

USDA COMMODITY REQUIREMENTS

**ICSM3
INSTANT CORN SOY MILK
FOR USE IN EXPORT PROGRAMS**

Effective Date: **11/5/07**

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Part 1 COMMODITY SPECIFICATIONS

Section 1.1 INSTANT CORN SOY MILK REQUIREMENTS

- A. Instant Quality of Corn Soy Milk
- (1) The commodity delivered shall meet the requirements as specified in the Commercial Item Descriptions (CID) for salad oils (vegetable), A-A-20091D, dated May 7, 2002, which is available at <http://www.ams.usda.gov/fqa/aa20091d.htm>.
 - (2) Corn shall be sampled and tested for the Cry9C protein pursuant to Food and Drug Administration (FDA) guidelines, and such test results shall be negative.
 - (3) Corn shall be tested for aflatoxin in accordance with procedures approved by Federal Grain Inspection Service (FGIS). If the aflatoxin test proves positive, a quantitative test shall be performed. If the result of the quantitative test exceeds 20 p.p.b., the corn shall not be used in the production of the commodity.
 - (4) The product shall be essentially free from foreign material and shall have a good characteristic taste and odor, free from rancid, bitter, musty, sour, and other undesirable or foreign tastes and odors. It shall be identical to or lighter in yellow color than the Munsell Color Standard #13649, and that which is darker in color shall be rejected. Color plate #13649 may be purchased from: Macbeth Division of Kollmorgen Corporation, Little Britain Road, Drawer 950, Newburgh, New York 12550.
 - (5) The product shall be of small particle size suitable for use as a dietary supplement for infants and children for serving as porridge, gruel, or an extender to other foods and shall meet the following requirements:

Instant Corn-Soy-Milk

| Item | Requirements ^{1 2} | |
|---|-----------------------------|---------|
| | Minimum | Maximum |
| Moisture | --- | 9.5% |
| Protein (Nx6.25) | 19.0% | --- |
| Fat ³ | 6.0% | --- |
| Crude Fiber | --- | 2.0% |
| Material that will pass through a U.S. Standard No. 40 Woven-Wire-Cloth Sieve | 97.0% | --- |
| Material that will pass through a U.S. Standard No. 100 | --- | 46.0% |

¹ Unless otherwise specified analyses are expressed on a moisture-free basis.

² For method of analyses see Section 1.2.B.

³ See Section 1.1.D.

| | | |
|---|-----|--------|
| woven-wire-cloth sieve | | |
| Consistency (Bostwick Value) uncooked | 9.0 | --- |
| Total Bacteria Count per gram | --- | 50,000 |
| Dispersity shall be essentially free from lumping or balling Salmonella and E. Coli shall be negative | | |

B. Methods of Analyses

Special tests are included in the specification given herein.

(1) Consistency (Bostwick value) for uncooked product for corn soy milk.

a. Apparatus

- (ii) 1 400 ml. glass beaker
- (iii) 1 wooden-handled spatula with 3 inch stainless steel blade
- (iv) 1 consistometer, Cenco-Bostwick Central Scientific Stock No. 24925

b. Method

Place 160 ml. water at 25° C in the 400 ml. glass beaker. Gradually add 42.0 grams of instant corn-soy milk blend being tested while stirring vigorously with the spatula. Then stir gently for 3 minutes using the spatula to smooth any lumps that may form. Allow the slurry to stand an additional 2 minutes to complete hydration. Then stir gently for about 15 seconds with the spatula. Pour into the reservoir of the Bostwick consistometer until it is filled higher than its top level. Strike off the excess with a straight-edge. Allow the slurry to rest for 30 seconds, trip the release lever of the consistometer and read the Bostwick value after exactly 1 minute.

(2) Dispersibility

The instant corn-soy-milk shall be dispersible and essentially free from lumping or balling when 30 grams is gradually added to 60 grams water (75° - 80° F) in a 400 ml. beaker held with a clamp to keep from turning during 1 minute constant stirring (about 200 strokes) with a 3 inch stainless steel spatula. A smooth paste is prepared by additional stirring for ½ minute (about 100 strokes), followed by ½ minute rest and an additional ½ minute stirring (about 100 strokes). The paste is then diluted with 150 grams water (75° - 80° F) which is gradually added along with stirring necessary during 1 ½ minutes to produce a homogenous suspension. (If the paste seems too thick or too thin, the initial water may be increased or decreased by 10 grams, but the total water should be 210 grams.)

(3) Consistency (Bostwick Value) for ingredient specification cornmeal, processed (gelatinized).

- c. Apparatus
 - (i) 1 400 ml. Pyrex beaker
 - (ii) 1 wooden-handled spatula with a 3 inch stainless steel blade
 - (iii) 1 consistometer, Cenco-Bostwick Central Scientific Stock No. 24925

d. Method
 Place 180 ml. of water at 25° C - 30° C in the 400 ml. glass beaker. Gradually add 20.0 g. of the processed cornmeal while stirring vigorously with the spatula. Then stir gently for 3 minutes using the spatula to smooth any lumps that may form. Allow the slurry to stand an additional 2 minutes for hydration. Then stir gently for about 15 seconds with the spatula. Pour into the reservoir of the Bostwick consistometer until it is filled higher than its top level. Strike off the excess with a straight edge. Allow the slurry to rest for 30 seconds, trip the release lever of the consistometer and read the Bostwick value after exactly 1 minute.

- (4) Water Solubility Index for ingredient specification cornmeal, processed (gelatinized)
 Grind a well mixed representative sample of the processed cornmeal to pass a U.S. Standard No. 60 Woven Wire Cloth sieve. Weigh 2.5 grams of the as-is ground sample into a 50 ml. centrifuge tube. Add 30 ml. distilled water at 25° - 30° C and mix thoroughly to a uniform suspension with stirring rod. Mix with stirring rod every 5 minutes for 30 minutes. Remove stirring rod and wash adhering residue into centrifuge tube with about 5 ml. of water. Centrifuge mixture at 3,000 x G for 10 minutes. Pour off the supernatant liquor and carefully evaporate to dryness. The dried solids are weighed. Express the water solubility index as the percentage of bone dry sample in supernatant liquor.

D. Proportions
 The ingredients of the product shall be in the following proportions:

| Ingredients | Pounds per 2,000 lb. Batch |
|--|----------------------------|
| Cornmeal, processed (low viscosity, completely gelatinized) ⁴ | 1,178 |

⁴ A corn germ fraction in amount not over 10 percent of the weight of the mixed product may be added to the cornmeal before processing and the amount added oil contained therein omitted from the soy oil added to the soy flour fraction or to the final mix, provided the blend contains a minimum of 17.5 percent of fat free soy flour. The weight of processed cornmeal plus soy oil specified shall include the weight of any corn germ fraction added thereto.

| | |
|---|-----|
| Soy flour, defatted (toasted) ⁵ | 350 |
| Nonfat dry milk, spray process | 300 |
| Minerals | 60 |
| Vitamin Premix | 2 |
| Soybean oil, refined, deodorized, stabilized ⁶ | 110 |

F. Ingredient Specifications

(1) Cornmeal, Processed (low-viscosity, completely gelatinized)

a. Material and Processing

The cornmeal processed (low-viscosity, completely gelatinized) shall be prepared from shelled yellow corn that has been dehulled and degermed. The corn used shall be clean, sound, and essentially free from other grains, weed seeds, and other foreign material. It shall be free of rancid, bitter, musty, sour, and other undesirable or foreign tastes and odors. The processed cornmeal shall be produced from yellow corn, as defined in the "Official United States Standards for Grain," found at:

<http://www.gipsa.usda.gov/GIPSA/webapp?area=home&subject=grpi&topic=sq-ous>, in effect at the time the applicable solicitation for offers is issued, using the conventional corn dry-milling process. The cornmeal shall be processed by completely gelatinizing the starch in continuous extrusion cookers under conditions which produce high water solubility and minimum viscosity, drying, and grinding, or by any other process that yields a product meeting the requirements for the processed cornmeal, and for the instant corn-soy-milk.

b. Analysis

The cornmeal, processed (low viscosity) shall conform to the following detailed requirements:

Cornmeal, Processed

| Item | Requirements ⁷ | |
|-------------------------------|---------------------------|-------|
| | Min. | Max. |
| Moisture | ---- | 10.0% |
| Protein (Nx6.25) ⁸ | 7.0% | --- |

⁵ The stabilized oil may be added to this soy flour fraction or full-fat soy flour may be used in place of all or part of the defatted soy flour plus soy oil, as specified, provided the blend contains a minimum of 17.5 percent fat-free soy flour.

⁶ The stabilized oil may be added to the mix in order to obtain the required minimum fat level of 6.0 percent in the blend. Any combination of footnotes may be used to obtain desired result.

⁷ For methods of analyses see Section 1.1.B.

⁸ Moisture-free basis.

| | | |
|---|-------|-------|
| Ash ⁸ | ---- | 0.8% |
| Crude Fiber ⁸ | ---- | 0.8% |
| Material Through a U.S. Standard No. 20 Woven-Wire-Cloth Sieve | 95.0% | --- |
| Material Through a U.S. Standard No. 40 Woven-Wire-Cloth Sieve | 70.0% | ---- |
| Material Through a U.S. Standard No. 60 Woven-Wire-Cloth Sieve | --- | 40.0% |
| Material Through a U.S. Standard No. 100 Woven-Wire-Cloth Sieve | --- | 15.0% |
| Consistency (Bostwick Value) | 15.0 | --- |
| Water solubility index | 25.0 | --- |

(2) Soy Flour, Defatted (Toasted)

a. Material and Processing

Soy flour, defatted (toasted) shall be the screened, finely ground product obtained from selected soybeans by cleaning, cracking, dehulling, tempering, flaking, defatting with hexane, desolventizing, deodorizing, toasting (full cook with color change to light yellow or golden buff), and cooling.

b. Analysis

The soy flour, defatted (toasted) shall conform to the following detailed requirements:

Soy Flour Defatted (Toasted)

| Item | Requirements ⁹ | |
|---|-------------------------------------|--------|
| | Min. | Max. |
| Moisture | ---- | 10.0% |
| Protein (Nx6.25) ¹⁰ | 50.0% | ---- |
| Fat ^{10 11} | 0.6% | ---- |
| Fiber ¹⁰ | ---- | 3.5% |
| Ash ¹⁰ | ---- | 6.5% |
| Material Through a U.S. Standard No. 100 Woven-Wire-Cloth Sieve | 95.0% | ---- |
| Nitrogen Solubility, increase in pH | 10.0 | 30.0 |
| Urease activity, increase in pH | 0.05 | 0.15 |
| Total bacteria count, per gram | ---- | 50,000 |
| Color | Light yellow to golden buff | |
| Odor | Neutral to nutty | |
| Taste | Pleasant, neutral to slightly nutty | |
| Texture | A homogeneous flour | |

⁹ For methods of analysis see Section 1.1.B.

¹⁰ Moisture-free basis.

¹¹ See Section 1.1.D.

(3) Soy Flour, Full Fat

a. Material and Processing

Soy flour, full fat shall be the screened, finely-ground product obtained from selected soybeans by cleaning, cracking, (optional) dehulling, tempering, cooking (full cook with color change to light yellow or golden buff), and cooling.

b. Analysis

The soy flour, full fat shall conform to the following detailed requirements:

SOY FLOUR, FULL FAT

| Item | Requirements ¹² | |
|---|-------------------------------------|--------|
| | Min. | Max. |
| Moisture | ---- | 10.0% |
| Protein (Nx6.25) ¹³ | 44.0% | |
| Fat ^{13 14} | 22.0% | ---- |
| Fiber ¹³ | ---- | 3.0% |
| Ash ¹³ | ---- | 6.0% |
| Material Through a U.S. Standard No. 100 Woven-Wire-Cloth Sieve | 95.0% | ---- |
| Nitrogen Solubility Index | 10.0 | 45.0 |
| Urease activity, increase in pH | 0.05 | 0.50 |
| Total bacteria count, per gram | ---- | 50,000 |
| Color | Light yellow to golden buff | |
| Odor | Neutral to nutty | |
| Taste | Pleasant, neutral to slightly nutty | |
| Texture | A homogeneous flour | |

(4) Soybean Oil

a. Soy oil, refined, deodorized, and stabilized, shall contain 0.005 percent citric acid added on the cooling side of deodorization. The soy oil shall comply with the requirements of the latest revisions and amendments for Commercial Item Description A-A-20091D (May 7, 2002), <http://www.ams.usda.gov/fqa/aa20091d.htm>; type IV not winterized salad oil.¹⁵

¹² For methods of analyses see Section 1.1.B.

¹³ Moisture-free basis.

¹⁴ See Section 1.1.D.

¹⁵ Analytical Data for type IV Salad Oil in Commercial Item Description A-A-20091D as follows:

- (i) Stability, active oxygen method (AOM), PV not greater than 100 meg/kg (hours) maximum: 15 hours

- b. Before addition to the product, the oil may be stabilized by the addition of butylated hydroxy anisole and butylated hydroxy toluene, each at a level of 2.5 mg. per 100 grams of formulated product. **Caution:** Antioxidant may be added to either the soy oil or to the vitamin antioxidant premix, but it shall not be added to both.

(5) Nonfat Dry Milk

- a. Nonfat dry milk (spray process) is to be furnished by the Government or contractor (as specified in the solicitation) and shall be U.S. Standard Grade or better as defined in Section 58.2528 of U.S. Standard for grades of nonfat dry milk (spray process). Grading certificates shall be dated not more than 180 days prior to the date of manufacture of the corn-soy-milk.
- b. If the Government is supplying the milk, the Government shall deliver the nonfat dry milk (spray process) for its account, f.o.b. cars or trucks, at the option of the Government at the contractor's plant. If the contractor's plant is not served by a railroad and the Government does not choose to deliver the nonfat dry milk (spray process) f.o.b. trucks, then the Government shall make delivery f.o.b. cars at the railroad delivery point customarily used by the contractor. The cost of unloading the nonfat dry milk (spray process) and any transportation from unloading point to plant shall be at the expense of the contractor. It shall be the responsibility of the contractor to unload cars within the free time period allowed by the railroad. The nonfat dry milk (spray process) shall be delivered in sufficient time for the contractor to begin processing the finished product so as to meet the contract shipping schedule.
- c. Since the title to the nonfat dry milk (spray process) delivered by the Government is at all times vested in the Government while such commodity is in the custody of the contractor, the contractor shall not substitute any commodity owned by the Government.
- d. The contractor shall be liable for loss, damage, destruction, or deterioration from any cause whatsoever of the nonfat dry milk (spray process) received from the Government until the finished product has been delivered to the Government in accordance with the provisions of the contract. Any quantity of the finished product which is ultimately rejected to the contractor, the nonfat dry milk (spray process) portion of the quantity shall be for the contractor's account and the Government shall deduct from any amount due the contractor or hold the contractor liable for an amount equal to the value of the nonfat dry milk (spray process) as determined by the

Government.

Nonfat Dry Milk

| Item | Requirements | |
|-------------------------------|--------------|--------|
| | Min. | Max. |
| Protein (Nx6.38) | 29.0% | ---- |
| Moisture | ---- | 4.0% |
| Fat | ---- | 3.0% |
| Ash | ---- | 12.0% |
| Standard Plate Count per gram | ---- | 50,000 |
| Coliform Count per gram | ---- | 10 |
| Scorched Particles | ---- | 15 mg. |
| pH (1:9 dilution at 20° C) | 6.6 | ---- |

- e. The product shall be a free flowing powder, cream to light yellow in color and bland in flavor. Compliance of modified whey product with these specifications shall be evidenced by an inspection certificate issued by Dairy Division, Agricultural Marketing Service.

(6) Minerals

| Formulation | Ingredients | Per 2,000 lbs. of Product |
|-------------|--|----------------------------------|
| 1 | 2% Tri-Calcium Phosphate | 40.0 lbs |
| 2 | 1.8% Calcium Carbonate + 1.6% Monobasic Sodium Phosphate | 36.0 lbs 32.0 lbs |
| 3 | 1.8% Calcium Carbonate + 1.6% Monobasic Potassium Phosphate | 36.0 lbs 32.0 lbs |
| 4 | 1.3% Tri-Calcium Phosphate + 0.6% Dibasic Calcium Phosphate | 26.0 lbs 12.0 lbs |
| 5 | 0.9% Tri-Calcium Phosphate + 0.6% Calcium Carbonate + 0.8% Monobasic Sodium Phosphate | 18.0 lbs 12.0 lbs 16.0 lbs |
| 6 | 0.9% Tri-Calcium Phosphate + 0.6% Calcium Carbonate + 0.8% Monobasic Potassium Phosphate | 18.0 lbs 12.0 lbs 16.0 lbs |
| 7 | 1.7% Di-Calcium Phosphate Anhydrous + 0.5% Calcium Carbonate | 34.0 lbs 10.0 lbs |
| 8 | 2.2% Di-Calcium Phosphate + 0.5% Calcium Carbonate | 44.0 lbs 10.0 lbs |
| 9 | Zinc Sulfate, Monohydrate (ZnSO ₄ ≈ 7H ₂ O) ¹⁶ | 0.25 lbs (113.45 g) |
| 10 | Ferrous Fumarate, FCC grade, purified | 0.92 lbs (418 g) |
| 11 | Magnesium Oxide (MgO) | 2.75 lbs |
| 12 | Iodized Salt (0.007% I ₂) ¹⁷ | 16.25 lbs |

¹⁶ The amount of zinc sulfate monohydrate shown is equivalent to 0.4 pound zinc sulfate heptahydrate

¹⁷ The increase in iodized salt content represents a 25 percent increase in iodine content from previous specifications as recommended.

(7) Vitamin Antioxidant Premix

| Ingredients | Per 2,000 lbs. of Final Product |
|---|--|
| Thiamin monoitrate | 2.5 grams |
| Riboflavin | 3.5 grams |
| Pyridoxine hydrochloride | 1.5 grams |
| Niacin | 45.0 grams |
| Ca D-pantothenate | 25.0 grams |
| Folic acid | 1.8 grams |
| Vitamin B12 ¹⁸ | 12.0 milligrams |
| Vitamin A Palmitate (stabilized) ¹⁹ | 21.0 million IU |
| Vitamin D (stabilized) | 1.8 million IU |
| Alpha tocopherol acetate | 68,000 IU |
| Butylated hydroxy anisole ²⁰ | 20.0 grams |
| Butylated hydroxy toluene <small>Error! Bookmark not defined.</small> | 20.0 grams |
| Ascorbic acid (stabilized), ethyl-cellulose (coated), Soy flour, defatted (toasted) or starch to reach total weight; (additional soy flour may be added as a carrier, if desired) | 364.0 grams |
| Total | 2.0 lbs. |

(8) The minerals and vitamin premix shall not be combined and shall be added to the formulation separately.

Section 1.3 QUALITY ASSURANCE

A. The contractor shall perform the product testing and quality analysis to ensure that the product meets the commodity specifications. The results shall be evidenced by a Certificate of Analysis (COA). Copies of the original COA must be submitted as part of the invoice package. The COA shall provide the results of all tests specified. If quality discounts are provided in the contract, and the product to be delivered by the contractor falls within the quality

¹⁸ Represents a reduction of 67 percent from previous specifications.

¹⁹ Vitamin A Palmitate (stabilized) shall be added in encapsulated form containing 250,000 IU Vitamin A Palmitate/g. Particle size shall comply with the requirement that at least 98 percent shall pass through a U.S. Standard No. 50 sieve, at least 90 percent through a U.S. Standard No. 60 sieve, and at least 45 percent through a U.S. Standard No. 100 sieve. The product shall be not less than 95 percent of the all-trans isomer as determined by the USP assay procedure. The Vitamin A Palmitate shall have storage stability such that not more than 20 percent of its original activity shall be lost when stored for 21 days at 45° C in a sealed container at a level of 10,000 to 12,000 IU per pound in cornmeal having a moisture content in the range of 13.5 to 14.5 percent.

²⁰ If antioxidant is added in soy oil, omit from this premix.

discount table, those factors shall be identified by an asterisk on the copies of the COA.

- B. Contractors shall notify the Government immediately of lots that fail to meet contract requirements.
- C. Unless otherwise specified, test methods for the finished product, and any ingredients therein, shall be those of the AOAC INTERNATIONAL, the American Association of Cereal Chemists (AACC), or the American Oil Chemists' Society (AOCS), as applicable and in effect on the date of issuance of the solicitation, or in accordance with methods that give equivalent results.

Section 1.4 QUALITY DISCOUNTS

If the product to be delivered by the contractor does not meet the quality specification, but falls within the discounts listed, the product may be delivered to the Government, but the purchase price shall be reduced in accordance with the following schedules of discounts for each 100 pounds of commodity delivered:

| Instant Corn-Soy-Milk | | | |
|--|--------|--|--------|
| Excess Moisture | | Deficient Protein | |
| 9.6% or 9.7% | \$0.10 | 18.9% thru 18.6% | \$0.10 |
| 9.8% or 9.9% | \$0.20 | 18.5% thru 18.3% | \$0.20 |
| 10.0% | \$0.35 | 18.2% or 18.1% | \$0.35 |
| Deficient Fat | | Excess Crude Fiber | |
| 5.9% or 5.8% | \$0.10 | 2.1% thru 2.2% | \$0.10 |
| 5.7% or 5.6% | \$0.20 | 2.3% thru 2.4% | \$0.20 |
| 5.5% | \$0.35 | 2.5% | \$0.35 |
| Deficient Granulation Through No. 40 Woven-Wire-Cloth Sieve | | Excess Granulation Through No. 100 Woven-Wire-Cloth | |
| 96% or 95% | \$0.10 | 47% or 48% | \$0.10 |
| 94% or 93% | \$0.20 | 49% or 50% | \$0.20 |
| | | Deficient Consistency (Uncooked) | |
| | | 8.5% or 8.0% | \$0.10 |
| | | 7.5% or 7.0% | \$0.20 |
| | | 6.5% or 6.0% | \$0.35 |

Part 2 CONTAINER AND PACKAGING REQUIREMENTS

Section 2.1 GENERAL

This part provides the container specifications and packaging materials requirements used under this contract.

Section 2.2 CONTAINERS AND MATERIALS

- A. All containers and packaging shall be constructed to meet the requirements of the Food and Drug Administration (FDA) for safe contact with the packaged product. The contractor shall obtain and maintain documentation from the container or packaging material manufacturer to verify that the containers

and packaging materials used in this contract were in compliance with the Government's regulatory requirements for safe contact with food products as required in the Master Solicitation, Part 3, Section A, Number 3.

- B. Questions concerning the containers and materials should be directed to:**
USDA/FSA/DACO
Room 5755 – South Bldg, STOP 0551
1400 Independence Avenue SW
Washington, DC 20250-0551
ATTN: Packaging
- C. If the contractor purchases packaging and container ingredients from a foreign country and/or the package and container is manufactured in a foreign country, the package and container SHALL NOT display country of origin labeling. Phrases similar to but not inclusive of, “Made in [Name of Foreign Country.]” or “Product of [Name of Foreign Country.]” are strictly prohibited.**

Section 2.3 25-KILOGRAM MULTIWALL PAPER BAGS

- A. Twenty-five kilograms of product shall be packed in Pinch Bottom Open Mouth (PBOM) style multiwall paper bags. The use of recycled materials is not required if performance or food safety is jeopardized.**
- B. The bag shall have two inner walls of 50-pound nominal basis weight natural kraft paper and an outer third wall of 60-pound nominal basis weight wet strength paper in accordance with Uniform Freight Classification, Rule 40, Section 10, Tables A and B, as amended.**
- C. The bag shall have a inner plastic liner constructed of linear low density polyethylene (LLDPE) film. The film liner shall:**
- (1) Be a minimum thickness of 2.5 mil. with a density of 0.914 to 0.929 g/cc and a minimum heat-seal coefficient of 0.60. The film shall have a minimum impact resistance of 265g when tested in accordance with ASTM D-1709 Method A, as amended, Falling Dart.**
 - (2) The film liner shall have 8 to 12 micro perforations in each gusset area to allow for the evacuation of air from the product after filling and sealing.**
 - (3) Have a sufficient amount of anti-block. It shall be free from any blocking at 50°C and not subject to reblock at 70°C.**
 - (4) The film liner shall be loose for the full length of the bag except around the bottom and top closure areas. At the top and bottom closure areas, the liner shall adhere to the inner-most paper ply (time lamination). The laminating adhesive shall be machine direction applied in narrow strips no longer than 4 inches from each end. The use of gravure lamination to bond the liner to the inner-most paper ply for the entire**

- length of the bag is prohibited.
- (5) Be adhered to prevent product from getting between the inner film and the next outer paper ply.
- (6) Not exceed a maximum average water vapor permeability of 0.65 grams per 100 square inches in 24 hours at 90 percent relative humidity and a temperature of 100°F plus or minus 5 degrees.
- (7) Be manufactured to meet Food and Drug Administration requirements for food products (21 CFR 177.1520, as amended).
- (8) Be heat-sealed at the bottom by the bag manufacturer. The top of the liner shall be heat-sealed by the packer once the bag has been filled with product.

- D. Longitudinal seams of the outer wall of the bag shall be glued so that there is no more than 3/16-inch of unglued edge on the outer surface of the bag. The adhesives used in the longitudinal seams and pasted end closures shall be water resistant. Water resistant adhesive of outer ply longitudinal seams or pasted end closures shall be tested for resistance to water in accordance with TAPPI T456 (Wet Tensile Test), except as follows:

Cut test specimens 1-inch wide so that the longitudinal seam or pasted end closure runs perpendicular to and is centered relative to the long dimension of the specimen. The test specimen shall encompass all adhesive bonded areas included in fabricating the seam or end closure. In the case of multi-ply end closures, clamp all plies in the jaws of the tester. Immerse the specimens in not less than 1-inch of the distilled water for 24 hours. Run a wet tensile test. A test specimen fails the test if failure occurs with the separation of the seam or closure and less than 25% of the separated adhesive area shows fiber tear. Failure of more than 10% of the specimens shall be reported as failure of the adhesive.

Section 2.4 25-KILOGRAM HIGH PERFORMANCE PACKAGING CONSTRUCTIONS

- A. Contractors shall utilize one of the following constructions when the solicitation requires the use of high performance packaging:
 - (1) Multiwall paper bag constructed of: One (1) ply inner film liner guaranteed 2.5 mil. minimum thickness linear low density polyethylene, four (4) plies of 50-pound natural multiwall kraft (NMK) paper, and one (1) outer ply of 60-pound wet strength natural multiwall kraft (WSNMK) paper; or
 - (2) Multiwall paper bag constructed of: 3.1 mil. (70 grams per square meter) film consisting of two or more layers of co-extruded polyolefin film with alternating angles of orientation, laminated together and biaxially oriented, two (2) plies of 50-pound NMK paper, and one (1) outer ply of 60-pound WSNMK paper. The bag shall be heat-sealed at the bottom, by the bag manufacturer. The top of the liner shall be heat-sealed by the packer once the bag has been filled with products.

- (3) Both bag constructions shall:
 - (a) be uniquely marked with a one (1) inch blue stripe located approximately three (3) inches above the letters “USA” and extending around the width of each bag;
 - (b) meet the specifications and testing requirements outlined in these commodity requirements.

Section 2.5 OUTER CLOSURE AND SEALS

- A. The bottom and top of the 25-kilogram bag shall be closed to provide a tight seal using hot-melt or thermoplastic adhesive applied in a single band along the top edge of the long side of the bag and extending downward at least 3/4 inches. The fold line on the manufacturer closure end shall be 1-3/4 inches plus or minus 1/4-inch. The fold line on the field closure end shall be 1-5/8 inches plus or minus 1/4-inch. Refer to section 3.1.L. for bag closure guide location bars.
- B. The outer wall of the bag shall be stepped at the bottom and top fold over flap, beyond all inner walls, in order to provide a positive seal over the ends of the inner walls so that there is no more than 3/16 inches unbonded edge beyond the adhesive line. The inner polyethylene film may be heat-sealed.

Section 2.6 PERFORMANCE TEST PROCEDURES

- A. All bags shall be capable of withstanding the following performance test for impact resistance:
 - (1) Ten filled and sealed bags shall each survive a single drop test on the butt and side on a shock machine that produces for each test a velocity change of 195 inches per second using a shock duration of .002 seconds without loss of product.
 - (2) Testing shall be conducted under standard temperature (73.4°F plus or minus 1.8°F) and relative humidity (50% plus or minus 2%) conditions.
 - (3) Filled bags shall be placed in the conditioned atmosphere for sufficient time before the tests are conducted for the bag materials to reach equilibrium.
 - (4) Bags submitted under this performance specification shall conform to all other applicable material, construction, and performance specifications.
- B. Test Laboratories
 Independent or private laboratories known to be capable of conducting the shock machine test described above are as follows:

| | |
|--|--|
| Michigan State University School of Packaging East Lansing, MI 48824-1223 (517) 355-9580 http://packaging.msu.edu/ | Lansmont Corporation 1287 Reamwood Sunnyvale, CA 94089 (408) 734-9724 |
|--|--|

| | |
|--|--|
| | Lansmont Corporation 6539 Westland Way, Suite 24 Lansing, MI 48917 (888) 526-7666 www.lansmont.com |
| Rutgers University Packaging Science and Engineering Dept. P.O. Box 909 Piscataway, NJ 08854 (201) 932-3679 | Ten-E Packaging Services, Inc. 1666 County Road 74 Newport, MN 55055 (651) 459-0671 www.ten-e.com |

Section 2.7 SEAL PEEL TEST

- A. The contractor shall perform periodic seal peel tests on the filling end of multiwall paper bags to determine whether the paper plies are adequately adhered. The seal peel test shall be performed at every start up and a minimum of every hour during commodity packing operations. The seal peel test shall demonstrate tear of paper fiber (fiber tear) for all paper plies. The contractor shall maintain records of seal peel test results for review by the Government.

- B. The seal peel test shall be performed as follows:
 - (1) Run an empty bag through the sealing unit.
 - (2) Cut bag approximately 3 to 8 inches below the seal.
 - (3) Cut both gussets along the center crease to the top of the bag end.
 - (4) Spread bag to expose poly liner.
 - (5) Check inside plastic liner along the closure and gussets to determine that the liner is heat-sealed. Pinholes, no larger than 1/8 inch in diameter, are allowable in the closure.
 - (6) Grip inside fold at center of the bag end.
 - (7) Pull apart sides of the bag end at the center, separating seals. (If the seal is good, fibers shall completely cover adhesive. If the seal is poor, glossy adhesive will show).

- C. The contractor's seal peel test records shall include the following information for each test: date, time, employee's name, product, contract number, railcar number, and result of the test. The result of the test shall be reported as either "good seal" or "poor seal", "insufficient fiber tear", as applicable. The contractor shall take corrective action if the seal peel test indicates a poor seal and shall retest until a good seal is achieved.

PART 3 MARKING REQUIREMENTS

Section 3.1 MARKINGS

- A. The bags shall be marked in the color specified in the markings exhibits. Any

markings not shown on the exhibits shall be printed in blue. When printed on the bag, the colors blue and red shall match the Pantone Matching System (PMS) chart numbers 280 and 200, respectively, to the extent practicable.

- B. All dimensions are approximate. Unless otherwise specified, all characters shall be in normal block print.
- C. The US Flag shall be 5 inches high and 9 inches in total width on the front and back of the applicable bag, see exhibits.
- D. The letters USA shall be Univers black (75) oblique, or Helvetica extra bold with 70% scaling and -70 tracking or equivalent to match the style as shown in the exhibits. The letters USA shall be 4 3/4 inches high and 9 3/4 inches in total width. The three stripes adjacent USA shall be 1 inch high and shall extend to the edge of the panel.
- E. The USAID vertical identity, including the logo, brandname, and tagline, shall be printed in the same style as shown in the marking exhibits, sized approximately 7 1/2 inches high and 9 3/8 inches in total width. The USAID logo shall be 4 1/4 inches in diameter. The USAID brandname shall be 2 inches in height. The tagline "FROM THE AMERICAN PEOPLE" shall be 1/2 inch in height. The USAID vertical identity is available to download at <http://www.usaid.gov/branding/downloadsweb.html>.
- F. The USDA logo shall be 4 1/2 inches high and 6 1/2 inches in total width. See exhibits.
- G. The commodity name shall be 1 1/4 inch print. Immediately below the commodity name on the front and back panels, insert additional commodity description in 5/8 inch print, if applicable.
- H. The contract number and the statement "NOT TO BE SOLD OR EXCHANGED" shall be 3/4 inch print. The net weight, bag dimensions, and the Standard Marking Requirements (SMR) or Language Marking Requirements (LMR) number shall be centered at the bottom of the bag in 1/2 inch print. See exhibits. The contractor shall obtain a waiver, in writing, from the Government to print the contract number using on-line printing on filled bags.
- I. The letters or symbols used in the language markings for LMR-1, LMR-3 and LMR-4, LMR-5, LMR-7, and LMR-8 should be sized approximately 1 5/8 inches. The language markings for LMR-2 and LMR-6 should be sized to fit as shown in the exhibits.
- J. Lot numbers, production codes or any other means of identification required to meet the traceability requirement shall be printed as small as possible, yet legible.

- K. Gussets. The USAID identity shall be a total of 2 3/4 inches in height and 8 1/2 inches in total width and printed in both gussets. The letters “USAID” shall be 1 3/4 inches high and the tagline “FROM THE AMERICAN PEOPLE” shall be 3/8 inch high, as shown in the applicable exhibits.
- L. Gussets. The letters USA shall be 3 inches high and printed in both gussets, as shown in the applicable exhibits.
- M. Bag Closure Guide Location Bars (BCGL) shall be printed on the front panel of all multi-wall paper bags, as shown in the exhibits. The BCGL bars shall be plainly visible, approximately one inch in length, printed in blue in two parallel rows evenly spaced over the entire width of the bag. The BCGL bars are to be used as visual quality control verification. Visually identifying two bars or no bars on the bag would indicate a bag closure failure. Visually identifying one bar would indicate a proper bag closure. (Exhibits A & B)

Section 3.2 MARKING DESCRIPTIONS

The Government shall furnish required markings within two business days after the date of the contract. The procurement of containers should be deferred for at least two business days after the date of the contract.

The following standard marking requirements may be requested under the contract:

Standard Marking Requirement #1 (SMR-1)

USAID – Distribution

Front: US Flag, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED," USAID logo, contract number, net weight, dimensions, “SMR-1”. See exhibit SMR-1, front.

Back: Identical to front. See exhibit SMR-1, back.

Standard Marking Requirement #2 (SMR-2)

FAS - Distribution

Front: USA with stripes, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED," USDA logo, contract number, net weight, dimensions, “SMR-2”. See exhibit SMR-2, front.

Back: Identical. See exhibit SMR-2, back.

Standard Marking Requirement #3 (SMR-3)

USAID – Monetization

Front: US Flag, the commodity name, USAID logo, contract number, net weight, dimensions, “SMR-3”. See exhibit SMR-3, front.

Back: Identical to front. See exhibit SMR-3, back.

Standard Marking Requirement #4 (SMR-4)

FAS or USAID - Monetization

Front: USA with stripes, the commodity name, contract number, net weight,

dimensions, “SMR-4”. See exhibit SMR-4, front.
Back: Identical. See exhibit SMR-4, back.

Language Marking Requirement #1 (LMR-1)

USAID – Distribution for North Korea

Front: US Flag, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED," USAID logo, contract number, net weight, dimensions, and “LMR-1.” See exhibit LMR-1, front.

Back: US Flag, the commodity name, North Korean language panel, and “LMR-1” only. See exhibit LMR-1, back.

Language Marking Requirement #2 (LMR-2)

USAID – Distribution for Afghanistan, with Pashtu and Dari

Front: US Flag, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED," USAID logo, contract number, net weight, dimensions, and “LMR-2.” See exhibit LMR-2, front.

Back: US Flag, the commodity name, Pashtu and Dari language panel, and “LMR-2” only. See exhibit LMR-2, back.

Language Marking Requirement #3 (LMR-3)

USAID – Distribution for South Africa Region

Front: US Flag, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED," USAID logo, contract number, net weight, dimensions, and “LMR-3.” See exhibit LMR-3, front.

Back: US Flag, the commodity name, English language panel, and “LMR-3” only. See exhibit LMR-3, back.

Language Marking Requirement #4 (LMR-4)

USAID – Distribution for Iraq with Arabic

Front: US Flag, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED," USAID logo, contract number, net weight, dimensions, and “LMR-4.” See exhibit LMR-4, front.

Back: US Flag, the commodity name, Arabic language panel, and “LMR-4” only. See exhibit LMR-4, back.

Language Marking Requirement #5 (LMR-5)

FAS – Distribution for North Korea

Front: USA with stripes, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED," USDA logo, contract number, net weight, dimensions, and “LMR-5.” See exhibit LMR-5, front.

Back: USA with stripes, the commodity name, North Korean language panel, and “LMR-5” only. See exhibit LMR-5, back.

Language Marking Requirement #6 (LMR-6)

FAS – Distribution for Afghanistan, with Pashtu and Dari

Front: USA with stripes, the commodity name, the words "NOT TO BE SOLD

OR EXCHANGED,” USDA logo, contract number, net weight, dimensions, and “LMR-6.” See exhibit LMR-6, front.

Back: USA with stripes, the commodity name, Pashtu and Dari language panel, and “LMR-6” only. See exhibit LMR-6, back.

Language Marking Requirement #7 (LMR-7)

FAS – Distribution for South Africa Region

Front: USA with stripes, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED,” USDA logo, contract number, net weight, dimensions, and “LMR-7.” See exhibit LMR-7, front.

Back: USA with stripes, the commodity name, English language panel, and “LMR-7” only. See exhibit LMR-7, back.

Language Marking Requirement #8 (LMR-8)

FAS – Distribution for Iraq with Arabic

Front: USA with stripes, the commodity name, the words "NOT TO BE SOLD OR EXCHANGED,” USDA logo, contract number, net weight, dimensions, and “LMR-8.” See exhibit LMR-8, front

Back: USA with stripes, the commodity name, Arabic language panel, and “LMR-8” only. See exhibit LMR-8, back.

Section 3.3 EMPTY BAG DIMENSIONS

A. All bags shall be marked with the empty dimensions as follows:

| | |
|----------------|---|
| Gusseted Bags | Face Width X Gusseted Width X Finished Length |
| Flat Tube Bags | Face Width X Finished Length |

B. The bag dimensions shall be centered at the bottom of the bag, as small as possible, yet legible.

Section 3.4 CONTAINERS WITH INCORRECT MARKINGS

A. Any labels, bags, cans, can lids, cases, or any other type of packaging (hereinafter referred to as "containers") displaying incorrect markings may be used under a Government contract provided that the incorrect markings are obliterated and correct markings are applied in a permanent manner with approval of the contracting officer.

B. The appearance of containers in commercial or other channels either filled or unfilled bearing markings identifying the containers as part of a Government contract may cause the Government expense in determining whether commodities have been diverted from authorized use and in answering inquiries. The contractor shall take all necessary action to prevent the appearance in commercial or other channels of containers and container materials bearing any markings required under a Government contract, including those held by the contractor or others; e.g., overruns, misprints, etc. The contractor shall ensure that any container from

a Government contract that appears in commercial or other channels shall have all markings required under this contract permanently obliterated.

SMR-1

FRONT



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



USAID
FROM THE AMERICAN PEOPLE

CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-1

SMR-1

BACK



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



USAID
FROM THE AMERICAN PEOPLE

CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-1

USAID
FROM THE AMERICAN PEOPLE

SMR-2

FRONT



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-2

USA

SMR-2

BACK



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-2

USA

SMR-3

FRONT



**INSTANT
CORN SOY MILK**



USAID
FROM THE AMERICAN PEOPLE

CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-3

SMR-3

BACK



**INSTANT
CORN SOY MILK**




USAID
FROM THE AMERICAN PEOPLE

CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-3

USAID
FROM THE AMERICAN PEOPLE

SMR-4

FRONT



**INSTANT
CORN SOY MILK**

CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-4

USA

SMR-4

BACK



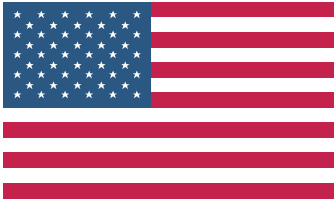
**INSTANT
CORN SOY MILK**

CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
SMR-4

USA


LMR-1

FRONT



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



USAID
FROM THE AMERICAN PEOPLE

CONTRACT ABCD01234

NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
LMR-1

LMR-1

BACK



**INSTANT
CORN SOY MILK**

미국에서
보내온 선물


LMR-1

FROM THE AMERICAN PEOPLE **USAID**



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



USAID
FROM THE AMERICAN PEOPLE

CONTRACT ABCD01234

NET WEIGHT: 25 kg, 55.115 lb.

16 x 4 x 37

LMR-2

USAID
FROM THE AMERICAN PEOPLE



**INSTANT
CORN SOY MILK**

د امریکا د متحده ایالاتو
د خلکو سوغات

تحفهء مردم
ایالات متحده امریکا

LMR-2

USAID
FROM THE AMERICAN PEOPLE



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



USAID
FROM THE AMERICAN PEOPLE

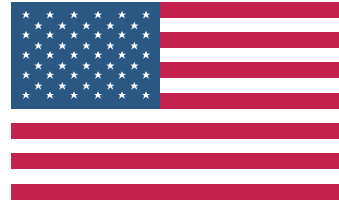
CONTRACT ABCD01234

NET WEIGHT: 25 kg, 55.115 lb.

16 x 4 x 37

LMR-3

USAID
FROM THE AMERICAN PEOPLE

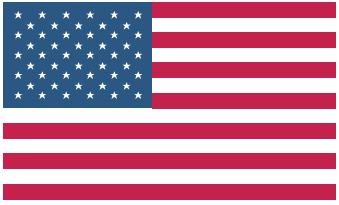


**INSTANT
CORN SOY MILK**

**Gift of the People of the
United States of America**


LMR-3

USAID
FROM THE AMERICAN PEOPLE



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



USAID
FROM THE AMERICAN PEOPLE

CONTRACT ABCD01234

NET WEIGHT: 25 kg, 55.115 lb.

16 x 4 x 37

LMR-4

USAID
FROM THE AMERICAN PEOPLE



**INSTANT
CORN SOY MILK**

هدية من
الشعب الأمريكي

LMR-4

USAID
FROM THE AMERICAN PEOPLE

LMR-5

FRONT



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
LMR-5

USA

LMR-5

BACK



**INSTANT
CORN SOY MILK**

미국에서
보내온 선물

LMR-5

USA



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
LMR-6

USA



**INSTANT
CORN SOY MILK**

د امریکا د متحده ایالاتو
د خلکو سوغات

تحفهء مردم
ایالات متحده امریکا

LMR-6

USA



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED




CONTRACT ABCD01234

NET WEIGHT: 25 kg, 55.115 lb.

16 x 4 x 37

LMR-7

USA



**INSTANT
CORN SOY MILK**

**Gift of the People of the
United States of America**

LMR-7

USA

LMR-8

FRONT



**INSTANT
CORN SOY MILK**

NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234
NET WEIGHT: 25 kg, 55.115 lb.
16 x 4 x 37
LMR-8

USA

LMR-8

BACK



**INSTANT
CORN SOY MILK**

هدية من
الشعب الأمريكي

LMR-8

USA