

USDA COMMODITY REQUIREMENTS

WSM8 WHEAT-SOY MILK FOR USE IN EXPORT PROGRAMS

Effective Date: 09/01/05

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Part 1 COMMODITY SPECIFICATIONS

Section 1.1 COMMODITIES

A. Quality of Wheat-Soy Milk

- (1) Wheat shall be tested for vomitoxin in accordance with procedures approved by Federal Grain Inspection Service (FGIS) and any wheat testing higher than 2 p.p.m. shall not be used in production of the commodity. The final product shall not contain more than 1 p.p.m. of vomitoxin.

- (2) The wheat-soy milk product shall be of small particle size suitable for use as a dietary supplement for children in such forms as a beverage or gruel. When mixed with water, the product shall have a good characteristic taste and free from rancid, bitter, musty, sour, or other undesirable or foreign taste or odor.

- (3) When made with bulgur flour, it shall be identical to or lighter in grayish yellow beige color than the Munsell Color Standard #1.1Y + 7.88/2.7 (BU), and that which is darker in color will be rejected. When made with straight grade flour, it will be identical to or lighter in pale yellow beige color than the Munsell Color Standard #2.5Y + 8.26/2.8 (ST), and that which is darker in color will be rejected. Munsell Color Standards may be purchased from:
 Macbeth Division, Kollmorgen Corporation
 P.O. Box 950
 Newburgh, New York 12550

- (4) The product shall conform to the requirements as shown in the following table:

Wheat-Soy Milk

Item	Requirements	
	Minimum	Maximum
Moisture	---	9.5%
Protein (Nx6.25)	20.0%	---
Crude Fat	6.0%	---
Ash	---	6.6%
Crude Fiber	---	2.5%
Lysine	0.9%	---
Material that will pass through a U.S. Standard No. 70 Woven-Wire-Cloth Sieve	97.0%	---
Total Bacteria Count	---	50,000/gm
Salmonella and E. Coli will be negative		

B. Proportions

The ingredients contained in the blended product shall be in the following proportions.

Ingredients	Pounds per 2,000 lbs Batch
(1) Wheat fractions, total	1,256
a. Bulgur flour	912
b. Wheat protein concentrate, enzyme inactivated ¹ , OR	344
c. Straight grade flour, cooked ²	654
d. Wheat protein concentrate, enzyme inactivated	602
(2) Soy flour, defatted (toasted) ³	300
(3) Soybean oil, stabilized ⁴	86
(4) Nonfat dry milk, spray process	300
(5) Minerals ⁵	56
(6) Vitamin premix	2

Section 1.2 INGREDIENT SPECIFICATIONS

The ingredients used in the wheat-soy milk shall meet the following specifications.

A. Bulgur Flour

(1) Material

Bulgur shall be milled in the United States from cleaned wheat of any of the classes defined in the defined by the “Official United States Standards for Grain,” except mixed wheat and red durum wheat. The wheat will contain no more than 4.0 percent of damaged kernels. It will not be of distinctly low quality, light smutty, smutty, light garlicky, garlicky, weevily, ergoty, treated, musty, sour, or heating; and it will not have any commercially objectionable foreign odor as these terms are interpreted and applied under the “Official United States Standards for Grain.” The standards are available at: <http://151.121.3.117/reference-library/standards/standards.htm>.

¹ Alternatively, the wheat protein concentrate may be combined with the wheat being processed into bulgur at a point in the process that provides for cooking of the two ingredients as a mixture, provided that the wheat meets all of the specifications listed for bulgur fiber content. However, in the subsequent milling and sifting process, a product must be provided which, in combination with the other ingredients, meets all of the product specifications and particularly that for the fiber content.

² These ingredients may be combined and processed as a mixture, if desired.

³ As an alternate to the use of 300 lbs. of defatted soy-flour and 86 lbs. of soybean oil, these products must be replaced with 386 lbs. of full flat soy-flour.

⁴ If additional soybean oil is required to attain minimum fat content specific for the final blend, the additional oil will replace an equal amount of bulgur or straight-grade flour.

⁵ The minerals and vitamin premix will not be combined but must be added to the formulations separately.

- (2) **Processing**
The wheat will be processed by washing, scouring, soaking in water, and cooking in water or steam at atmospheric or higher pressures, then drying and partial debranning. The cooked product will be gelatinized but not dextrinized and have a translucent appearance. The partially debranned, cooked, and dried wheat will be cracked and further reduced in whole or in part to a flour-like fineness by grinding in suitable equipment.
- (3) **Analysis**
The product shall conform to the following analyses, unless otherwise specified, all analyses except moisture are expressed on a moisture-free basis.

Bulgur Flour

Item	Requirements	
	Minimum	Maximum
Moisture	---	11.5%
Protein (Nx5.7)	12.0%	---
Ash	---	1.8%
Crude Fiber	---	2.0%
Material that will pass through a U.S. Standard No. 70 Woven-Wire-Cloth Sieve	97.0%	---

B. Wheat Protein Concentrate, Enzyme-Inactivated

- (1) **Material:** Wheat protein concentrate shall be obtained from total millrun middlings derived from normal flour milling operations.
- (2) **Processing:** The wheat protein concentrate will be prepared by regrinding and sifting, fine-grinding and air classification, or other similar means of obtaining the desired fraction from the starting materials. Either the starting materials or the product after grinding and sieving will be heated in moist condition so as to inactivate enzymes, and to reduce any raw or bitter flavors, without significantly damaging the nutritive properties of the product as would accompany any toasting sufficient to cause color darkening. (If desired, the protein concentrate may be heat processed in a mixture with straight-grade flour or wheat in the bulgur process).
- (3) **Analysis:** The product shall conform to the following analyses, unless otherwise specified, all analyses except moisture are expressed on a moisture-free basis.

Wheat Protein Concentrate

Item	Requirements	
	Minimum	Maximum
Moisture	---	13.0%

Protein (Nx6.25)	23.3%	---
Crude Fat	4.7%	---
Ash	---	5.6%
Crude Fiber	---	3.5%
Lysine	1.0%	---

(4) Peroxidase Test: The wheat protein concentrate after heat-treatment for enzyme inactivation [or the combined products, wheat (bulgur) plus wheat protein concentrate or flour plus wheat protein concentrate] shall meet the following for peroxide inactivation.

a. Reagents

- (i) Distilled water
- (ii) 0.5 percent guaiacol in 50 percent ethyl alcohol solution.
- (iii) 0.08 percent hydrogen peroxide (2.8 cc of 30 percent hydrogen per liter). Keep in refrigerator in dark bottle, and renew each week or two.

b. Apparatus

- (i) Test tubes, 3/4 or 7/8 inch in diameter.
- (ii) Three-inch or four-inch diameter funnels.
- (iii) Six-inch or seven-inch cotton milk filters.
- (iv) Waring blender or similar mixer.
- (v) Fifty-cc. graduated cylinders
- (vi) One-cc. and two-cc. pipettes
- (vii) Timer on watch with second hand.
- (viii) Test-tube rack.
- (ix) Balance which will weigh 10-gram samples to +0.1 gram (any triple-beam-type balance is recommended in preference to the single-beam, Harvard type).

c. Procedure

- (i) Weigh out representative 10-gram sample.
- (ii) Place in blender with 300 cc. of distilled water.
- (iii) Grind for 1 minute at moderate or high speed.
- (iv) Filter through cotton milk filter.
- (v) Add two cc. of filtrate to 20 cc. of distilled water in test tube.
- (vi) Add one cc. of 0.5 percent guaiacol solution without mixing.

d. Add one cc. of 0.08 percent hydrogen peroxide without mixing.

e. Mix contents thoroughly by inverting and watch for development of color. If none develops in 3-1/2 minutes, consider the test negative and the product adequately treated. In the case of a positive test, the color development will be sufficient intensity to be easily recognizable. In order to eliminate any question as to color development within 3-1/2 minute period, prepare a tube without the addition of guaiacol and hydrogen peroxide, containing 22 cc. of water and 2 cc. of the filtrate. This will serve as a color

comparison standard and will not develop color.

C. Wheat flour, straight grade, cooked

- (1) Material: Straight-grade flour shall be milled from cleaned and normally scoured wheat.
- (2) Processing: The straight grade flour shall comply with the “Definitions and Standards of Identity for Wheat Flour,” as defined under the Federal Food, Drug, and Cosmetic Act, and regulations promulgated thereunder. This flour shall be further processed in such a manner as to effect substantially complete gelatinization and moderate degradation of the starch, inactivation of enzymes, and essential freedom from a raw starch flavor or odor, without significantly damaging the nutritive properties of the product as would accompany any toasting sufficient to cause color darkening. (If desired, the wheat flour may be processed in a mixture with wheat protein concentrate).
- (3) Analysis: The product shall conform to the following analyses, unless otherwise specified, all analyses except moisture are expressed on a moisture-free basis.

Straight Grade Wheat Flour

Item	Requirements	
	Minimum	Maximum
Moisture	---	14.0%
Protein (Nx5.7)	11.0%	---
Ash	---	0.56%

D. Soy flour, defatted and toasted

- (1) Material and Processing: Soy-flour defatted (toasted) will 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. In addition to the usual biological changes brought about by cooking of soybean protein products, full cook process tends to remove undesirable flavor compounds and change the color of soy-flour to a golden buff.
- (2) Analysis: The product shall conform to the following analyses, unless otherwise specified, all analyses except moisture are expressed on a moisture-free basis.

Defatted Soy-Flour (Toasted)

Item	Requirements	
	Minimum	Maximum
Moisture	---	10.0%

Protein (Nx6.25)	50.0%	---
Fat ⁶	---	0.6%
Fiber	---	3.5%
Ash	---	6.5%
Material that will pass through a U.S. Standard No. 100 Woven-Wire-Cloth Sieve	95.0%	---
Nitrogen Solubility Index	10.0%	30.0%
Urease activity, increase in pH	0.05	0.15
Total bacteria count	---	50,000 gm
Color	Light yellow to golden buff	
Odor	Neutral to nutty	
Taste	Pleasant, neutral to slightly nutty	
Texture	A homogeneous flour	

E. Soybean Oil

- (1) 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-20091A (May 7, 2002), <http://www.ams.usda.gov/fqa/aa20091d.htm>; type IV not winterized salad oil.⁷
- (2) 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.

F. Nonfat Dry Milk

- (1) 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.
- (2) 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

⁶ Soybean oil may be added to defatted soy-flour or to the blend in order to meet fat content specifications for the product.

⁷ Analytical Data for type 4 Salad Oil in Commercial Item Description A-A-20091A as follows:

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.

- (3) 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.
- (4) 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

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

- (5) 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.

H. 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 ($ZnSO_4 \cdot 7H_2O$) ⁸	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) ⁹	16.25 lbs

I. Vitamin Antioxidant Premix

Ingredients	Per 2,000 lbs. of 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 ¹⁰	12.0 milligrams
Vitamin A Palmitate (stabilized) ¹¹	21.0 million IU
Vitamin D (stabilized)	1.8 million IU
Alpha tocopherol acetate	68,000 IU

⁸ The amount of zinc sulfate monohydrate shown is equivalent to 0.4 pound zinc sulfate heptahydrate

⁹ The increase in iodized salt content represents a 25 percent increase in iodine content from previous specifications as recommended.

¹⁰ Represents a reduction of 67 percent from previous specifications.

¹¹ 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.

Butylated hydroxy anisole ¹²	20.0 grams
Butylated hydroxy toluene	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.

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). If quality discounts are provided in the contract, and the product to be delivered by the contractor falls within the quality 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 specifications required herein but falls within the discounts listed, the product may be delivered to the Government, but the purchase price will be reduced in accordance with the following schedule of discounts for each 100 pounds of commodity delivered.

Excess Moisture		Deficient Protein	
9.6% or 9.7%	\$0.10	19.9% or 19.8%	\$0.10
9.8% or 9.9%	\$0.20	19.7% or 19.6%	\$0.20
10.0%	\$0.35	19.5%	\$0.35
Excess Crude Fiber		Excess Ash	
2.6% or 2.7%	\$0.10	6.7% or 6.8%	\$0.10
2.8% or 2.9%	\$0.20	6.9% or 7.0%	\$0.20
3.0%	\$0.35	7.1%	\$0.35
Deficient Crude Fat		Deficient Lysine	
5.9% or 5.8%	\$0.10	0.8%	\$0.10

¹² If antioxidant is added in soy oil, omit from this premix [See Section I.D (4)]

5.7% or 5.6%	\$0.20	0.7%	\$0.20
5.5%	\$0.35		
Deficient Granulation thru a No. 70 Sieve			
96% or 95%	\$0.10		
94% or 93%	\$0.20		
92%	\$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 materials shall be manufactured and assembled in the United States. The components that make up the fabricating materials of the containers and packaging materials shall be of U.S. origin to the extent that they are commercially available. Questions concerning the availability of a material should be directed to:
 USDA/FSA/DACO
 Room 5755 – South Bldg, STOP 0551
 1400 Independence Avenue SW
 Washington, DC 20250-0551
 ATTN: Packaging
- B. Constructed to meet the requirements of the Food and Drug Administration (FDA) for safe contact with the packaged product.
- C. 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 requirements.

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:

<p>Michigan State University School of Packaging East Lansing, MI 48824-1223 (517) 355-9580 http://packaging.msu.edu/</p>	<p>Lansmont Corporation 1287 Reamwood Sunnyvale, CA 94089 (408) 734-9724</p> <p>Lansmont Corporation 6539 Westland Way, Suite 24 Lansing, MI 48917 (888) 526-7666 www.lansmont.com</p>
<p>Rutgers University Packaging Science and Engineering Dept. P.O. Box 909 Piscataway, NJ 08854 (201) 932-3679</p>	<p>Ten-E Packaging Services, Inc. 1666 County Road 74 Newport, MN 55055 (651) 459-0671 www.ten-e.com</p>

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 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 must extend to the edge of the panel.
- D. The USAID logo shall be printed in the same style as shown in the exhibits. The logo shall be sized approximately 4 5/8 inches in diameter. The USDA logo shall be 4 1/2 inches high and 6 1/2 inches in total width. See exhibits.
- E. 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.
- F. 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.
- G. The geometric symbols shall appear as shown in the exhibits.

- H. The US Flag shall be 5 inches high and 9 inches in total width, on the back of the applicable bag. See exhibits.
- 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. See 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 geometric symbols shall appear in both gussets, adjacent to USA, as shown in the exhibits. The letters USA shall be 3 inches high and printed in both gussets.
- L. 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: USA with stripes, 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: US Flag in place of the USA with stripes, otherwise same as 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: USA with stripes, the commodity name, USAID logo, contract number, net weight, dimensions, “SMR-3”. See exhibit SMR-3, front.

Back: US Flag in place of the USA with stripes, otherwise, same as 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: USA with stripes, 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: USA with stripes, 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: USA with stripes, 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: USA with stripes, 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

USAID - Distribution (Feb. 2005)



WHEAT SOY MILK
NOT TO BE SOLD OR EXCHANGED



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



SMR-1

BACK

USAID - Distribution (Feb. 2005)



WHEAT SOY MILK
NOT TO BE SOLD OR EXCHANGED



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





WHEAT SOY MILK
NOT TO BE SOLD OR EXCHANGED



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




WHEAT SOY MILK
NOT TO BE SOLD OR EXCHANGED



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





WHEAT SOY MILK



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




WHEAT SOY MILK



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







WHEAT SOY MILK
NOT TO BE SOLD OR EXCHANGED




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




WHEAT SOY MILK

미국에서
보내온 선물

LMR-1





WHEAT SOY MILK
NOT TO BE SOLD OR EXCHANGED



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




WHEAT SOY MILK

د امریکا د متحده ایالاتو
د خلکو سوغات

تحفهء مردم
ایالات متحده امریکا

LMR-2





WHEAT SOY MILK
NOT TO BE SOLD OR EXCHANGED



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




WHEAT SOY MILK

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

LMR-3



USA

WHEAT SOY MILK

NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234

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

USA



WHEAT SOY MILK

هدية من
الشعب الأمريكي

LMR-4

USA





WHEAT SOY MILK

NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234

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




WHEAT SOY MILK

د امریکا د متحده ایالاتو
د خلکو سوغات

تحفهء مردم
ایالات متحده امریکا

LMR-6





WHEAT SOY MILK
 NOT TO BE SOLD OR EXCHANGED



CONTRACT ABCD01234
 NET WEIGHT: 25 kg, 55.115 lb.
 16 x 4 x 37
 LMR-7

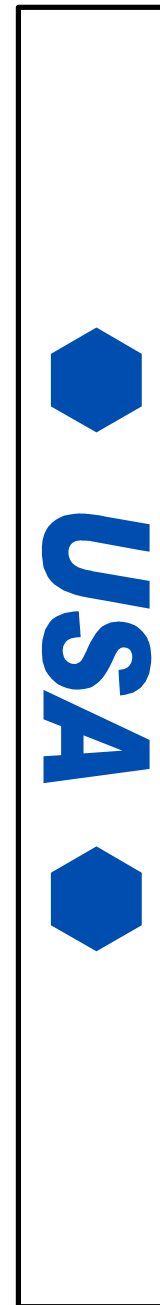



WHEAT SOY MILK

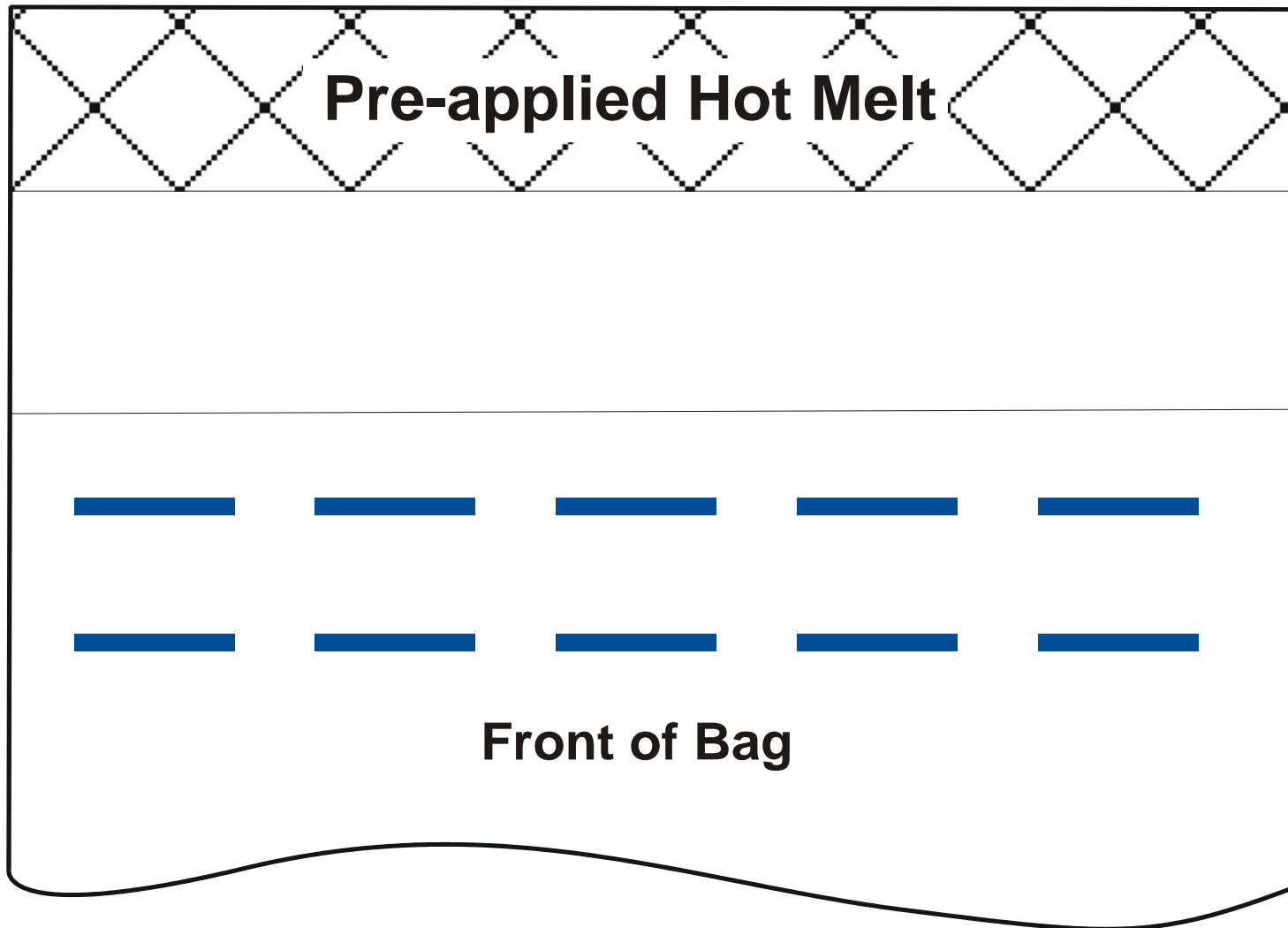
**Gift of the People of the
 United States of America**

LMR-7





Bag Closure Guide Location



High Performance Bags:
1 inch blue stripe

