



**WE CRAFT ASSURANCE**

**SPECTRASTAR XT-R CALIBRATION LIBRARY V10.0**

**MAY 11, 2026**

**Did you know?** KPM Analytics now offers NIR Calibration Bundles for certain products. For our current offerings, a part number (“**APPS-BUND-###**”) will appear above the product bundle heading on this document. Each calibration listed below that header is included within that bundle. However, you may still purchase individual product calibrations as usual.

| <b>Breakfast Cereals (APPS-BUND-015-R)</b>   |   |   |                    |
|--|---|---|--------------------|
| Required Accessories: US-LGOP-0001 Large Open Cup with plunger   |   |   |                    |
| <b>SUBSTANCE</b>   | <b>CONSTITUENTS</b>   | <b>SAMPLING ACCESSORIES</b>                                 | <b>PART NUMBER</b> |
| Breakfast Cereals Combo  | Moisture, Sugar, Fat, Salt  | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-146_xtr  |
| Cinnamon Oat Cereal  | Moisture  | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-160_xtr  |
| Colored Fruit Cereal   | Moisture, Sugar, Fat, Salt  | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-129_xtr  |
| Corn Flakes  | Moisture, Sugar, Salt   | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-107_xtr  |
| Nut and Grape Cereal   | Moisture, Sugar, Salt   | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-130_xtr  |
| Nut Nugget Cereal  | Moisture, Sugar, Salt   | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-131_xtr  |
| <b>Cocoa Products (APPS-BUND-006-R)</b>  |   |   |                    |
| Required Accessories: US-LGOP-0001 Large Open Cup with plunger; US-ISIH-0307 Ring cup; US-LIQK-0003 Liquid Sampling Kit (0.3 mm), US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector)   |   |   |                    |
| <b>SUBSTANCE</b>   | <b>CONSTITUENTS</b>   | <b>SAMPLING ACCESSORIES</b>                                 | <b>PART NUMBER</b> |
| Chocolate Combo  | Moisture, Fat, FFA, Sucrose, Lactose, Dextrose, Total Sugar, Milk Fat | US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector)    | APPS-CALB-212_xtr  |
| Chocolate with Maltitol  | Moisture, Fat, FFA, Sucrose, Lactose, Milk_Fat                        | US-ISIH-0307 Ring cup                                       | APPS-CALB-163_xtr  |
| Cocoa Beans  | Moisture, Fat, FFA  | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-216_xtr  |
| Cocoa Beans Ground   | Fat, Moisture, Saturated Fatty Acids, Iodine Value                    | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-103_xtr  |
| Cocoa Butter   | Iodine Value (IV), FFA  | US-LIQK-0003 Liquid Sampling Kit (0.3 mm)                   | APPS-CALB-215_xtr  |
| Cocoa Cake   | Moisture, Fat   | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-038_xtr  |
| Cocoa Liqueur  | Moisture, Fat, Saturated Fatty Acids                                  | US-ISIH-0307 Ring cup                                       | APPS-CALB-213_xtr  |
| Cocoa Nibs   | Moisture  | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-217_xtr  |
| Cocoa Powder   | Fat, Moisture   | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-214_xtr  |
| Dark Chocolate   | Moisture, Fat, FFA, Sucrose, Lactose, Milk Fat                        | US-ISIH-0307 Ring cup                                       | APPS-CALB-033_xtr  |
| Milk Chocolate   | Moisture, Fat, FFA, Sucrose, Lactose, Milk Fat                        | US-ISIH-0307 Ring cup                                       | APPS-CALB-034_xtr  |
| White Chocolate  | Moisture, Fat, FFA, Sucrose, Lactose, Milk Fat                        | US-ISIH-0307 Ring cup                                       | APPS-CALB-035_xtr  |
| <b>Dairy (APPS-BUND-003-R)</b>   |   |   |                    |
| Required Accessories: US-ISIH-0307 Ring cup or petri dish; US-SRCP-0025A Small Round Cup 25mm; US-LGOP-0001 Large Open Cup with plunger; US-LIQK-0003 Liquid Sampling Kit; US-SRCP-0025 Small Round Cup, 25mm Height; US-SRCP-0025A Small Round Cup 25mm (with 0.2mm and 0.3mm reflectors) |   |   |                    |
| <b>SUBSTANCE</b>   | <b>CONSTITUENTS</b>   | <b>SAMPLING ACCESSORIES</b>                                 | <b>PART NUMBER</b> |
| Butter   | Moisture, Fat, Salt, SNF  | US-ISIH-0307 Ring cup or petri dish                         | APPS-CALB-236_xtr  |
| Butter Milk Powder   | Moisture, Fat, Protein  | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-029_xtr  |
| Cheddar Cheese   | Moisture, Fat, Salt, pH   | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-237_xtr  |
| Cheese Mix Europe  | Moisture, Fat, Protein, Total Solids, Salt, Acidity, pH               | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-037_xtr  |
| Cheese Powder  | Moisture, Fat   | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-070_xtr  |
| Cottage Cheese   | Moisture, Fat, Protein, Acidity                                       | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-045_xtr  |
| Cream  | Fat   | US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector)    | APPS-CALB-072_xtr  |
| Dairy Powders  | Moisture, Protein, Fat, FFA, Ash, Lactose, pH, Acidity, NaCl          | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-069_xtr  |
| Epoisses Cheese  | Moisture, Protein, Fat, Salt, pH                                      | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-250_xtr  |
| Goat Cheese  | Moisture, Fat, Protein, Salt, Ca, pH                                  | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-249_xtr  |
| Greek Yogurt   | Protein, Fat, Total Solids  | US-ISIH-0307 Ring cup or US-SRCP-0025A Small Round Cup 25mm | APPS-CALB-077_xtr  |
| Halloumi Cheese  | Moisture, Fat, Protein, Salt, pH                                      | US-LGOP-0001 Large Open Cup with plunger                    | APPS-CALB-251_xtr  |

|                              |   |  |                   |
|------------------------------|---|--|-------------------|
| Ice Cream Mix                | Fat, Total Solids, Protein, pH  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-235_xtr |
| Infant Formula Powder        | Moisture, Protein, Fat, Sucrose, Lactose, FFA, Ash, Vitamine C                | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-238_xtr |
| Liquid Milk                  | Fat, Protein, Carbohydrates, Lactose, Total Solids                            | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-060_xtr |
| Mayonnaise                   | Moisture, Fat, Salt, pH, Acid value, Peroxide Value                           | US-ISIH-0307 Ring cup                                    | APPS-CALB-062_xtr |
| Milk Protein Concentrate MPC | Moisture, Fat, Protein, Ash   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-234_xtr |
| Mozzarella Cheese            | Dry Matter, Fat, Protein, Salt  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-248_xtr |
| Processed Cheese             | Moisture, Fat, Salt, pH   | US-ISIH-0307 Ring cup                                    | APPS-CALB-239_xtr |
| Quark                        | Moisture, Fat, Protein, Acidity   | US-ISIH-0307 Ring cup                                    | APPS-CALB-121_xtr |
| Skim Milk Chocolate          | Fat   | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-118_xtr |
| Skim Milk Powder             | Moisture, Protein, Fat, Lactose, Ash  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-232_xtr |
| Sweet Whey                   | Moisture, Protein, Fat  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-149_xtr |
| Sweetened Condensed Milk     | Fat, Solids, Sucrose, Protein   | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-040_xtr |
| Various Cheeses              | Moisture, Protein, Fat, Salt, pH  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-006_xtr |
| Whey Concentrate Liquid      | Total Solids, Protein   | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-240_xtr |
| Whey Liquid                  | Fat, True Protein, Total Protein, Lactose, Total Solids                       | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-210_xtr |
| Whey Powder                  | Moisture, Protein, Fat, Lactose, Ash, NaCl, Acidity                           | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-211_xtr |
| Whole Milk Powder            | Moisture, Protein, Fat, Lactose, Acidity, Ash, Centrifugal Sedimentation Rate | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-233_xtr |
| WPC Powder                   | Moisture, Fat, Protein, Ash   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-012_xtr |

### Feed (APPS-BUND-001-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE           | CONSTITUENTS   | SAMPLING ACCESSORIES                     | PART NUMBER       |
|---------------------|--|--|-------------------|
| Cow and Cattle Feed | Moisture, Protein, Oil, Fiber, Starch, Ash, ADF, NDF, ADL, Ca, P, NaCl                                   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-023_xtr |
| Duck Feed           | Moisture, Protein, Fat, Fiber, Starch, Sugar, Ash, Ca, P, NaCl, Lysine, Methionine, Cysteine, ME (MJ/kg) | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-076_xtr |
| Feed General        | Moisture, Protein, Fat, Fiber, Starch, Ash, Calcium, Sodium, Phosphorus                                  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-007_xtr |
| Feed Pellets        | Moisture, Oil, Protein   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-052_xtr |
| Finished Feed       | Moisture, Protein, Fat, Fiber, Ash, Acid Insoluble Ash   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-053_xtr |
| Fish Feed           | Moisture, Protein, Fat, Ash, Fiber, Salt   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-024_xtr |
| Horse Feed          | Moisture, Protein, Fat, Ash, Fiber, NDF, ADF, Starch   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-058_xtr |
| Mixed Feeds         | Moisture, Protein, Fat, Fiber, Starch, Ash   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-084_xtr |
| Pig and Swine Feed  | Moisture, Protein, Fat, Fiber, Lysine, Ash, Ca, P, NaCl, Cu, Zn  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-087_xtr |
| Poultry Feed Combo  | Moisture, Protein, Fat, Fiber, Sugar, Starch, ME[MJ/KG], Ash, Ca, P, NaCl, Lysine, Methionine, Cysteine  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-137_xtr |
| Rabbit Feed         | Moisture, Protein, Fat, Fiber  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-191_xtr |
| Salmon Feed Pellets | Moisture, Protein, Fat, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-106_xtr |

### Feed Ingredients (APPS-BUND-002-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE         | CONSTITUENTS  | SAMPLING ACCESSORIES                     | PART NUMBER       |
|-------------------|---|--|-------------------|
| Bakery by Product | Moisture, Protein, Fat, Fiber, Ash, Salt  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-229_xtr |
| Canola Cake       | Moisture, Fat, Protein, Fiber   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-030_xtr |
| Canola Flakes     | Oil   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-009_xtr |
| Canola Meal       | Moisture, Protein, Oil, Fiber, Starch, Ash, Glucosinolates, Linoleic Acid, ADF, NDF, K, Ca, Mg, P | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-221_xtr |
| Cassava           | Moisture, Protein, Fat, Fiber, Ash, pH, N, Ca, P  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-093_xtr |

|                                |   |  |                   |
|--------------------------------|---|--|-------------------|
| Coconut Meal                   | Moisture, Protein, Fat, Fiber, Ash, Silicate  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-039_xtr |
| Concentrates                   | Moisture, Protein, Fat, Fiber, Ash, Ca, P   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-127_xtr |
| Corn Bran                      | Moisture, Protein, Fat, Fiber, Ash, Guanidinoacetic Acid (GAA)  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-171_xtr |
| Corn Cake                      | Moisture, Protein, Fat, Fiber, Ash, GAA   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-175_xtr |
| Corn Germ                      | Moisture, Oil, Protein, Starch  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-224_xtr |
| Corn Germ Cake                 | Moisture, Oil DM  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-089_xtr |
| Corn Gluten Feed               | Moisture, Protein, Starch, Oil, Fiber   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-010_xtr |
| Corn Gluten Meal               | Moisture, Protein, Fat, Fiber, Starch, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-185_xtr |
| Corn Grits                     | Moisture, Protein, Fat, Fiber, Ash, %Extract As Is, %Extract Dry, Gelatinization                      | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-126_xtr |
| Corn Meal                      | Moisture, Oil, Protein, Fiber, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-225_xtr |
| Corn Spent Flake               | Oil   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-044_xtr |
| Cotton Seed Flour              | Moisture, Oil, Protein  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-046_xtr |
| Cotton Seed Meal               | Moisture, Oil, Protein  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-047_xtr |
| Cotton Seed Protein            | Moisture, Protein, Fat, Ash, Fiber, Gossipol  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-177_xtr |
| Cotton Seed Spent Flake        | Moisture, Oil   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-048_xtr |
| Dried Distillers Grains (DDGS) | Moisture, Protein, Fat, Fiber, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-227_xtr |
| Flax Cake                      | Moisture, Protein, Fat, Fiber, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-104_xtr |
| Grain Husk                     | Moisture, Protein, Fat, Fiber   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-138_xtr |
| Lupin                          | Protein, Alkaloids  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-164_xtr |
| Lysine                         | Moisture, Lysine  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-199_xtr |
| Maize Composites               | Moisture, Protein, Oil, Starch  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-166_xtr |
| Oilseed Meal Mix               | Moisture, Protein, Fat, Fiber, Starch, Sugar, Ash   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-180_xtr |
| Rice Husk                      | Moisture, Protein, Fat, Fiber, Ash, Acid Value  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-179_xtr |
| Soy Flour                      | Dry Matter, Protein, Fiber, Ash, Protein Dispersibility Index (PDI)                                   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-110_xtr |
| Soy Grits                      | Protein, Moisture   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-155_xtr |
| Soy Hulls                      | Protein, Fat, Ash, Crude Fiber, DM  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-117_xtr |
| Soy Protein Concentrate        | Moisture, Protein   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-154_xtr |
| Soy White Flakes               | Oil   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-152_xtr |
| Soybean Cake                   | Moisture, Protein, Fat, Fiber, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-091_xtr |
| Soybean Meal Expanded          | Moisture, Protein, Fat, Fiber, ADF, NDF, Ash, Ca, P, Cl, Cu, Zn, Na, Fe, Urease Activity, EFOS, KOHPD | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-193_xtr |
| Soybean Meal Full Fat          | Moisture, Protein, Fat, Ash   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-194_xtr |
| Sunflower Cake                 | Moisture, Protein, Fat  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-124_xtr |
| Sunflower Meal                 | Protein, Fiber, Fat, Moisture   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-123_xtr |

### Flour (APPS-BUND-007-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE         | CONSTITUENTS  | SAMPLING ACCESSORIES                     | PART NUMBER       |
|-------------------|---|--|-------------------|
| Corn Flour        | Moisture, Protein, Oil, Fiber, Ash                      | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-223_xtr |
| Hard Wheat Flour  | Moisture, Protein, Ash, Protein14M, Ash14M              | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-013_xtr |
| Oat Flour         | Moisture, Protein, Fat, Fiber, Ash                      | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-116_xtr |
| Rye Flour         | Moisture, Ash, Protein                                  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-073_xtr |
| Soft Wheat Flour  | Moisture, Protein14M, Ash14M, Protein, Ash              | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-014_xtr |
| Spelt Flour       | Moisture, Protein, Ash, Sedimentation, Water Absorption | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-142_xtr |
| Wheat Flour Clear | Moisture, Ash, Protein, Protein14M, Ash14M              | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-011_xtr |

|                          |                                    |  |                   |
|--------------------------|------------------------------------|--|-------------------|
| Wheat Flour High-Protein | Protein, Ash, Moisture             | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-140_xtr |
| Wheat Midds              | Moisture, Protein, Fat, Fiber, Ash | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-218_xtr |
| Whole Wheat Flour        | Moisture, Ash, Protein             | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-074_xtr |
| Yellow Corn Flour        | Moisture, Fat, Protein, Ash        | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-027_xtr |

### Food Additives (APPS-BUND-011-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger; US-ISIH-0307 Ring cup;  
US-SRCP-0025A Small Round Cup 25mm (with 0.2mm reflector and 0.3mm reflector)

| SUBSTANCE                | CONSTITUENTS                                    | SAMPLING ACCESSORIES                                     | PART NUMBER       |
|--------------------------|---|--|-------------------|
| Avocado                  | DM  | no cup   | APPS-CALB-020_xtr |
| Banana Shreds Dry        | Moisture  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-170_xtr |
| Caraway Seeds            | Essential Oils Total, Limonene, Carvone         | US-ISIH-0307 Ring cup                                    | APPS-CALB-159_xtr |
| Chickpea                 | Moisture, Oil                                   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-176_xtr |
| Corn Starch Dry          | Moisture, Protein, Starch, Ash                  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-226_xtr |
| Cotton Seed Oil          | FFA   | US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector) | APPS-CALB-018_xtr |
| Dextrose                 | Moisture, %Dextrose, D.E. (Dextrose Equivalent) | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-172_xtr |
| Egg Liquid               | Total Nitrogen, Fat, Dry Matter                 | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-080_xtr |
| Egg Powder               | Dry Matter, Protein, Fat, Ash                   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-228_xtr |
| Fermipan (Instant Yeast) | Moisture, Bulk Volume/100mL                     | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-094_xtr |
| Gelatin                  | Moisture  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-092_xtr |
| Gluten                   | Moisture, Protein, Oil, Starch                  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-105_xtr |
| Green Coffee             | Moisture, Color                                 | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-005_xtr |
| Green Malt               | Moisture, Soluble Protein                       | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-109_xtr |
| Hazelnut Unground        | Moisture, Oil, Protein                          | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-202_xtr |
| Lentil                   | Moisture, Protein, Fat, Starch, Ash, ADF, NDF   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-165_xtr |
| Liquid Starch            | Protein, Solids                                 | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-065_xtr |
| Mustard Bran             | Moisture, Protein, Oil, Volatile Oil, Ash       | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-141_xtr |
| Mustard Flour            | Moisture, Protein, Oil, Ash, Volatile Oil       | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-209_xtr |
| Oat Groats               | Moisture, Protein, Fat                          | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-057_xtr |
| Pea Flour                | Moisture, Protein (AS-IS), Protein (db)         | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-086_xtr |
| Peanut Flour             | Fat, Moisture                                   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-085_xtr |
| Potato Flakes            | Reducing Sugar, Moisture                        | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-088_xtr |
| Potatoes Raw             | Moisture  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-242_xtr |
| Raisins                  | Moisture, Glycerin, Oil                         | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-145_xtr |
| Rosehip Seed Meal        | Crude Fat, Moisture                             | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-120_xtr |
| Shortening               | IV, TAV, SAV, SFC10, SFC20, SFC25               | US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector) | APPS-CALB-119_xtr |
| Starch                   | Protein, Moisture                               | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-111_xtr |
| Sugar                    | Moisture, Color                                 | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-112_xtr |
| Vinegar                  | Grains, Alcohol, Total_Con                      | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-148_xtr |
| Wheat Gluten             | Protein   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-150_xtr |
| Yeast                    | Moisture, Fat, Protein, Ash, Fiber              | US-ISIH-0307 Ring cup                                    | APPS-CALB-028_xtr |

### Forage (APPS-BUND-004-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE        | CONSTITUENTS   | SAMPLING ACCESSORIES                     | PART NUMBER       |
|------------------|--|--|-------------------|
| Alfalfa Hay      | Moisture, Protein, Fat, Starch, Ash, ADF, NDF, DND48, DP, ADP, WSC ESC, Lignin, P, Ca, K, Mg | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-219_xtr |
| Corn Cob Mix CCM | Dry Matter, Protein, Fiber, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-051_xtr |

|                        |  |  |                   |
|------------------------|--|--|-------------------|
| Corn Silage            | Dry Matter, Protein, Ash, Fat, Starch, Sugar, Fiber, ADF, ADFom, NDF, NDFom, Enzyme Soluble Organic Matter, Ca, P, K, Mg   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-043_xtr |
| Grain Silage           | Moisture, ADF, NDF, Protein, Ash, Fat, Starch, Ca, P, Mg, K  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-025_xtr |
| Grass Hay Expanded     | Moisture, Protein, Fat, Fiber, Sugar, Starch, Ash, ADF, ADFom, NDF, NDFom, Mg, K, Ca, P, WSC, ESC, Gas Production, Enzyme Soluble Organic Matter, Vitamine A, Vitamine B1, Vitamine B3, Vitamine C             | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-192_xtr |
| Grass Silage           | Dry Matter, Protein, Soluble Protein, Ash, ADF, NDF, Lignine   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-056_xtr |
| Green Maize            | Dry Matter, Protein, Fat, Fiber, Starch, Sugar, Ash, ADFom, NDFom, Enzyme Soluble Organic Matter   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-063_xtr |
| Haylage                | Protein, Fiber, Fat, Ash, Ca, P, Moisture, Sugar, pH   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-059_xtr |
| Legumes                | DM, Protein, Fat, Fiber, Sugar, Ash, ADFom, NDFom, Gas Production, Enzyme Soluble Organic Matter   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-144_xtr |
| Mixed Hay              | Moisture, Protein, Fat, Ash, Lignin, ADF, NDF, DNDf48, ADP, DP, Ca, P, K, Mg   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-220_xtr |
| Plant Mix Dry          | Dry Matter, Protein, Fiber, Fat, Sugar, Starch, Ash, ADF, NDF, ADL, Enzym Soluble Organic Matter, Enzym Insoluble Organic Matter, Gas Production, oNDF, oADF, C, Ca, K, Mg, N, P, C/N                          | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-134_xtr |
| Total Mixed Ration TMR | Moisture, Protein, Fat, Fiber, ADF, NDF, ADL, Starch, Sugar, Ash, Lignin, Invitro_Dig, Ca, P, Mg, K, Na, S, Cl, Fructose, Glucose, Sucrose, Maltose, Mannol, Stachyose, Cystein, aNDFom, ADFom, Gas Production | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-041_xtr |
| Wet Forage             | Moisture, Protein, Starch, NDF, iNDF, Ash, Propionic Acid, Butyric Acid, Acetic Acid, Formic Acid, Ethanol, pH, NH4-N  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-198_xtr |

### Grains (APPS-BUND-005-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE            | CONSTITUENTS  | SAMPLING ACCESSORIES                     | PART NUMBER       |
|----------------------|---|--|-------------------|
| Barley Ground        | Moisture, Protein, Fat, Fiber, Starch, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-184_xtr |
| Barley Whole Seed    | Moisture, Protein, Fat, Fiber, Starch, Ash, Ca, P, Hoodness, Extract, Beta Glucan, Pentosan, IDF, SDF, TDF, NDF | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-174_xtr |
| Bran Combo           | Protein, Moisture, Starch, Fat, Fiber, Ash, Ca, P   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-100_xtr |
| Corn Seeds Expanded  | Moisture, Protein, Fat, Fiber, Starch, Sugar, NDF, ADF, Ash, EFOS   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-182_xtr |
| Ground Corn          | Moisture, Protein, Fat, Fiber, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-042_xtr |
| Ground Wheat         | Moisture, Protein, Fat, Fiber, Ash, Gluten, Vitreousity, Ca, P  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-151_xtr |
| Malted Barley        | MaltMoisture, MaltProtein, WortProtein, FAN, Beta Glucan, Alpha Amylase, Diastatic Power                        | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-015_xtr |
| Rice Bran            | Moisture, Protein, Fat, Fiber, Ash, Ca, P, DM   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-114_xtr |
| Rice Combo           | Moisture, Protein, Amylose  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-075_xtr |
| Rye Whole Seed       | Moisture, Protein, Fat, Fiber, Ash, Calcium, Phosphorus   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-183_xtr |
| Sorghum              | Protein, Ash, Moisture, Starch, Total_Extractives, Water_Extractives, Ethanol_Extractives                       | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-156_xtr |
| Triticale Whole Seed | Moisture, Protein, Fat, Fiber, Ash  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-026_xtr |
| Wheat Bran           | Moisture, Protein, Fat, Fiber, Starch % OM, Starch % DM, Ash, Ca, P   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-068_xtr |
| Wheat Semolina       | Moisture, Ash, Protein  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-143_xtr |
| Wheat Whole Seed     | Moisture, Protein, Fat, Fiber, Ash, Gluten, Ca, P, Vitreousity  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-066_xtr |
| Whole Grains Combo   | Moisture, Protein, Gluten, Fat, Starch, Ash, Density, Beta Glucan (Dry Basis)                                   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-128_xtr |
| Whole Oats           | Moisture, Protein, Oil, Beta Glucan   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-231_xtr |
| Whole Peas           | Moisture, Protein   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-230_xtr |
| Wild Rye             | DM, Protein, ADF, NDF, DDM, DMI, RFV  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-147_xtr |

### Meat & Seafood (APPS-BUND-013-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger, US-ISIH-307 Ring Cup

| SUBSTANCE | CONSTITUENTS                           | SAMPLING ACCESSORIES                     | PART NUMBER       |
|-----------|--|--|-------------------|
| Beef      | Moisture, Protein, Fat, Ash, Collagene | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-031_xtr |

|                                     |  |  |                   |
|-------------------------------------|--|--|-------------------|
| Chicken By-Product                  | Moisture, Fat  | US-ISIH-0307 Ring cup                    | APPS-CALB-158_xtr |
| Lamb Meat                           | Water, Protein, Fat  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-099_xtr |
| Mechanically Separated Chicken Meat | Moisture, Protein, Fat   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-083_xtr |
| Pork Beef Rind Raw                  | Dry Matter, Protein, Fat, Collagen   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-122_xtr |
| Pork Meat                           | Moisture, Fat, Protein   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-136_xtr |
| Raw Meat Blend                      | Moisture, Protein, Fat, Ash, Collagen  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-241_xtr |
| Salami                              | Moisture, Water Activity   | US-ISIH-0307 Ring cup                    | APPS-CALB-178_xtr |
| Salmon Meat                         | Moisture, Fat  | US-ISIH-0307 Ring cup                    | APPS-CALB-157_xtr |
| Sausages and Ham                    | Moisture, Protein, Fat, Ash, Sodium, Carbohydrates, Hydroxiprolin, Collagen, Collagen-free Protein | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-200_xtr |
| Silver Carp Surimi                  | Moisture   | US-ISIH-0307 Ring cup                    | APPS-CALB-197_xtr |

### Neonatal

| SUBSTANCE     | CONSTITUENTS                         | SAMPLING ACCESSORIES                                     | PART NUMBER       |
|---------------|--------------------------------------|--|-------------------|
| Neonatal Milk | Protein, Fat, Lactose, Carbohydrates | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-203_xtr |

### Oil Seeds (APPS-BUND-008-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE                  | CONSTITUENTS  | SAMPLING ACCESSORIES                     | PART NUMBER       |
|----------------------------|---|--|-------------------|
| Canola Seeds               | Moisture, Protein, Oil, FFA, IV, Oleic Acid, Linoleic Acid, Erucic Acid, Glucosinolates, Chlorofyll, Total Saturates, Waste | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-222_xtr |
| Flax Seeds Unground        | Moisture, Oil, Protein, C16:0, C18:0, C18:1, C18:2, C18:3, SATs, IV   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-054_xtr |
| Ground Soybeans            | Moisture, Protein, Fat, Fiber, Ash, Palmitic, Stearic, Oleic, Linoleic, Linolenic   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-207_xtr |
| Mustard Seeds Unground     | Moisture, Protein, Oil, Palmitic, Stearic, Oleic, Linoleic, Linolenic, Eicosenic, Erucic, SATS                              | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-208_xtr |
| Sesame Seeds               | Moisture, Protein, Fat, Fiber, C160, C161, C180, C181, C182, C183, C200, C220   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-079_xtr |
| Shea Kernels               | Moisture, Fat, FFA  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-078_xtr |
| Soybeans with AA           | Moisture, Protein, Oil, Ala, Arg, Asp, Cys, Glu, Gly, His, Ile, Leu, Lys, Met, Phe, Pro, Ser, Thr, Trp, Tyr, Val            | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-008_xtr |
| Sunflower Seeds - Ground   | Moisture, Protein As-Is, Oil DM, FFA, C16:0, C18:0, C18:1, C18:2  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-016_xtr |
| Sunflower Seeds - Unground | Moisture, Protein As-Is, Oil DM, FFA, C16:0, C18:0, C18:1, C18:2  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-071_xtr |
| Sunflower Seeds Dehulled   | Oleic, Linoleic, Palmitic, Stearic  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-125_xtr |

### Olives (APPS-BUND-014-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger; US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector)

| SUBSTANCE      | CONSTITUENTS   | SAMPLING ACCESSORIES                                     | PART NUMBER       |
|----------------|--|--|-------------------|
| Olive Oil      | FFA, PV, K232, K270, DK, Bitterness, Moisture, IND, Acidity, Stearic, Palmitoleic, Heptadecenoic, Heptadecanoic, Oleic, Palmitic, Linolenic, Linoleic, Arachidic, Eicosenoic | US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector) | APPS-CALB-002_xtr |
| Olive Pomace   | Moisture, Fat  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-004_xtr |
| Olives Crushed | Moisture, Oil, Palmitic, Palmitoleic, Stearic, Oleic, Linoleic, Linolenic, Arachidic, Gadoleic, Behenic, Lignoceric  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-003_xtr |

### Others

| SUBSTANCE        | CONSTITUENTS   | SAMPLING ACCESSORIES                     | PART NUMBER       |
|------------------|--|--|-------------------|
| Dried Marijuana  | Moisture, THC, CBD, CBN, THCa, CBDa, CBG                                       | US-ISIH-0307 Ring cup                    | APPS-CALB-021_xtr |
| Fertilizer       | %N, %NH4, %NO3, %H2O, %P2O5, %K2O  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-090_xtr |
| Mushroom Compost | Moisture, pH, NH4, Ntot, NH4 as is, Ntot as is                                 | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-098_xtr |
| Poppy Capsules   | % Morphine, % Moisture   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-135_xtr |
| Soil             | pH H2O, pH Salt, P205 Chir, K2O Chir, P205 Mach, K2O Mach, N, Humus, Ca, Mg, S | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-187_xtr |

|         |   |  |                   |
|---------|---|--|-------------------|
| Tobacco | Moisture, Nicotine, Total Sugar, Reducing Sugar, Nicotinic, Anabasine, Anatabine, Total Alkaloids | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-036_xtr |
|---------|---|--|-------------------|

**Pet Food**

| SUBSTANCE          | CONSTITUENTS                                 | SAMPLING ACCESSORIES                     | PART NUMBER       |
|--------------------|--|--|-------------------|
| Petfood Dry        | Moisture, Protein, Fat, Fiber, Ash, Calories | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-139_xtr |
| Petfood Semi-Moist | Moisture, Protein, Fat, Ash                  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-133_xtr |
| Petfood Wet        | Moisture, Protein, Fat, Ash, Fiber           | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-173_xtr |

**Processed Food (APPS-BUND-012-R)**

Required Accessories: US-LGOP-0001 Large Open Cup with plunger; US-ISIH-0307 Ring cup; US-SRCP-0025A Small Round Cup 25mm (with 0.2mm and 0.3mm reflector)

| SUBSTANCE              | CONSTITUENTS   | SAMPLING ACCESSORIES                                     | PART NUMBER       |
|------------------------|--|--|-------------------|
| Caramel                | Fat, Solids  | US-SRCP-0025A Small Round Cup 25mm (and 0.1mm reflector) | APPS-CALB-032_xtr |
| Coffee                 | Moisture, Caffeine, pH, L-Value, 5-CQA, Trigonelline, Density  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-169_xtr |
| Corn Seeds For Popcorn | Moisture, Protein, Fat, Ash, Fiber   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-201_xtr |
| Custard Powder         | Fat  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-064_xtr |
| Foods Powders          | Moisture, Fat  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-055_xtr |
| Frozen French Fries    | Moisture, Fat, Solids  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-243_xtr |
| Instant Noodles        | Moisture, Fat, Acid Value, Peroxide Value, Salt, Iodine Visibility   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-168_xtr |
| Ketchup                | Moisture, Dry Matter, Salt, Acidity, pH, Density   | US-ISIH-0307 Ring cup                                    | APPS-CALB-167_xtr |
| Margarine              | Fat, Salt, pH  | US-ISIH-0307 Ring cup                                    | APPS-CALB-061_xtr |
| Pasta                  | Moisture, Protein, Fat, Ash  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-067_xtr |
| Peanut Butter          | Fat, Salt, Color   | US-ISIH-0307 Ring cup                                    | APPS-CALB-001_xtr |
| Potatos Parfried       | Moisture, Fat, Sugar   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-162_xtr |
| Soy Sauce              | Brix, Total Nitrogen, NaCl, Ethanol  | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-095_xtr |
| Sunflower Oil          | Moisture, Oleic Acid, FFA, IV, AV, Phosphorus ppm, Phosphorus %Stearic, PV, Impurities   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-186_xtr |
| Sweet Chili Sauce      | Acid, Salt, Brix, pH   | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-196_xtr |
| Tomato Paste           | DM, pH, Blotter, Bostwick Viscosity, Inclusions, a, a/b, b, L, Lycopene, Titratable Acids, Chlorides, Nitrates, Mineral Impurities | US-SRCP-0025A Small Round Cup 25mm (and 0.3mm reflector) | APPS-CALB-097_xtr |
| Tomato Powder          | AW, Moisture, pH, Bostwick Viscosity, a, a/b, b, L, Lycopene, Titratable Acids, Chlorides  | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-096_xtr |
| Waffle Cut Fries       | Moisture, Fat, Sugar   | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-153_xtr |

**Raw Materials**

| SUBSTANCE        | CONSTITUENTS                       | SAMPLING ACCESSORIES                     | PART NUMBER       |
|------------------|------------------------------------|--|-------------------|
| Elder Seeds      | Moisture, Protein, Fat, Ash, Fiber | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-101_xtr |
| Elder Seeds Cake | Moisture, Protein, Fat, Ash, Fiber | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-102_xtr |

**Rendering (APPS-BUND-009-R)**

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE            | CONSTITUENTS   | SAMPLING ACCESSORIES                     | PART NUMBER       |
|----------------------|--|--|-------------------|
| Animal Proteins      | Moisture, Protein, Fat, Fiber, Ash, Ca, Digestibility  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-049_xtr |
| Blood Meal           | Moisture, Protein, Fat, Ash, Digestibility, Soluble Protein, Acid Value, Ca, Salt                                | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-205_xtr |
| Chicken Viscera Meal | Moisture, Protein, Fat, Ash, Digestibility   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-050_xtr |
| Feather Meal         | Moisture, Protein, Fat, Ash, Digestibility, Ca, Soluble Protein, P   | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-113_xtr |
| Fish Meal            | Moisture, Protein, Fat, Ash, Salt, Soluble Solids, Acid Value, Digest, TVN, AW, VBN, Ca, P, N, NH3-N, Ethoxyquin | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-204_xtr |

|                             |  |  |                   |
|-----------------------------|--|--|-------------------|
| Lamb Meal                   | Protein, Fat, Ash, DM  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-115_xtr |
| Meat and Bone Meal Expanded | Moisture, Protein, Fat, Fiber, Ash, Acid Value, Soluble Protein, Salt, Ca, P, Boisen Digestibility, Pepsin Digestibility | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-195_xtr |
| Pork Meal                   | Moisture, Protein, Fat, Fiber, Ash, Ca, P  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-206_xtr |
| Poultry Meal Expanded       | Moisture, Protein, Fat, Ash, Fiber, Ca, P, Mg  | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-181_xtr |

### Snack Food (APPS-BUND-010-R)

Required Accessories: US-LGOP-0001 Large Open Cup with plunger

| SUBSTANCE       | CONSTITUENTS                  | SAMPLING ACCESSORIES                     | PART NUMBER       |
|-----------------|-------------------------------|--|-------------------|
| Chicken Tenders | Seasoning                     | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-190_xtr |
| Chickpeas Baked | Moisture, Oil                 | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-252_xtr |
| Crackers        | Fat, Moisture, Salt           | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-019_xtr |
| Onion Rings     | Seasoning                     | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-189_xtr |
| Pita Chips      | Moisture, Fat                 | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-244_xtr |
| Popcorn Ground  | Moisture, Oil, Salt           | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-132_xtr |
| Pork Rinds      | Seasoning, Oil                | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-188_xtr |
| Potato Chips    | Moisture, Oil, Seasoning, FFA | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-161_xtr |
| Raw Peanuts     | Moisture, Fat, FFA, PV        | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-017_xtr |
| Seasoning       | Seasoning                     | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-022_xtr |
| Tortilla Chips  | Moisture, Oil                 | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-245_xtr |
| Yeast           | Moisture, Fat, Sugar          | US-LGOP-0001 Large Open Cup with plunger | APPS-CALB-246_xtr |

### Sugar Processing

Required Accessories: US-LGOP-0001 Large Open Cup with plunger; US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector)

| SUBSTANCE             | CONSTITUENTS  | SAMPLING ACCESSORIES                                     | PART NUMBER       |
|-----------------------|---|--|-------------------|
| Dried Sugar Beet Pulp | Moisture, Protein, Fat, Fiber, Ash, Calcium, Phosphorus | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-108_xtr |
| Molasses              | Brix, Sucrose   | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-081_xtr |
| Sugar Beet Shavings   | POL, RDS, Sugar, Sucrose, RWST                          | US-LGOP-0001 Large Open Cup with plunger                 | APPS-CALB-247_xtr |
| Sugar Cane Juice      | Brix, Sucrose   | US-SRCP-0025A Small Round Cup 25mm (and 0.2mm reflector) | APPS-CALB-082_xtr |

## GLOSSARY

| CONSTITUENTS                 | DEFINITION   |
|------------------------------|--|
| Acid Detergent Fiber (ADF)   | The fibrous component represents the least digestible fiber portion of forage or other roughage  |
| Acid Detergent Protein (ADP) | The insoluble protein fraction   |
| Acidity                      | The level of acid in substances such as water, soil, or wine   |
| Alanine (ALA)                | Amino Acid   |
| Alpha Amylase                | Enzyme that catalyze the hydrolysis of the internal $\alpha$ -1,4-glycosidic linkages in starch  |
| Alveo P                      | Maximum pressure required for the deformation of the sample or overpressure  |
| Alveo W                      | Indicates dough baking strength  |
| Arachidic                    | Fatty Acid   |
| Arginine (ARG)               | Amino Acid   |
| Ash                          | The residue containing inorganic mineral elements of a feed sample   |
| Aspartic                     | Amino Acid   |
| Beta Glucan                  | One form of soluble dietary fiber that's strongly linked to improving cholesterol levels and boosting heart health                                 |
| Calcium (Ca)                 | Essential mineral  |
| Calories                     | Calorie is a unit of measurement for energy  |
| Carbohydrates                | Biochemical compounds composed only of the elements carbon, hydrogen and oxygen, and are the main source of energy for animals                     |
| Color B                      | Yellow to Blue color axis  |
| Cysteine (CYS)               | Amino Acid   |
| Dev Time                     | Classification for water absorption in flour   |
| Diastatic Power              | A measurement of a malted grain's enzymatic content  |
| Digestibility                | Measure of nutrition a food provides in a given volume. It indicates how much of the food is absorbed by the gut into the blood-stream             |
| Digestible Protein (DP)      | Measure of how well the proteins are digested  |
| DK                           | Index DK is a criterion of discrimination between a bad quality virgin olive oil and a virgin olive oil adulterated with refined olive oil         |
| Dry Matter (DM)              | A measurement of a sample with all volatiles removed   |
| Erucic                       | Fatty Acid   |
| Fat/Oil                      | The term often refers specifically to triglycerides, that are the main components of vegetable oils and of fatty tissue in animals                 |
| Fiber                        | The insoluble residue of an acid hydrolysis followed by an alkaline one  |
| Free Fatty Acids (FFA)       | Are produced by the hydrolysis of oils and fats  |
| Fructose                     | A common sugar   |
| Glucose                      | A common sugar   |
| Glutamic (GLU)               | Amino Acid   |
| Glycine (GLY)                | Amino Acid   |
| Heptadecanoic                | Fatty Acid   |
| Histidine (HIS)              | Amino Acid   |
| Insoluble Fiber              | Refers to all the parts of plant-based foods that cannot be digested or absorbed by the body   |
| Insoluble Fiber              | All the parts of plant-based foods that cannot be digested or absorbed by the body   |
| Iodine Value (IV)            | Mass of iodine in grams consumed per 100 grams of a chemical substance, often used to determine the amount of unsaturation in fats, oils and waxes |
| Isoleucine (ILE)             | Amino Acid   |
| K232                         | A delicate indicator of oxidation in oils  |
| K270                         | Detects the level of adulteration, blends with refined olive oil   |
| Lactose                      | A large sugar molecule that is made up of two smaller sugar molecules, glucose and galactose   |
| Linoleic                     | Fatty Acid   |
| Linolenic                    | Fatty Acid   |

|   |   |
|---|---|
| Lignin  | A complex organic polymer deposited in the cell walls of many plants, making them rigid and woody   |
| Lysine (LYS)                                      | Amino Acid  |
| Magnesium (Mg)                                    | Essential mineral   |
| Methionine (MET)                                  | Amino Acid  |
| Moisture  | Total amount of bound and unbound water contained in a sample   |
| Neutral Detergent Fiber (NDF)                     | Measures most of the structural components in plant cells (i.e. lignin, hemicellulose and cellulose), but not pectin  |
| Neutral Detergent Fiber Digestibility 48 (dNDF48) | This method mimics rumen digestion. The forage sample is dried, ground and incubated in rumen fluid for 48 hours  |
| Oleic   | Fatty Acid  |
| Palmitic  | Fatty Acid  |
| Peroxide Value (PV)                               | Gives the initial evidence of rancidity in unsaturated fats and oils  |
| Phenylalanine (PHE)                               | Amino Acid  |
| <b>CONSTITUENTS</b>                               | <b>DEFINITION</b>   |
| Phosphorus (P)                                    | Essential mineral   |
| Polarity (POL)                                    | An approximate measure of the sucrose content of the sugar  |
| Potassium (K)                                     | Essential mineral   |
| Proline (PRO)                                     | Amino Acid  |
| Protein   | Organic compounds composed of building blocks called amino acids  |
| pH  | Quantitative measure of the acidity or basicity of aqueous or other liquid solutions  |
| Purity  | $Purity = (pol/rds) * 100$ Used to determine value of sugar beets to pay farmers  |
| Raffinose   | A trisaccharide composed of galactose, glucose, and fructose  |
| RDS   | Measurement of total dissolved solids in a sugar liquor   |
| RWST  | Recoverable white sucrose per ton   |
| Salt (NaCl)                                       | Mineral Sodium Chloride   |
| Saturated Fat                                     | A saturated fat is a fat or fatty acid in which there are no double bonds between the carbon atoms of the fatty acid chain  |
| Serine (SER)                                      | Amino Acid  |
| Solids  | A measurement of the amount of solid substance contained in a liquid sample   |
| Stachyose   | A tetrasaccharide consisting of two $\alpha$ -D-galactose units, one $\alpha$ -D-glucose unit, and one $\beta$ -D-fructose unit sequentially linked as galgalglcfru |
| Starch  | A white, granular, organic chemical that is produced by all green plants  |
| Stearic   | Fatty Acid  |
| Sucrose   | A common sugar  |
| Sugar   | Also called monosaccharides, include glucose, fructose, and galactose   |
| Threonine (THR)                                   | Amino Acid  |
| Tryptophan (TRP)                                  | Amino Acid  |
| Tyrosine (TYR)                                    | Amino Acid  |
| Valine (VAL)                                      | Amino Acid  |
| Water ABS   | The amount of water taken up by flour to achieve the desired consistency and create a quality end-product   |

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