



AAFCO
Association of American Feed Control Officials



Animal Feed Scheme

Swine Feed, Residues

Test Material Code # 202524

Method Summary Report

(Precision Report Follows)

Labs Reporting: 161

Methods Reported: 368

Issue Date : 05/31/2025

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
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	44	43	9.731	0.3967	9.711	0.3447	0.0657	3.55%	0.0975	2.84%
001.99	Loss on Drying, Miscellaneous (%)	16	14	9.192	1.052	9.256	0.4851	0.1621	5.24%	0.1331	2.86%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	5	4	9.376	0.5361	9.376	0.5361	0.2680	5.72%	0.0159	2.86%
001.03	Loss on Drying, Low temp. methods (%)	2	2	9.353	0.2157						
001.05	Loss on Drying, LECO (%)	1	1	9.647							
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	105	103	16.88	0.2847	16.89	0.2354	0.0290	1.39%	0.1560	2.43%
002.05	Protein, Crude, Copper, Boric Acid (%)	20	20	16.68	0.1856	16.67	0.1759	0.0492	1.05%	0.0911	2.45%
002.01	Protein, Crude, Auto Kjell-Foss (%)	15	15	16.57	0.5991	16.68	0.2279	0.0735	1.37%	0.0503	2.45%
002.11	Protein, Crude, NIR (%)	8	8	16.82	0.3885	16.83	0.4120	0.1821	2.45%	0.0957	2.44%
002.08	Protein, Crude, Cu/Ti (%)	2	2	16.73	0.1870						
002.00	Protein, Crude, Crude (%)	1	1	16.36							
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	1	1	16.69							
002.04	Protein, Crude, Copper Catalyst (%)	1	1	16.65							
003.14	Fat, Crude, Ankom (%)	57	55	2.816	0.2797	2.803	0.2213	0.0373	7.90%	0.0920	3.43%
003.10	Fat, Crude, Randall, Pet Ether (%)	29	28	2.797	0.1591	2.797	0.1593	0.0376	5.70%	0.1007	3.43%
003.06	Fat, Crude, Pet Ether (%)	14	13	2.910	0.2378	2.908	0.2471	0.0857	8.50%	0.0695	3.41%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	9	9	2.909	0.2370	2.916	0.2538	0.1057	8.70%	0.0731	3.40%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	9	9	2.875	0.1148	2.872	0.1192	0.0497	4.15%	0.0498	3.41%
003.11	Fat, Crude, NIR (%)	7	6	2.952	0.4753	2.952	0.5390	0.2750	18.26%	0.0292	3.40%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	4	4	3.141	0.2320	3.141	0.2320	0.1160	7.39%	0.1726	3.37%
003.12	Fat, Crude, Hexane Ext (%)	3	3	3.158	0.2526	3.158	0.2526	0.1786	8.00%	0.2967	3.36%
003.99	Fat, Crude, Miscellaneous (%)	3	3	3.433	2.859	3.433	2.859	1.651	83.27%	0.1400	3.32%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	2	2	2.765	0.0850						
004.07	Fiber, Crude, ANKOM (%)	76	74	3.689	0.4161	3.656	0.3419	0.0497	9.35%	0.1596	3.29%
004.06	Fiber, Crude, Fibertec (%)	16	15	3.888	0.3290	3.877	0.3487	0.1126	8.99%	0.1139	3.26%
004.00	Fiber, Crude, Asbestos Free (%)	7	7	3.806	0.2700	3.819	0.2760	0.1304	7.23%	0.1190	3.27%
004.11	Fiber, Crude, NIR (%)	7	6	6.347	4.149	5.587	2.799	1.428	50.09%	0.2320	3.09%
004.03	Fiber, Crude, Fritted Glass (%)	3	3	4.179	0.7887	4.179	0.7887	0.4554	18.87%	0.1531	3.23%
004.99	Fiber, Crude, Miscellaneous (%)	2	2	3.562	0.6336						

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005.00	Ash, 2h @ 600°C (%)	90	89	5.229	0.1597	5.236	0.1637	0.0217	3.13%	0.0605	3.12%
005.05	Ash, 3h @ 550°C (%)	24	23	5.417	0.2125	5.435	0.1726	0.0450	3.18%	0.0597	3.10%
005.11	Ash, NIR (%)	7	7	6.338	1.492	6.338	1.691	0.7991	26.69%	0.1129	3.03%
005.99	Ash, Miscellaneous (%)	6	6	5.350	0.2366	5.366	0.2306	0.1177	4.30%	0.0350	3.11%
005.02	Ash, LECO (%)	1	1	5.569							
005.03	Ash, Microwave furnace (%)	1	1	4.750							
006.99	Total Sugars, Miscellaneous (%)	4	4	4.852	0.9026	4.852	0.9026	0.4513	18.60%	0.3690	3.15%
006.00	Total Sugars, As sucrose (%)	1	1	5.506							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	50	50	5.255	0.4487	5.240	0.3645	0.0644	6.96%	0.2223	3.12%
008.02	Fiber, Acid Detergent, Crucible (%)	12	12	5.326	0.5785	5.327	0.4386	0.1583	8.23%	0.1796	3.11%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	2	2	5.607	0.4999						
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	45	45	13.79	0.9624	13.69	0.7127	0.1328	5.21%	0.3205	2.70%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	11	10	14.51	0.8556	14.51	0.9703	0.3835	6.69%	0.2078	2.63%
010.99	Moisture, Miscellaneous (%)	17	17	9.519	1.075	9.717	0.4099	0.1243	4.22%	0.0691	2.84%
010.11	Moisture, NIR (%)	5	4	9.895	0.4558	9.895	0.4558	0.2279	4.61%	0.1150	2.83%
010.03	Moisture, Karl-Fischer (%)	2	2	9.553	0.1096						
011.01	Loss on Drying, HT, 135°C 2hr (%)	62	59	10.42	0.4951	10.48	0.3719	0.0605	3.55%	0.0968	2.81%
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	4	4	9.826	0.4213	9.826	0.4213	0.2106	4.29%	0.2013	2.84%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	1	1	10.22							
012.00	Starch, Polarimetric (Ewers) (%)	12	12	40.23	1.201	40.31	1.179	0.4255	2.93%	0.3083	1.58%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	10	10	38.76	2.036	38.48	1.546	0.6113	4.02%	1.223	1.61%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	7	7	37.35	2.376	37.35	2.694	1.273	7.21%	0.3659	1.64%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	3	3	38.57	2.540	38.57	2.540	1.466	6.58%	0.6149	1.61%
012.11	Starch, NIR (%)	2	2	40.99	1.570						
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	36.66							
012.99	Starch, Miscellaneous (%)	1	1	39.77							
013.00	Fat, Pretreat, Acid hydrolysis (%)	19	19	3.419	0.6485	3.529	0.4146	0.1189	11.75%	0.1372	3.31%
013.02	Fat, Pretreat, Mojonniier, Bak Ext, Acid hydrolysis (%)	18	18	4.170	0.3699	4.170	0.4195	0.1236	10.06%	0.1503	3.23%
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	10	10	3.502	0.2896	3.502	0.3284	0.1298	9.38%	0.1281	3.31%
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	7	7	3.067	0.4127	3.067	0.4680	0.2211	15.26%	0.1495	3.38%
013.08	Fat, Pretreat, Roese-Gottlieb Modified, Alkaline Hydrolysis (%)	1	1	15.40							
013.99	Fat, Pretreat, Miscellaneous (%)	1	1	2.720							
014.01	Fiber, Total Dietary, Enz-Grav (%)	2	2	18.07	0.3946						
015.43	Aluminum, ICP, Microwave (ppm)	7	7	172.7	24.94	172.7	28.28	13.36	16.38%	4.989	7.37%
015.41	Aluminum, ICP, Dry ash (ppm)	5	5	151.7	34.63	151.7	34.63	15.49	22.83%	3.602	7.51%
015.53	Aluminum, ICP-MS, Microwave (ppm)	3	3	181.4	9.157	181.4	9.157	5.287	5.05%	8.271	7.31%
015.42	Aluminum, ICP, Open vessel (ppm)	2	2	84.52	21.24						
015.99	Aluminum, Miscellaneous (ppm)	1	1	86.15							
017.41	Boron, ICP, Dry ash (ppm)	5	5	8.174	0.6356	8.174	0.6356	0.2842	7.78%	0.4587	11.66%
017.43	Boron, ICP, Microwave (ppm)	7	5	7.808	0.6201	7.808	0.6201	0.3466	7.94%	0.0650	11.74%

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017.42	Boron, ICP, Open vessel (ppm)	4	4	7.714	0.6214	7.714	0.6214	0.3107	8.06%	0.2350	11.76%
017.53	Boron, ICP-MS, Microwave (ppm)	2	2	9.375	0.2551						
017.99	Boron, Miscellaneous (ppm)	1	1	7.990							
019.43	Calcium, ICP, Microwave (%)	33	32	0.8066	0.0607	0.8091	0.0508	0.0112	6.28%	0.0151	4.13%
019.41	Calcium, ICP, Dry ash (%)	20	20	0.8135	0.0309	0.8150	0.0205	0.0057	2.52%	0.0227	4.12%
019.42	Calcium, ICP, Open vessel (%)	20	19	0.8215	0.0761	0.8193	0.0815	0.0234	9.94%	0.0155	4.12%
019.31	Calcium, AAS, Dry ash (%)	14	13	0.8022	0.0526	0.8017	0.0479	0.0166	5.97%	0.0179	4.13%
019.08	Calcium, EDTA (%)	10	10	0.8433	0.0519	0.8342	0.0331	0.0131	3.97%	0.0310	4.11%
019.99	Calcium, Miscellaneous (%)	7	6	0.6950	0.2705	0.7774	0.0888	0.0453	11.42%	0.0133	4.15%
019.00	Calcium, Ox-Mn04 Vol. (%)	5	5	0.8550	0.0479	0.8550	0.0479	0.0214	5.60%	0.0212	4.10%
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	0.7887	0.0239	0.7887	0.0239	0.0169	3.03%	0.0626	4.15%
019.53	Calcium, ICP-MS, Microwave (%)	3	3	0.8090	0.0575	0.8090	0.0575	0.0332	7.11%	0.0161	4.13%
019.02	Calcium, Hach Method (%)	1	1	0.9850							
019.09	Calcium, Ion-selective electrode (%)	1	1	0.8475							
019.32	Calcium, AAS, Open vessel (%)	1	1	0.8000							
019.33	Calcium, AAS, Microwave (%)	1	1	0.7750							
019.44	Calcium, ICP, Dry ash (%)	1	1	0.8205							
019.51	Calcium, ICP-MS, Dry ash (%)	1	1	0.8150							
021.43	Cobalt, ICP, Microwave (ppm)	11	9	1.031	0.3737	0.9792	0.2883	0.1201	29.44%	0.0821	16.05%
021.53	Cobalt, ICP-MS, Microwave (ppm)	4	4	0.8916	0.0352	0.8916	0.0352	0.0176	3.95%	0.0545	16.28%
021.41	Cobalt, ICP, Dry ash (ppm)	4	3	0.8818	0.1470	0.8818	0.1470	0.0849	16.67%	0.0315	16.30%
021.42	Cobalt, ICP, Open vessel (ppm)	2	2	0.8225	0.0318						
021.52	Cobalt, ICP-MS, Open vessel (ppm)	2	2	0.5847	0.0216						
021.31	Cobalt, AAS, Dry ash (ppm)	1	1	0.6505							
021.99	Cobalt, Miscellaneous (ppm)	1	1	0.3650							
022.43	Copper, ICP, Microwave (ppm)	29	29	20.73	3.024	20.87	2.001	0.4644	9.59%	1.033	10.13%
022.42	Copper, ICP, Open vessel (ppm)	20	19	21.19	1.716	21.07	1.394	0.3997	6.61%	1.212	10.11%
022.41	Copper, ICP, Dry ash (ppm)	16	15	19.93	2.039	19.93	2.312	0.7461	11.60%	0.8269	10.20%
022.31	Copper, AAS, Dry ash (ppm)	9	9	20.24	5.817	20.18	2.176	0.9065	10.78%	0.8058	10.18%
022.99	Copper, Miscellaneous (ppm)	5	4	19.59	0.6142	19.59	0.6142	0.3071	3.14%	1.275	10.22%
022.53	Copper, ICP-MS, Microwave (ppm)	3	3	20.98	1.153	20.98	1.153	0.6656	5.50%	1.727	10.12%
022.44	Copper, ICP, Dry ash (ppm)	2	2	20.65	1.630						
022.52	Copper, ICP-MS, Open vessel (ppm)	2	2	20.92	1.948						
022.32	Copper, AAS, Open vessel (ppm)	1	1	24.70							
025.43	Iron, ICP, Microwave (ppm)	28	27	314.7	27.84	316.2	23.13	5.564	7.31%	9.687	6.73%
025.42	Iron, ICP, Open vessel (ppm)	20	20	290.5	33.18	293.0	25.40	7.099	8.67%	12.46	6.80%
025.41	Iron, ICP, Dry ash (ppm)	17	17	306.1	23.69	309.7	17.58	5.329	5.67%	9.883	6.75%
025.31	Iron, AAS, Dry ash (ppm)	8	8	322.9	21.26	322.9	24.11	10.65	7.46%	8.409	6.71%
025.99	Iron, Miscellaneous (ppm)	4	4	285.7	17.08	285.7	17.08	8.540	5.98%	19.74	6.83%
025.53	Iron, ICP-MS, Microwave (ppm)	3	3	327.1	44.38	327.1	44.38	31.38	13.57%	17.60	6.69%

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025.33	Iron, AAS, Microwave (ppm)	1	1	314.7							
027.43	Magnesium, ICP, Microwave (%)	31	29	0.2163	0.0153	0.2168	0.0138	0.0032	6.37%	0.0057	5.03%
027.42	Magnesium, ICP, Open vessel (%)	20	20	0.2226	0.0145	0.2223	0.0134	0.0037	6.03%	0.0068	5.02%
027.41	Magnesium, ICP, Dry ash (%)	17	17	0.2159	0.0078	0.2160	0.0084	0.0026	3.90%	0.0080	5.04%
027.31	Magnesium, AAS, Dry ash (%)	9	9	0.2270	0.0217	0.2228	0.0128	0.0053	5.73%	0.0066	5.01%
027.99	Magnesium, Miscellaneous (%)	5	5	0.2140	0.0129	0.2140	0.0129	0.0058	6.05%	0.0100	5.04%
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.2117	0.0151	0.2117	0.0151	0.0087	7.14%	0.0102	5.05%
027.53	Magnesium, ICP-MS, Microwave (%)	3	3	0.2225	0.0198	0.2225	0.0198	0.0115	8.92%	0.0065	5.01%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.2150							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.2300							
027.44	Magnesium, ICP, Dry ash (%)	1	1	0.2205							
028.43	Manganese, ICP, Microwave (ppm)	29	28	69.73	5.798	69.25	4.417	1.043	6.38%	3.041	8.45%
028.42	Manganese, ICP, Open vessel (ppm)	21	21	70.22	4.742	69.83	4.447	1.213	6.37%	2.864	8.44%
028.41	Manganese, ICP, Dry ash (ppm)	15	14	67.12	4.488	66.95	4.682	1.564	6.99%	1.540	8.50%
028.31	Manganese, AAS, Dry ash (ppm)	10	10	66.84	10.04	67.63	9.200	3.637	13.60%	2.732	8.48%
028.99	Manganese, Miscellaneous (ppm)	5	4	67.46	1.089	67.46	1.089	0.5445	1.61%	4.125	8.49%
028.53	Manganese, ICP-MS, Microwave (ppm)	3	3	69.30	8.991	69.30	8.991	5.191	12.97%	7.451	8.45%
028.44	Manganese, ICP, Dry ash (ppm)	2	2	62.30	11.60						
028.52	Manganese, ICP-MS, Open vessel (ppm)	2	2	67.89	0.9900						
028.32	Manganese, AAS, Open vessel (ppm)	1	1	74.00							
028.33	Manganese, AAS, Microwave (ppm)	1	1	72.34							
030.01	Nitrate, Ion-selective electrode (%)	1		0.0000							
031.43	Phosphorus, ICP, Microwave (%)	33	33	0.5462	0.0264	0.5463	0.0251	0.0055	4.59%	0.0131	4.38%
031.01	Phosphorus, Photometric (%)	24	24	0.5417	0.0238	0.5414	0.0247	0.0063	4.56%	0.0147	4.39%
031.42	Phosphorus, ICP, Open vessel (%)	21	21	0.5363	0.0307	0.5362	0.0345	0.0094	6.43%	0.0132	4.39%
031.41	Phosphorus, ICP, Dry ash (%)	19	19	0.5486	0.0191	0.5478	0.0200	0.0057	3.64%	0.0164	4.38%
031.99	Phosphorus, Miscellaneous (%)	6	5	0.5550	0.0514	0.5550	0.0514	0.0287	9.25%	0.0100	4.37%
031.53	Phosphorus, ICP-MS, Microwave (%)	3	3	0.5509	0.0238	0.5509	0.0238	0.0137	4.32%	0.0080	4.38%
031.03	Phosphorus, Autoanalyzer (%)	2	2	0.5368	0.0116						
031.44	Phosphorus, ICP, Dry ash (%)	2	2	0.5198	0.0513						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	0.4777	0.0204						
031.06	Phosphorus, Hach Method (%)	1	1	0.7500							
031.51	Phosphorus, ICP-MS, Dry ash (%)	1	1	0.5050							
032.43	Potassium, ICP, Microwave (%)	31	30	0.9384	0.0728	0.9330	0.0477	0.0109	5.11%	0.0172	4.04%
032.42	Potassium, ICP, Open vessel (%)	20	19	0.9384	0.0715	0.9421	0.0677	0.0194	7.19%	0.0147	4.04%
032.41	Potassium, ICP, Dry ash (%)	17	17	0.9079	0.0770	0.9155	0.0690	0.0209	7.54%	0.0305	4.05%
032.31	Potassium, AAS, Dry ash (%)	8	7	0.8625	0.0567	0.8625	0.0643	0.0304	7.46%	0.0200	4.09%
032.99	Potassium, Miscellaneous (%)	5	5	0.8913	0.0119	0.8913	0.0119	0.0053	1.34%	0.0257	4.07%
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	0.8774	0.0707	0.8774	0.0707	0.0408	8.06%	0.0656	4.08%
032.53	Potassium, ICP-MS, Microwave (%)	2	2	0.9608	0.1277						

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032.32	Potassium, AAS, Open vessel (%)	1	1	0.9350							
032.33	Potassium, AAS, Microwave (%)	1	1	0.9750							
032.44	Potassium, ICP, Dry ash (%)	1	1	1.020							
032.51	Potassium, ICP-MS, Dry ash (%)	1	1	0.8950							
033.01	Salt as chloride, Poten Cl (%)	28	26	0.5356	0.0175	0.5337	0.0117	0.0029	2.19%	0.0100	4.40%
033.00	Salt as chloride, Sol Cl (%)	13	13	0.5093	0.0771	0.5172	0.0664	0.0230	12.83%	0.0323	4.42%
033.99	Salt, Miscellaneous (%)	8	8	0.4977	0.0763	0.5121	0.0480	0.0212	9.37%	0.0245	4.42%
033.03	Salt as chloride, Quantab (%)	5	4	0.5025	0.0574	0.5025	0.0574	0.0331	11.42%		4.44%
033.05	Salt as chloride, Ion Sel Electrode (%)	3	3	0.4950	0.0304	0.4950	0.0304	0.0176	6.14%	0.0250	4.45%
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	6	6	0.4187	0.0524	0.4111	0.0407	0.0208	9.90%	0.0346	18.29%
034.52	Selenium, Total (Se), ICP-MS, Open vessel (ppm)	3	3	0.5003	0.2071	0.5003	0.2071	0.1196	41.39%	0.0182	17.75%
034.04	Selenium, Total (Se), AA, Hydride (ppm)	2	2	0.3450	0.0707						
034.41	Selenium, Total (Se), ICP, Dry ash (ppm)	2	2	0.2537	0.1248						
034.43	Selenium, Total (Se), ICP, Microwave (ppm)	4	2	0.3528	0.0315	0.3528	0.0315			0.0335	18.71%
034.01	Selenium, Total (Se), Fluor (ppm)	1	1	0.4105							
034.42	Selenium, Total (Se), ICP, Open vessel (ppm)	1	1	1.125							
034.99	Selenium, Total (Se), Miscellaneous (ppm)	1	1	1.305							
035.43	Sodium, ICP, Microwave (%)	28	27	0.2082	0.0121	0.2082	0.0120	0.0029	5.78%	0.0057	5.07%
035.41	Sodium, ICP, Dry ash (%)	18	18	0.2114	0.0087	0.2111	0.0092	0.0027	4.35%	0.0066	5.05%
035.42	Sodium, ICP, Open vessel (%)	18	18	0.2094	0.0150	0.2100	0.0155	0.0046	7.39%	0.0072	5.06%
035.31	Sodium, AAS, Dry ash (%)	7	6	0.2089	0.0147	0.2089	0.0167	0.0085	7.98%	0.0006	5.06%
035.99	Sodium, Miscellaneous (%)	6	6	0.2733	0.1825	0.2069	0.0263	0.0134	12.70%	0.0200	5.07%
035.53	Sodium, ICP-MS, Microwave (%)	3	3	0.2095	0.0148	0.2095	0.0148	0.0085	7.06%	0.0079	5.06%
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.1991	0.0152						
035.05	Sodium, Flame Emission (%)	1	1	0.2350							
035.33	Sodium, AAS, Microwave (%)	1	1	0.2200							
036.43	Sulfur, ICP, Microwave (%)	20	20	0.2653	0.0156	0.2651	0.0172	0.0048	6.49%	0.0070	4.88%
036.42	Sulfur, ICP, Open vessel (%)	17	17	0.2581	0.0140	0.2581	0.0159	0.0048	6.14%	0.0072	4.90%
036.04	Sulfur, LECO (%)	5	5	0.2706	0.0185	0.2706	0.0185	0.0083	6.84%	0.0050	4.87%
036.99	Sulfur, Miscellaneous (%)	3	3	0.2383	0.0144	0.2383	0.0144	0.0102	6.05%	0.0250	4.96%
036.00	Sulfur, Gravimetric (%)	1	1	0.2565							
036.52	Sulfur, ICP-MS, Open vessel (%)	1	1	0.2406							
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.2305							
037.43	Zinc, ICP, Microwave (ppm)	30	30	138.2	11.08	137.6	10.46	2.386	7.60%	3.651	7.62%
037.42	Zinc, ICP, Open vessel (ppm)	21	21	135.1	16.36	134.3	14.40	3.929	10.73%	4.533	7.65%
037.41	Zinc, ICP, Dry ash (ppm)	17	17	135.8	7.072	135.8	7.312	2.217	5.39%	3.324	7.64%
037.31	Zinc, AAS, Dry ash (ppm)	10	10	138.8	10.87	137.2	7.983	3.155	5.82%	3.661	7.63%
037.99	Zinc, Miscellaneous (ppm)	5	5	143.2	20.97	143.2	20.97	9.376	14.64%	6.343	7.58%
037.53	Zinc, ICP-MS, Microwave (ppm)	3	3	135.8	6.765	135.8	6.765	3.906	4.98%	5.033	7.64%
037.44	Zinc, ICP, Dry ash (ppm)	2	2	123.6	21.81						

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037.52	Zinc, ICP-MS, Open vessel (ppm)	2	2	124.4	19.47						
037.33	Zinc, AAS, Microwave (ppm)	1	1	129.6							
038.43	Molybdenum, ICP, Microwave (ppm)	8	8	1.122	0.2964	1.122	0.3361	0.1485	29.95%	0.1415	15.72%
038.42	Molybdenum, ICP, Open vessel (ppm)	5	4	1.217	0.1889	1.217	0.1889	0.0944	15.52%	0.2007	15.53%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	3	3	1.191	0.1022	1.191	0.1022	0.0590	8.58%	0.0514	15.58%
038.41	Molybdenum, ICP, Dry ash (ppm)	2	2	0.9048	0.0986						
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	1	1	0.9110							
038.99	Molybdenum, Miscellaneous (ppm)	1	1	1.410							
040.43	Barium, ICP, Microwave (ppm)	1	1	11.36							
040.53	Barium, ICP-MS, Microwave (ppm)	1	1	11.29							
041.53	Vanadium, ICP-MS, Microwave (ppm)	2	2	0.4795	0.0629						
042.00	Chloride, Titrimetric (%)	4	3	0.3312	0.0068	0.3312	0.0068	0.0039	2.06%	0.0085	4.72%
042.99	Chloride, Miscellaneous (%)	2	2	0.3850	0.0990						
042.01	Chloride, Ion-selective electrode (%)	1	1	0.3099							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	1,540							
102.01	Niacin, Microbiological (ppm)	1	1	86.05							
102.02	Niacin, LC (ppm)	1	1	40.75							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	25.95							
104.00	Riboflavin, Fluorometric (ppm)	1	1	9.500							
104.03	Riboflavin, LC (ppm)	1	1	7.780							
105.00	Thiamine, LC (ppm)	1	1	2.250							
105.01	Thiamine, Fluorometer (ppm)	1	1	5.150							
106.02	Vitamin A, LC (KU / kg)	9	8	4.057	1.251	4.056	1.418	0.6269	34.97%	0.4462	
106.01	Vitamin A, UV (KU / kg)	1	1	4.730							
106.03	#N/A	1	1	3.075							
107.00	Vitamin B12, Microbiological (ppb)	1	1	45.10							
107.99	Vitamin B12, Miscellaneous (ppb)	1		20.00							
108.02	Vitamin D3, LC (KU / kg)	4	3	0.7903	0.1178	0.7903	0.1178	0.0680	14.90%	0.1040	
108.99	Vitamin D3, Miscellaneous (KU / kg)	1	1	0.7700							
109.02	Vitamin E, LC (IU / kg)	14	14	64.64	13.40	61.23	2.878	0.9616	4.70%	3.735	
109.03	#N/A	1	1	52.45							
109.99	Vitamin E, Miscellaneous (IU / kg)	1	1	49.00							
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		4.400							
112.01	Pyridoxine, LC (µg / g)	2	2	4.918	0.4278						
113.01	Folic Acid, Micro (ppm)	1	1	1.590							
113.02	Folic acid, LC (ppm)	1	1	1.250							
114.01	Biotin, Microbiological (ppm)	1	1	0.3405							
114.99	Biotin, Miscellaneous (ppm)	1	1	0.2805							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	2	2	1.167	1.355						
115.99	Non Protein N (NPN), Miscellaneous (%)	1	1	0.6175							

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120.00	Alanine, Post-col Ninhydrin Der (%)	12	12	0.8254	0.0190	0.8254	0.0215	0.0078	2.60%	0.0065	4.12%
120.05	Alanine, Pre-col AQC Der (%)	10	10	0.8007	0.1265	0.8257	0.0709	0.0280	8.58%	0.0168	4.12%
120.99	Alanine, Miscellaneous (%)	2	2	0.8255	0.0856						
120.02	Alanine, Post-col OPA Der (%)	1	1	0.8330							
121.00	Arginine, Post-col Ninhydrin Der (%)	12	11	1.032	0.0285	1.032	0.0323	0.0122	3.13%	0.0084	3.98%
121.05	Arginine, Pre-col AQC Der (%)	10	10	1.009	0.1004	1.028	0.0600	0.0237	5.83%	0.0341	3.98%
121.99	Arginine, Miscellaneous (%)	2	2	0.9675	0.0813						
121.02	Arginine, Post-col OPA Der (%)	1	1	1.015							
122.00	Aspartic, Post-col Ninhydrin Der (%)	12	12	1.507	0.0362	1.508	0.0391	0.0141	2.59%	0.0143	3.76%
122.05	Aspartic, Pre-col AQC Der (%)	10	10	1.442	0.1803	1.465	0.1452	0.0574	9.92%	0.0396	3.78%
122.99	Aspartic, Miscellaneous (%)	2	2	1.425	0.1485						
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.516							
124.00	Cysteine/Cystine, PAO Post-col Ninhydri (%)	11	11	0.2810	0.0082	0.2802	0.0072	0.0027	2.58%	0.0043	4.84%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	10	10	0.2981	0.1271	0.2681	0.0511	0.0202	19.06%	0.0183	4.88%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	2	2	0.2723	0.0244						
124.99	Cysteine/Cystine, Miscellaneous (%)	2	2	0.3442	0.0625						
125.00	Glutamic, Post-col Ninhydrin Der (%)	12	12	3.049	0.0641	3.046	0.0660	0.0238	2.17%	0.0178	3.38%
125.05	Glutamic, Pre-col AQC Der (%)	10	9	3.030	0.2888	3.084	0.1778	0.0741	5.77%	0.0332	3.38%
125.99	Glutamic, Miscellaneous (%)	2	2	2.915	0.2404						
125.02	Glutamic, Post-col OPA Der (%)	1	1	3.057							
126.00	Glycine, Post-col Ninhydrin Der (%)	12	12	0.7202	0.0140	0.7204	0.0155	0.0056	2.16%	0.0113	4.20%
126.05	Glycine, Pre-col AQC Der (%)	10	9	0.6973	0.0731	0.7151	0.0299	0.0125	4.18%	0.0093	4.21%
126.99	Glycine, Miscellaneous (%)	2	2	0.7160	0.0792						
126.02	Glycine, Post-col OPA Der (%)	1	1	0.7175							
127.00	Histidine, Post-col Ninhydrin Der (%)	12	12	0.4284	0.0244	0.4295	0.0206	0.0074	4.80%	0.0064	4.54%
127.05	Histidine, Pre-col AQC Der (%)	10	10	0.4215	0.0263	0.4205	0.0274	0.0108	6.51%	0.0124	4.56%
127.99	Histidine, Miscellaneous (%)	2	2	0.4063	0.0159						
127.02	Histidine, Post-col OPA Der (%)	1	1	0.4270							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	12	12	0.6263	0.0307	0.6253	0.0286	0.0103	4.58%	0.0085	4.29%
128.05	Isoleucine, Pre-col AQC Der (%)	10	10	0.6185	0.0840	0.6343	0.0457	0.0181	7.20%	0.0164	4.28%
128.99	Isoleucine, Miscellaneous (%)	2	2	0.6105	0.0007						
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.6805							
129.00	Leucine, Post-col Ninhydrin Der (%)	12	12	1.310	0.0334	1.314	0.0290	0.0105	2.21%	0.0083	3.84%
129.05	Leucine, Pre-col AQC Der (%)	10	10	1.286	0.1517	1.320	0.0662	0.0262	5.01%	0.0329	3.84%
129.99	Leucine, Miscellaneous (%)	2	2	1.238	0.0035						
129.02	Leucine, Post-col OPA Der (%)	1	1	1.328							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	16	15	0.8309	0.0283	0.8335	0.0251	0.0081	3.01%	0.0089	4.11%
130.05	L-Lysine, Pre-col AQC Der (%)	11	10	0.8502	0.0824	0.8471	0.0750	0.0297	8.86%	0.0121	4.10%
130.99	L-Lysine, Miscellaneous (%)	3	3	0.8280	0.1257	0.8280	0.1257	0.0889	15.18%	0.0465	4.11%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.8910							

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131.00	Methionine, PAO Post-col Ninhydrin Der (%)	12	12	0.2470	0.0111	0.2470	0.0126	0.0045	5.09%	0.0057	4.94%
131.05	Methionine, PAO Pre-col AQC Der (%)	10	10	0.2590	0.0267	0.2577	0.0215	0.0085	8.34%	0.0170	4.91%
131.02	Methionine, PAO Post-col OPA Der (%)	2	2	0.2593	0.0081						
131.99	Methionine, Miscellaneous (%)	2	2	0.2422	0.0244						
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	12	12	0.7694	0.0320	0.7708	0.0332	0.0120	4.31%	0.0081	4.16%
132.05	Phenylalanine, Pre-col AQC Der (%)	10	9	0.7492	0.0562	0.7535	0.0535	0.0223	7.10%	0.0143	4.17%
132.99	Phenylalanine, Miscellaneous (%)	2	2	0.7460	0.0127						
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.7780							
133.00	Proline, Post-col Ninhydrin Der (%)	12	12	1.033	0.0393	1.032	0.0371	0.0134	3.60%	0.0089	3.98%
133.05	Proline, Pre-col AQC Der (%)	10	9	1.051	0.0592	1.051	0.0672	0.0280	6.39%	0.0204	3.97%
133.99	Proline, Miscellaneous (%)	2	2	0.9825	0.0813						
134.00	Serine, Post-col Ninhydrin Der (%)	12	12	0.7820	0.0378	0.7849	0.0196	0.0071	2.50%	0.0096	4.15%
134.05	Serine, Pre-col AQC Der (%)	10	10	0.7624	0.0832	0.7759	0.0569	0.0225	7.33%	0.0338	4.16%
134.99	Serine, Miscellaneous (%)	2	2	0.7328	0.0180						
134.02	Serine, Post-col OPA Der (%)	1	1	0.6860							
135.00	Threonine, Post-col Ninhydrin Der (%)	12	12	0.6127	0.0191	0.6153	0.0146	0.0053	2.37%	0.0070	4.30%
135.05	Threonine, Pre-col AQC Der (%)	10	10	0.6054	0.1001	0.6243	0.0547	0.0216	8.76%	0.0167	4.29%
135.99	Threonine, Miscellaneous (%)	3	3	0.6077	0.0775	0.6077	0.0775	0.0448	12.76%	0.0264	4.31%
135.02	Threonine, Post-col OPA Der (%)	1	1	0.5465							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	6	0.2213	0.0091	0.2188	0.0040	0.0020	1.83%	0.0039	5.03%
136.05	Tryptophan, Pre-col AQC Der (%)	5	4	0.2055	0.0101	0.2055	0.0101	0.0051	4.93%	0.0080	5.08%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	3	3	0.2225	0.0353	0.2225	0.0353	0.0249	15.85%		5.01%
136.99	Tryptophan, Miscellaneous (%)	3	3	0.2473	0.0701	0.2473	0.0701	0.0496	28.35%		4.94%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	1	1	0.3270							
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.2082							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	11	11	0.5104	0.0382	0.5120	0.0262	0.0099	5.11%	0.0090	4.42%
137.05	Tyrosine, Pre-col AQC Der (%)	10	10	0.5295	0.0604	0.5290	0.0674	0.0267	12.75%	0.0215	4.40%
137.99	Tyrosine, Miscellaneous (%)	2	2	0.4900	0.0212						
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.4705							
138.00	Valine, Post-col Ninhydrin Der (%)	13	13	0.7610	0.0293	0.7606	0.0262	0.0091	3.44%	0.0092	4.17%
138.05	Valine, Pre-col AQC Der (%)	10	10	0.7269	0.1045	0.7383	0.0894	0.0353	12.10%	0.0116	4.19%
138.99	Valine, Miscellaneous (%)	2	2	0.7225	0.0177						
138.02	Valine, Post-col OPA Der (%)	1	1	0.8120							
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.1725	0.1025						
139.05	Taurine, Pre-col AQC Der (%)	2	1	0.0150							
139.02	Taurine, Post-col OPA Der (%)	2		0.0100							
139.03	Taurine, Pre-col Dansyl Cl Der (%)	1		0.0100							
160.10	Fructose, HPAEC PAD (%)	2	2	0.3925	0.1520						
160.99	Fructose, Miscellaneous (%)	1	1	0.4850							
161.10	Galactose, HPAEC PAD (%)	1		0.0000							

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162.10	Glucose, HPAEC PAD (%)	2	2	0.3550	0.1061						
162.99	Glucose, Miscellaneous (%)	1	1	0.3450							
163.10	Lactose, HPAEC PAD (%)	2	1	0.0650							
163.99	Lactose, Miscellaneous (%)	1		0.1500							
164.10	Maltose, HPAEC PAD (%)	2	2	0.3875	0.0035						
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.10	Sucrose, HPAEC PAD (%)	2	2	3.060	0.7071						
165.99	Sucrose, Miscellaneous (%)	1	1	2.750							
166.10	Raffinose, HPAEC PAD (%)	2	2	0.4800	0.1414						
166.99	Raffinose, Miscellaneous (%)	1	1	0.4200							
167.10	Stachyose, HPAEC PAD (%)	2	2	1.180	0.1839						
167.99	Stachyose, Miscellaneous (%)	1	1	1.385							
351.05	Chlortetracycline, LC-MS/MS (ppm)	2	2	2.300	0.6364						
351.00	Chlortetracycline, Plate (ppm)	1	1	4.499							
351.03	Chlortetracycline, LC (UV or FL) (ppm)	1	1	4.280							
386.02	Tiamulin, LC-MS/MS (ppm)	1	1	0.1300							
388.05	Tylosin, LC-MS/MS (ppm)	3	3	7.625	0.4629	7.625	0.4629	0.2673	6.07%	1.510	11.78%
400.01	Water Activity, Aqualab chilled mirror (Units)	10	9	0.5086	0.0169	0.5066	0.0135	0.0056	2.67%	0.0040	
400.99	Water Activity, Miscellaneous (Units)	2	2	0.4765	0.0092						
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	3	3	0.0589	0.0037	0.0589	0.0037	0.0021	6.30%	0.0052	22.00%
516.00	Arsenic, Total (As), AA, Hydride (ppm)	1	1	0.0690							
516.52	Arsenic, Total (As), ICP-MS, Open vessel (ppm)	1	1	0.0504							
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	1		20.00							
518.53	Cadmium, ICP-MS, Microwave (ppm)	3	3	0.0509	0.0027	0.0509	0.0027	0.0015	5.26%	0.0030	22.00%
518.43	Cadmium, ICP, Microwave (ppm)	2	2	0.0677	0.0175						
518.41	Cadmium, ICP, Dry ash (ppm)	1	1	0.0463							
518.52	Cadmium, ICP-MS, Open vessel (ppm)	1	1	0.0499							
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	8	7	3.217	0.6663	3.217	0.7556	0.3570	23.49%	0.0250	13.42%
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	4	4	3.043	0.2571	3.043	0.2571	0.1286	8.45%	0.2281	13.53%
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	1	1	1.873							
520.42	Chromium, Total (Cr), ICP, Open vessel (ppm)	1	1	3.380							
520.52	Chromium, Total (Cr), ICP-MS, Open vessel (ppm)	1	1	1.469							
526.53	Lead, ICP-MS, Microwave (ppm)	3	3	0.0554	0.0186	0.0554	0.0186	0.0132	33.66%	0.0221	22.00%
526.43	Lead, ICP, Microwave (ppm)	2	2	1.167	1.560						
526.41	Lead, ICP, Dry ash (ppm)	1	1	0.2037							
526.52	Lead, ICP-MS, Open vessel (ppm)	1	1	0.0702							
529.99	Mercury, Miscellaneous (ppb)	3	2	1,190	1,683	1,190	1,683				15.58%
539.43	Nickel, ICP, Microwave (ppm)	5	4	2.611	0.7613	2.611	0.7613	0.3807	29.16%	0.2144	13.85%
539.53	Nickel, ICP-MS, Microwave (ppm)	3	3	2.562	0.2388	2.562	0.2388	0.1379	9.32%	0.0732	13.88%
539.41	Nickel, ICP, Dry ash (ppm)	1	1	1.953							

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539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	1.745							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	1		0.0050							
714.99	Myristic Acid (14:0), Miscellaneous (% (w/w))	1		0.0050							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	1	1	0.5162							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	1	1	0.0058							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	1	1	0.0710							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	1	1	0.7631							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	1	1	1.702							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	1	1	0.0992							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	1	1	0.0103							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	1	1	0.0124							
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	0.0070							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1		0.0050							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (% (w/w))	1		0.0050							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	1	1	0.0093							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (% (w/w))	1		0.0050							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	1		0.0050							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	1	1	3.196							

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.



AAFCO
Association of American Feed Control Officials



Animal Feed Scheme

Swine Feed, Residues

Test Material Code # 202524

Method Precision Report

Methods Reported: 128

Labs Reporting: 161

Issue Date : 05/31/2025

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 (%)	44	42	9.731	0.3967	0.2995	0.1420	0.3314	3.09%	1.46%	3.42%	2.334
001.99	Loss on Drying, Miscellaneous (%)	16	13	9.192	1.052	0.6654	0.1140	0.6751	7.07%	1.21%	7.17%	5.923
002.01	Protein, Crude, Auto Kjel-Foss (%)	15	14	16.57	0.5991	0.2118	0.0339	0.2145	1.27%	0.20%	1.28%	6.326
002.05	Protein, Crude, Copper, Boric Acid (%)	20	19	16.68	0.1856	0.1414	0.0980	0.1721	0.85%	0.59%	1.03%	1.756
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	105	99	16.88	0.2847	0.2380	0.1465	0.2795	1.41%	0.87%	1.66%	1.908
002.11	Protein, Crude, NIR (%)	8	8	16.82	0.3885	0.3852	0.0712	0.3918	2.29%	0.42%	2.33%	5.503
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	9	9	2.909	0.2370	0.2335	0.0579	0.2405	8.03%	1.99%	8.27%	4.156
003.06	Fat, Crude, Pet Ether (%)	14	12	2.910	0.2378	0.2390	0.0437	0.2430	8.26%	1.51%	8.40%	5.565
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	9	8	2.875	0.1148	0.1204	0.0320	0.1246	4.19%	1.12%	4.34%	3.888
003.10	Fat, Crude, Randall, Pet Ether (%)	29	28	2.797	0.1591	0.1481	0.0822	0.1694	5.29%	2.94%	6.06%	2.060
003.11	Fat, Crude, NIR (%)	7	5	2.952	0.4753	0.5303	0.0176	0.5306	17.90%	0.59%	17.91%	30.14
003.14	Fat, Crude, Ankom (%)	57	53	2.816	0.2797	0.2279	0.0884	0.2445	8.10%	3.14%	8.68%	2.765
004.00	Fiber, Crude, Asbestos Free (%)	7	7	3.806	0.2700	0.2611	0.0970	0.2785	6.86%	2.55%	7.32%	2.872
004.06	Fiber, Crude, Fibertec (%)	16	14	3.888	0.3290	0.2759	0.0799	0.2872	7.18%	2.08%	7.48%	3.596
004.07	Fiber, Crude, ANKOM (%)	76	72	3.689	0.4161	0.3476	0.1528	0.3797	9.51%	4.18%	10.39%	2.485
004.11	Fiber, Crude, NIR (%)	7	5	6.347	4.149	1.521	0.1577	1.529	32.04%	3.32%	32.22%	9.698
005.00	Ash, 2h @ 600°C (%)	90	85	5.229	0.1597	0.1417	0.0564	0.1525	2.71%	1.08%	2.91%	2.703
005.05	Ash, 3h @ 550°C (%)	24	21	5.417	0.2125	0.1823	0.0473	0.1883	3.35%	0.87%	3.46%	3.983
005.11	Ash, NIR (%)	7	7	6.338	1.492	1.490	0.0916	1.493	23.51%	1.45%	23.55%	16.30
005.99	Ash, Miscellaneous (%)	6	6	5.350	0.2366	0.2360	0.0235	0.2372	4.41%	0.44%	4.43%	10.11
008.02	Fiber, Acid Detergent, Crucible (%)	12	12	5.326	0.5785	0.5643	0.1800	0.5923	10.59%	3.38%	11.12%	3.291
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	50	47	5.255	0.4487	0.3156	0.1792	0.3629	6.00%	3.41%	6.90%	2.025
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	11	10	14.51	0.8556	0.8468	0.1733	0.8644	5.84%	1.19%	5.96%	4.987
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	45	43	13.79	0.9624	0.6487	0.2826	0.7076	4.75%	2.07%	5.19%	2.504
010.99	Moisture, Miscellaneous (%)	17	15	9.519	1.075	0.8281	0.0802	0.8320	8.54%	0.83%	8.58%	10.38
011.01	Loss on Drying, HT, 135°C 2hr (%)	62	54	10.42	0.4951	0.3720	0.0839	0.3813	3.55%	0.80%	3.64%	4.546
012.00	Starch, Polarimetric (Ewers) (%)	12	11	40.23	1.201	1.187	0.2043	1.204	2.96%	0.51%	3.00%	5.896
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	7	6	37.35	2.376	2.590	0.2379	2.601	6.95%	0.64%	6.98%	10.93

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
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	10	9	38.76	2.036	0.8958	1.041	1.374	2.34%	2.72%	3.59%	1.319
013.00	Fat, Pretreat, Acid hydrolysis (%)	19	18	3.419	0.6485	0.4613	0.1553	0.4868	13.09%	4.41%	13.81%	3.133
013.02	Fat, Pretreat, Mojonner, Bak Ext, Acid hydrolysis (%)	18	18	4.170	0.3699	0.3517	0.1622	0.3873	8.43%	3.89%	9.29%	2.388
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	7	6	3.067	0.4127	0.4464	0.0825	0.4539	14.48%	2.68%	14.73%	5.500
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	10	10	3.502	0.2896	0.2785	0.1121	0.3002	7.95%	3.20%	8.57%	2.679
015.41	Aluminum, ICP, Dry ash (ppm)	5	5	151.7	34.63	34.56	3.266	34.71	22.78%	2.15%	22.88%	10.63
015.43	Aluminum, ICP, Microwave (ppm)	7	7	172.7	24.94	24.77	4.093	25.11	14.35%	2.37%	14.54%	6.134
017.41	Boron, ICP, Dry ash (ppm)	5	5	8.174	0.6356	0.5834	0.3566	0.6837	7.14%	4.36%	8.37%	1.917
017.43	Boron, ICP, Microwave (ppm)	7	5	7.808	0.6201	0.6193	0.0436	0.6208	7.93%	0.56%	7.95%	14.24
019.00	Calcium, Ox-Mn04 Vol. (%)	5	5	0.8550	0.0479	0.0467	0.0152	0.0491	5.46%	1.77%	5.74%	3.237
019.08	Calcium, EDTA (%)	10	9	0.8433	0.0519	0.0205	0.0198	0.0285	2.47%	2.39%	3.44%	1.440
019.31	Calcium, AAS, Dry ash (%)	14	12	0.8022	0.0526	0.0531	0.0082	0.0537	6.65%	1.03%	6.72%	6.529
019.41	Calcium, ICP, Dry ash (%)	20	19	0.8135	0.0309	0.0200	0.0204	0.0285	2.44%	2.49%	3.49%	1.400
019.42	Calcium, ICP, Open vessel (%)	20	18	0.8215	0.0761	0.0777	0.0141	0.0789	9.45%	1.72%	9.60%	5.596
019.43	Calcium, ICP, Microwave (%)	33	30	0.8066	0.0607	0.0484	0.0121	0.0499	5.95%	1.49%	6.13%	4.117
019.99	Calcium, Miscellaneous (%)	7	5	0.6950	0.2705	0.0483	0.0045	0.0485	6.01%	0.56%	6.03%	10.85
021.43	Cobalt, ICP, Microwave (ppm)	11	8	1.031	0.3737	0.2060	0.0523	0.2126	22.27%	5.66%	22.98%	4.062
022.31	Copper, AAS, Dry ash (ppm)	9	8	20.24	5.817	6.209	0.4538	6.225	30.74%	2.25%	30.82%	13.72
022.41	Copper, ICP, Dry ash (ppm)	16	15	19.93	2.039	1.973	0.7241	2.102	9.90%	3.63%	10.55%	2.903
022.42	Copper, ICP, Open vessel (ppm)	20	18	21.19	1.716	1.014	1.257	1.615	4.84%	6.00%	7.71%	1.285
022.43	Copper, ICP, Microwave (ppm)	29	26	20.73	3.024	1.538	0.8470	1.756	7.39%	4.07%	8.43%	2.073
025.31	Iron, AAS, Dry ash (ppm)	8	8	322.9	21.26	20.70	6.812	21.80	6.41%	2.11%	6.75%	3.200
025.41	Iron, ICP, Dry ash (ppm)	17	15	306.1	23.69	17.10	8.678	19.17	5.50%	2.79%	6.16%	2.210
025.42	Iron, ICP, Open vessel (ppm)	20	18	290.5	33.18	24.38	11.57	26.99	8.22%	3.90%	9.10%	2.333
025.43	Iron, ICP, Microwave (ppm)	28	26	314.7	27.84	20.10	8.690	21.90	6.31%	2.73%	6.88%	2.520
027.31	Magnesium, AAS, Dry ash (%)	9	8	0.2270	0.0217	0.0088	0.0043	0.0097	3.97%	1.93%	4.42%	2.284
027.41	Magnesium, ICP, Dry ash (%)	17	17	0.2159	0.0078	0.0062	0.0066	0.0091	2.88%	3.07%	4.21%	1.371
027.42	Magnesium, ICP, Open vessel (%)	20	18	0.2226	0.0145	0.0118	0.0061	0.0133	5.37%	2.75%	6.03%	2.193
027.43	Magnesium, ICP, Microwave (%)	31	29	0.2163	0.0153	0.0150	0.0039	0.0155	6.94%	1.80%	7.17%	3.991
027.99	Magnesium, Miscellaneous (%)	5	5	0.2140	0.0129	0.0125	0.0045	0.0133	5.86%	2.09%	6.23%	2.979
028.31	Manganese, AAS, Dry ash (ppm)	10	10	66.84	10.04	9.889	2.420	10.18	14.80%	3.62%	15.23%	4.207
028.41	Manganese, ICP, Dry ash (ppm)	15	13	67.12	4.488	3.667	1.207	3.860	5.52%	1.82%	5.81%	3.198
028.42	Manganese, ICP, Open vessel (ppm)	21	21	70.22	4.742	4.391	2.532	5.068	6.25%	3.61%	7.22%	2.002
028.43	Manganese, ICP, Microwave (ppm)	29	27	69.73	5.798	3.526	2.849	4.533	5.12%	4.13%	6.58%	1.591
031.01	Phosphorus, Photometric (%)	24	23	0.5417	0.0238	0.0209	0.0103	0.0233	3.84%	1.90%	4.28%	2.259
031.41	Phosphorus, ICP, Dry ash (%)	19	19	0.5486	0.0191	0.0167	0.0132	0.0213	3.05%	2.41%	3.88%	1.613
031.42	Phosphorus, ICP, Open vessel (%)	21	21	0.5363	0.0307	0.0295	0.0119	0.0318	5.51%	2.21%	5.93%	2.681
031.43	Phosphorus, ICP, Microwave (%)	33	33	0.5462	0.0264	0.0254	0.0100	0.0273	4.65%	1.84%	5.00%	2.719

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
031.99	Phosphorus, Miscellaneous (%)	6	5	0.5550	0.0514	0.0512	0.0055	0.0515	9.23%	0.99%	9.28%	9.403
032.31	Potassium, AAS, Dry ash (%)	8	7	0.8625	0.0567	0.0557	0.0150	0.0577	6.46%	1.74%	6.69%	3.857
032.41	Potassium, ICP, Dry ash (%)	17	16	0.9079	0.0770	0.0588	0.0270	0.0647	6.39%	2.94%	7.03%	2.394
032.42	Potassium, ICP, Open vessel (%)	20	19	0.9384	0.0715	0.0709	0.0132	0.0721	7.55%	1.41%	7.68%	5.455
032.43	Potassium, ICP, Microwave (%)	31	28	0.9384	0.0728	0.0455	0.0125	0.0472	4.91%	1.35%	5.09%	3.778
032.99	Potassium, Miscellaneous (%)	5	5	0.8913	0.0119		0.0195			2.19%		
033.00	Salt as chloride, Sol Cl (%)	13	12	0.5093	0.0771	0.0499	0.0232	0.0550	9.50%	4.41%	10.47%	2.376
033.01	Salt as chloride, Poten Cl (%)	28	25	0.5356	0.0175	0.0130	0.0066	0.0146	2.44%	1.25%	2.74%	2.202
033.99	Salt, Miscellaneous (%)	8	7	0.4977	0.0763	0.0292	0.0223	0.0368	5.59%	4.27%	7.04%	1.647
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	6	5	0.4187	0.0524	0.0115	0.0269	0.0292	2.87%	6.74%	7.32%	1.087
035.31	Sodium, AAS, Dry ash (%)	7	5	0.2089	0.0147	0.0120	0.0000	0.0120	5.65%	0.01%	5.65%	380.5
035.41	Sodium, ICP, Dry ash (%)	18	18	0.2114	0.0087	0.0081	0.0045	0.0093	3.84%	2.14%	4.40%	2.056
035.42	Sodium, ICP, Open vessel (%)	18	18	0.2094	0.0150	0.0145	0.0052	0.0154	6.93%	2.46%	7.36%	2.991
035.43	Sodium, ICP, Microwave (%)	28	27	0.2082	0.0121	0.0117	0.0042	0.0125	5.64%	2.03%	6.00%	2.950
035.99	Sodium, Miscellaneous (%)	6	5	0.2733	0.1825	0.0134	0.0071	0.0152	6.74%	3.55%	7.62%	2.145
036.04	Sulfur, LECO (%)	5	5	0.2706	0.0185	0.0183	0.0037	0.0187	6.77%	1.37%	6.91%	5.035
036.42	Sulfur, ICP, Open vessel (%)	17	17	0.2581	0.0140	0.0134	0.0059	0.0146	5.17%	2.28%	5.65%	2.478
036.43	Sulfur, ICP, Microwave (%)	20	20	0.2653	0.0156	0.0152	0.0048	0.0159	5.73%	1.80%	6.00%	3.327
037.31	Zinc, AAS, Dry ash (ppm)	10	8	138.8	10.87	5.495	2.188	5.915	4.07%	1.62%	4.38%	2.704
037.41	Zinc, ICP, Dry ash (ppm)	17	17	135.8	7.072	6.774	2.872	7.358	4.99%	2.12%	5.42%	2.562
037.42	Zinc, ICP, Open vessel (ppm)	21	20	135.1	16.36	14.62	4.400	15.27	10.95%	3.30%	11.44%	3.470
037.43	Zinc, ICP, Microwave (ppm)	30	28	138.2	11.08	9.404	3.002	9.871	6.84%	2.18%	7.18%	3.288
037.99	Zinc, Miscellaneous (ppm)	5	5	143.2	20.97	20.67	4.999	21.26	14.43%	3.49%	14.85%	4.253
038.43	Molybdenum, ICP, Microwave (ppm)	8	8	1.122	0.2964	0.2856	0.1117	0.3067	25.46%	9.96%	27.33%	2.745
106.02	Vitamin A, LC (KU / kg)	9	8	4.057	1.251	1.222	0.3795	1.279	30.12%	9.35%	31.54%	3.371
109.02	Vitamin E, LC (IU / kg)	14	12	64.64	13.40	8.380	4.970	9.742	13.54%	8.03%	15.74%	1.960
120.00	Alanine, Post-col Ninhydrin Der (%)	12	12	0.8254	0.0190	0.0188	0.0037	0.0191	2.28%	0.44%	2.32%	5.230
120.05	Alanine, Pre-col AQC Der (%)	10	9	0.8007	0.1265	0.0525	0.0120	0.0538	6.26%	1.44%	6.43%	4.470
121.00	Arginine, Post-col Ninhydrin Der (%)	12	10	1.032	0.0285	0.0296	0.0043	0.0299	2.87%	0.41%	2.90%	7.024
121.05	Arginine, Pre-col AQC Der (%)	10	9	1.009	0.1004	0.0420	0.0227	0.0478	4.05%	2.19%	4.60%	2.101
122.00	Aspartic, Post-col Ninhydrin Der (%)	12	11	1.507	0.0362	0.0332	0.0080	0.0342	2.21%	0.53%	2.27%	4.262
122.05	Aspartic, Pre-col AQC Der (%)	10	9	1.442	0.1803	0.1069	0.0290	0.1108	7.18%	1.95%	7.44%	3.819
124.00	Cysteine/Cystine, PAO Post-col Ninhydri (%)	11	10	0.2810	0.0082	0.0049	0.0037	0.0061	1.76%	1.32%	2.20%	1.667
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	10	9	0.2981	0.1271	0.0366	0.0159	0.0399	14.11%	6.14%	15.38%	2.507
125.00	Glutamic, Post-col Ninhydrin Der (%)	12	12	3.049	0.0641	0.0633	0.0142	0.0649	2.08%	0.46%	2.13%	4.584
125.05	Glutamic, Pre-col AQC Der (%)	10	8	3.030	0.2888	0.1279	0.0245	0.1302	4.10%	0.79%	4.18%	5.314
126.00	Glycine, Post-col Ninhydrin Der (%)	12	12	0.7202	0.0140	0.0128	0.0081	0.0152	1.78%	1.13%	2.11%	1.861
126.05	Glycine, Pre-col AQC Der (%)	10	8	0.6973	0.0731	0.0214	0.0053	0.0220	2.97%	0.73%	3.06%	4.190

Test Material Code # 202524

Issue Date : 05/31/2025

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
127.00	Histidine, Post-col Ninhydrin Der (%)	12	12	0.4284	0.0244	0.0243	0.0039	0.0246	5.67%	0.90%	5.74%	6.373
127.05	Histidine, Pre-col AQC Der (%)	10	9	0.4215	0.0263	0.0261	0.0077	0.0272	6.16%	1.83%	6.42%	3.517
128.00	Isoleucine, Post-col Ninhydrin Der (%)	12	12	0.6263	0.0307	0.0304	0.0052	0.0309	4.86%	0.84%	4.93%	5.888
128.05	Isoleucine, Pre-col AQC Der (%)	10	9	0.6185	0.0840	0.0353	0.0115	0.0371	5.50%	1.78%	5.78%	3.238
129.00	Leucine, Post-col Ninhydrin Der (%)	12	12	1.310	0.0334	0.0332	0.0056	0.0336	2.53%	0.43%	2.57%	6.030
129.05	Leucine, Pre-col AQC Der (%)	10	8	1.286	0.1517	0.0506	0.0226	0.0554	3.80%	1.70%	4.16%	2.451
130.00	L-Lysine, Post-col Ninhydrin Der (%)	16	14	0.8309	0.0283	0.0197	0.0065	0.0207	2.36%	0.77%	2.48%	3.209
130.05	L-Lysine, Pre-col AQC Der (%)	11	9	0.8502	0.0824	0.0860	0.0066	0.0863	10.17%	0.78%	10.20%	13.03
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	12	12	0.2470	0.0111	0.0108	0.0035	0.0114	4.37%	1.42%	4.60%	3.231
131.05	Methionine, PAO Pre-col AQC Der (%)	10	10	0.2590	0.0267	0.0253	0.0123	0.0281	9.76%	4.75%	10.86%	2.286
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	12	12	0.7694	0.0320	0.0317	0.0059	0.0323	4.12%	0.77%	4.20%	5.462
132.05	Phenylalanine, Pre-col AQC Der (%)	10	8	0.7492	0.0562	0.0600	0.0043	0.0601	8.00%	0.57%	8.02%	14.04
133.00	Proline, Post-col Ninhydrin Der (%)	12	12	1.033	0.0393	0.0389	0.0073	0.0396	3.77%	0.70%	3.83%	5.435
133.05	Proline, Pre-col AQC Der (%)	10	9	1.051	0.0592	0.0585	0.0134	0.0600	5.56%	1.27%	5.71%	4.489
134.00	Serine, Post-col Ninhydrin Der (%)	12	11	0.7820	0.0378	0.0227	0.0075	0.0238	2.86%	0.94%	3.02%	3.199
134.05	Serine, Pre-col AQC Der (%)	10	9	0.7624	0.0832	0.0400	0.0212	0.0452	5.09%	2.69%	5.76%	2.137
135.00	Threonine, Post-col Ninhydrin Der (%)	12	11	0.6127	0.0191	0.0109	0.0047	0.0119	1.77%	0.76%	1.92%	2.525
135.05	Threonine, Pre-col AQC Der (%)	10	8	0.6054	0.1001	0.0413	0.0092	0.0423	6.57%	1.47%	6.73%	4.575
137.00	Tyrosine, Post-col Ninhydrin Der (%)	11	10	0.5104	0.0382	0.0266	0.0070	0.0275	5.13%	1.34%	5.30%	3.957
137.05	Tyrosine, Pre-col AQC Der (%)	10	10	0.5295	0.0604	0.0593	0.0165	0.0615	11.19%	3.12%	11.62%	3.720
138.00	Valine, Post-col Ninhydrin Der (%)	13	13	0.7610	0.0293	0.0288	0.0070	0.0297	3.79%	0.92%	3.90%	4.237
138.05	Valine, Pre-col AQC Der (%)	10	9	0.7269	0.1045	0.0668	0.0072	0.0672	8.87%	0.95%	8.92%	9.357
400.01	Water Activity, Aqualab chilled mirror (Units)	10	8	0.5086	0.0169	0.0099	0.0036	0.0106	1.97%	0.72%	2.10%	2.915
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	8	6	3.217	0.6663	0.6932	0.0072	0.6932	22.09%	0.23%	22.09%	95.90

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