



AAFCO
Association of American Feed Control Officials



Animal Feed Scheme

Rice Bran

Test Material Code # 202223

Method Summary Report

(Precision Report Follows)

Labs Reporting: 172

Methods Reported: 358

Issue Date : 04/30/2022

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO #fp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Thompson Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.1000							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	48	48	8.247	0.4213	8.254	0.3279	0.0592	3.97%	0.1527	2.91%
001.99	Loss on Drying, Miscellaneous (%)	21	21	8.079	0.8151	8.131	0.7298	0.1991	8.98%	0.1396	2.92%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	4	3	8.497	0.0477	8.497	0.0477	0.0275	0.56%	0.1033	2.90%
001.03	Loss on Drying, Low temp. methods (%)	2	2	8.450	0.2616						
001.05	Loss on Drying, LECO (%)	1	1	7.996							
001.08	Loss on Drying, 102°C 16 hr, in meat (%)	1	1	8.605							
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	122	120	13.62	0.3930	13.62	0.2928	0.0334	2.15%	0.2053	2.70%
002.05	Protein, Crude, Copper, Boric Acid (%)	23	22	13.33	0.2279	13.34	0.1771	0.0472	1.33%	0.1141	2.71%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	14	14	13.39	0.1326	13.39	0.1454	0.0486	1.09%	0.0508	2.71%
002.11	Protein, Crude, NIR (%)	6	6	13.88	0.8269	13.88	0.9377	0.4785	6.75%	0.1517	2.68%
002.00	Protein, Crude, Crude (%)	2	2	13.80	0.2758						
002.04	Protein, Crude, Copper Catalyst (%)	2	2	13.40	0.0743						
002.08	Protein, Crude, Cu/Ti (%)	2	2	13.56	0.1738						
003.14	Fat, Crude, Ankom (%)	54	53	17.57	0.3979	17.58	0.3692	0.0634	2.10%	0.2122	2.38%
003.10	Fat, Crude, Randall, Pet Ether (%)	25	24	17.21	0.5806	17.25	0.5660	0.1444	3.28%	0.2808	2.41%
003.06	Fat, Crude, Pet Ether (%)	17	17	17.46	0.4952	17.57	0.2403	0.0728	1.37%	0.1818	2.39%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	15	15	17.52	0.4167	17.53	0.4566	0.1474	2.61%	0.3355	2.39%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	9	9	17.59	0.8320	17.48	0.6845	0.2852	3.92%	0.2989	2.39%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	7	6	17.53	0.3435	17.53	0.3896	0.1988	2.22%	0.0970	2.39%
003.11	Fat, Crude, NIR (%)	5	5	17.47	0.6916	17.47	0.6916	0.3093	3.96%	0.1220	2.39%
003.99	Fat, Crude, Miscellaneous (%)	4	4	13.76	6.629	13.76	6.629	3.314	48.19%	0.4675	2.70%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	3	3	17.80	0.4958	17.80	0.4958	0.2863	2.79%	0.3177	2.37%
003.12	Fat, Crude, Hexane Ext (%)	1	1	18.05							
004.07	Fiber, Crude, ANKOM (%)	78	77	5.965	0.5276	5.950	0.3625	0.0516	6.09%	0.1893	3.06%
004.06	Fiber, Crude, Fibertec (%)	22	22	6.141	0.4773	6.090	0.3753	0.1000	6.16%	0.2219	3.05%
004.00	Fiber, Crude, Asbestos Free (%)	12	12	6.018	0.5827	5.955	0.4956	0.1788	8.32%	0.2803	3.06%
004.03	Fiber, Crude, Fritted Glass (%)	5	5	6.012	0.4508	6.012	0.4508	0.2016	7.50%	0.3760	3.05%
004.11	Fiber, Crude, NIR (%)	5	4	5.609	1.940	5.609	1.940	0.9698	34.58%	0.0575	3.09%

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004.01	Fiber, Crude, Sing Filt (%)	1	1	5.480							
004.99	Fiber, Crude, Miscellaneous (%)	1	1	5.825							
005.00	Ash, 2h @ 600°C (%)	94	93	8.518	0.2322	8.495	0.1377	0.0179	1.62%	0.0942	2.90%
005.05	Ash, 3h @ 550°C (%)	22	21	8.380	0.2216	8.406	0.1254	0.0342	1.49%	0.0607	2.90%
005.99	Ash, Miscellaneous (%)	10	10	8.358	0.2445	8.387	0.1779	0.0703	2.12%	0.0759	2.90%
005.11	Ash, NIR (%)	4	4	11.49	4.389	11.49	4.389	2.195	38.19%	0.1175	2.77%
005.02	Ash, LECO (%)	1	1	8.346							
005.03	Ash, Microwave furnace (%)	1	1	8.500							
006.99	Total Sugars, Miscellaneous (%)	5	5	6.651	2.265	6.651	2.265	1.013	34.06%	0.2260	3.01%
006.00	Total Sugars, As sucrose (%)	4	4	5.664	0.5535	5.664	0.5535	0.2767	9.77%	0.3075	3.08%
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	45	44	7.511	1.120	7.378	0.9071	0.1709	12.29%	0.2748	2.96%
008.02	Fiber, Acid Detergent, Crucible (%)	16	16	8.115	1.458	7.923	0.7077	0.2212	8.93%	0.3035	2.93%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	5	5	7.661	0.7078	7.661	0.7078	0.3165	9.24%	0.2102	2.94%
008.05	Fiber, Acid Detergent, Acid Detergent-Hach (%)	1	1	9.230							
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	43	41	16.21	1.200	16.16	1.116	0.2179	6.91%	0.2691	2.49%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	15	14	17.87	1.302	17.88	1.451	0.4848	8.12%	0.4331	2.36%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	4	4	19.37	1.372	19.37	1.372	0.6861	7.08%	0.1425	2.27%
009.04	Fiber, Neutral Detergent, Neutral Det-No ENZ Pretreat (%)	2	2	17.53	2.616						
010.99	Moisture, Miscellaneous (%)	17	16	8.272	0.4439	8.317	0.3992	0.1248	4.80%	0.0972	2.91%
010.11	Moisture, NIR (%)	5	4	8.163	1.243	8.163	1.243	0.7174	15.22%	0.0450	2.92%
010.03	Moisture, Karl-Fischer (%)	2	2	7.845	0.3394						
011.01	Loss on Drying, HT, 135°C 2hr (%)	66	65	9.430	0.7172	9.418	0.7655	0.1187	8.13%	0.1542	2.85%
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	4	4	9.472	0.5267	9.472	0.5267	0.2634	5.56%	0.1695	2.85%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	2	2	9.413	0.6894						
012.00	Starch, Polarimetric (Ewers) (%)	16	16	25.49	0.8455	25.52	0.5589	0.1747	2.19%	0.4324	1.98%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	10	22.64	1.854	22.48	1.729	0.6833	7.69%	0.5664	2.11%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	7	7	24.83	3.194	24.62	3.149	1.488	12.79%	0.6500	2.02%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	3	3	22.84	0.1092	22.84	0.1092	0.0630	0.48%	1.465	2.09%
012.11	Starch, NIR (%)	3	3	22.37	0.7552	22.37	0.7552	0.5340	3.38%	0.4033	2.11%
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	2	2	22.53	1.538						
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	17	17	18.23	0.8293	18.23	0.7093	0.2150	3.89%	0.3508	2.34%
013.02	Fat, Acid Pretreat, Mojonniier, Bak Ext (%)	16	16	18.85	0.9739	18.86	0.9177	0.2868	4.87%	0.3825	2.30%
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	10	9	18.79	0.9052	18.78	1.007	0.4196	5.36%	0.4709	2.31%
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	5	4	17.65	0.4579	17.65	0.4579	0.2290	2.59%	0.2522	2.38%
013.08	Fat, Base Pretreat, Roese-Gottlieb Modified (%)	1	1	6.930							
013.12	Fat, Acid Pretreat, NIR- Acid Hydrolysis (%)	1	1	17.50							
015.43	Aluminum, ICP, Microwave (ppm)	7	7	8.632	4.778	8.632	5.419	2.560	62.77%	0.4462	11.56%
015.41	Aluminum, ICP, Dry ash (ppm)	6	6	13.43	8.264	11.53	4.506	2.300	39.07%	1.066	11.07%
015.42	Aluminum, ICP, Open vessel (ppm)	2	2	69.90	92.28						
015.53	Aluminum, ICP-MS, Microwave (ppm)	2	2	8.575	7.283						

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017.42	Boron, ICP, Open vessel (ppm)	6	6	3.717	0.8393	3.635	0.7527	0.3841	20.71%	0.4308	13.17%
017.43	Boron, ICP, Microwave (ppm)	7	6	4.689	1.695	4.180	0.5775	0.2947	13.81%	0.3820	12.90%
017.41	Boron, ICP, Dry ash (ppm)	4	4	4.005	0.3753	4.005	0.3753	0.1876	9.37%	0.2337	12.98%
017.53	Boron, ICP-MS, Microwave (ppm)	2	2	4.735	4.116						
019.43	Calcium, ICP, Microwave (%)	23	21	0.0490	0.0078	0.0485	0.0075	0.0020	15.47%	0.0024	6.31%
019.42	Calcium, ICP, Open vessel (%)	21	20	0.0576	0.0140	0.0552	0.0093	0.0026	16.81%	0.0033	6.19%
019.41	Calcium, ICP, Dry ash (%)	20	19	0.0591	0.0269	0.0530	0.0118	0.0034	22.27%	0.0037	6.22%
019.31	Calcium, AAS, Dry ash (%)	16	15	0.0463	0.0210	0.0478	0.0189	0.0061	39.52%	0.0020	6.32%
019.00	Calcium, Ox-Mn04 Vol. (%)	4	3	0.2518	0.3019	0.2518	0.3019	0.1743	119.87%	0.0057	4.92%
019.08	Calcium, EDTA (%)	4	3	0.1250	0.1256	0.1250	0.1256			0.0000	5.47%
019.44	Calcium, ICP, Dry ash (%)	3	3	0.0664	0.0378	0.0664	0.0378	0.0267	56.91%	0.0001	6.02%
019.52	Calcium, ICP-MS, Open vessel (%)	4	3	0.0507	0.0010	0.0507	0.0010	0.0006	1.92%	0.0012	6.27%
019.53	Calcium, ICP-MS, Microwave (%)	4	3	0.0472	0.0026	0.0472	0.0026	0.0018	5.49%	0.0004	6.33%
019.99	Calcium, Miscellaneous (%)	3	3	0.0650	0.0391	0.0650	0.0391	0.0276	60.08%	0.0033	6.04%
019.09	Calcium, Ion-selective electrode (%)	2	2	0.0938	0.0159						
019.32	Calcium, AAS, Open vessel (%)	1	1	0.0650							
019.33	Calcium, AAS, Microwave (%)	1	1	0.0450							
021.53	Cobalt, ICP-MS, Microwave (ppm)	5	5	0.1358	0.0093	0.1358	0.0093	0.0042	6.87%	0.0111	21.60%
021.41	Cobalt, ICP, Dry ash (ppm)	4	3	0.1456	0.0997	0.1456	0.0997	0.0705	68.50%	0.0134	21.38%
021.43	Cobalt, ICP, Microwave (ppm)	7	3	0.4019	0.2318	0.4019	0.2318	0.1673	57.68%	0.0704	18.35%
021.52	Cobalt, ICP-MS, Open vessel (ppm)	2	1	0.1300							
021.31	Cobalt, AAS, Dry ash (ppm)	1		5.000							
022.42	Copper, ICP, Open vessel (ppm)	23	22	6.135	1.087	6.170	0.9060	0.2415	14.68%	0.5547	12.16%
022.43	Copper, ICP, Microwave (ppm)	23	21	5.812	1.741	5.540	0.8484	0.2314	15.31%	0.2167	12.36%
022.41	Copper, ICP, Dry ash (ppm)	16	14	5.633	2.697	5.321	2.186	0.7302	41.08%	0.3460	12.44%
022.31	Copper, AAS, Dry ash (ppm)	7	4	7.212	3.486	7.212	3.486	2.179	48.34%	0.3986	11.88%
022.52	Copper, ICP-MS, Open vessel (ppm)	3	3	6.615	2.156	6.615	2.156	1.245	32.59%	0.3100	12.04%
022.53	Copper, ICP-MS, Microwave (ppm)	3	3	5.480	0.5236	5.480	0.5236	0.3703	9.56%	0.1559	12.38%
022.44	Copper, ICP, Dry ash (ppm)	2	2	4.800	0.2828						
022.99	Copper, Miscellaneous (ppm)	3	2	6.500	2.121	6.500	2.121			0.0000	12.07%
022.33	Copper, AAS, Microwave (ppm)	1	1	6.250							
025.43	Iron, ICP, Microwave (ppm)	25	23	87.43	6.832	87.53	7.156	1.865	8.18%	2.145	8.16%
025.42	Iron, ICP, Open vessel (ppm)	21	19	101.3	28.06	94.89	12.18	3.493	12.84%	2.801	8.06%
025.41	Iron, ICP, Dry ash (ppm)	19	18	89.50	8.167	89.31	5.551	1.636	6.22%	2.474	8.14%
025.31	Iron, AAS, Dry ash (ppm)	8	7	83.65	19.09	84.20	20.39	9.635	24.22%	1.140	8.21%
025.53	Iron, ICP-MS, Microwave (ppm)	3	3	89.75	7.503	89.75	7.503	4.332	8.36%	25.49	8.13%
025.52	Iron, ICP-MS, Open vessel (ppm)	2	2	96.77	43.10						
025.99	Iron, Miscellaneous (ppm)	2	2	88.50	3.536						
027.43	Magnesium, ICP, Microwave (%)	25	24	0.7965	0.0480	0.7955	0.0516	0.0132	6.48%	0.0156	4.14%
027.42	Magnesium, ICP, Open vessel (%)	22	21	0.8058	0.0806	0.8116	0.0760	0.0207	9.37%	0.0201	4.13%

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027.41	Magnesium, ICP, Dry ash (%)	17	17	0.8321	0.0743	0.8213	0.0404	0.0122	4.91%	0.0167	4.12%
027.31	Magnesium, AAS, Dry ash (%)	10	10	0.7799	0.0531	0.7865	0.0430	0.0170	5.47%	0.0129	4.15%
027.53	Magnesium, ICP-MS, Microwave (%)	4	4	0.7923	0.0259	0.7923	0.0259	0.0129	3.27%	0.0110	4.14%
027.99	Magnesium, Miscellaneous (%)	4	3	0.8433	0.0683	0.8433	0.0683	0.0394	8.09%	0.0067	4.10%
027.44	Magnesium, ICP, Dry ash (%)	2	2	0.8036	0.0306						
027.52	Magnesium, ICP-MS, Open vessel (%)	4	2	0.8209	0.0074	0.8209	0.0074			0.0160	4.12%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.7100							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.7600							
028.43	Manganese, ICP, Microwave (ppm)	26	26	171.9	11.50	171.1	10.83	2.654	6.33%	4.646	7.38%
028.42	Manganese, ICP, Open vessel (ppm)	23	22	176.2	16.23	176.7	15.20	4.051	8.60%	4.589	7.34%
028.41	Manganese, ICP, Dry ash (ppm)	17	16	175.0	17.22	172.4	10.91	3.411	6.33%	1.620	7.37%
028.31	Manganese, AAS, Dry ash (ppm)	8	8	155.1	17.21	155.1	19.52	8.627	12.59%	2.855	7.49%
028.53	Manganese, ICP-MS, Microwave (ppm)	5	5	175.4	12.82	175.4	12.82	5.734	7.31%	8.498	7.35%
028.52	Manganese, ICP-MS, Open vessel (ppm)	3	3	178.9	18.82	178.9	18.82	10.87	10.52%	7.400	7.33%
028.99	Manganese, Miscellaneous (ppm)	3	3	179.5	10.97	179.5	10.97	6.331	6.11%	2.333	7.32%
028.44	Manganese, ICP, Dry ash (ppm)	2	2	165.7	1.093						
028.00	Manganese, Color (ppm)	1	1	175.0							
028.32	Manganese, AAS, Open vessel (ppm)	1	1	179.0							
030.01	Nitrate, Ion-selective electrode (%)	1	1	0.0020							
031.01	Phosphorus, Photometric (%)	31	31	1.823	0.3375	1.916	0.1059	0.0238	5.53%	0.0392	3.63%
031.43	Phosphorus, ICP, Microwave (%)	25	24	1.939	0.0935	1.941	0.0960	0.0245	4.94%	0.0528	3.62%
031.42	Phosphorus, ICP, Open vessel (%)	22	22	1.949	0.1698	1.954	0.1797	0.0479	9.20%	0.1044	3.62%
031.41	Phosphorus, ICP, Dry ash (%)	21	21	1.978	0.0991	1.976	0.1078	0.0294	5.46%	0.0420	3.61%
031.99	Phosphorus, Miscellaneous (%)	5	5	1.845	0.0627	1.845	0.0627	0.0281	3.40%	0.0408	3.65%
031.53	Phosphorus, ICP-MS, Microwave (%)	4	4	2.021	0.2766	2.021	0.2766	0.1383	13.68%	0.2001	3.60%
031.44	Phosphorus, ICP, Dry ash (%)	3	3	1.912	0.0899	1.912	0.0899	0.0519	4.70%	0.0264	3.63%
031.52	Phosphorus, ICP-MS, Open vessel (%)	3	3	1.947	0.0935	1.947	0.0935	0.0540	4.80%	0.0878	3.62%
031.03	Phosphorus, Autoanalyzer (%)	2	2	2.141	0.1902						
032.43	Potassium, ICP, Microwave (%)	25	24	1.580	0.1037	1.584	0.1017	0.0259	6.42%	0.0257	3.73%
032.42	Potassium, ICP, Open vessel (%)	21	21	1.627	0.1221	1.628	0.1315	0.0359	8.08%	0.0409	3.72%
032.41	Potassium, ICP, Dry ash (%)	18	17	1.665	0.1705	1.635	0.0716	0.0217	4.38%	0.0363	3.71%
032.31	Potassium, AAS, Dry ash (%)	7	7	1.472	0.3081	1.544	0.1573	0.0743	10.19%	0.0265	3.75%
032.52	Potassium, ICP-MS, Open vessel (%)	4	4	1.612	0.0992	1.612	0.0992	0.0496	6.15%	0.0581	3.72%
032.99	Potassium, Miscellaneous (%)	5	4	1.662	0.2126	1.662	0.2126	0.1063	12.79%	0.0038	3.71%
032.53	Potassium, ICP-MS, Microwave (%)	4	3	1.607	0.0513	1.607	0.0513	0.0296	3.19%	0.0400	3.72%
032.44	Potassium, ICP, Dry ash (%)	2	2	1.635	0.0912						
032.02	Potassium, Flame Emission (%)	1	1	1.480							
032.32	Potassium, AAS, Open vessel (%)	1	1	1.285							
033.01	Salt as chloride, Poten Cl (%)	19	18	0.1418	0.0794	0.1247	0.0325	0.0096	26.05%	0.0077	5.47%
033.00	Salt as chloride, Sol Cl (%)	9	8	0.1269	0.0316	0.1289	0.0310	0.0137	24.08%	0.0208	5.44%

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033.99	Salt, Miscellaneous (%)	4	3	0.1083	0.0501	0.1083	0.0501	0.0354	46.23%	0.0033	5.59%
033.05	Salt as chloride, Ion Sel Electrode (%)	2	2	0.1075	0.0248						
033.03	Salt as chloride, Quantab (%)	2	1	0.1300							
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	6	6	0.2504	0.0457	0.2504	0.0519	0.0265	20.71%	0.0289	19.70%
034.04	Selenium, Total (Se), AA, Hydride (ppm)	4	4	0.1727	0.0420	0.1727	0.0420	0.0210	24.31%	0.0414	20.84%
034.43	Selenium, Total (Se), ICP, Microwave (ppm)	2	2	3.863	4.550						
034.42	Selenium, Total (Se), ICP, Open vessel (ppm)	1	1	1.750							
034.52	Selenium, Total (Se), ICP-MS, Open vessel (ppm)	1	1	0.5550							
035.43	Sodium, ICP, Microwave (%)	17	13	0.0182	0.0339	0.0084	0.0039	0.0014	46.77%	0.0020	8.21%
035.41	Sodium, ICP, Dry ash (%)	14	12	0.0139	0.0146	0.0104	0.0042	0.0015	40.97%	0.0007	7.96%
035.42	Sodium, ICP, Open vessel (%)	15	12	0.0129	0.0091	0.0117	0.0074	0.0027	62.74%	0.0024	7.81%
035.31	Sodium, AAS, Dry ash (%)	5	3	0.0143	0.0052	0.0143	0.0052	0.0036	36.16%	0.0009	7.58%
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.0139	0.0106						
035.53	Sodium, ICP-MS, Microwave (%)	2	2	0.0044	0.0009						
035.01	Sodium, Ion-selective electrode (%)	1	1	0.0125							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.0250							
035.99	Sodium, Miscellaneous (%)	2		0.0100							
036.42	Sulfur, ICP, Open vessel (%)	19	18	0.1590	0.0130	0.1590	0.0132	0.0039	8.32%	0.0067	5.27%
036.43	Sulfur, ICP, Microwave (%)	15	15	0.1584	0.0220	0.1629	0.0125	0.0040	7.65%	0.0045	5.26%
036.04	Sulfur, LECO (%)	2	2	0.1795	0.0205						
036.53	Sulfur, ICP-MS, Microwave (%)	2	2	0.1720	0.0028						
036.99	Sulfur, Miscellaneous (%)	2	2	0.1500	0.0141						
036.52	Sulfur, ICP-MS, Open vessel (%)	1	1	0.1686							
037.43	Zinc, ICP, Microwave (ppm)	27	27	63.19	7.494	63.08	6.741	1.622	10.69%	2.280	8.57%
037.42	Zinc, ICP, Open vessel (ppm)	23	22	64.32	7.538	63.93	7.547	2.011	11.80%	2.748	8.56%
037.41	Zinc, ICP, Dry ash (ppm)	18	17	62.23	5.456	62.89	4.157	1.260	6.61%	2.216	8.58%
037.31	Zinc, AAS, Dry ash (ppm)	10	9	60.40	8.820	61.23	6.397	2.665	10.45%	0.8345	8.61%
037.53	Zinc, ICP-MS, Microwave (ppm)	4	4	62.07	3.318	62.07	3.318	1.659	5.34%	1.130	8.59%
037.99	Zinc, Miscellaneous (ppm)	4	4	67.27	15.96	67.27	15.96	7.978	23.72%	1.963	8.49%
037.52	Zinc, ICP-MS, Open vessel (ppm)	3	3	64.31	6.717	64.31	6.717	3.878	10.44%	1.467	8.55%
037.44	Zinc, ICP, Dry ash (ppm)	2	2	59.96	2.185						
037.32	Zinc, AAS, Open vessel (ppm)	1	1	81.40							
037.33	Zinc, AAS, Microwave (ppm)	1	1	60.00							
038.43	Molybdenum, ICP, Microwave (ppm)	7	7	0.9742	0.2691	0.9631	0.2793	0.1320	29.00%	0.0844	16.09%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	5	4	0.9410	0.1256	0.9410	0.1256	0.0628	13.35%	0.0435	16.14%
038.41	Molybdenum, ICP, Dry ash (ppm)	3	3	0.8303	0.1825	0.8303	0.1825	0.1054	21.98%	0.0258	16.45%
038.42	Molybdenum, ICP, Open vessel (ppm)	4	3	0.9055	0.0309	0.9055	0.0309	0.0179	3.41%	0.2050	16.24%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	1	1	0.9500							
040.53	Barium, ICP-MS, Microwave (ppm)	3	3	11.90	1.229	11.90	1.229	0.7098	10.33%	0.4210	11.02%
040.52	Barium, ICP-MS, Open vessel (ppm)	1	1	11.86							

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041.53	Vanadium, ICP-MS, Microwave (ppm)	2	2	0.0811	0.0915						
042.00	Chloride, Titrimetric (%)	2	2	0.0675	0.0248						
042.99	Chloride, Miscellaneous (%)	1	1	0.1700							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	1,860							
102.01	Niacin, Microbiological (ppm)	1	1	317.0							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	34.50							
104.00	Riboflavin, Fluorometric (ppm)	1	1	3.260							
105.01	Thiamine, Fluorometer (ppm)	1	1	23.30							
106.00	Vitamin A, Color (KU / kg)	1		0.6000							
106.01	Vitamin A, UV (KU / kg)	1		0.8000							
107.00	Vitamin B12, Microbiological (ppb)	1		4.400							
108.02	Vitamin D3, LC (KU / kg)	1		0.0400							
109.02	Vitamin E, LC (IU / kg)	3	2	50.25	14.14	50.25	14.14			1.484	
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		4.400							
112.01	Pyridoxine, LC (µg / g)	1	1	8.860							
113.01	Folic Acid, Micro (ppm)	1	1	1.095							
114.01	Biotin, Microbiological (ppm)	1	1	0.2995							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	1	1	0.2750							
118.99	Peroxide value, Miscellaneous (meq/kg)	1	1	0.4000							
120.00	Alanine, Post-col Ninhydrin Der (%)	16	15	0.7931	0.0278	0.7937	0.0209	0.0067	2.63%	0.0158	4.14%
120.05	Alanine, Pre-col AQC Der (%)	9	9	0.7675	0.0515	0.7750	0.0389	0.0162	5.02%	0.0132	4.16%
120.99	Alanine, Miscellaneous (%)	2	2	0.8025	0.0035						
120.02	Alanine, Post-col OPA Der (%)	1	1	0.8170							
121.00	Arginine, Post-col Ninhydrin Der (%)	16	16	1.102	0.0252	1.102	0.0228	0.0071	2.07%	0.0247	3.94%
121.05	Arginine, Pre-col AQC Der (%)	9	8	1.059	0.0804	1.068	0.0686	0.0303	6.43%	0.0143	3.96%
121.99	Arginine, Miscellaneous (%)	2	2	1.168	0.1591						
121.02	Arginine, Post-col OPA Der (%)	1	1	1.088							
122.00	Aspartic, Post-col Ninhydrin Der (%)	16	16	1.177	0.0201	1.176	0.0220	0.0069	1.87%	0.0272	3.90%
122.05	Aspartic, Pre-col AQC Der (%)	9	9	1.135	0.1065	1.152	0.0750	0.0313	6.51%	0.0183	3.92%
122.99	Aspartic, Miscellaneous (%)	2	2	1.420	0.3465						
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.226							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	16	15	0.2872	0.0224	0.2859	0.0195	0.0063	6.83%	0.0092	4.83%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	8	8	0.2863	0.0543	0.2802	0.0463	0.0205	16.53%	0.0013	4.84%
124.99	Cysteine/Cystine, Miscellaneous (%)	2	2	0.2800	0.0566						
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.3020							
125.00	Glutamic, Post-col Ninhydrin Der (%)	16	16	1.840	0.0642	1.841	0.0706	0.0220	3.83%	0.0258	3.65%
125.05	Glutamic, Pre-col AQC Der (%)	9	8	1.739	0.1218	1.747	0.1203	0.0532	6.89%	0.0091	3.68%
125.99	Glutamic, Miscellaneous (%)	2	2	2.015	0.3041						
125.02	Glutamic, Post-col OPA Der (%)	1	1	1.823							
126.00	Glycine, Post-col Ninhydrin Der (%)	16	16	0.7187	0.0212	0.7177	0.0216	0.0067	3.01%	0.0138	4.20%

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126.05	Glycine, Pre-col AQC Der (%)	9	8	0.7139	0.0660	0.7140	0.0307	0.0136	4.30%	0.0076	4.21%
126.99	Glycine, Miscellaneous (%)	2	2	0.5550	0.2334						
126.02	Glycine, Post-col OPA Der (%)	1	1	0.7505							
127.00	Histidine, Post-col Ninhydrin Der (%)	16	16	0.3749	0.0282	0.3758	0.0289	0.0090	7.69%	0.0092	4.63%
127.05	Histidine, Pre-col AQC Der (%)	9	8	0.3574	0.0412	0.3614	0.0370	0.0164	10.24%	0.0056	4.66%
127.99	Histidine, Miscellaneous (%)	2	2	0.3850	0.0071						
127.02	Histidine, Post-col OPA Der (%)	1	1	0.3670							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	16	16	0.4416	0.0335	0.4423	0.0295	0.0092	6.67%	0.0121	4.52%
128.05	Isoleucine, Pre-col AQC Der (%)	9	8	0.4594	0.0523	0.4594	0.0593	0.0262	12.91%	0.0029	4.50%
128.99	Isoleucine, Miscellaneous (%)	2	2	0.5200	0.0919						
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.4360							
129.00	Leucine, Post-col Ninhydrin Der (%)	16	15	0.8928	0.0355	0.8925	0.0382	0.0123	4.28%	0.0116	4.07%
129.05	Leucine, Pre-col AQC Der (%)	9	8	0.8611	0.0699	0.8704	0.0558	0.0247	6.41%	0.0030	4.08%
129.99	Leucine, Miscellaneous (%)	2	2	0.6550	0.3465						
129.02	Leucine, Post-col OPA Der (%)	1	1	0.8920							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	15	15	0.6321	0.0329	0.6353	0.0291	0.0094	4.59%	0.0078	4.28%
130.05	L-Lysine, Pre-col AQC Der (%)	9	8	0.6075	0.0567	0.6137	0.0488	0.0216	7.96%	0.0033	4.30%
130.99	L-Lysine, Miscellaneous (%)	2	2	0.9800	0.3677						
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.6865							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	16	15	0.2639	0.0255	0.2644	0.0278	0.0090	10.52%	0.0072	4.89%
131.05	Methionine, PAO Pre-col AQC Der (%)	9	8	0.2747	0.0531	0.2651	0.0348	0.0154	13.14%	0.0020	4.88%
131.99	Methionine, Miscellaneous (%)	2	2	0.3900	0.1556						
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.2675							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	16	15	0.5602	0.0306	0.5635	0.0270	0.0087	4.80%	0.0080	4.36%
132.05	Phenylalanine, Pre-col AQC Der (%)	9	8	0.5563	0.0570	0.5569	0.0476	0.0210	8.55%	0.0031	4.37%
132.99	Phenylalanine, Miscellaneous (%)	2	2	0.5275	0.0530						
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.5580							
133.00	Proline, Post-col Ninhydrin Der (%)	16	15	0.5634	0.0544	0.5548	0.0402	0.0130	7.25%	0.0121	4.37%
133.05	Proline, Pre-col AQC Der (%)	9	8	0.5476	0.0871	0.5516	0.0894	0.0395	16.21%	0.0066	4.37%
133.99	Proline, Miscellaneous (%)	2	2	0.8425	0.3783						
134.00	Serine, Post-col Ninhydrin Der (%)	16	16	0.5978	0.0376	0.5994	0.0354	0.0111	5.90%	0.0123	4.32%
134.05	Serine, Pre-col AQC Der (%)	9	8	0.5632	0.0886	0.5845	0.0403	0.0178	6.89%	0.0021	4.34%
134.99	Serine, Miscellaneous (%)	2	2	0.6200	0.0212						
134.02	Serine, Post-col OPA Der (%)	1	1	0.5965							
135.00	Threonine, Post-col Ninhydrin Der (%)	16	15	0.4860	0.0175	0.4842	0.0154	0.0050	3.18%	0.0080	4.46%
135.05	Threonine, Pre-col AQC Der (%)	9	8	0.4448	0.0615	0.4574	0.0355	0.0157	7.76%	0.0031	4.50%
135.99	Threonine, Miscellaneous (%)	2	2	0.5300	0.0566						
135.02	Threonine, Post-col OPA Der (%)	1	1	0.4850							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	5	5	0.1855	0.0096	0.1855	0.0096	0.0043	5.19%	0.0018	5.15%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	4	2	0.2000	0.0000	0.2000	0.0000			0.0000	5.10%

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136.05	Tryptophan, Pre-col AQC Der (%)	2	2	0.2238	0.0336						
136.99	Tryptophan, Miscellaneous (%)	2	2	0.1575	0.0813						
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	1	1	0.1810							
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.1900							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	14	14	0.4148	0.0618	0.4117	0.0608	0.0203	14.76%	0.0243	4.57%
137.05	Tyrosine, Pre-col AQC Der (%)	9	8	0.4154	0.0648	0.4154	0.0735	0.0325	17.69%	0.0098	4.57%
137.99	Tyrosine, Miscellaneous (%)	2	2	0.2975	0.1167						
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.3985							
138.00	Valine, Post-col Ninhydrin Der (%)	16	16	0.6968	0.0347	0.6943	0.0334	0.0104	4.81%	0.0194	4.23%
138.05	Valine, Pre-col AQC Der (%)	9	8	0.6728	0.0562	0.6728	0.0637	0.0282	9.47%	0.0068	4.25%
138.99	Valine, Miscellaneous (%)	2	2	0.7150	0.0354						
138.02	Valine, Post-col OPA Der (%)	1	1	0.7385							
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.0700	0.0566						
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0070							
139.99	Taurine, Miscellaneous (%)	2	1	0.0700							
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
160.10	Fructose, HPAEC PAD (%)	1	1	0.0850							
160.99	Fructose, Miscellaneous (%)	1	1	0.2200							
161.10	Galactose, HPAEC PAD (%)	1		0.0000							
162.10	Glucose, HPAEC PAD (%)	1	1	0.2350							
162.99	Glucose, Miscellaneous (%)	1	1	0.6650							
163.10	Lactose, HPAEC PAD (%)	1		0.0000							
163.99	Lactose, Miscellaneous (%)	1		0.1500							
164.10	Maltose, HPAEC PAD (%)	1	1	0.2300							
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.99	Sucrose, Miscellaneous (%)	2	2	4.770	0.4879						
165.10	Sucrose, HPAEC PAD (%)	1	1	4.245							
166.10	Raffinose, HPAEC PAD (%)	1	1	0.4750							
166.99	Raffinose, Miscellaneous (%)	1	1	0.4050							
167.10	Stachyose, HPAEC PAD (%)	1		0.0000							
167.99	Stachyose, Miscellaneous (%)	1		0.0500							
400.01	Water Activity, Aqualab chilled mirror (Units)	12	11	0.4284	0.0494	0.4202	0.0276	0.0104	6.57%	0.0059	
400.99	Water Activity, Miscellaneous (Units)	1	1	0.4310							
413.01	Starch, Resistant, Enzymatic-Colorimetric (%)	1	1	29.16							
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	6	6	0.9832	0.1095	0.9832	0.1242	0.0634	12.63%	0.0266	16.04%
516.00	Arsenic, Total (As), AA, Hydride (ppm)	2	2	0.9280	0.0806						
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	3	2	0.5105	0.4943	0.5105	0.4943			0.0000	17.70%
516.52	Arsenic, Total (As), ICP-MS, Open vessel (ppm)	1	1	0.9400							
518.53	Cadmium, ICP-MS, Microwave (ppm)	5	4	0.0176	0.0040	0.0176	0.0040	0.0020	22.84%	0.0009	22.00%
518.41	Cadmium, ICP, Dry ash (ppm)	2	2	0.0124	0.0063						

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518.43	Cadmium, ICP, Microwave (ppm)	2	1	0.0039							
518.52	Cadmium, ICP-MS, Open vessel (ppm)	1		0.0500							
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	4	3	5.258	8.639	5.258	8.639	4.988	164.32%	0.0132	12.46%
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	4	3	0.1284	0.0505	0.1284	0.0505	0.0357	39.34%	0.0563	21.79%
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	2	2	0.6581	0.1633						
520.42	Chromium, Total (Cr), ICP, Open vessel (ppm)	2	2	0.7618	0.0470						
520.52	Chromium, Total (Cr), ICP-MS, Open vessel (ppm)	1		0.0500							
526.53	Lead, ICP-MS, Microwave (ppm)	4	3	0.0151	0.0011	0.0151	0.0011	0.0007	7.49%	0.0026	22.00%
526.41	Lead, ICP, Dry ash (ppm)	1	1	0.1278							
526.43	Lead, ICP, Microwave (ppm)	2	1	0.0624							
526.52	Lead, ICP-MS, Open vessel (ppm)	1		0.0500							
529.99	Mercury, Miscellaneous (ppb)	3	1								
539.53	Nickel, ICP-MS, Microwave (ppm)	3	3	0.5567	0.0199	0.5567	0.0199	0.0115	3.57%	0.0285	17.47%
539.41	Nickel, ICP, Dry ash (ppm)	2	2	0.4615	0.1393						
539.43	Nickel, ICP, Microwave (ppm)	3	2	0.8587	0.3554	0.8587	0.3554			0.0121	16.37%
539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	0.5405							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	1		0.0050							
714.02	Myristic Acid (14:0), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	0.0635							
714.99	Myristic Acid (14:0), Miscellaneous (% (w/w))	1	1	0.0590							
716.02	Palmitic Acid (16:0), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	2.835							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	1	1	2.523							
718.02	Palmitoleic Acid (9c-16:1), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	0.0315							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	1	1	0.0361							
720.02	Margaric acid (17:0), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1		0.0000							
722.02	Stearic Acid (18:0), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	0.3520							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	1	1	0.3360							
724.02	Oleic Acid (9c-18:1), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	6.968							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	1	1	6.299							
726.02	Linoleic Acid (9c,12c-18:2), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	0.1491							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	1	1	5.503							
728.02	alpha-Linolenic Acid (9c,12c,15c-18:3), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	0.2000							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	1	1	0.1964							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	1	1	0.1195							
730.02	Arachidic Acid (20:0), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1		0.0000							
732.02	Gondoic Acid (11c-20:1), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	0.0897							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	1	1	0.0877							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w))	1		0.0050							
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	1	1	0.0679							
744.02	Erucic Acid (13c-22:1), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1		0.0000							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1		0.0050							

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Thompson Horwitz %RSD
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (%)	1		0.0050							
748.99	Lignoceric Acid (24:0), Miscellaneous (%) (w/w)	1	1	0.1434							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (%)	1		0.0050							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (%) (w/w)	1		0.0050							
758.02	Total Saturated Fatty Acids, Direct Methylation by Acid-Alkali Hydrolysis & GC	1	1	3.258							
762.02	Total Monounsaturated Fatty Acids, Direct Methylation by Acid-Alkali Hydrolysi	1	1	7.089							
766.02	Total Polyunsaturated Fatty Acids, Direct Methylation by Acid-Alkali Hydrolysis	1	1	6.603							
772.02	Total Fatty Acids, Direct Methylation by Acid-Alkali Hydrolysis & GC (%) (w/w)	1	1	16.95							
772.99	Total Fatty Acids, Miscellaneous (%) (w/w)	1	1	15.37							

Notes: Robust statistics not used if < 6 labs reporting. In this case Means and SD's may be reported based on Raw Data with obvious blunders removed. Robust Assigned Values indicated in bold font.



Animal Feed Scheme

Methods Reported: 118

Rice Bran

Method Precision Report

Labs Reporting: 172

Test Material Code # 202223

Issue Date : 04/30/2022

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	48	43	8.247	0.4213	0.3638	0.1024	0.3780	4.41%	1.24%	4.58%	3.691
001.99	Loss on Drying, Miscellaneous (%)	21	19	8.079	0.8151	0.6820	0.1090	0.6907	8.30%	1.33%	8.40%	6.337
002.01	Protein, Crude, Auto Kjel-Foss (%)	14	13	13.39	0.1326	0.1334	0.0422	0.1400	1.00%	0.32%	1.04%	3.315
002.05	Protein, Crude, Copper, Boric Acid (%)	23	20	13.33	0.2279	0.1560	0.1074	0.1894	1.17%	0.80%	1.42%	1.764
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	122	114	13.62	0.3930	0.2893	0.1694	0.3352	2.12%	1.24%	2.46%	1.979
002.11	Protein, Crude, NIR (%)	6	6	13.88	0.8269	0.8186	0.1647	0.8350	5.90%	1.19%	6.02%	5.070
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	9	7	17.59	0.8320	0.4957	0.1987	0.5341	2.85%	1.14%	3.07%	2.687
003.06	Fat, Crude, Pet Ether (%)	17	16	17.46	0.4952	0.2843	0.1827	0.3380	1.62%	1.04%	1.92%	1.850
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	15	14	17.52	0.4167	0.3754	0.2945	0.4771	2.14%	1.68%	2.73%	1.620
003.10	Fat, Crude, Randall, Pet Ether (%)	25	23	17.21	0.5806	0.4980	0.2417	0.5536	2.88%	1.40%	3.21%	2.290
003.11	Fat, Crude, NIR (%)	5	5	17.47	0.6916	0.6877	0.1031	0.6954	3.94%	0.59%	3.98%	6.745
003.13	Fat, Crude, Randall, Hexane Ext. (%)	7	6	17.53	0.3435	0.3372	0.0930	0.3498	1.92%	0.53%	2.00%	3.763
003.14	Fat, Crude, Ankom (%)	54	50	17.57	0.3979	0.3407	0.1826	0.3866	1.94%	1.04%	2.20%	2.117
004.00	Fiber, Crude, Asbestos Free (%)	12	10	6.018	0.5827	0.3736	0.1474	0.4016	6.38%	2.52%	6.86%	2.725
004.03	Fiber, Crude, Fritted Glass (%)	5	5	6.012	0.4508	0.3946	0.3084	0.5008	6.56%	5.13%	8.33%	1.624
004.06	Fiber, Crude, Fibertec (%)	22	20	6.141	0.4773	0.2781	0.1587	0.3201	4.61%	2.63%	5.30%	2.018
004.07	Fiber, Crude, ANKOM (%)	78	73	5.965	0.5276	0.3975	0.1554	0.4268	6.71%	2.62%	7.20%	2.747
005.00	Ash, 2h @ 600°C (%)	94	88	8.518	0.2322	0.1360	0.0734	0.1545	1.60%	0.87%	1.82%	2.105
005.05	Ash, 3h @ 550°C (%)	22	19	8.380	0.2216	0.1122	0.0443	0.1206	1.33%	0.53%	1.43%	2.725
005.99	Ash, Miscellaneous (%)	10	9	8.358	0.2445	0.1395	0.0533	0.1493	1.66%	0.63%	1.77%	2.799
006.99	Total Sugars, Miscellaneous (%)	5	5	6.651	2.265	2.262	0.1765	2.269	34.01%	2.65%	34.11%	12.85
008.02	Fiber, Acid Detergent, Crucible (%)	16	15	8.115	1.458	0.8211	0.2788	0.8672	10.51%	3.57%	11.10%	3.110
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	45	41	7.511	1.120	0.8466	0.2155	0.8736	11.51%	2.93%	11.88%	4.054
008.99	Fiber, Acid Detergent, Miscellaneous (%)	5	5	7.661	0.7078	0.6919	0.2106	0.7233	9.03%	2.75%	9.44%	3.434
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	15	13	17.87	1.302	1.242	0.3295	1.285	7.00%	1.86%	7.24%	3.900
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	43	39	16.21	1.200	0.9984	0.2434	1.028	6.21%	1.51%	6.39%	4.222
010.99	Moisture, Miscellaneous (%)	17	15	8.272	0.4439	0.4475	0.0719	0.4533	5.42%	0.87%	5.49%	6.302
011.01	Loss on Drying, HT, 135°C 2hr (%)	66	64	9.430	0.7172	0.7152	0.1456	0.7299	7.59%	1.54%	7.74%	5.012
012.00	Starch, Polarimetric (Ewers) (%)	16	14	25.49	0.8455	0.3540	0.3061	0.4679	1.39%	1.20%	1.83%	1.529
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	10	22.64	1.854	1.826	0.4568	1.882	8.06%	2.02%	8.31%	4.119
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	7	6	24.83	3.194	3.476	0.3192	3.491	14.07%	1.29%	14.12%	10.93
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	17	17	18.23	0.8293	0.7890	0.3612	0.8677	4.33%	1.98%	4.76%	2.403
013.02	Fat, Acid Pretreat, Mojonner, Bak Ext (%)	16	16	18.85	0.9739	0.9471	0.3211	1.000	5.02%	1.70%	5.31%	3.115
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	10	8	18.79	0.9052	0.9417	0.2944	0.9866	5.01%	1.56%	5.24%	3.351
015.41	Aluminum, ICP, Dry ash (ppm)	6	5	13.43	8.264	2.367	0.9264	2.542	23.25%	9.10%	24.96%	2.744
015.43	Aluminum, ICP, Microwave (ppm)	7	7	8.632	4.778	4.769	0.4197	4.788	55.25%	4.86%	55.46%	11.41

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
017.42	Boron, ICP, Open vessel (ppm)	6	5	3.717	0.8393	0.3848	0.2011	0.4341	11.29%	5.90%	12.73%	2.159
017.43	Boron, ICP, Microwave (ppm)	7	5	4.689	1.695	0.1994	0.3444	0.3979	4.98%	8.60%	9.93%	1.155
019.31	Calcium, AAS, Dry ash (%)	16	14	0.0463	0.0210	0.0217	0.0019	0.0218	46.85%	4.02%	47.02%	11.69
019.41	Calcium, ICP, Dry ash (%)	20	18	0.0591	0.0269	0.0159	0.0032	0.0163	29.49%	5.87%	30.07%	5.126
019.42	Calcium, ICP, Open vessel (%)	21	19	0.0576	0.0140	0.0096	0.0039	0.0104	17.37%	7.03%	18.74%	2.665
019.43	Calcium, ICP, Microwave (%)	23	19	0.0490	0.0078	0.0059	0.0024	0.0064	12.22%	4.89%	13.17%	2.694
021.53	Cobalt, ICP-MS, Microwave (ppm)	5	5	0.1358	0.0093	0.0060	0.0101	0.0117	4.45%	7.41%	8.65%	1.166
022.41	Copper, ICP, Dry ash (ppm)	16	13	5.633	2.697	1.731	0.3600	1.768	34.14%	7.10%	34.87%	4.911
022.42	Copper, ICP, Open vessel (ppm)	23	20	6.135	1.087	0.7655	0.4872	0.9074	12.31%	7.83%	14.59%	1.862
022.43	Copper, ICP, Microwave (ppm)	23	20	5.812	1.741	1.046	0.2270	1.070	18.99%	4.12%	19.43%	4.713
025.31	Iron, AAS, Dry ash (ppm)	8	7	83.65	19.09	19.08	1.059	19.11	22.81%	1.27%	22.84%	18.03
025.41	Iron, ICP, Dry ash (ppm)	19	16	89.50	8.167	6.674	1.830	6.921	7.34%	2.01%	7.62%	3.783
025.42	Iron, ICP, Open vessel (ppm)	21	17	101.3	28.06	8.978	2.254	9.257	9.68%	2.43%	9.98%	4.107
025.43	Iron, ICP, Microwave (ppm)	25	22	87.43	6.832	6.815	1.704	7.025	7.81%	1.95%	8.05%	4.123
027.31	Magnesium, AAS, Dry ash (%)	10	8	0.7799	0.0531	0.0325	0.0092	0.0338	4.11%	1.16%	4.27%	3.672
027.41	Magnesium, ICP, Dry ash (%)	17	16	0.8321	0.0743	0.0359	0.0160	0.0393	4.39%	1.97%	4.81%	2.447
027.42	Magnesium, ICP, Open vessel (%)	22	20	0.8058	0.0806	0.0818	0.0170	0.0836	10.15%	2.10%	10.36%	4.929
027.43	Magnesium, ICP, Microwave (%)	25	24	0.7965	0.0480	0.0469	0.0143	0.0490	5.89%	1.79%	6.16%	3.435
028.31	Manganese, AAS, Dry ash (ppm)	8	8	155.1	17.21	17.08	2.992	17.34	11.02%	1.93%	11.19%	5.796
028.41	Manganese, ICP, Dry ash (ppm)	17	15	175.0	17.22	8.818	1.466	8.939	5.15%	0.86%	5.22%	6.099
028.42	Manganese, ICP, Open vessel (ppm)	23	21	176.2	16.23	13.30	4.377	14.00	7.46%	2.46%	7.86%	3.199
028.43	Manganese, ICP, Microwave (ppm)	26	25	171.9	11.50	8.875	4.459	9.932	5.21%	2.62%	5.83%	2.228
028.53	Manganese, ICP-MS, Microwave (ppm)	5	5	175.4	12.82	11.82	7.012	13.75	6.74%	4.00%	7.84%	1.960
031.01	Phosphorus, Photometric (%)	31	27	1.823	0.3375	0.1204	0.0289	0.1238	6.26%	1.50%	6.44%	4.289
031.41	Phosphorus, ICP, Dry ash (%)	21	20	1.978	0.0991	0.0986	0.0345	0.1045	4.99%	1.74%	5.28%	3.033
031.42	Phosphorus, ICP, Open vessel (%)	22	21	1.949	0.1698	0.1556	0.0917	0.1806	7.95%	4.68%	9.22%	1.969
031.43	Phosphorus, ICP, Microwave (%)	25	23	1.939	0.0935	0.0859	0.0408	0.0952	4.42%	2.10%	4.89%	2.331
031.99	Phosphorus, Miscellaneous (%)	5	5	1.845	0.0627	0.0568	0.0378	0.0682	3.08%	2.05%	3.70%	1.804
032.31	Potassium, AAS, Dry ash (%)	7	5	1.472	0.3081	0.1088	0.0162	0.1100	6.91%	1.03%	6.99%	6.807
032.41	Potassium, ICP, Dry ash (%)	18	16	1.665	0.1705	0.1054	0.0341	0.1108	6.46%	2.09%	6.79%	3.249
032.42	Potassium, ICP, Open vessel (%)	21	20	1.627	0.1221	0.1211	0.0327	0.1254	7.47%	2.02%	7.73%	3.836
032.43	Potassium, ICP, Microwave (%)	25	22	1.580	0.1037	0.0881	0.0227	0.0909	5.54%	1.43%	5.72%	4.006
033.00	Salt as chloride, Sol Cl (%)	9	7	0.1269	0.0316	0.0194	0.0131	0.0234	14.30%	9.64%	17.25%	1.788
033.01	Salt as chloride, Poten Cl (%)	19	17	0.1418	0.0794	0.0343	0.0077	0.0351	27.44%	6.18%	28.13%	4.555
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	6	5	0.2504	0.0457	0.0460	0.0136	0.0480	18.94%	5.58%	19.74%	3.541
035.41	Sodium, ICP, Dry ash (%)	14	10	0.0139	0.0146	0.0032	0.0006	0.0033	34.13%	6.81%	34.80%	5.109
035.42	Sodium, ICP, Open vessel (%)	15	11	0.0129	0.0091	0.0060	0.0024	0.0065	54.85%	22.19%	59.17%	2.666
035.43	Sodium, ICP, Microwave (%)	17	11	0.0182	0.0339	0.0061	0.0016	0.0063	70.76%	18.19%	73.06%	4.016
036.42	Sulfur, ICP, Open vessel (%)	19	18	0.1590	0.0130	0.0122	0.0064	0.0138	7.66%	4.04%	8.66%	2.145
036.43	Sulfur, ICP, Microwave (%)	15	14	0.1584	0.0220	0.0121	0.0046	0.0129	7.39%	2.83%	7.91%	2.795
037.31	Zinc, AAS, Dry ash (ppm)	10	8	60.40	8.820	5.430	0.8494	5.496	8.65%	1.35%	8.75%	6.470
037.41	Zinc, ICP, Dry ash (ppm)	18	15	62.23	5.456	3.177	2.130	3.825	5.02%	3.37%	6.05%	1.796
037.42	Zinc, ICP, Open vessel (ppm)	23	21	64.32	7.538	6.061	2.471	6.545	9.56%	3.90%	10.32%	2.649
037.43	Zinc, ICP, Microwave (ppm)	27	24	63.19	7.494	5.318	1.876	5.639	8.47%	2.99%	8.98%	3.006
038.43	Molybdenum, ICP, Microwave (ppm)	7	7	0.9742	0.2691	0.2629	0.0816	0.2752	26.98%	8.38%	28.25%	3.373
120.00	Alanine, Post-col Ninhydrin Der (%)	16	14	0.7931	0.0278	0.0184	0.0151	0.0237	2.30%	1.89%	2.97%	1.576

Test Material Code # 202223

Issue Date : 04/30/2022

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
120.05	Alanine, Pre-col AQC Der (%)	9	7	0.7675	0.0515	0.0292	0.0110	0.0312	3.74%	1.41%	4.00%	2.835
121.00	Arginine, Post-col Ninhydrin Der (%)	16	15	1.102	0.0252	0.0220	0.0198	0.0296	1.99%	1.80%	2.68%	1.493
121.05	Arginine, Pre-col AQC Der (%)	9	6	1.059	0.0804	0.0358	0.0054	0.0362	3.35%	0.50%	3.38%	6.759
122.00	Aspartic, Post-col Ninhydrin Der (%)	16	16	1.177	0.0201	0.0072	0.0265	0.0275	0.61%	2.25%	2.33%	1.036
122.05	Aspartic, Pre-col AQC Der (%)	9	7	1.135	0.1065	0.0580	0.0136	0.0596	4.97%	1.17%	5.10%	4.371
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	16	13	0.2872	0.0224	0.0167	0.0067	0.0180	5.88%	2.35%	6.33%	2.699
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	8	7	0.2863	0.0543	0.0320	0.0019	0.0321	11.85%	0.71%	11.87%	16.80
125.00	Glutamic, Post-col Ninhydrin Der (%)	16	16	1.840	0.0642	0.0619	0.0241	0.0664	3.36%	1.31%	3.61%	2.757
125.05	Glutamic, Pre-col AQC Der (%)	9	8	1.739	0.1218	0.1216	0.0087	0.1220	7.00%	0.50%	7.01%	14.05
126.00	Glycine, Post-col Ninhydrin Der (%)	16	15	0.7187	0.0212	0.0195	0.0111	0.0224	2.70%	1.53%	3.11%	2.025
126.05	Glycine, Pre-col AQC Der (%)	9	7	0.7139	0.0660	0.0476	0.0058	0.0480	6.84%	0.83%	6.89%	8.253
127.00	Histidine, Post-col Ninhydrin Der (%)	16	15	0.3749	0.0282	0.0287	0.0073	0.0296	7.64%	1.95%	7.89%	4.045
127.05	Histidine, Pre-col AQC Der (%)	9	7	0.3574	0.0412	0.0254	0.0040	0.0258	6.89%	1.09%	6.97%	6.426
128.00	Isoleucine, Post-col Ninhydrin Der (%)	16	16	0.4416	0.0335	0.0324	0.0123	0.0347	7.33%	2.79%	7.85%	2.813
128.05	Isoleucine, Pre-col AQC Der (%)	9	8	0.4594	0.0523	0.0522	0.0036	0.0524	11.37%	0.79%	11.40%	14.49
129.00	Leucine, Post-col Ninhydrin Der (%)	16	15	0.8928	0.0355	0.0345	0.0118	0.0365	3.87%	1.32%	4.08%	3.100
129.05	Leucine, Pre-col AQC Der (%)	9	6	0.8611	0.0699	0.0401	0.0003	0.0401	4.57%	0.03%	4.57%	139.1
130.00	L-Lysine, Post-col Ninhydrin Der (%)	15	13	0.6321	0.0329	0.0244	0.0062	0.0252	3.81%	0.97%	3.93%	4.060
130.05	L-Lysine, Pre-col AQC Der (%)	9	8	0.6075	0.0567	0.0566	0.0037	0.0567	9.32%	0.61%	9.34%	15.37
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	16	15	0.2639	0.0255	0.0251	0.0067	0.0260	9.50%	2.54%	9.84%	3.877
131.05	Methionine, PAO Pre-col AQC Der (%)	9	6	0.2747	0.0531	0.0263	0.0013	0.0264	10.21%	0.49%	10.22%	21.02
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	16	14	0.5602	0.0306	0.0275	0.0058	0.0281	4.88%	1.02%	4.98%	4.886
132.05	Phenylalanine, Pre-col AQC Der (%)	9	8	0.5563	0.0570	0.0569	0.0037	0.0571	10.24%	0.66%	10.26%	15.50
133.00	Proline, Post-col Ninhydrin Der (%)	16	15	0.5634	0.0544	0.0538	0.0122	0.0551	9.54%	2.16%	9.78%	4.526
133.05	Proline, Pre-col AQC Der (%)	9	7	0.5476	0.0871	0.0937	0.0054	0.0939	17.20%	0.99%	17.23%	17.46
134.00	Serine, Post-col Ninhydrin Der (%)	16	14	0.5978	0.0376	0.0302	0.0069	0.0310	4.99%	1.13%	5.12%	4.519
134.05	Serine, Pre-col AQC Der (%)	9	7	0.5632	0.0886	0.0278	0.0023	0.0279	4.69%	0.38%	4.71%	12.31
135.00	Threonine, Post-col Ninhydrin Der (%)	16	15	0.4860	0.0175	0.0166	0.0077	0.0183	3.42%	1.58%	3.76%	2.381
135.05	Threonine, Pre-col AQC Der (%)	9	7	0.4448	0.0615	0.0244	0.0036	0.0247	5.25%	0.77%	5.31%	6.887
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	5	5	0.1855	0.0096	0.0095	0.0018	0.0097	5.14%	0.98%	5.23%	5.341
137.00	Tyrosine, Post-col Ninhydrin Der (%)	14	13	0.4148	0.0618	0.0470	0.0217	0.0518	11.64%	5.37%	12.81%	2.388
137.05	Tyrosine, Pre-col AQC Der (%)	9	7	0.4154	0.0648	0.0529	0.0057	0.0532	13.21%	1.43%	13.29%	9.282
138.00	Valine, Post-col Ninhydrin Der (%)	16	15	0.6968	0.0347	0.0337	0.0164	0.0375	4.83%	2.36%	5.38%	2.283
138.05	Valine, Pre-col AQC Der (%)	9	7	0.6728	0.0562	0.0542	0.0046	0.0544	8.16%	0.69%	8.19%	11.82
400.01	Water Activity, Aqualab chilled mirror (Units)	12	9	0.4284	0.0494	0.0227	0.0043	0.0231	5.43%	1.02%	5.52%	5.395
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	6	5	0.9832	0.1095	0.0830	0.0130	0.0840	8.73%	1.37%	8.84%	6.472

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