



**AAFCO**  
Association of American Feed Control Officials



## Pet Food Ingredient Scheme

Wheat Bran

Test Material Code # 202542

## Method Summary Report

(Precision Report Follows)

# Labs Reporting: 101

# Methods Reported: 237

Issue Date : 06/30/2025

| 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 (%)                | 58                      | 55                     | 11.42    | 0.5834 | 11.57                      | 0.2972              | 0.0501                 | 2.57%          | 0.0794                    | 2.77%                 |
| 001.99      | Loss on Drying, Miscellaneous (%)                      | 5                       | 5                      | 10.46    | 1.494  | 10.46                      | 1.494               | 0.6682                 | 14.28%         | 0.4300                    | 2.81%                 |
| 001.00      | Loss on Drying, Vac 95°C 5 hr (%)                      | 3                       | 3                      | 11.55    | 0.1581 | 11.55                      | 0.1581              | 0.0913                 | 1.37%          | 0.0968                    | 2.77%                 |
| 001.03      | Loss on Drying, Low temp. methods (%)                  | 1                       | 1                      | 11.09    |        |                            |                     |                        |                |                           |                       |
| 002.06      | Protein, Crude, Combustion Nitrogen Analyzer (%)       | 87                      | 85                     | 15.99    | 0.4045 | 16.02                      | 0.3356              | 0.0455                 | 2.10%          | 0.1257                    | 2.50%                 |
| 002.01      | Protein, Crude, Auto Kjeld-Foss (%)                    | 5                       | 5                      | 15.91    | 0.5463 | 15.91                      | 0.5463              | 0.2443                 | 3.43%          | 0.0850                    | 2.51%                 |
| 002.05      | Protein, Crude, Copper, Boric Acid (%)                 | 3                       | 3                      | 15.35    | 0.9198 | 15.35                      | 0.9198              | 0.5310                 | 5.99%          | 0.1863                    | 2.55%                 |
| 002.04      | Protein, Crude, Copper Catalyst (%)                    | 2                       | 2                      | 15.85    | 0.0354 |                            |                     |                        |                |                           |                       |
| 002.11      | Protein, Crude, NIR (%)                                | 2                       | 2                      | 15.36    | 0.0141 |                            |                     |                        |                |                           |                       |
| 002.08      | Protein, Crude, Cu/Ti (%)                              | 1                       | 1                      | 16.01    |        |                            |                     |                        |                |                           |                       |
| 002.99      | Protein, Crude, Miscellaneous (%)                      | 1                       | 1                      | 15.76    |        |                            |                     |                        |                |                           |                       |
| 003.10      | Fat, Crude, Randall, Pet Ether (%)                     | 20                      | 19                     | 1.643    | 0.1681 | 1.639                      | 0.1829              | 0.0524                 | 11.16%         | 0.0464                    | 3.71%                 |
| 003.00      | Fat, Crude, Diethyl Ether Ext., Direct (%)             | 18                      | 18                     | 1.529    | 0.1803 | 1.548                      | 0.1532              | 0.0451                 | 9.89%          | 0.0819                    | 3.74%                 |
| 003.14      | Fat, Crude, Ankom (%)                                  | 15                      | 15                     | 1.774    | 0.3170 | 1.738                      | 0.2668              | 0.0861                 | 15.35%         | 0.1681                    | 3.68%                 |
| 003.09      | Fat, Crude, Randall, Diethyl Ether Ext (%)             | 10                      | 10                     | 1.519    | 0.2658 | 1.489                      | 0.2251              | 0.0890                 | 15.12%         | 0.0392                    | 3.77%                 |
| 003.06      | Fat, Crude, Pet Ether (%)                              | 3                       | 3                      | 5.162    | 5.055  | 5.162                      | 5.055               | 3.575                  | 97.94%         | 1.275                     | 3.12%                 |
| 003.99      | Fat, Crude, Miscellaneous (%)                          | 3                       | 3                      | 3.187    | 1.844  | 3.187                      | 1.844               | 1.304                  | 57.85%         | 0.0800                    | 3.36%                 |
| 003.11      | Fat, Crude, NIR (%)                                    | 2                       | 2                      | 3.043    | 0.0884 |                            |                     |                        |                |                           |                       |
| 003.01      | Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%) | 1                       | 1                      | 1.895    |        |                            |                     |                        |                |                           |                       |
| 003.12      | Fat, Crude, Hexane Ext (%)                             | 1                       | 1                      | 1.875    |        |                            |                     |                        |                |                           |                       |
| 003.13      | Fat, Crude, Randall, Hexane Ext. (%)                   | 1                       | 1                      | 1.960    |        |                            |                     |                        |                |                           |                       |
| 004.07      | Fiber, Crude, ANKOM (%)                                | 24                      | 23                     | 9.301    | 0.8356 | 9.285                      | 0.8652              | 0.2255                 | 9.32%          | 0.3634                    | 2.86%                 |
| 004.00      | Fiber, Crude, Asbestos Free (%)                        | 7                       | 7                      | 9.803    | 1.395  | 9.803                      | 1.582               | 0.7473                 | 16.14%         | 0.0974                    | 2.84%                 |
| 004.11      | Fiber, Crude, NIR (%)                                  | 2                       | 2                      | 8.560    | 0.1131 |                            |                     |                        |                |                           |                       |
| 004.06      | Fiber, Crude, Fibertec (%)                             | 1                       | 1                      | 9.210    |        |                            |                     |                        |                |                           |                       |
| 005.00      | Ash, 2h @ 600°C (%)                                    | 57                      | 56                     | 5.806    | 0.1233 | 5.803                      | 0.1018              | 0.0170                 | 1.75%          | 0.0807                    | 3.07%                 |
| 005.05      | Ash, 3h @ 550°C (%)                                    | 13                      | 13                     | 5.892    | 0.1353 | 5.879                      | 0.1219              | 0.0423                 | 2.07%          | 0.1191                    | 3.06%                 |
| 005.03      | Ash, Microwave furnace (%)                             | 9                       | 9                      | 5.949    | 0.0672 | 5.940                      | 0.0532              | 0.0222                 | 0.90%          | 0.0300                    | 3.06%                 |
| 005.99      | Ash, Miscellaneous (%)                                 | 3                       | 3                      | 5.728    | 0.0633 | 5.728                      | 0.0633              | 0.0366                 | 1.11%          | 0.1167                    | 3.08%                 |

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|-------------|----------------------------------------------------------|-------------------------|------------------------|----------|--------|----------------------------|---------------------|--------------------------|----------------|---------------------------|-----------------------|
| 005.11      | Ash, NIR (%)                                             | 1                       | 1                      | 6.095    |        |                            |                     |                          |                |                           |                       |
| 006.00      | Total Sugars, As sucrose (%)                             | 2                       | 2                      | 4.814    | 1.194  |                            |                     |                          |                |                           |                       |
| 008.08      | Fiber, Acid Detergent, Filter Bag - ANKOM (%)            | 11                      | 10                     | 11.57    | 0.8027 | 11.55                      | 0.8687              | 0.3434                   | 7.52%          | 0.2567                    | 2.77%                 |
| 008.02      | Fiber, Acid Detergent, Crucible (%)                      | 5                       | 4                      | 11.30    | 0.6265 | 11.30                      | 0.6265              | 0.3132                   | 5.55%          | 0.0262                    | 2.78%                 |
| 008.99      | Fiber, Acid Detergent, Miscellaneous (%)                 | 1                       | 1                      | 11.96    |        |                            |                     |                          |                |                           |                       |
| 009.09      | Fiber, Neutral Detergent, Filter Bag - ANKOM (%)         | 7                       | 7                      | 40.71    | 1.409  | 40.76                      | 1.473               | 0.6959                   | 3.61%          | 0.4335                    | 1.57%                 |
| 009.07      | Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)         | 2                       | 2                      | 43.37    | 2.014  |                            |                     |                          |                |                           |                       |
| 009.99      | Fiber, Neutral Detergent, Miscellaneous (%)              | 1                       | 1                      | 39.05    |        |                            |                     |                          |                |                           |                       |
| 010.99      | Moisture, Miscellaneous (%)                              | 5                       | 5                      | 11.80    | 0.5411 | 11.80                      | 0.5411              | 0.2420                   | 4.59%          | 0.0548                    | 2.76%                 |
| 010.11      | Moisture, NIR (%)                                        | 2                       | 2                      | 11.88    | 0.3783 |                            |                     |                          |                |                           |                       |
| 011.01      | Loss on Drying, HT, 135°C 2hr (%)                        | 20                      | 20                     | 11.98    | 0.4268 | 12.01                      | 0.3735              | 0.1044                   | 3.11%          | 0.0553                    | 2.75%                 |
| 011.02      | Loss on Drying, HT, 130°C for 2 hours (%)                | 1                       | 1                      | 11.36    |        |                            |                     |                          |                |                           |                       |
| 012.01      | Starch, Enzymatic-Colorimetric Method (Megazyme) (%)     | 4                       | 4                      | 18.19    | 0.6051 | 18.19                      | 0.6051              | 0.3026                   | 3.33%          | 0.6536                    | 2.34%                 |
| 012.03      | Starch, Enzymatic-Colorimetric Method, Miscellaneous (%) | 2                       | 2                      | 17.13    | 1.942  |                            |                     |                          |                |                           |                       |
| 012.04      | Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)   | 2                       | 2                      | 18.38    | 2.086  |                            |                     |                          |                |                           |                       |
| 012.00      | Starch, Polarimetric (Ewers) (%)                         | 1                       | 1                      | 19.35    |        |                            |                     |                          |                |                           |                       |
| 013.02      | Fat, Pretreat, Mojonier, Bak Ext, Acid hydrolysis (%)    | 14                      | 14                     | 3.734    | 1.378  | 3.734                      | 1.562               | 0.5219                   | 41.84%         | 0.4196                    | 3.28%                 |
| 013.00      | Fat, Pretreat, Acid hydrolysis (%)                       | 13                      | 12                     | 4.248    | 0.2621 | 4.278                      | 0.2181              | 0.0787                   | 5.10%          | 0.1303                    | 3.21%                 |
| 013.13      | Fat, Pretreat, Ankom- Acid Hydrolysis (%)                | 3                       | 3                      | 4.458    | 0.2725 | 4.458                      | 0.2725              | 0.1573                   | 6.11%          | 0.1511                    | 3.19%                 |
| 013.99      | Fat, Pretreat, Miscellaneous (%)                         | 1                       | 1                      | 4.570    |        |                            |                     |                          |                |                           |                       |
| 014.01      | Fiber, Total Dietary, Enz-Grav (%)                       | 2                       | 2                      | 44.93    | 3.924  |                            |                     |                          |                |                           |                       |
| 014.99      | Fiber, Total Dietary, Miscellaneous (%)                  | 1                       | 1                      | 43.23    |        |                            |                     |                          |                |                           |                       |
| 015.41      | Aluminum, ICP, Dry ash (ppm)                             | 1                       | 1                      | 10.52    |        |                            |                     |                          |                |                           |                       |
| 015.43      | Aluminum, ICP, Microwave (ppm)                           | 2                       | 1                      | 9.818    |        |                            |                     |                          |                |                           |                       |
| 015.53      | Aluminum, ICP-MS, Microwave (ppm)                        | 1                       | 1                      | 11.42    |        |                            |                     |                          |                |                           |                       |
| 017.43      | Boron, ICP, Microwave (ppm)                              | 2                       | 2                      | 2.120    | 0.1694 |                            |                     |                          |                |                           |                       |
| 017.41      | Boron, ICP, Dry ash (ppm)                                | 1                       | 1                      | 2.107    |        |                            |                     |                          |                |                           |                       |
| 017.53      | Boron, ICP-MS, Microwave (ppm)                           | 1                       | 1                      | 1.924    |        |                            |                     |                          |                |                           |                       |
| 019.44      | Calcium, ICP, Dry ash (%)                                | 38                      | 38                     | 0.0752   | 0.0147 | 0.0769                     | 0.0122              | 0.0025                   | 15.86%         | 0.0100                    | 5.88%                 |
| 019.43      | Calcium, ICP, Microwave (%)                              | 22                      | 21                     | 0.0800   | 0.0054 | 0.0794                     | 0.0042              | 0.0012                   | 5.32%          | 0.0042                    | 5.86%                 |
| 019.41      | Calcium, ICP, Dry ash (%)                                | 7                       | 7                      | 0.0829   | 0.0125 | 0.0792                     | 0.0040              | 0.0019                   | 5.05%          | 0.0059                    | 5.86%                 |
| 019.53      | Calcium, ICP-MS, Microwave (%)                           | 5                       | 5                      | 0.0853   | 0.0090 | 0.0853                     | 0.0090              | 0.0040                   | 10.51%         | 0.0099                    | 5.79%                 |
| 019.42      | Calcium, ICP, Open vessel (%)                            | 3                       | 3                      | 0.0785   | 0.0009 | 0.0785                     | 0.0009              | 0.0006                   | 1.12%          | 0.0020                    | 5.87%                 |
| 019.31      | Calcium, AAS, Dry ash (%)                                | 2                       | 2                      | 0.0746   | 0.0065 |                            |                     |                          |                |                           |                       |
| 019.00      | Calcium, Ox-Mn04 Vol. (%)                                | 1                       | 1                      | 0.1600   |        |                            |                     |                          |                |                           |                       |
| 019.52      | Calcium, ICP-MS, Open vessel (%)                         | 1                       | 1                      | 0.1200   |        |                            |                     |                          |                |                           |                       |
| 019.99      | Calcium, Miscellaneous (%)                               | 1                       | 1                      | 0.0700   |        |                            |                     |                          |                |                           |                       |
| 021.43      | Cobalt, ICP, Microwave (ppm)                             | 2                       | 2                      | 0.2884   | 0.3796 |                            |                     |                          |                |                           |                       |
| 021.41      | Cobalt, ICP, Dry ash (ppm)                               | 1                       | 1                      | 0.5023   |        |                            |                     |                          |                |                           |                       |
| 021.53      | Cobalt, ICP-MS, Microwave (ppm)                          | 2                       | 1                      | 0.1987   |        |                            |                     |                          |                |                           |                       |

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|-------------|--------------------------------------|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|---------------------------|-----------------------|
| 022.44      | Copper, ICP, Dry ash (ppm)           | 37                      | <b>37</b>              | 7.572    | 1.483  | <b>7.584</b>               | 1.655               | 0.3402                 | 21.83%         | 0.7147                    | 11.79%                |
| 022.43      | Copper, ICP, Microwave (ppm)         | 20                      | <b>19</b>              | 10.39    | 1.017  | <b>10.21</b>               | 0.3821              | 0.1096                 | 3.74%          | 0.3959                    | 11.28%                |
| 022.41      | Copper, ICP, Dry ash (ppm)           | 6                       | <b>6</b>               | 9.953    | 2.954  | <b>10.25</b>               | 1.878               | 0.9586                 | 18.32%         | 0.4891                    | 11.27%                |
| 022.53      | Copper, ICP-MS, Microwave (ppm)      | 5                       | 5                      | 10.34    | 0.2722 | 10.34                      | 0.2722              | 0.1217                 | 2.63%          | 0.3041                    | 11.26%                |
| 022.42      | Copper, ICP, Open vessel (ppm)       | 3                       | 2                      | 9.976    | 0.0755 | 9.976                      | 0.0755              |                        |                | 0.3176                    | 11.32%                |
| 022.52      | Copper, ICP-MS, Open vessel (ppm)    | 2                       | 2                      | 10.83    | 0.6824 |                            |                     |                        |                |                           |                       |
| 022.99      | Copper, Miscellaneous (ppm)          | 1                       | 1                      | 8.000    |        |                            |                     |                        |                |                           |                       |
| 025.43      | Iron, ICP, Microwave (ppm)           | 11                      | <b>10</b>              | 119.8    | 8.661  | <b>118.7</b>               | 6.688               | 2.643                  | 5.64%          | 2.009                     | 7.80%                 |
| 025.41      | Iron, ICP, Dry ash (ppm)             | 5                       | 5                      | 119.5    | 8.361  | 119.5                      | 8.361               | 3.739                  | 6.99%          | 7.676                     | 7.79%                 |
| 025.53      | Iron, ICP-MS, Microwave (ppm)        | 5                       | 5                      | 124.4    | 12.81  | 124.4                      | 12.81               | 5.730                  | 10.30%         | 9.003                     | 7.74%                 |
| 025.42      | Iron, ICP, Open vessel (ppm)         | 4                       | 4                      | 113.9    | 7.567  | 113.9                      | 7.567               | 3.784                  | 6.64%          | 2.046                     | 7.84%                 |
| 025.31      | Iron, AAS, Dry ash (ppm)             | 2                       | 2                      | 113.9    | 0.8556 |                            |                     |                        |                |                           |                       |
| 025.52      | Iron, ICP-MS, Open vessel (ppm)      | 1                       | 1                      | 138.0    |        |                            |                     |                        |                |                           |                       |
| 025.99      | Iron, Miscellaneous (ppm)            | 1                       | 1                      | 107.0    |        |                            |                     |                        |                |                           |                       |
| 027.44      | Magnesium, ICP, Dry ash (%)          | 38                      | <b>37</b>              | 0.4142   | 0.1258 | <b>0.4351</b>              | 0.0832              | 0.0171                 | 19.13%         | 0.0109                    | 4.53%                 |
| 027.43      | Magnesium, ICP, Microwave (%)        | 21                      | <b>21</b>              | 0.5022   | 0.0339 | <b>0.5042</b>              | 0.0318              | 0.0087                 | 6.31%          | 0.0105                    | 4.43%                 |
| 027.41      | Magnesium, ICP, Dry ash (%)          | 6                       | 5                      | 0.4963   | 0.0302 | 0.4963                     | 0.0302              | 0.0169                 | 6.08%          | 0.0080                    | 4.44%                 |
| 027.53      | Magnesium, ICP-MS, Microwave (%)     | 5                       | 5                      | 0.5105   | 0.0287 | 0.5105                     | 0.0287              | 0.0128                 | 5.61%          | 0.0671                    | 4.43%                 |
| 027.31      | Magnesium, AAS, Dry ash (%)          | 3                       | 3                      | 0.3329   | 0.2709 | 0.3329                     | 0.2709              | 0.1916                 | 81.40%         | 0.0152                    | 4.72%                 |
| 027.42      | Magnesium, ICP, Open vessel (%)      | 3                       | 3                      | 0.4865   | 0.0254 | 0.4865                     | 0.0254              | 0.0146                 | 5.21%          | 0.0037                    | 4.46%                 |
| 027.52      | Magnesium, ICP-MS, Open vessel (%)   | 1                       | 1                      | 0.4350   |        |                            |                     |                        |                |                           |                       |
| 027.99      | Magnesium, Miscellaneous (%)         | 1                       | 1                      | 0.4650   |        |                            |                     |                        |                |                           |                       |
| 028.44      | Manganese, ICP, Dry ash (ppm)        | 37                      | <b>37</b>              | 137.3    | 6.185  | <b>137.0</b>               | 6.097               | 1.253                  | 4.45%          | 3.178                     | 7.63%                 |
| 028.43      | Manganese, ICP, Microwave (ppm)      | 20                      | <b>20</b>              | 140.2    | 5.672  | <b>140.3</b>               | 5.246               | 1.466                  | 3.74%          | 4.746                     | 7.60%                 |
| 028.41      | Manganese, ICP, Dry ash (ppm)        | 6                       | <b>6</b>               | 136.2    | 4.875  | <b>136.2</b>               | 5.528               | 2.821                  | 4.06%          | 6.453                     | 7.64%                 |
| 028.42      | Manganese, ICP, Open vessel (ppm)    | 3                       | 3                      | 130.3    | 3.251  | 130.3                      | 3.251               | 1.877                  | 2.50%          | 2.508                     | 7.69%                 |
| 028.53      | Manganese, ICP-MS, Microwave (ppm)   | 4                       | 3                      | 142.0    | 7.211  | 142.0                      | 7.211               | 4.163                  | 5.08%          | 3.843                     | 7.59%                 |
| 028.31      | Manganese, AAS, Dry ash (ppm)        | 2                       | 2                      | 143.5    | 4.752  |                            |                     |                        |                |                           |                       |
| 028.52      | Manganese, ICP-MS, Open vessel (ppm) | 1                       | 1                      | 124.9    |        |                            |                     |                        |                |                           |                       |
| 028.99      | Manganese, Miscellaneous (ppm)       | 1                       | 1                      | 127.5    |        |                            |                     |                        |                |                           |                       |
| 031.44      | Phosphorus, ICP, Dry ash (%)         | 39                      | <b>39</b>              | 1.253    | 0.0614 | <b>1.251</b>               | 0.0560              | 0.0112                 | 4.47%          | 0.0321                    | 3.87%                 |
| 031.43      | Phosphorus, ICP, Microwave (%)       | 21                      | <b>20</b>              | 1.324    | 0.0641 | <b>1.324</b>               | 0.0719              | 0.0201                 | 5.43%          | 0.0409                    | 3.83%                 |
| 031.41      | Phosphorus, ICP, Dry ash (%)         | 6                       | <b>6</b>               | 1.312    | 0.1008 | <b>1.312</b>               | 0.1144              | 0.0584                 | 8.71%          | 0.0554                    | 3.84%                 |
| 031.53      | Phosphorus, ICP-MS, Microwave (%)    | 5                       | 5                      | 1.297    | 0.1022 | 1.297                      | 0.1022              | 0.0457                 | 7.88%          | 0.0995                    | 3.85%                 |
| 031.42      | Phosphorus, ICP, Open vessel (%)     | 4                       | 4                      | 1.276    | 0.1047 | 1.276                      | 0.1047              | 0.0524                 | 8.21%          | 0.0067                    | 3.86%                 |
| 031.01      | Phosphorus, Photometric (%)          | 3                       | 3                      | 1.243    | 0.1705 | 1.243                      | 0.1705              | 0.1206                 | 13.72%         |                           | 3.87%                 |
| 031.03      | Phosphorus, Autoanalyzer (%)         | 1                       | 1                      | 1.347    |        |                            |                     |                        |                |                           |                       |
| 031.99      | Phosphorus, Miscellaneous (%)        | 1                       | 1                      | 1.145    |        |                            |                     |                        |                |                           |                       |
| 032.44      | Potassium, ICP, Dry ash (%)          | 38                      | <b>37</b>              | 1.360    | 0.0508 | <b>1.358</b>               | 0.0541              | 0.0111                 | 3.98%          | 0.0310                    | 3.82%                 |
| 032.43      | Potassium, ICP, Microwave (%)        | 21                      | <b>20</b>              | 1.419    | 0.0571 | <b>1.419</b>               | 0.0536              | 0.0150                 | 3.78%          | 0.0329                    | 3.79%                 |

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|-------------|-------------------------------------------------|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|---------------------------|-----------------------|
| 032.41      | Potassium, ICP, Dry ash (%)                     | 6                       | 6                      | 1.430    | 0.0659 | 1.430                      | 0.0747              | 0.0381                 | 5.22%          | 0.0553                    | 3.79%                 |
| 032.53      | Potassium, ICP-MS, Microwave (%)                | 5                       | 5                      | 1.399    | 0.0696 | 1.399                      | 0.0696              | 0.0311                 | 4.97%          | 0.1092                    | 3.80%                 |
| 032.42      | Potassium, ICP, Open vessel (%)                 | 4                       | 4                      | 1.420    | 0.1118 | 1.420                      | 0.1118              | 0.0559                 | 7.87%          | 0.0250                    | 3.79%                 |
| 032.31      | Potassium, AAS, Dry ash (%)                     | 2                       | 2                      | 0.5692   | 0.7201 |                            |                     |                        |                |                           |                       |
| 032.99      | Potassium, Miscellaneous (%)                    | 1                       | 1                      | 1.315    |        |                            |                     |                        |                |                           |                       |
| 033.01      | Salt as chloride, Poten Cl (%)                  | 6                       | 6                      | 0.1301   | 0.0589 | 0.1229                     | 0.0492              | 0.0251                 | 40.01%         | 0.0084                    | 5.48%                 |
| 033.00      | Salt as chloride, Sol Cl (%)                    | 1                       | 1                      | 0.0536   |        |                            |                     |                        |                |                           |                       |
| 034.53      | Selenium, Total (Se), ICP-MS, Microwave (ppm)   | 5                       | 2                      | 0.1577   | 0.1117 | 0.1577                     | 0.1117              |                        |                | 0.0151                    | 21.12%                |
| 034.42      | Selenium, Total (Se), ICP, Open vessel (ppm)    | 1                       | 1                      | 0.0795   |        |                            |                     |                        |                |                           |                       |
| 034.52      | Selenium, Total (Se), ICP-MS, Open vessel (ppm) | 2                       | 1                      | 0.1050   |        |                            |                     |                        |                |                           |                       |
| 034.43      | Selenium, Total (Se), ICP, Microwave (ppm)      | 1                       |                        | 0.0000   |        |                            |                     |                        |                |                           |                       |
| 035.41      | Sodium, ICP, Dry ash (%)                        | 44                      | 33                     | 0.0097   | 0.0023 | 0.0100                     | 0.0000              | 0.0000                 | 0.00%          |                           | 8.00%                 |
| 035.43      | Sodium, ICP, Microwave (%)                      | 6                       | 5                      | 0.0062   | 0.0037 | 0.0062                     | 0.0037              | 0.0018                 | 60.26%         | 0.0006                    | 8.60%                 |
| 035.42      | Sodium, ICP, Open vessel (%)                    | 3                       | 2                      | 0.0141   | 0.0143 | 0.0141                     | 0.0143              |                        |                | 0.0005                    | 7.60%                 |
| 035.53      | Sodium, ICP-MS, Microwave (%)                   | 1                       | 1                      | 0.0194   |        |                            |                     |                        |                |                           |                       |
| 035.99      | Sodium, Miscellaneous (%)                       | 1                       | 1                      | 0.0100   |        |                            |                     |                        |                |                           |                       |
| 036.43      | Sulfur, ICP, Microwave (%)                      | 4                       | 4                      | 0.1710   | 0.0045 | 0.1710                     | 0.0045              | 0.0022                 | 2.60%          | 0.0056                    | 5.22%                 |
| 036.42      | Sulfur, ICP, Open vessel (%)                    | 2                       | 2                      | 0.1548   | 0.0034 |                            |                     |                        |                |                           |                       |
| 036.04      | Sulfur, LECO (%)                                | 1                       | 1                      | 0.1560   |        |                            |                     |                        |                |                           |                       |
| 036.99      | Sulfur, Miscellaneous (%)                       | 1                       | 1                      | 0.1350   |        |                            |                     |                        |                |                           |                       |
| 037.44      | Zinc, ICP, Dry ash (ppm)                        | 35                      | 34                     | 71.54    | 3.361  | 71.56                      | 3.125               | 0.6698                 | 4.37%          | 1.473                     | 8.41%                 |
| 037.43      | Zinc, ICP, Microwave (ppm)                      | 21                      | 21                     | 73.18    | 14.13  | 72.84                      | 5.149               | 1.405                  | 7.07%          | 3.364                     | 8.39%                 |
| 037.41      | Zinc, ICP, Dry ash (ppm)                        | 8                       | 8                      | 77.92    | 12.36  | 74.45                      | 3.545               | 1.567                  | 4.76%          | 2.647                     | 8.36%                 |
| 037.42      | Zinc, ICP, Open vessel (ppm)                    | 3                       | 3                      | 72.01    | 11.32  | 72.01                      | 11.32               | 6.533                  | 15.71%         | 2.591                     | 8.40%                 |
| 037.53      | Zinc, ICP-MS, Microwave (ppm)                   | 5                       | 3                      | 73.60    | 3.811  | 73.60                      | 3.811               | 2.695                  | 5.18%          | 2.600                     | 8.38%                 |
| 037.31      | Zinc, AAS, Dry ash (ppm)                        | 2                       | 2                      | 75.99    | 3.376  |                            |                     |                        |                |                           |                       |
| 037.52      | Zinc, ICP-MS, Open vessel (ppm)                 | 2                       | 2                      | 71.63    | 1.085  |                            |                     |                        |                |                           |                       |
| 037.34      | Zinc, AAS, Dry ash (ppm)                        | 1                       | 1                      | 74.90    |        |                            |                     |                        |                |                           |                       |
| 037.99      | Zinc, Miscellaneous (ppm)                       | 1                       | 1                      | 63.50    |        |                            |                     |                        |                |                           |                       |
| 038.53      | Molybdenum, ICP-MS, Microwave (ppm)             | 5                       | 5                      | 1.002    | 0.0734 | 1.002                      | 0.0734              | 0.0328                 | 7.33%          | 0.0506                    | 15.99%                |
| 038.43      | Molybdenum, ICP, Microwave (ppm)                | 4                       | 4                      | 1.090    | 0.5515 | 1.090                      | 0.5515              | 0.2757                 | 50.58%         | 0.1139                    | 15.79%                |
| 038.52      | Molybdenum, ICP-MS, Open vessel (ppm)           | 2                       | 2                      | 0.9450   | 0.1980 |                            |                     |                        |                |                           |                       |
| 038.41      | Molybdenum, ICP, Dry ash (ppm)                  | 1                       | 1                      | 1.102    |        |                            |                     |                        |                |                           |                       |
| 040.53      | Barium, ICP-MS, Microwave (ppm)                 | 1                       | 1                      | 29.52    |        |                            |                     |                        |                |                           |                       |
| 041.53      | Vanadium, ICP-MS, Microwave (ppm)               | 1                       | 1                      | 0.0462   |        |                            |                     |                        |                |                           |                       |
| 042.00      | Chloride, Titrimetric (%)                       | 1                       | 1                      | 0.0582   |        |                            |                     |                        |                |                           |                       |
| 106.03      | #N/A                                            | 1                       | 1                      | 2.070    |        |                            |                     |                        |                |                           |                       |
| 106.02      | Vitamin A, LC (KU / kg)                         | 1                       |                        | 0.3000   |        |                            |                     |                        |                |                           |                       |
| 108.01      | Vitamin D3, LC, AOAC (KU / kg)                  | 1                       |                        | 0.0500   |        |                            |                     |                        |                |                           |                       |
| 109.02      | Vitamin E, LC (IU / kg)                         | 1                       | 1                      | 4.000    |        |                            |                     |                        |                |                           |                       |

| 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 |
|-------------|---------------------------------------------|-------------------------|------------------------|----------|--------|----------------------------|---------------------|--------------------------|----------------|---------------------------|-----------------------|
| 109.03      | #N/A                                        | 1                       | 1                      | 4.970    |        |                            |                     |                          |                |                           |                       |
| 120.00      | Alanine, Post-col Ninhydrin Der (%)         | 2                       | 2                      | 0.7025   | 0.0035 |                            |                     |                          |                |                           |                       |
| 120.05      | Alanine, Pre-col AQC Der (%)                | 2                       | 2                      | 0.7285   | 0.0021 |                            |                     |                          |                |                           |                       |
| 120.02      | Alanine, Post-col OPA Der (%)               | 1                       | 1                      | 0.6300   |        |                            |                     |                          |                |                           |                       |
| 120.99      | Alanine, Miscellaneous (%)                  | 1                       | 1                      | 0.6950   |        |                            |                     |                          |                |                           |                       |
| 121.00      | Arginine, Post-col Ninhydrin Der (%)        | 2                       | 2                      | 1.068    | 0.0177 |                            |                     |                          |                |                           |                       |
| 121.05      | Arginine, Pre-col AQC Der (%)               | 2                       | 2                      | 1.006    | 0.0774 |                            |                     |                          |                |                           |                       |
| 121.02      | Arginine, Post-col OPA Der (%)              | 1                       | 1                      | 0.9750   |        |                            |                     |                          |                |                           |                       |
| 121.99      | Arginine, Miscellaneous (%)                 | 1                       | 1                      | 1.005    |        |                            |                     |                          |                |                           |                       |
| 122.00      | Aspartic, Post-col Ninhydrin Der (%)        | 2                       | 2                      | 1.075    | 0.0141 |                            |                     |                          |                |                           |                       |
| 122.05      | Aspartic, Pre-col AQC Der (%)               | 2                       | 2                      | 1.125    | 0.0562 |                            |                     |                          |                |                           |                       |
| 122.02      | Aspartic, Post-col OPA Der (%)              | 1                       | 1                      | 0.9450   |        |                            |                     |                          |                |                           |                       |
| 122.99      | Aspartic, Miscellaneous (%)                 | 1                       | 1                      | 0.9300   |        |                            |                     |                          |                |                           |                       |
| 124.00      | Cysteine/Cystine, PAO Post-col Ninhydri (%) | 2                       | 2                      | 0.3350   | 0.0283 |                            |                     |                          |                |                           |                       |
| 124.05      | Cysteine/Cystine, PAO Pre-col AQC Der (%)   | 2                       | 2                      | 0.3565   | 0.1266 |                            |                     |                          |                |                           |                       |
| 124.02      | Cysteine/Cystine, PAO Post-col OPA Der (%)  | 1                       | 1                      | 0.3750   |        |                            |                     |                          |                |                           |                       |
| 124.99      | Cysteine/Cystine, Miscellaneous (%)         | 1                       | 1                      | 0.3500   |        |                            |                     |                          |                |                           |                       |
| 125.00      | Glutamic, Post-col Ninhydrin Der (%)        | 2                       | 2                      | 3.193    | 0.0106 |                            |                     |                          |                |                           |                       |
| 125.05      | Glutamic, Pre-col AQC Der (%)               | 2                       | 2                      | 3.380    | 0.1626 |                            |                     |                          |                |                           |                       |
| 125.02      | Glutamic, Post-col OPA Der (%)              | 1                       | 1                      | 2.870    |        |                            |                     |                          |                |                           |                       |
| 125.99      | Glutamic, Miscellaneous (%)                 | 1                       | 1                      | 2.945    |        |                            |                     |                          |                |                           |                       |
| 126.00      | Glycine, Post-col Ninhydrin Der (%)         | 2                       | 2                      | 0.8225   | 0.0035 |                            |                     |                          |                |                           |                       |
| 126.05      | Glycine, Pre-col AQC Der (%)                | 2                       | 2                      | 0.7905   | 0.0417 |                            |                     |                          |                |                           |                       |
| 126.02      | Glycine, Post-col OPA Der (%)               | 1                       | 1                      | 0.7350   |        |                            |                     |                          |                |                           |                       |
| 126.99      | Glycine, Miscellaneous (%)                  | 1                       | 1                      | 0.7950   |        |                            |                     |                          |                |                           |                       |
| 127.00      | Histidine, Post-col Ninhydrin Der (%)       | 2                       | 2                      | 0.4375   | 0.0248 |                            |                     |                          |                |                           |                       |
| 127.05      | Histidine, Pre-col AQC Der (%)              | 2                       | 2                      | 0.4155   | 0.0644 |                            |                     |                          |                |                           |                       |
| 127.02      | Histidine, Post-col OPA Der (%)             | 1                       | 1                      | 0.3850   |        |                            |                     |                          |                |                           |                       |
| 127.99      | Histidine, Miscellaneous (%)                | 1                       | 1                      | 0.6300   |        |                            |                     |                          |                |                           |                       |
| 128.00      | Isoleucine, Post-col Ninhydrin Der (%)      | 2                       | 2                      | 0.5125   | 0.0035 |                            |                     |                          |                |                           |                       |
| 128.05      | Isoleucine, Pre-col AQC Der (%)             | 2                       | 2                      | 0.4760   | 0.0240 |                            |                     |                          |                |                           |                       |
| 128.02      | Isoleucine, Post-col OPA Der (%)            | 1                       | 1                      | 0.5100   |        |                            |                     |                          |                |                           |                       |
| 128.99      | Isoleucine, Miscellaneous (%)               | 1                       | 1                      | 0.4300   |        |                            |                     |                          |                |                           |                       |
| 129.00      | Leucine, Post-col Ninhydrin Der (%)         | 2                       | 2                      | 0.9525   | 0.0035 |                            |                     |                          |                |                           |                       |
| 129.05      | Leucine, Pre-col AQC Der (%)                | 2                       | 2                      | 0.9430   | 0.0092 |                            |                     |                          |                |                           |                       |
| 129.02      | Leucine, Post-col OPA Der (%)               | 1                       | 1                      | 0.9350   |        |                            |                     |                          |                |                           |                       |
| 129.99      | Leucine, Miscellaneous (%)                  | 1                       | 1                      | 0.8750   |        |                            |                     |                          |                |                           |                       |
| 130.00      | L-Lysine, Post-col Ninhydrin Der (%)        | 2                       | 2                      | 0.6025   | 0.0318 |                            |                     |                          |                |                           |                       |
| 130.05      | L-Lysine, Pre-col AQC Der (%)               | 2                       | 2                      | 0.6410   | 0.0042 |                            |                     |                          |                |                           |                       |
| 130.02      | L-Lysine, Post-col OPA Der (%)              | 1                       | 1                      | 0.5200   |        |                            |                     |                          |                |                           |                       |

| 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 |
|-------------|------------------------------------------------|-------------------------|------------------------|----------|--------|----------------------------|---------------------|--------------------------|----------------|---------------------------|-----------------------|
| 130.99      | L-Lysine, Miscellaneous (%)                    | 1                       | 1                      | 0.5000   |        |                            |                     |                          |                |                           |                       |
| 131.00      | Methionine, PAO Post-col Ninhydrin Der (%)     | 2                       | 2                      | 0.2225   | 0.0035 |                            |                     |                          |                |                           |                       |
| 131.05      | Methionine, PAO Pre-col AQC Der (%)            | 2                       | 2                      | 0.2315   | 0.0233 |                            |                     |                          |                |                           |                       |
| 131.02      | Methionine, PAO Post-col OPA Der (%)           | 1                       | 1                      | 0.3050   |        |                            |                     |                          |                |                           |                       |
| 131.99      | Methionine, Miscellaneous (%)                  | 1                       | 1                      | 0.1850   |        |                            |                     |                          |                |                           |                       |
| 132.00      | Phenylalanine, Post-col Ninhydrin Der (%)      | 2                       | 2                      | 0.6325   | 0.0106 |                            |                     |                          |                |                           |                       |
| 132.05      | Phenylalanine, Pre-col AQC Der (%)             | 2                       | 2                      | 0.5848   | 0.0145 |                            |                     |                          |                |                           |                       |
| 132.02      | Phenylalanine, Post-col OPA Der (%)            | 1                       | 1                      | 0.5700   |        |                            |                     |                          |                |                           |                       |
| 132.99      | Phenylalanine, Miscellaneous (%)               | 1                       | 1                      | 0.5650   |        |                            |                     |                          |                |                           |                       |
| 133.00      | Proline, Post-col Ninhydrin Der (%)            | 2                       | 2                      | 1.063    | 0.0672 |                            |                     |                          |                |                           |                       |
| 133.05      | Proline, Pre-col AQC Der (%)                   | 2                       | 2                      | 1.008    | 0.0156 |                            |                     |                          |                |                           |                       |
| 133.99      | Proline, Miscellaneous (%)                     | 2                       | 2                      | 1.025    | 0.1626 |                            |                     |                          |                |                           |                       |
| 134.00      | Serine, Post-col Ninhydrin Der (%)             | 2                       | 2                      | 0.6325   | 0.0530 |                            |                     |                          |                |                           |                       |
| 134.05      | Serine, Pre-col AQC Der (%)                    | 2                       | 2                      | 0.6703   | 0.0159 |                            |                     |                          |                |                           |                       |
| 134.02      | Serine, Post-col OPA Der (%)                   | 1                       | 1                      | 0.6150   |        |                            |                     |                          |                |                           |                       |
| 134.99      | Serine, Miscellaneous (%)                      | 1                       | 1                      | 0.6800   |        |                            |                     |                          |                |                           |                       |
| 135.00      | Threonine, Post-col Ninhydrin Der (%)          | 2                       | 2                      | 0.4875   | 0.0035 |                            |                     |                          |                |                           |                       |
| 135.05      | Threonine, Pre-col AQC Der (%)                 | 2                       | 2                      | 0.4840   | 0.0170 |                            |                     |                          |                |                           |                       |
| 135.02      | Threonine, Post-col OPA Der (%)                | 1                       | 1                      | 0.4300   |        |                            |                     |                          |                |                           |                       |
| 135.99      | Threonine, Miscellaneous (%)                   | 1                       | 1                      | 0.4550   |        |                            |                     |                          |                |                           |                       |
| 136.99      | Tryptophan, Miscellaneous (%)                  | 2                       | 2                      | 0.2425   | 0.0530 |                            |                     |                          |                |                           |                       |
| 136.02      | Tryptophan, Alka-Hydrol Post-col OPA De (%)    | 1                       | 1                      | 0.2600   |        |                            |                     |                          |                |                           |                       |
| 136.05      | Tryptophan, Pre-col AQC Der (%)                | 1                       | 1                      | 0.2675   |        |                            |                     |                          |                |                           |                       |
| 137.00      | Tyrosine, Post-col Ninhydrin Der (%)           | 2                       | 2                      | 0.3800   | 0.0424 |                            |                     |                          |                |                           |                       |
| 137.05      | Tyrosine, Pre-col AQC Der (%)                  | 2                       | 2                      | 0.3870   | 0.0134 |                            |                     |                          |                |                           |                       |
| 137.02      | Tyrosine, Post-col OPA Der (%)                 | 1                       | 1                      | 0.4000   |        |                            |                     |                          |                |                           |                       |
| 137.99      | Tyrosine, Miscellaneous (%)                    | 1                       | 1                      | 0.3150   |        |                            |                     |                          |                |                           |                       |
| 138.00      | Valine, Post-col Ninhydrin Der (%)             | 2                       | 2                      | 0.7325   | 0.0035 |                            |                     |                          |                |                           |                       |
| 138.05      | Valine, Pre-col AQC Der (%)                    | 2                       | 2                      | 0.7043   | 0.0195 |                            |                     |                          |                |                           |                       |
| 138.02      | Valine, Post-col OPA Der (%)                   | 1                       | 1                      | 0.6600   |        |                            |                     |                          |                |                           |                       |
| 138.99      | Valine, Miscellaneous (%)                      | 1                       | 1                      | 0.5700   |        |                            |                     |                          |                |                           |                       |
| 139.00      | Taurine, Post-col Ninhydrin Der (%)            | 1                       | 1                      | 0.1900   |        |                            |                     |                          |                |                           |                       |
| 400.01      | Water Activity, Aqualab chilled mirror (Units) | 3                       | 3                      | 0.5498   | 0.0152 | 0.5498                     | 0.0152              | 0.0108                   | 2.77%          | 0.0126                    |                       |
| 400.99      | Water Activity, Miscellaneous (Units)          | 2                       | 2                      | 0.5703   | 0.0053 |                            |                     |                          |                |                           |                       |
| 516.53      | Arsenic, Total (As), ICP-MS, Microwave (ppm)   | 3                       | 1                      |          |        |                            |                     |                          |                |                           |                       |
| 518.41      | Cadmium, ICP, Dry ash (ppm)                    | 1                       | 1                      | 0.0829   |        |                            |                     |                          |                |                           |                       |
| 518.43      | Cadmium, ICP, Microwave (ppm)                  | 1                       | 1                      | 0.0910   |        |                            |                     |                          |                |                           |                       |
| 518.53      | Cadmium, ICP-MS, Microwave (ppm)               | 1                       | 1                      | 0.0862   |        |                            |                     |                          |                |                           |                       |
| 520.43      | Chromium, Total (Cr), ICP, Microwave (ppm)     | 2                       | 2                      | 0.9900   | 1.266  |                            |                     |                          |                |                           |                       |
| 520.53      | Chromium, Total (Cr), ICP-MS, Microwave (ppm)  | 3                       | 2                      | 0.9528   | 1.051  | 0.9528                     | 1.051               |                          |                |                           | 16.11%                |

| 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 |
|-------------|------------------------------------------|-------------------------|------------------------|----------|--------|----------------------------|---------------------|--------------------------|----------------|---------------------------|-----------------------|
| 520.41      | Chromium, Total (Cr), ICP, Dry ash (ppm) | 1                       | 1                      | 1.413    |        |                            |                     |                          |                |                           |                       |
| 526.41      | Lead, ICP, Dry ash (ppm)                 | 1                       | 1                      | 0.1686   |        |                            |                     |                          |                |                           |                       |
| 526.43      | Lead, ICP, Microwave (ppm)               | 2                       | 1                      | 0.2208   |        |                            |                     |                          |                |                           |                       |
| 526.53      | Lead, ICP-MS, Microwave (ppm)            | 2                       | 1                      | 0.0081   |        |                            |                     |                          |                |                           |                       |
| 529.99      | Mercury, Miscellaneous (ppb)             | 1                       | 1                      | 0.5863   |        |                            |                     |                          |                |                           |                       |
| 539.53      | Nickel, ICP-MS, Microwave (ppm)          | 2                       | 2                      | 1.237    | 0.5407 |                            |                     |                          |                |                           |                       |
| 539.41      | Nickel, ICP, Dry ash (ppm)               | 1                       | 1                      | 1.433    |        |                            |                     |                          |                |                           |                       |
| 539.43      | Nickel, ICP, Microwave (ppm)             | 1                       | 1                      | 1.671    |        |                            |                     |                          |                |                           |                       |

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



# **Pet Food Ingredient Scheme**

**Wheat Bran**

**Test Material Code # 202542**

## **Method Precision Report**

**# Methods Reported: 51**

**# Labs Reporting: 101**

**Issue Date : 06/30/2025**

| 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 (%)               | 58                      | 53                             | 11.42          | 0.5834       | 0.5463          | 0.0708         | 0.5508             | 4.77%             | 0.62%            | 4.81%                | 7.777 |
| 001.99      | Loss on Drying, Miscellaneous (%)                     | 5                       | 5                              | 10.46          | 1.494        | 1.479           | 0.2984         | 1.509              | 14.14%            | 2.85%            | 14.43%               | 5.057 |
| 002.01      | Protein, Crude, Auto Kjel-Foss (%)                    | 5                       | 5                              | 15.91          | 0.5463       | 0.5449          | 0.0549         | 0.5477             | 3.42%             | 0.34%            | 3.44%                | 9.978 |
| 002.06      | Protein, Crude, Combustion Nitrogen Analyzer (%)      | 87                      | 81                             | 15.99          | 0.4045       | 0.3271          | 0.1128         | 0.3461             | 2.04%             | 0.70%            | 2.16%                | 3.068 |
| 003.00      | Fat, Crude, Diethyl Ether Ext., Direct (%)            | 18                      | 17                             | 1.529          | 0.1803       | 0.1237          | 0.0745         | 0.1444             | 7.94%             | 4.78%            | 9.27%                | 1.937 |
| 003.09      | Fat, Crude, Randall, Diethyl Ether Ext (%)            | 10                      | 9                              | 1.519          | 0.2658       | 0.1661          | 0.0424         | 0.1715             | 11.44%            | 2.92%            | 11.81%               | 4.045 |
| 003.10      | Fat, Crude, Randall, Pet Ether (%)                    | 20                      | 18                             | 1.643          | 0.1681       | 0.1706          | 0.0356         | 0.1742             | 10.36%            | 2.16%            | 10.59%               | 4.894 |
| 003.14      | Fat, Crude, Ankom (%)                                 | 15                      | 13                             | 1.774          | 0.3170       | 0.1797          | 0.1897         | 0.2613             | 10.60%            | 11.19%           | 15.42%               | 1.378 |
| 004.00      | Fiber, Crude, Asbestos Free (%)                       | 7                       | 6                              | 9.803          | 1.395        | 1.444           | 0.0633         | 1.446              | 14.48%            | 0.63%            | 14.50%               | 22.83 |
| 004.07      | Fiber, Crude, ANKOM (%)                               | 24                      | 22                             | 9.301          | 0.8356       | 0.8143          | 0.3103         | 0.8714             | 8.73%             | 3.33%            | 9.34%                | 2.808 |
| 005.00      | Ash, 2h @ 600°C (%)                                   | 57                      | 54                             | 5.806          | 0.1233       | 0.0966          | 0.0695         | 0.1190             | 1.66%             | 1.19%            | 2.05%                | 1.712 |
| 005.03      | Ash, Microwave furnace (%)                            | 9                       | 7                              | 5.949          | 0.0672       | 0.0281          | 0.0309         | 0.0418             | 0.47%             | 0.52%            | 0.71%                | 1.350 |
| 005.05      | Ash, 3h @ 550°C (%)                                   | 13                      | 12                             | 5.892          | 0.1353       | 0.0701          | 0.1008         | 0.1228             | 1.20%             | 1.72%            | 2.09%                | 1.218 |
| 008.08      | Fiber, Acid Detergent, Filter Bag - ANKOM (%)         | 11                      | 10                             | 11.57          | 0.8027       | 0.7910          | 0.1930         | 0.8143             | 6.84%             | 1.67%            | 7.04%                | 4.218 |
| 009.09      | Fiber, Neutral Detergent, Filter Bag - ANKOM (%)      | 7                       | 6                              | 40.71          | 1.409        | 1.450           | 0.2412         | 1.470              | 3.55%             | 0.59%            | 3.60%                | 6.094 |
| 010.99      | Moisture, Miscellaneous (%)                           | 5                       | 5                              | 11.80          | 0.5411       | 0.5402          | 0.0434         | 0.5419             | 4.58%             | 0.37%            | 4.59%                | 12.50 |
| 011.01      | Loss on Drying, HT, 135°C 2hr (%)                     | 20                      | 18                             | 11.98          | 0.4268       | 0.3530          | 0.0588         | 0.3578             | 2.93%             | 0.49%            | 2.97%                | 6.091 |
| 013.00      | Fat, Pretreat, Acid hydrolysis (%)                    | 13                      | 11                             | 4.248          | 0.2621       | 0.1556          | 0.0979         | 0.1839             | 3.61%             | 2.27%            | 4.27%                | 1.878 |
| 013.02      | Fat, Pretreat, Mojonier, Bak Ext, Acid hydrolysis (%) | 14                      | 14                             | 3.734          | 1.378        | 1.353           | 0.3632         | 1.401              | 36.25%            | 9.73%            | 37.53%               | 3.858 |
| 019.41      | Calcium, ICP, Dry ash (%)                             | 7                       | 6                              | 0.0829         | 0.0125       | 0.0010          | 0.0033         | 0.0035             | 1.33%             | 4.22%            | 4.42%                | 1.048 |
| 019.43      | Calcium, ICP, Microwave (%)                           | 22                      | 20                             | 0.0800         | 0.0054       | 0.0023          | 0.0038         | 0.0044             | 2.85%             | 4.83%            | 5.61%                | 1.161 |
| 019.44      | Calcium, ICP, Dry ash (%)                             | 38                      | 34                             | 0.0752         | 0.0147       | 0.0141          | 0.0030         | 0.0144             | 18.62%            | 3.94%            | 19.04%               | 4.826 |
| 019.53      | Calcium, ICP-MS, Microwave (%)                        | 5                       | 5                              | 0.0853         | 0.0090       | 0.0064          | 0.0089         | 0.0110             | 7.46%             | 10.48%           | 12.86%               | 1.227 |
| 022.41      | Copper, ICP, Dry ash (ppm)                            | 6                       | 6                              | 9.953          | 2.954        | 2.941           | 0.3854         | 2.966              | 29.55%            | 3.87%            | 29.81%               | 7.697 |
| 022.43      | Copper, ICP, Microwave (ppm)                          | 20                      | 18                             | 10.39          | 1.017        | 0.4360          | 0.3345         | 0.5495             | 4.28%             | 3.28%            | 5.39%                | 1.643 |
| 022.44      | Copper, ICP, Dry ash (ppm)                            | 37                      | 36                             | 7.572          | 1.483        | 1.431           | 0.6432         | 1.569              | 18.87%            | 8.48%            | 20.69%               | 2.440 |
| 022.53      | Copper, ICP-MS, Microwave (ppm)                       | 5                       | 5                              | 10.34          | 0.2722       | 0.2010          | 0.2595         | 0.3283             | 1.94%             | 2.51%            | 3.18%                | 1.265 |
| 025.41      | Iron, ICP, Dry ash (ppm)                              | 5                       | 5                              | 119.5          | 8.361        | 6.871           | 6.736          | 9.622              | 5.75%             | 5.64%            | 8.05%                | 1.428 |



**Test Material Code # 202542**
**Issue Date : 06/30/2025**

| 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 |
|-------------|-------------------------------------|-------------------------|--------------------------------|----------------|--------------|-----------------|----------------|--------------------|-------------------|------------------|----------------------|-------|
| 025.43      | Iron, ICP, Microwave (ppm)          | 11                      | 8                              | 119.8          | 8.661        | 4.797           | 1.255          | 4.959              | 4.06%             | 1.06%            | 4.19%                | 3.953 |
| 025.53      | Iron, ICP-MS, Microwave (ppm)       | 5                       | 5                              | 124.4          | 12.81        | 12.03           | 6.228          | 13.55              | 9.67%             | 5.01%            | 10.89%               | 2.175 |
| 027.41      | Magnesium, ICP, Dry ash (%)         | 6                       | 5                              | 0.4963         | 0.0302       | 0.0299          | 0.0061         | 0.0305             | 6.02%             | 1.22%            | 6.14%                | 5.020 |
| 027.43      | Magnesium, ICP, Microwave (%)       | 21                      | 19                             | 0.5022         | 0.0339       | 0.0286          | 0.0096         | 0.0301             | 5.65%             | 1.89%            | 5.95%                | 3.147 |
| 027.44      | Magnesium, ICP, Dry ash (%)         | 38                      | 33                             | 0.4142         | 0.1258       | 0.0652          | 0.0104         | 0.0660             | 14.69%            | 2.34%            | 14.87%               | 6.357 |
| 027.53      | Magnesium, ICP-MS, Microwave (%)    | 5                       | 5                              | 0.5105         | 0.0287       |                 | 0.0652         |                    |                   | 12.77%           |                      |       |
| 028.41      | Manganese, ICP, Dry ash (ppm)       | 6                       | 6                              | 136.2          | 4.875        | 1.603           | 6.511          | 6.705              | 1.18%             | 4.78%            | 4.92%                | 1.030 |
| 028.43      | Manganese, ICP, Microwave (ppm)     | 20                      | 20                             | 140.2          | 5.672        | 4.806           | 4.261          | 6.423              | 3.43%             | 3.04%            | 4.58%                | 1.507 |
| 028.44      | Manganese, ICP, Dry ash (ppm)       | 37                      | 34                             | 137.3          | 6.185        | 4.801           | 2.974          | 5.647              | 3.52%             | 2.18%            | 4.14%                | 1.899 |
| 031.41      | Phosphorus, ICP, Dry ash (%)        | 6                       | 6                              | 1.312          | 0.1008       | 0.0936          | 0.0530         | 0.1076             | 7.13%             | 4.04%            | 8.20%                | 2.029 |
| 031.43      | Phosphorus, ICP, Microwave (%)      | 21                      | 20                             | 1.324          | 0.0641       | 0.0590          | 0.0353         | 0.0688             | 4.46%             | 2.66%            | 5.20%                | 1.950 |
| 031.44      | Phosphorus, ICP, Dry ash (%)        | 39                      | 36                             | 1.253          | 0.0614       | 0.0483          | 0.0241         | 0.0540             | 3.88%             | 1.94%            | 4.34%                | 2.239 |
| 031.53      | Phosphorus, ICP-MS, Microwave (%)   | 5                       | 5                              | 1.297          | 0.1022       | 0.0797          | 0.0906         | 0.1206             | 6.15%             | 6.98%            | 9.30%                | 1.332 |
| 032.41      | Potassium, ICP, Dry ash (%)         | 6                       | 6                              | 1.430          | 0.0659       | 0.0572          | 0.0461         | 0.0735             | 4.00%             | 3.22%            | 5.14%                | 1.594 |
| 032.43      | Potassium, ICP, Microwave (%)       | 21                      | 20                             | 1.419          | 0.0571       | 0.0507          | 0.0372         | 0.0628             | 3.57%             | 2.62%            | 4.43%                | 1.689 |
| 032.44      | Potassium, ICP, Dry ash (%)         | 38                      | 35                             | 1.360          | 0.0508       | 0.0433          | 0.0251         | 0.0500             | 3.20%             | 1.85%            | 3.69%                | 1.997 |
| 032.53      | Potassium, ICP-MS, Microwave (%)    | 5                       | 5                              | 1.399          | 0.0696       | 0.0244          | 0.0921         | 0.0953             | 1.75%             | 6.58%            | 6.81%                | 1.035 |
| 033.01      | Salt as chloride, Poten Cl (%)      | 6                       | 5                              | 0.1301         | 0.0589       | 0.0267          | 0.0033         | 0.0269             | 24.69%            | 3.06%            | 24.88%               | 8.142 |
| 035.41      | Sodium, ICP, Dry ash (%)            | 44                      | 31                             | 0.0097         | 0.0023       | 0.0014          | 0.0000         | 0.0014             | 14.38%            | 0.00%            | 14.38%               |       |
| 037.41      | Zinc, ICP, Dry ash (ppm)            | 8                       | 7                              | 77.92          | 12.36        | 1.642           | 2.833          | 3.275              | 2.23%             | 3.85%            | 4.45%                | 1.156 |
| 037.43      | Zinc, ICP, Microwave (ppm)          | 21                      | 19                             | 73.18          | 14.13        | 3.537           | 2.747          | 4.478              | 4.86%             | 3.77%            | 6.15%                | 1.630 |
| 037.44      | Zinc, ICP, Dry ash (ppm)            | 35                      | 32                             | 71.54          | 3.361        | 2.851           | 1.400          | 3.176              | 4.01%             | 1.97%            | 4.46%                | 2.269 |
| 038.53      | Molybdenum, ICP-MS, Microwave (ppm) | 5                       | 5                              | 1.002          | 0.0734       | 0.0673          | 0.0416         | 0.0791             | 6.71%             | 4.15%            | 7.89%                | 1.901 |

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