium, ICP, Open vessel (mg / kg (ppm))	1	1	0.10000							
518.43	Cadmium, ICP, Microwave (mg / kg (ppm))	1	1	0.11000							
518.52	Cadmium, ICP-MS, Open vessel (mg / kg (ppm))	3	3	0.11700	0.01126	0.11700	0.01126	0.00813	9.62%	0.00867	22.00%
518.53	Cadmium, ICP-MS, Microwave (mg / kg (ppm))	6	6	0.10989	0.00662	0.10989	0.00751	0.00383	6.83%	0.00858	22.00%
520.41	Chromium, ICP, Dry ash (mg / kg (ppm))	1	1	3.0150							
520.42	Chromium, ICP, Open vessel (mg / kg (ppm))	3	3	3.0680	0.54413	3.0680	0.54413	0.39269	17.74%	0.05800	13.51%
520.43	Chromium, ICP, Microwave (mg / kg (ppm))	3	3	3.2400	0.12016	3.2400	0.12016	0.08672	3.71%	0.18753	13.40%

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520.52	Chromium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	2.6750							
520.53	Chromium, ICP-MS, Microwave (mg / kg (ppm))	2	2	3.6311	0.94901						
526.41	Lead, ICP, Dry ash (mg / kg (ppm))	1	1	0.68350							
526.52	Lead, ICP-MS, Open vessel (mg / kg (ppm))	3	3	0.58483	0.01353	0.58483	0.01353	0.00976	2.31%	0.03433	17.34%
526.53	Lead, ICP-MS, Microwave (mg / kg (ppm))	7	7	0.54280	0.04040	0.53926	0.03731	0.01763	6.92%	0.02820	17.55%
529.99	Mercury, Miscellaneous (µg / kg (ppb))	2	2	25.250	12.374						
539.41	Nickel, ICP, Dry ash (mg / kg (ppm))	1	1	1.0400							
539.43	Nickel, ICP, Microwave (mg / kg (ppm))	1	1	0.84000							
539.52	Nickel, ICP-MS, Open vessel (mg / kg (ppm))	1	1	1.0300							
539.53	Nickel, ICP-MS, Microwave (mg / kg (ppm))	2	2	1.4921	0.46962						
702.00	Butyric Acid (4:0), Miscellaneous GC (%)	1	1	0.02450							
704.00	Caproic Acid (6:0) , Miscellaneous GC (%)	1	1	0.00100							
706.01	Caprylic acid (8:0), Direct Methylation by Alkali Hy	1		0.00000							
708.01	Capric acid (10:0), Direct Methylation by Alkali Hy	1	1	0.00300							
710.01	Lauric Acid (12:0), Direct Methylation by Alkali Hyc	1	1	0.14700							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	1	1	0.11500							
714.01	Myristic Acid (14:0) , Direct Methylation by Alkali F	1	1	1.2700							
714.99	Myristic Acid (14:0) , Miscellaneous (% (w/w))	1	1	7.3650							
716.01	Palmitic Acid (16:0), Direct Methylation by Alkali H	1	1	4.8350							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	1	1	19.905							
718.01	Palmitoleic Acid (9c-16:1), Direct Methylation by A	1	1	2.7150							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/v	1	1	11.860							
720.99	Margaric acid (17:0), Miscellaneous (% (w/w))	1	1	0.46000							
722.01	Stearic Acid (18:0), Direct Methylation by Alkali Hy	1	1	0.69300							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	1	1	3.8150							
724.01	Oleic Acid (9c-18:1), Direct Methylation by Alkali F	1	1	2.6400							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	1	1	10.715							
726.01	Linoleic Acid (9c,12c-18:2), Direct Methylation by ,	1	1	1.2850							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/	1	1	5.9500							
728.01	alpha-Linolenic Acid (9c,12c,15c-18:3), Direct Met	1	1	0.27000							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellane	1	1	1.6450							
730.01	Arachidic Acid (20:0), Direct Methylation by Alkali	1	1	0.15100							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	1	1	0.21500							
732.01	Gondoic Acid (11c-20:1), Direct Methylation by All	1	1	0.18150							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w)	1	1	0.50000							
736.01	Arachidonic Acid (5c,8c,11c,14c-20:4), Direct Metl	1		0.00000							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellane	1	1	1.2700							
738.01	Mead Acid (11c,14c,17c-20:3), Direct Methylation	1	1	0.16700							

Test Material Code # 201732

Issue Date : 01/31/2018

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
740.01	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-2)	1	1	1.7200							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-2)	1	1	9.4050							
744.01	Erucic Acid (13c-22:1), Direct Methylation by Alkal	1		0.00000							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1	1	0.08500							
746.01	Docosapentaenoic Acid n-3 DPA (DHA)7c,10c,13c	1	1	0.29950							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	1	1	0.14500							
750.01	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c)	1	1	0.92700							
752.01	Nervonic Acid (24:1) isomers, Direct Methylation b	1		0.00000							

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
Fish Food, Carnivore
Test Material Code # 201732

Method Precision Report

Methods Reported: 87
Labs Reporting: 195
Issue Date : 01/31/2018

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 (%)	42	38	4.9105	0.34379	0.23207	0.06862	0.24200	4.72%	1.397%	4.93%	3.5267
001.99	Loss on Drying, Miscellaneous (%)	20	18	4.6918	0.46013	0.31356	0.10557	0.33085	6.57%	2.213%	6.94%	3.1341
002.01	Protein, Auto Kjel-Foss (%)	10	9	50.762	2.7717	0.73729	0.24270	0.77621	1.43%	0.470%	1.50%	3.1982
002.05	Protein, Copper, Boric Acid (%)	32	29	51.261	0.78201	0.68817	0.12596	0.69960	1.34%	0.245%	1.36%	5.5540
002.06	Protein, Combustion Nitrogen Analyzer (%)	127	117	52.106	0.61703	0.37581	0.25612	0.45478	0.72%	0.492%	0.87%	1.7757
003.00	Fat, Eth Ext., Direct (%)	10	9	18.309	0.24815	0.19493	0.18159	0.26641	1.07%	0.994%	1.46%	1.4671
003.06	Fat, Pet Ether (%)	19	17	18.123	0.21685	0.15098	0.12116	0.19358	0.83%	0.670%	1.07%	1.5977
003.09	Fat, Soxtec, Eth Ext (%)	18	16	18.049	0.50622	0.25552	0.17665	0.31064	1.42%	0.984%	1.73%	1.7585
003.10	Fat, Soxtec, Pet Ether (%)	29	26	17.971	0.43684	0.23642	0.18393	0.29954	1.32%	1.026%	1.67%	1.6286
003.14	Fat, Ankom (%)	37	33	18.001	0.61370	0.41548	0.11181	0.43026	2.30%	0.619%	2.38%	3.8480
004.00	Fiber, Crude, Asbestos Free (%)	17	15	1.1759	0.32944	0.23891	0.04460	0.24303	21.38%	3.991%	21.75%	5.4490
004.06	Fiber, Fibertec (%)	25	21	1.2326	0.21297	0.17520	0.06303	0.18619	14.50%	5.216%	15.41%	2.9539
004.07	Fiber, ANKOM (%)	59	55	1.4759	1.3055	0.45825	0.15406	0.48345	36.91%	12.409%	38.94%	3.1381
005.00	Ash, 2h @ 600°C (%)	95	89	10.807	0.16049	0.11440	0.06368	0.13093	1.06%	0.590%	1.21%	2.0560
005.05	Ash, 3h @ 550°C (%)	34	32	10.896	0.11012	0.10926	0.04336	0.11755	1.00%	0.398%	1.08%	2.7112
005.99	Ash, Miscellaneous (%)	12	11	10.899	0.20384	0.12727	0.04889	0.13634	1.16%	0.447%	1.25%	2.7885
008.02	Fiber, Acid Detergent (%)	11	10	2.7675	1.1525	0.69232	0.10509	0.70025	27.89%	4.233%	28.21%	6.6632
008.08	Fiber, Acid Detergent, ANKOM (%)	37	34	3.9704	1.4996	1.4883	0.19018	1.5004	38.01%	4.858%	38.32%	7.8892
009.07	Fiber, Neutral Det-ENZ Pretreat (%)	9	8	13.341	5.9208	5.8990	0.71758	5.9425	44.22%	5.379%	44.54%	8.2813
009.09	Fiber, Neutral Detergent, ANKOM (%)	39	36	12.313	6.0963	5.0424	0.46632	5.0639	43.12%	3.988%	43.31%	10.859
010.99	Moisture, Miscellaneous (%)	19	17	4.9429	0.34924	0.28230	0.04002	0.28512	5.77%	0.818%	5.83%	7.1241
011.01	Loss on Drying, 135°C 2hr (%)	72	66	5.3611	0.32355	0.27057	0.09432	0.28654	5.01%	1.748%	5.31%	3.0379
012.00	Starch, Polarimetric (Ewers) (%)	9	8	8.0493	4.0920	0.93618	0.24143	0.96681	13.94%	3.594%	14.39%	4.0045
012.01	Starch, Megazyme (%)	9	8	8.1215	1.2171	0.37313	0.16010	0.40603	4.39%	1.882%	4.77%	2.5361
013.00	Fat, Acid hydrolysis (%)	24	22	19.687	0.79255	0.57646	0.30301	0.65125	2.94%	1.546%	3.32%	2.1493
013.02	Fat, Mojonnier, Bak Ext (%)	23	22	20.054	0.73656	0.71787	0.23318	0.75479	3.58%	1.163%	3.76%	3.2369
013.13	Fat, Ankom- Acid Hydrolysis (%)	9	9	19.691	1.5956	1.5880	0.22025	1.6032	8.06%	1.119%	8.14%	7.2788
019.00	Calcium, Ox-Mn04 Vol. (%)	11	10	2.7697	0.11480	0.10715	0.02180	0.10934	3.85%	0.783%	3.93%	5.0160
019.31	Calcium, AAS, Dry ash (%)	21	19	2.7687	0.17414	0.11666	0.05034	0.12706	4.26%	1.837%	4.64%	2.5241
019.41	Calcium, ICP, Dry ash (%)	24	23	2.8147	0.18139	0.17631	0.07646	0.19217	6.27%	2.720%	6.84%	2.5134
019.42	Calcium, ICP, Open vessel (%)	18	17	2.7938	0.20439	0.11528	0.08045	0.14058	4.07%	2.841%	4.96%	1.7474
019.43	Calcium, ICP, Microwave (%)	24	22	2.8396	0.17728	0.13707	0.06057	0.14986	4.81%	2.124%	5.26%	2.4742

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
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	13	11	71.851	8.2486	2.7446	0.81837	2.8640	3.69%	1.100%	3.85%	3.4996
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	23	21	71.454	12.641	8.0252	1.6026	8.1836	10.92%	2.180%	11.13%	5.1064
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	21	19	77.478	6.1024	3.4794	1.1872	3.6763	4.48%	1.530%	4.74%	3.0967
022.43	Copper, ICP, Microwave (mg / kg (ppm))	23	22	75.541	4.0706	3.3798	2.6919	4.3208	4.46%	3.549%	5.70%	1.6051
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	14	12	545.73	127.04	43.390	12.214	45.077	7.49%	2.110%	7.79%	3.6907
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	25	23	576.97	47.333	37.195	15.982	40.483	6.39%	2.744%	6.95%	2.5331
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	18	17	573.83	57.156	41.450	17.083	44.832	7.11%	2.930%	7.69%	2.6244
025.43	Iron, ICP, Microwave (mg / kg (ppm))	22	19	605.63	53.497	36.608	13.534	39.030	6.11%	2.258%	6.51%	2.8839
027.31	Magnesium, AAS, Dry ash (%)	16	14	0.16652	0.05026	0.02381	0.00486	0.02430	15.30%	3.123%	15.61%	5.0001
027.41	Magnesium, ICP, Dry ash (%)	25	24	0.15967	0.01094	0.01076	0.00430	0.01159	6.74%	2.695%	7.26%	2.6932
027.42	Magnesium, ICP, Open vessel (%)	20	19	0.16304	0.01101	0.00856	0.00457	0.00971	5.20%	2.780%	5.90%	2.1224
027.43	Magnesium, ICP, Microwave (%)	25	24	0.16262	0.01160	0.01033	0.00461	0.01131	6.31%	2.817%	6.91%	2.4542
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	10	9	96.285	10.446	10.395	1.4575	10.496	10.80%	1.514%	10.90%	7.2016
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	18	15	101.13	7.9448	5.8993	2.2109	6.3000	5.93%	2.223%	6.34%	2.8496
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	18	14	101.44	6.9675	5.3576	1.8645	5.6728	5.33%	1.853%	5.64%	3.0425
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	22	20	99.050	4.7471	4.3575	2.0575	4.8188	4.38%	2.070%	4.85%	2.3421
031.01	Phosphorus, Photometric (%)	40	36	1.7097	0.08707	0.05662	0.02064	0.06026	3.29%	1.199%	3.50%	2.9199
031.41	Phosphorus, ICP, Dry ash (%)	29	25	1.7336	0.11169	0.07992	0.02431	0.08354	4.62%	1.405%	4.83%	3.4360
031.42	Phosphorus, ICP, Open vessel (%)	20	19	1.7468	0.09557	0.09545	0.03170	0.10058	5.46%	1.814%	5.75%	3.1727
031.43	Phosphorus, ICP, Microwave (%)	26	25	1.7876	0.10163	0.07499	0.03921	0.08462	4.23%	2.209%	4.77%	2.1584
032.31	Potassium, AAS, Dry ash (%)	15	13	0.55585	0.10347	0.04809	0.00979	0.04908	8.27%	1.683%	8.44%	5.0136
032.41	Potassium, ICP, Dry ash (%)	25	23	0.56667	0.03726	0.03704	0.01241	0.03907	6.53%	2.189%	6.89%	3.1478
032.42	Potassium, ICP, Open vessel (%)	19	18	0.58643	0.04030	0.03061	0.01530	0.03422	5.27%	2.634%	5.89%	2.2369
032.43	Potassium, ICP, Microwave (%)	25	22	0.57115	0.02812	0.02320	0.01187	0.02606	4.08%	2.086%	4.58%	2.1951
033.00	Salt as chloride, Sol Cl (%)	19	18	1.2037	0.07131	0.07004	0.01895	0.07256	5.82%	1.575%	6.03%	3.8279
033.01	Salt as chloride, Poten Cl (%)	26	22	1.2860	0.04856	0.02248	0.01050	0.02481	1.74%	0.811%	1.92%	2.3635
035.31	Sodium, AAS, Dry ash (%)	17	15	0.34092	0.01690	0.01628	0.00657	0.01756	4.76%	1.920%	5.13%	2.6742
035.41	Sodium, ICP, Dry ash (%)	29	26	0.34444	0.02145	0.01595	0.00702	0.01743	4.58%	2.016%	5.00%	2.4822
035.42	Sodium, ICP, Open vessel (%)	16	14	0.34882	0.01944	0.01668	0.00464	0.01731	4.74%	1.320%	4.92%	3.7301
035.43	Sodium, ICP, Microwave (%)	23	21	0.34662	0.02500	0.02113	0.00760	0.02246	6.06%	2.180%	6.44%	2.9556
036.42	Sulfur, ICP, Open vessel (%)	18	17	0.76258	0.05124	0.05088	0.00847	0.05158	6.67%	1.110%	6.76%	6.0924
036.43	Sulfur, ICP, Microwave (%)	12	11	0.76094	0.04263	0.04223	0.00832	0.04304	5.55%	1.093%	5.66%	5.1724
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	14	14	362.58	16.979	16.456	5.9136	17.486	4.54%	1.631%	4.82%	2.9569
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	23	22	360.23	22.865	21.714	7.4302	22.950	6.00%	2.055%	6.35%	3.0887
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	19	17	369.16	32.425	33.131	6.2044	33.707	8.98%	1.681%	9.13%	5.4327
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	23	21	369.24	32.395	16.515	8.9148	18.768	4.54%	2.453%	5.16%	2.1052
106.02	Vitamin A, LC (KU / kg)	20	18	5.6543	1.3096	1.2669	0.64166	1.4201	22.47%	11.380%	25.19%	2.2132
109.02	Vitamin E, LC (IU/kg)	19	17	865.42	283.63	188.33	30.756	190.82	20.55%	3.356%	20.82%	6.2044
120.00	Alanine, Post-col Ninhydrin Der (%)	19	17	3.1820	0.13303	0.10315	0.03318	0.10836	3.26%	1.049%	3.43%	3.2659
121.00	Arginine, Post-col Ninhydrin Der (%)	19	17	2.8056	0.13224	0.10551	0.02942	0.10953	3.74%	1.041%	3.88%	3.7237

Test Material Code # 201732

Issue Date : 01/31/2018

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
122.00	Aspartic, Post-col Ninhydrin Der (%)	19	18	3.9796	0.13737	0.12462	0.04996	0.13426	3.12%	1.252%	3.36%	2.6872
124.00	Cysteine/Cystine, PAO Post-col Ninhydri (%)	19	17	0.65315	0.05479	0.03819	0.01106	0.03976	5.92%	1.716%	6.17%	3.5939
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	17	6.9077	0.26703	0.21047	0.08989	0.22886	3.03%	1.295%	3.30%	2.5459
126.00	Glycine, Post-col Ninhydrin Der (%)	19	17	3.7133	0.13928	0.07599	0.03734	0.08467	2.05%	1.009%	2.29%	2.2673
127.00	Histidine, Post-col Ninhydrin Der (%)	19	18	1.1497	0.06747	0.05441	0.02170	0.05858	4.70%	1.873%	5.06%	2.6992
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	17	1.8427	0.08312	0.06929	0.02273	0.07292	3.74%	1.226%	3.93%	3.2089
129.00	Leucine, Post-col Ninhydrin Der (%)	19	17	4.0140	0.13572	0.11394	0.03499	0.11920	2.85%	0.875%	2.98%	3.4062
130.00	L-Lysine, Post-col Ninhydrin Der (%)	21	19	4.1765	0.23818	0.20222	0.06324	0.21188	4.81%	1.505%	5.04%	3.3504
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	20	19	1.4544	0.13504	0.07853	0.02841	0.08351	5.49%	1.987%	5.84%	2.9391
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	18	2.1518	0.11111	0.08557	0.03817	0.09370	3.95%	1.761%	4.32%	2.4547
133.00	Proline, Post-col Ninhydrin Der (%)	19	16	3.0560	0.32046	0.14448	0.03470	0.14859	4.62%	1.109%	4.75%	4.2825
134.00	Serine, Post-col Ninhydrin Der (%)	19	17	2.4091	0.12925	0.12844	0.03834	0.13404	5.34%	1.595%	5.58%	3.4963
135.00	Threonine, Post-col Ninhydrin Der (%)	19	17	1.8984	0.10859	0.08545	0.02195	0.08822	4.53%	1.162%	4.67%	4.0196
137.00	Tyrosine, Post-col Ninhydrin Der (%)	14	13	1.4422	0.14648	0.06968	0.02982	0.07580	4.72%	2.020%	5.13%	2.5415
138.00	Valine, Post-col Ninhydrin Der (%)	19	18	2.5190	0.11584	0.11058	0.03773	0.11684	4.38%	1.493%	4.62%	3.0964

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