



AAFCO
Association of American Feed Control Officials



Pet Food Ingredient Scheme

Beet Pulp

Test Material Code # 202343

Method Summary Report

(Precision Report Follows)

Labs Reporting: 91

Methods Reported: 210

Issue Date : 09/30/2023

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 (Rob R-bar)	Thompson Horwitz %RSD
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	50	49	8.355	0.2103	8.382	0.1425	0.0254	1.70%	0.0800	2.90%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	4	4	8.413	0.4074	8.413	0.4074	0.2037	4.84%	0.0970	2.90%
001.99	Loss on Drying, Miscellaneous (%)	5	4	8.079	0.3268	8.079	0.3268	0.1634	4.04%	0.1150	2.92%
001.03	Loss on Drying, Low temp. methods (%)	2	2	8.700	0.5445						
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	79	78	7.594	0.2855	7.601	0.1366	0.0193	1.80%	0.0675	2.95%
002.01	Protein, Crude, Auto Kjell-Foss (%)	4	4	7.674	0.0588	7.674	0.0588	0.0294	0.77%	0.0470	2.94%
002.04	Protein, Crude, Copper Catalyst (%)	2	2	7.578	0.0813						
002.00	Protein, Crude, Crude (%)	1	1	8.055							
002.05	Protein, Crude, Copper, Boric Acid (%)	1	1	6.055							
002.08	Protein, Crude, Cu/Ti (%)	1	1	7.610							
002.11	Protein, Crude, NIR (%)	1	1	12.48							
003.14	Fat, Crude, Ankom (%)	10	10	0.5799	0.3533	0.5609	0.3563	0.1409	63.53%	0.0561	4.36%
003.10	Fat, Crude, Randall, Pet Ether (%)	7	7	0.4308	0.0804	0.4308	0.0912	0.0431	21.16%	0.0430	4.54%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	5	5	2.075	1.065	2.075	1.065	0.4762	51.32%	0.1304	3.58%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	3	3	0.4443	0.1528	0.4443	0.1528	0.0882	34.39%	0.0166	4.52%
003.99	Fat, Crude, Miscellaneous (%)	3	3	4.058	6.339	4.058	6.339	4.482	156.20%	1.535	3.24%
003.06	Fat, Crude, Pet Ether (%)	2	2	0.5275	0.2015						
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	1	1	0.3100							
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	1	1	0.4950							
003.12	Fat, Crude, Hexane Ext (%)	1	1	0.5100							
004.07	Fiber, Crude, ANKOM (%)	15	15	15.44	0.6989	15.40	0.5764	0.1860	3.74%	0.4528	2.55%
004.00	Fiber, Crude, Asbestos Free (%)	5	4	15.44	0.6485	15.44	0.6485	0.3242	4.20%	0.2160	2.54%
004.06	Fiber, Crude, Fibertec (%)	3	3	15.71	0.4996	15.71	0.4996	0.2884	3.18%	0.2017	2.52%
004.03	Fiber, Crude, Fritted Glass (%)	1	1	14.77							
004.11	Fiber, Crude, NIR (%)	1	1	26.39							
005.00	Ash, 2h @ 600°C (%)	45	44	6.403	0.4514	6.416	0.4344	0.0819	6.77%	0.1845	3.02%
005.05	Ash, 3h @ 550°C (%)	20	19	6.324	0.4790	6.350	0.4839	0.1388	7.62%	0.2101	3.03%
005.03	Ash, Microwave furnace (%)	6	6	6.263	0.1863	6.266	0.2026	0.1034	3.23%	0.2383	3.03%
005.99	Ash, Miscellaneous (%)	2	2	7.070	0.0424						

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005.11	Ash, NIR (%)	1	1	7.453							
006.99	Total Sugars, Miscellaneous (%)	3	3	18.20	0.7558	18.20	0.7558	0.4364	4.15%	1.217	2.34%
006.00	Total Sugars, As sucrose (%)	1	1	19.83							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	10	10	20.98	1.359	21.01	1.467	0.5800	6.98%	0.4129	2.18%
008.02	Fiber, Acid Detergent, Crucible (%)	2	2	21.20	0.5558						
008.99	Fiber, Acid Detergent, Miscellaneous (%)	1	1	18.80							
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	7	7	34.64	2.084	35.04	1.330	0.6284	3.80%	0.4989	1.69%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	2	2	35.10	1.454						
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	1	1	49.65							
010.03	Moisture, Karl-Fischer (%)	2	2	8.820	0.1061						
010.11	Moisture, NIR (%)	1	1	8.618							
010.99	Moisture, Miscellaneous (%)	1	1	8.220							
011.01	Loss on Drying, HT, 135°C 2hr (%)	19	18	9.043	0.6202	9.010	0.4946	0.1457	5.49%	0.1313	2.87%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	2	2	8.918	0.2793						
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	3	3	1.299	0.9258	1.299	0.9258	0.5345	71.26%	0.0331	3.85%
012.00	Starch, Polarimetric (Ewers) (%)	1	1	10.85							
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	1	1	1.430							
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	1	1	0.6000							
012.11	Starch, NIR (%)	1	1	14.56							
013.02	Fat, Pretreat, Mojonier, Bak Ext, Acid hydrolysis (%)	33	32	2.337	0.3057	2.340	0.3248	0.0718	13.88%	0.1688	3.52%
013.00	Fat, Pretreat, Acid hydrolysis (%)	10	10	1.312	0.7780	1.312	0.8822	0.3487	67.26%	0.1250	3.84%
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	2	2	1.083	0.0530						
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	1	1	3.447							
014.01	Fiber, Total Dietary, Enz-Grav (%)	1	1	55.65							
015.43	Aluminum, ICP, Microwave (ppm)	3	3	615.2	269.9	615.2	269.9	155.8	43.87%	16.94	6.09%
015.41	Aluminum, ICP, Dry ash (ppm)	1	1	479.4							
015.53	Aluminum, ICP-MS, Microwave (ppm)	1	1	493.7							
017.43	Boron, ICP, Microwave (ppm)	3	3	31.52	0.9576	31.52	0.9576	0.5528	3.04%	0.5532	9.52%
017.41	Boron, ICP, Dry ash (ppm)	1	1	32.07							
017.53	Boron, ICP-MS, Microwave (ppm)	1	1	30.75							
019.44	Calcium, ICP, Dry ash (%)	25	25	0.7400	0.0350	0.7405	0.0385	0.0096	5.21%	0.0260	4.18%
019.43	Calcium, ICP, Microwave (%)	19	19	0.7844	0.0504	0.7829	0.0465	0.0133	5.95%	0.0343	4.15%
019.41	Calcium, ICP, Dry ash (%)	16	15	0.7583	0.0330	0.7557	0.0313	0.0101	4.14%	0.0269	4.17%
019.31	Calcium, AAS, Dry ash (%)	3	3	0.7410	0.0229	0.7410	0.0229	0.0162	3.10%	0.0568	4.18%
019.42	Calcium, ICP, Open vessel (%)	3	3	0.6933	0.1208	0.6933	0.1208	0.0697	17.42%	0.0376	4.23%
019.53	Calcium, ICP-MS, Microwave (%)	3	3	0.7962	0.0536	0.7962	0.0536	0.0309	6.73%	0.0215	4.14%
019.99	Calcium, Miscellaneous (%)	3	3	0.8817	0.2071	0.8817	0.2071	0.1196	23.49%	0.0150	4.08%
019.00	Calcium, Ox-Mn04 Vol. (%)	1	1	0.9500							
019.52	Calcium, ICP-MS, Open vessel (%)	1	1	0.8750							
021.41	Cobalt, ICP, Dry ash (ppm)	3	3	9.147	4.549	9.147	4.549	2.627	49.73%	0.6223	11.46%

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021.43	Cobalt, ICP, Microwave (ppm)	4	3	12.62	2.262	12.62	2.262	1.306	17.93%	0.1097	10.92%
021.53	Cobalt, ICP-MS, Microwave (ppm)	2	2	8.853	2.621						
021.00	Cobalt, Color (ppm)	1	1	8.555							
021.31	Cobalt, AAS, Dry ash (ppm)	1	1	11.00							
022.44	Copper, ICP, Dry ash (ppm)	20	19	4.958	0.8959	4.795	0.2490	0.0714	5.19%	0.2281	12.63%
022.43	Copper, ICP, Microwave (ppm)	18	18	5.337	0.5904	5.258	0.4583	0.1350	8.72%	0.3269	12.46%
022.41	Copper, ICP, Dry ash (ppm)	10	9	5.041	0.6649	5.006	0.6722	0.2801	13.43%	0.2750	12.55%
022.42	Copper, ICP, Open vessel (ppm)	2	2	4.912	0.0163						
022.53	Copper, ICP-MS, Microwave (ppm)	2	2	5.413	0.0164						
022.33	Copper, AAS, Microwave (ppm)	1	1	5.700							
022.99	Copper, Miscellaneous (ppm)	1	1	5.000							
022.31	Copper, AAS, Dry ash (ppm)	1		9.600							
025.43	Iron, ICP, Microwave (ppm)	13	12	634.5	100.2	637.3	105.2	37.95	16.50%	29.98	6.05%
025.41	Iron, ICP, Dry ash (ppm)	8	8	614.1	20.14	614.1	22.84	10.10	3.72%	29.36	6.09%
025.42	Iron, ICP, Open vessel (ppm)	3	3	607.7	72.45	607.7	72.45	41.83	11.92%	58.46	6.10%
025.53	Iron, ICP-MS, Microwave (ppm)	3	3	688.4	129.5	688.4	129.5	74.76	18.81%	33.93	5.98%
025.31	Iron, AAS, Dry ash (ppm)	2	2	622.9	5.197						
025.52	Iron, ICP-MS, Open vessel (ppm)	1	1	522.2							
025.99	Iron, Miscellaneous (ppm)	1	1	777.5							
027.44	Magnesium, ICP, Dry ash (%)	25	25	0.2006	0.0087	0.2009	0.0090	0.0023	4.49%	0.0053	5.09%
027.43	Magnesium, ICP, Microwave (%)	17	17	0.2293	0.0118	0.2296	0.0122	0.0037	5.33%	0.0120	4.99%
027.41	Magnesium, ICP, Dry ash (%)	16	16	0.2171	0.0157	0.2170	0.0175	0.0055	8.09%	0.0076	5.03%
027.31	Magnesium, AAS, Dry ash (%)	3	3	0.2251	0.0043	0.2251	0.0043	0.0030	1.89%	0.0037	5.01%
027.42	Magnesium, ICP, Open vessel (%)	3	3	0.2105	0.0308	0.2105	0.0308	0.0178	14.65%	0.0055	5.06%
027.53	Magnesium, ICP-MS, Microwave (%)	3	3	0.2421	0.0055	0.2421	0.0055	0.0032	2.26%	0.0070	4.95%
027.99	Magnesium, Miscellaneous (%)	3	3	4.012	6.585	4.012	6.585	4.656	164.14%		3.25%
027.33	Magnesium, AAS, Microwave (%)	1	1	0.2400							
027.52	Magnesium, ICP-MS, Open vessel (%)	1	1	0.2200							
028.44	Manganese, ICP, Dry ash (ppm)	22	22	43.86	2.526	43.87	2.845	0.7581	6.48%	1.360	9.05%
028.43	Manganese, ICP, Microwave (ppm)	18	17	46.26	2.739	46.24	2.395	0.7262	5.18%	1.368	8.98%
028.41	Manganese, ICP, Dry ash (ppm)	16	15	44.54	1.325	44.48	1.379	0.4452	3.10%	1.314	9.04%
028.42	Manganese, ICP, Open vessel (ppm)	3	3	38.54	5.046	38.54	5.046	2.913	13.09%	2.087	9.23%
028.53	Manganese, ICP-MS, Microwave (ppm)	3	3	45.12	2.001	45.12	2.001	1.156	4.44%	1.005	9.02%
028.31	Manganese, AAS, Dry ash (ppm)	2	2	45.52	2.878						
028.33	Manganese, AAS, Microwave (ppm)	1	1	43.25							
028.52	Manganese, ICP-MS, Open vessel (ppm)	1	1	50.05							
028.99	Manganese, Miscellaneous (ppm)	1	1	47.50							
031.44	Phosphorus, ICP, Dry ash (%)	27	27	0.0876	0.0150	0.0861	0.0063	0.0015	7.37%	0.0100	5.79%
031.43	Phosphorus, ICP, Microwave (%)	14	14	0.0874	0.0214	0.0825	0.0057	0.0019	6.95%	0.0059	5.82%
031.41	Phosphorus, ICP, Dry ash (%)	12	12	0.0887	0.0173	0.0854	0.0073	0.0026	8.52%	0.0066	5.79%

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031.42	Phosphorus, ICP, Open vessel (%)	3	3	0.0791	0.0007	0.0791	0.0007	0.0004	0.91%	0.0043	5.86%
031.99	Phosphorus, Miscellaneous (%)	3	2	0.0750	0.0071	0.0750	0.0071				5.91%
031.01	Phosphorus, Photometric (%)	1	1	0.1143							
031.53	Phosphorus, ICP-MS, Microwave (%)	1	1	0.0836							
032.44	Potassium, ICP, Dry ash (%)	26	25	0.4832	0.0251	0.4841	0.0262	0.0066	5.42%	0.0166	4.46%
032.43	Potassium, ICP, Microwave (%)	18	18	0.5040	0.0192	0.5038	0.0208	0.0061	4.12%	0.0186	4.43%
032.41	Potassium, ICP, Dry ash (%)	14	14	0.4869	0.0284	0.4896	0.0219	0.0073	4.47%	0.0138	4.45%
032.42	Potassium, ICP, Open vessel (%)	4	4	0.4588	0.0525	0.4588	0.0525	0.0263	11.45%	0.0202	4.50%
032.53	Potassium, ICP-MS, Microwave (%)	3	3	0.5211	0.0128	0.5211	0.0128	0.0074	2.46%	0.0208	4.41%
032.99	Potassium, Miscellaneous (%)	4	3	0.5167	0.0322	0.5167	0.0322				4.42%
032.31	Potassium, AAS, Dry ash (%)	2	2	0.4819	0.0751						
033.01	Salt as chloride, Poten Cl (%)	5	4	0.0411	0.0119	0.0411	0.0119	0.0059	28.87%	0.0132	6.47%
033.00	Salt as chloride, Sol Cl (%)	1	1	0.0199							
034.04	Selenium, Total (Se), AA, Hydride (ppm)	1	1	0.0550							
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	1	1	0.0975							
035.41	Sodium, ICP, Dry ash (%)	39	39	0.0314	0.0109	0.0293	0.0056	0.0011	19.11%	0.0063	6.80%
035.43	Sodium, ICP, Microwave (%)	13	12	0.0232	0.0059	0.0222	0.0036	0.0013	16.09%	0.0021	7.10%
035.42	Sodium, ICP, Open vessel (%)	2	2	0.0192	0.0012						
035.99	Sodium, Miscellaneous (%)	2	2	0.0400	0.0141						
035.53	Sodium, ICP-MS, Microwave (%)	1	1	0.0218							
036.43	Sulfur, ICP, Microwave (%)	10	10	0.2036	0.0104	0.2048	0.0089	0.0035	4.33%	0.0081	5.08%
036.42	Sulfur, ICP, Open vessel (%)	4	4	0.1903	0.0111	0.1903	0.0111	0.0056	5.84%	0.0086	5.13%
036.99	Sulfur, Miscellaneous (%)	2	2	0.1700	0.0141						
036.04	Sulfur, LECO (%)	1	1	0.1900							
037.41	Zinc, ICP, Dry ash (ppm)	28	18	13.61	10.47	13.31	11.18	3.295	84.05%	1.660	10.84%
037.43	Zinc, ICP, Microwave (ppm)	17	17	22.58	2.893	22.38	2.799	0.8485	12.50%	1.411	10.02%
037.42	Zinc, ICP, Open vessel (ppm)	3	3	22.25	3.341	22.25	3.341	2.362	15.02%	2.811	10.03%
037.44	Zinc, ICP, Dry ash (ppm)	3	3	9.885	10.09	9.885	10.09	5.827	102.10%	1.102	11.33%
037.53	Zinc, ICP-MS, Microwave (ppm)	3	3	23.02	1.289	23.02	1.289	0.7442	5.60%	1.493	9.98%
037.31	Zinc, AAS, Dry ash (ppm)	2	2	19.05	4.246						
037.99	Zinc, Miscellaneous (ppm)	2	2	22.50	2.114						
037.33	Zinc, AAS, Microwave (ppm)	1	1	21.90							
038.43	Molybdenum, ICP, Microwave (ppm)	2	2	1.028	0.3847						
038.41	Molybdenum, ICP, Dry ash (ppm)	1	1	0.9326							
038.51	Molybdenum, ICP-MS, Dry ash (ppm)	1	1	0.8450							
038.53	Molybdenum, ICP-MS, Microwave (ppm)	1	1	0.7514							
040.53	Barium, ICP-MS, Microwave (ppm)	1	1	23.49							
041.53	Vanadium, ICP-MS, Microwave (ppm)	1	1	1.256							
042.00	Chloride, Titrimetric (%)	1		0.0600							
102.01	Niacin, Microbiological (ppm)	1	1	3.470							

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104.00	Riboflavin, Fluorometric (ppm)	1	1	0.7325							
105.01	Thiamine, Fluorometer (ppm)	1	1	0.9800							
109.02	Vitamin E, LC (IU / kg)	1	1	19.65							
112.01	Pyridoxine, LC (µg / g)	1	1	0.9300							
120.00	Alanine, Post-col Ninhydrin Der (%)	5	5	0.3752	0.0053	0.3752	0.0053	0.0024	1.41%	0.0105	4.64%
120.05	Alanine, Pre-col AQC Der (%)	2	2	0.3325	0.0679						
121.00	Arginine, Post-col Ninhydrin Der (%)	5	5	0.3153	0.0323	0.3153	0.0323	0.0145	10.25%	0.0131	4.76%
121.05	Arginine, Pre-col AQC Der (%)	2	2	0.2793	0.0265						
122.00	Aspartic, Post-col Ninhydrin Der (%)	5	5	0.6038	0.0177	0.6038	0.0177	0.0079	2.94%	0.0184	4.32%
122.05	Aspartic, Pre-col AQC Der (%)	2	2	0.4798	0.0527						
124.00	Cysteine/Cystine, PAO Post-col Ninhydri (%)	5	5	0.1047	0.0163	0.1047	0.0163	0.0073	15.52%	0.0123	5.62%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	2	2	0.1600	0.1569						
125.00	Glutamic, Post-col Ninhydrin Der (%)	5	5	0.7705	0.0356	0.7705	0.0356	0.0159	4.62%	0.0338	4.16%
125.05	Glutamic, Pre-col AQC Der (%)	2	2	0.6550	0.1054						
126.00	Glycine, Post-col Ninhydrin Der (%)	5	5	0.3542	0.0139	0.3542	0.0139	0.0062	3.91%	0.0216	4.68%
126.05	Glycine, Pre-col AQC Der (%)	2	2	0.3485	0.0481						
127.00	Histidine, Post-col Ninhydrin Der (%)	5	5	0.2465	0.0290	0.2465	0.0290	0.0130	11.77%	0.0136	4.94%
127.05	Histidine, Pre-col AQC Der (%)	2	2	0.2285	0.0262						
128.00	Isoleucine, Post-col Ninhydrin Der (%)	5	5	0.3026	0.0165	0.3026	0.0165	0.0074	5.46%	0.0100	4.79%
128.05	Isoleucine, Pre-col AQC Der (%)	2	2	0.2720	0.0156						
129.00	Leucine, Post-col Ninhydrin Der (%)	5	5	0.4915	0.0185	0.4915	0.0185	0.0083	3.76%	0.0141	4.45%
129.05	Leucine, Pre-col AQC Der (%)	2	2	0.4368	0.0562						
130.00	L-Lysine, Post-col Ninhydrin Der (%)	5	5	0.4528	0.0323	0.4528	0.0323	0.0145	7.14%	0.0195	4.51%
130.05	L-Lysine, Pre-col AQC Der (%)	2	2	0.3863	0.0272						
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	5	5	0.1356	0.0121	0.1356	0.0121	0.0054	8.92%	0.0104	5.40%
131.05	Methionine, PAO Pre-col AQC Der (%)	2	2	0.1224	0.0292						
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	5	5	0.2980	0.0102	0.2980	0.0102	0.0046	3.44%	0.0117	4.80%
132.05	Phenylalanine, Pre-col AQC Der (%)	2	2	0.2435	0.0396						
133.00	Proline, Post-col Ninhydrin Der (%)	5	5	0.3661	0.0169	0.3661	0.0169	0.0076	4.63%	0.0259	4.65%
133.05	Proline, Pre-col AQC Der (%)	2	2	0.3068	0.0244						
134.00	Serine, Post-col Ninhydrin Der (%)	5	5	0.3705	0.0327	0.3705	0.0327	0.0146	8.81%	0.0113	4.64%
134.05	Serine, Pre-col AQC Der (%)	2	2	0.3023	0.0541						
135.00	Threonine, Post-col Ninhydrin Der (%)	5	5	0.3581	0.0144	0.3581	0.0144	0.0064	4.01%	0.0089	4.67%
135.05	Threonine, Pre-col AQC Der (%)	2	2	0.2953	0.0527						
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	2	2	0.0998	0.0145						
136.05	Tryptophan, Pre-col AQC Der (%)	2	2	0.0903	0.0173						
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	1	1	0.1169							
136.99	Tryptophan, Miscellaneous (%)	1	1	0.0550							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	4	4	0.2773	0.0238	0.2773	0.0238	0.0119	8.59%	0.0162	4.85%
137.05	Tyrosine, Pre-col AQC Der (%)	2	2	0.3028	0.0590						

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (Rob R-bar)	Thompson Horwitz %RSD
138.00	Valine, Post-col Ninhydrin Der (%)	5	5	0.4771	0.0158	0.4771	0.0158	0.0071	3.31%	0.0108	4.47%
138.05	Valine, Pre-col AQC Der (%)	2	2	0.4180	0.0509						
139.00	Taurine, Post-col Ninhydrin Der (%)	1	1	0.2500							
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0260							
400.01	Water Activity, Aqualab chilled mirror (Units)	4	2	0.5334	0.0119	0.5334	0.0119			0.0051	
400.99	Water Activity, Miscellaneous (Units)	2	2	0.5305	0.0339						
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	2	2	0.2140	0.0205						
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	1	1	0.8900							
518.43	Cadmium, ICP, Microwave (ppm)	2	2	0.2426	0.0459						
518.53	Cadmium, ICP-MS, Microwave (ppm)	2	2	0.2604	0.0090						
518.41	Cadmium, ICP, Dry ash (ppm)	1	1	0.1134							
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	3	3	21.72	4.375	21.72	4.375	2.526	20.14%	1.964	10.07%
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	1	1	16.70							
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	1	1	14.99							
526.53	Lead, ICP-MS, Microwave (ppm)	2	2	0.5006	0.0327						
526.41	Lead, ICP, Dry ash (ppm)	1	1	0.4536							
526.43	Lead, ICP, Microwave (ppm)	1	1	0.4064							
529.99	Mercury, Miscellaneous (ppb)	1	1	8.499							
539.43	Nickel, ICP, Microwave (ppm)	2	2	7.702	1.836						
539.41	Nickel, ICP, Dry ash (ppm)	1	1	6.710							
539.53	Nickel, ICP-MS, Microwave (ppm)	1	1	5.383							

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.



Pet Food Ingredient Scheme

Beet Pulp

Test Material Code # 202343

Method Precision Report

Methods Reported: 55

Labs Reporting: 91

Issue Date : 09/30/2023

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 (%)	50	45	8.355	0.2103	0.1691	0.0647	0.1810	2.02%	0.77%	2.16%	2.798
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	79	71	7.594	0.2855	0.1483	0.0649	0.1619	1.95%	0.85%	2.13%	2.495
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	5	5	2.075	1.065	1.061	0.1182	1.068	51.16%	5.70%	51.48%	9.038
003.10	Fat, Crude, Randall, Pet Ether (%)	7	6	0.4308	0.0804	0.0756	0.0280	0.0806	18.13%	6.73%	19.34%	2.874
003.14	Fat, Crude, Ankom (%)	10	9	0.5799	0.3533	0.3738	0.0388	0.3758	64.43%	6.69%	64.78%	9.683
004.07	Fiber, Crude, ANKOM (%)	15	14	15.44	0.6989	0.4417	0.3525	0.5652	2.88%	2.30%	3.69%	1.603
005.00	Ash, 2h @ 600°C (%)	45	42	6.403	0.4514	0.3825	0.1807	0.4230	5.93%	2.80%	6.56%	2.340
005.03	Ash, Microwave furnace (%)	6	6	6.263	0.1863	0.1187	0.2032	0.2353	1.89%	3.24%	3.76%	1.158
005.05	Ash, 3h @ 550°C (%)	20	19	6.324	0.4790	0.4583	0.1968	0.4988	7.25%	3.11%	7.89%	2.535
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	10	9	20.98	1.359	1.356	0.3033	1.390	6.51%	1.45%	6.67%	4.582
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	7	6	34.64	2.084	0.7778	0.4836	0.9159	2.20%	1.37%	2.59%	1.894
011.01	Loss on Drying, HT, 135°C 2hr (%)	19	18	9.043	0.6202	0.6135	0.1289	0.6268	6.78%	1.43%	6.93%	4.864
013.00	Fat, Pretreat, Acid hydrolysis (%)	10	10	1.312	0.7780	0.7747	0.1014	0.7813	59.06%	7.73%	59.57%	7.706
013.02	Fat, Pretreat, Mojonner, Bak Ext, Acid hydrolysis (%)	33	32	2.337	0.3057	0.2816	0.1682	0.3280	12.05%	7.20%	14.03%	1.950
019.41	Calcium, ICP, Dry ash (%)	16	14	0.7583	0.0330	0.0216	0.0212	0.0303	2.87%	2.82%	4.02%	1.427
019.43	Calcium, ICP, Microwave (%)	19	18	0.7844	0.0504	0.0356	0.0321	0.0480	4.58%	4.13%	6.17%	1.494
019.44	Calcium, ICP, Dry ash (%)	25	25	0.7400	0.0350	0.0319	0.0203	0.0378	4.31%	2.74%	5.11%	1.863
022.41	Copper, ICP, Dry ash (ppm)	10	9	5.041	0.6649	0.6456	0.2251	0.6837	12.81%	4.47%	13.56%	3.037
022.43	Copper, ICP, Microwave (ppm)	18	18	5.337	0.5904	0.5467	0.3154	0.6311	10.24%	5.91%	11.83%	2.001
022.44	Copper, ICP, Dry ash (ppm)	20	17	4.958	0.8959	0.2187	0.1809	0.2838	4.59%	3.79%	5.95%	1.569
025.41	Iron, ICP, Dry ash (ppm)	8	8	614.1	20.14	6.295	27.06	27.78	1.03%	4.41%	4.52%	1.027
025.43	Iron, ICP, Microwave (ppm)	13	12	634.5	100.2	97.62	31.80	102.7	15.38%	5.01%	16.18%	3.228
027.41	Magnesium, ICP, Dry ash (%)	16	16	0.2171	0.0157	0.0151	0.0059	0.0162	6.95%	2.72%	7.46%	2.740
027.43	Magnesium, ICP, Microwave (%)	17	17	0.2293	0.0118	0.0100	0.0090	0.0134	4.35%	3.92%	5.86%	1.493
027.44	Magnesium, ICP, Dry ash (%)	25	25	0.2006	0.0087	0.0080	0.0048	0.0093	3.97%	2.40%	4.64%	1.933
028.41	Manganese, ICP, Dry ash (ppm)	16	15	44.54	1.325	1.056	1.133	1.549	2.37%	2.54%	3.48%	1.367
028.43	Manganese, ICP, Microwave (ppm)	18	16	46.26	2.739	2.381	1.079	2.614	5.11%	2.32%	5.61%	2.422
028.44	Manganese, ICP, Dry ash (ppm)	22	22	43.86	2.526	2.370	1.238	2.674	5.40%	2.82%	6.10%	2.159
031.41	Phosphorus, ICP, Dry ash (%)	12	11	0.0887	0.0173	0.0060	0.0038	0.0071	7.13%	4.50%	8.43%	1.873
031.43	Phosphorus, ICP, Microwave (%)	14	13	0.0874	0.0214	0.0037	0.0038	0.0053	4.53%	4.67%	6.51%	1.394
031.44	Phosphorus, ICP, Dry ash (%)	27	26	0.0876	0.0150	0.0068	0.0071	0.0099	8.01%	8.37%	11.58%	1.384
032.41	Potassium, ICP, Dry ash (%)	14	13	0.4869	0.0284	0.0165	0.0123	0.0206	3.35%	2.50%	4.18%	1.673
032.43	Potassium, ICP, Microwave (%)	18	18	0.5040	0.0192	0.0157	0.0155	0.0221	3.11%	3.08%	4.38%	1.423
032.44	Potassium, ICP, Dry ash (%)	26	25	0.4832	0.0251	0.0234	0.0130	0.0268	4.84%	2.69%	5.54%	2.056
035.41	Sodium, ICP, Dry ash (%)	39	38	0.0314	0.0109	0.0069	0.0041	0.0080	22.92%	13.47%	26.59%	1.973
035.43	Sodium, ICP, Microwave (%)	13	11	0.0232	0.0059	0.0026	0.0015	0.0030	11.93%	6.76%	13.71%	2.028

Test Material Code # 202343

Issue Date : 09/30/2023

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
036.43	Sulfur, ICP, Microwave (%)	10	9	0.2036	0.0104	0.0053	0.0056	0.0077	2.58%	2.72%	3.75%	1.379
037.41	Zinc, ICP, Dry ash (ppm)	28	17	13.61	10.47	9.151	1.410	9.259	74.28%	11.44%	75.15%	6.567
037.43	Zinc, ICP, Microwave (ppm)	17	16	22.58	2.893	2.116	1.325	2.497	9.56%	5.99%	11.28%	1.884
120.00	Alanine, Post-col Ninhydrin Der (%)	5	5	0.3752	0.0053		0.0079			2.10%		
121.00	Arginine, Post-col Ninhydrin Der (%)	5	5	0.3153	0.0323	0.0317	0.0086	0.0329	10.07%	2.72%	10.43%	3.837
122.00	Aspartic, Post-col Ninhydrin Der (%)	5	5	0.6038	0.0177	0.0153	0.0126	0.0198	2.54%	2.08%	3.29%	1.578
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	5	5	0.1047	0.0163	0.0158	0.0056	0.0167	15.06%	5.34%	15.98%	2.989
125.00	Glutamic, Post-col Ninhydrin Der (%)	5	5	0.7705	0.0356	0.0297	0.0277	0.0406	3.86%	3.59%	5.27%	1.467
126.00	Glycine, Post-col Ninhydrin Der (%)	5	5	0.3542	0.0139	0.0108	0.0123	0.0164	3.05%	3.47%	4.62%	1.332
127.00	Histidine, Post-col Ninhydrin Der (%)	5	5	0.2465	0.0290	0.0281	0.0099	0.0299	11.42%	4.04%	12.11%	3.001
128.00	Isoleucine, Post-col Ninhydrin Der (%)	5	5	0.3026	0.0165	0.0159	0.0063	0.0171	5.25%	2.08%	5.65%	2.717
129.00	Leucine, Post-col Ninhydrin Der (%)	5	5	0.4915	0.0185	0.0171	0.0099	0.0198	3.48%	2.02%	4.02%	1.995
130.00	L-Lysine, Post-col Ninhydrin Der (%)	5	5	0.4528	0.0323	0.0306	0.0147	0.0340	6.76%	3.24%	7.50%	2.313
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	5	5	0.1356	0.0121	0.0112	0.0066	0.0130	8.23%	4.88%	9.57%	1.962
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	5	5	0.2980	0.0102	0.0081	0.0089	0.0120	2.72%	2.97%	4.03%	1.355
133.00	Proline, Post-col Ninhydrin Der (%)	5	5	0.3661	0.0169	0.0053	0.0227	0.0234	1.46%	6.21%	6.38%	1.027
134.00	Serine, Post-col Ninhydrin Der (%)	5	5	0.3705	0.0327	0.0318	0.0107	0.0335	8.57%	2.88%	9.04%	3.144
135.00	Threonine, Post-col Ninhydrin Der (%)	5	5	0.3581	0.0144	0.0134	0.0072	0.0152	3.75%	2.01%	4.25%	2.120
138.00	Valine, Post-col Ninhydrin Der (%)	5	5	0.4771	0.0158	0.0149	0.0074	0.0166	3.13%	1.55%	3.49%	2.256

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