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METRIC

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COMMERCIAL ITEM DESCRIPTION

EMERGENCY FOOD PRODUCTS, READY-TO-EAT (MEAL REPLACEMENTS)

The U.S. Department of Agriculture (USDA) has authorized the use of this Commercial Item Description (CID).

1. SCOPE. This CID covers ready-to-eat emergency food products (meal replacements) (EFPs), packaged in pouches, suitable for use by the Federal government for emergencies in order to prevent the onset of malnutrition in any cultural setting. The EFPs are expected to be used for a period of three to seven days, with a maximum usage of 15 days. The EFPs may be used in climatic extremes from the arctic to tropical zones. The EFPs are expected to be the sole source of food, except water, during the period of use and to provide adequate energy, protein, fat, vitamins, and minerals to promote survivability.

2. PURCHASER NOTES.

2.1 Purchasers *shall* specify the following:

- Type(s) and style(s) of EFPs required (Sec. 3).
- When the EFPs fortification is different than specified (Sec. 5).
- When product standard is not required (Sec. 5.7).
- When analytical and microbiological requirements are different than specified (Sec. 6.1).
- When analytical and microbiological requirements do not need to be verified (Sec. 6.1).
- When analytical and microbiological requirements need to be verified by USDA (Sec. 6.2).
- When packaging examinations do not need to be verified by USDA (Sec. 7).
- The type of polyolefin shrink film to use for the first package for EFP Type II bars (Sec. 7.2).
- Manufacturer's/distributor's certification (Sec. 11.2) or USDA certification (Sec. 11.3).

2.2 Purchasers *may* specify the following:

- When the dairy components for the EFPs are to be graded or inspected by the Dairy Grading Branch (DGB), Dairy Programs (DP), Agricultural Marketing Service (AMS), USDA (Sec. 10).

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- Manufacturer's quality assurance (Sec. 11.1 with 11.1.1) or (Sec. 11.1 with 11.1.2).
- Packaging requirements other than specified (Sec. 7.2.1 and 12).

3. CLASSIFICATION. The EFPs shall conform to the following list which shall be specified in the solicitation, contract, or purchase order. The EFPs will be used by multiple ethnic and cultural groups. No animal products other than milk shall be used. No alcohol or any known allergens, such as but not limited to, peanuts shall be used, nor will any products derived from pork or beef, other than milk, be used in the manufacture of these items.

Types and styles.

Type I - Paste {A-20}

Type II - Bar
Style A - Rice-based {A-28}
Style B - Wheat-based {A-29}

4. MANUFACTURER'S NOTES. Manufacturer's products *shall meet* the requirements of the:

- Salient characteristics (Sec. 5).
- Analytical requirements*: as specified by the purchaser* (Sec. 6).
- Pouch requirement and examinations (Sec. 7).
- Manufacturer's product assurance (Sec. 8).
- Regulatory requirements (Sec. 9).
- Quality assurance provisions for the dairy components: *as specified by the purchaser* (Sec. 10).
- Quality assurance provisions: *as specified by the purchaser* (Sec. 11).
- Packaging requirements other than specified (Sec. 12).

5. SALIENT CHARACTERISTICS.

5.1 Processing. The EFPs must be processed in accordance with FDA Current Good Manufacturing Practices (21 CFR Part 110), HACCP (Hazard Analysis of Critical Control Points), ISO (International Organization for Standardization), or other standards that assure the quality of the product. The dry ingredients shall be Food Chemicals Codex (FCC) purity or U.S. Pharmacopeia (USP) - National Formulary quality, as appropriate, and free from foreign materials. All additives shall not exceed levels allowable by the Codex Alimentarius.

5.2 Ingredients.

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5.2.1 Type I, paste. The Type I, EFP paste formula shall have a protein content of not more than 11.0 percent or less than 9.0 percent of kilocalories and a protein digestibility corrected amino acid score (PDCAAS) of 1.0. The sources of protein may be dairy, legumes, and protein isolates. The Type I, EFP paste shall contain less than 0.5 g of trans fat per serving, have approximately 10.0 percent kilocalories from saturated fat; have 7.0 to 10.0 percent kilocalories from polyunsaturated fatty acids (PUFA) vegetable oils; and the vegetable oil ratio of linoleic acid to α-linolenic acid should be between 5:1 to 10:1. The Type I, EFP paste shall contain nonfat dry milk powder, whey protein concentrate (80.0 percent protein), isolated pea protein (82.0 percent protein), cream powder (76.0 percent fat), soybean oil, maltodextrin, confectionary sugar (6x's or 10x's), salt, lecithin (liquid), vitamin and mineral pre-mix, natural and/or artificial colors, and antioxidants (ascorbyl Palmitate, BHA, and mixed tocopherols). The Type I, EFP paste may contain natural flavors.

5.2.2 Type II, bar pre-cooked cereal mix. The Type II EFP bars are compressed bars, manufactured from a pre-cooked cereal mix, rice-based or wheat-based, indicative of the style bar specified in the solicitation, contract, or purchase order. The rice-based pre-cooked cereal formula shall contain white rice flour, dehulled and kilned oat flour (9.0 percent protein), potato flour, nonfat dry milk powder, whey protein concentrate (80.0 percent protein), sugar, isolated pea protein (82.0 percent protein), soybean oil, soy lecithin, and salt. The wheat-based pre-cooked cereal formula shall contain white wheat flour (9.0 to 11.0 percent protein), dehulled and kilned oat flour (9.0 percent protein), potato flour, nonfat dry milk powder, whey protein concentrate (80.0 percent protein), sugar, isolated pea protein (82.0 percent protein), soybean oil, soy lecithin, and salt. The pre-cooked cereal mix shall be cooked using a high temperature short time cooking (HIST) extruder configured with 4 - 6 mm (0.16 - 0.24 in) circular die holes.

5.2.2.1 Type II, bar, Style A. The Type II, Style A, EFP rice bar formula shall have a protein content of not more than 11.0 percent or less than 9.0 percent of kilocalories and a protein digestibility corrected amino acid score (PDCAAS) of 1.0. The sources of protein may be rice, dairy, legumes, and protein isolates. The Type II, Style A, EFP rice bar shall have approximately 10.0 percent kilocalories from saturated fat; have 7.0 to 10.0 percent kilocalories from PUFA vegetable oils; and the vegetable oil ratio of linoleic acid to α-linolenic acid should be between 5:1 to 10:1. The Type II, Style A, EFP rice bar shall contain the rice-based cereal pre-cooked cereal mix, vitamin and mineral pre-mix, cream powder (76.0 percent fat), rice syrup, partially hydrogenated soybean oil, canola oil, maltodextrin, confectionary sugar (6x's), salt, soy lecithin (liquid), and antioxidants (ascorbyl Palmitate, BHA, and mixed tocopherols).

5.2.2.2 Type II, bar, Style B. The Type II, Style B, EFP wheat bar formula shall have a protein content not more than 11.0 percent or less than 9.0 percent of kilocalories and a PDCAAS of 1.0. The sources of protein may be wheat, dairy, legumes, and protein isolates. The Type II, Style B, EFP wheat bar shall have approximately 10.0 percent kilocalories from saturated fat; have 7.0 to 10.0 percent kilocalories from PUFA vegetable oils; and the vegetable oil ratio of linoleic acid to α-linolenic acid should be between 5:1 to 10:1. The Type II, Style B, EFP wheat bar shall

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contain the wheat-based cereal pre-cooked cereal mix, vitamin and mineral pre-mix, cream powder (76.0 percent fat), rice syrup, partially hydrogenated soybean oil, canola oil, maltodextrin, confectionary sugar (6x's), salt, soy lecithin (liquid), and antioxidants (ascorbyl Palmitate, BHA, and mixed tocopherols).

5.2.3 Prototype formulation. Additional information on the prototype formulation for the Type I, Paste and Type II, Bar EFPs are contained in the Natick Soldier Research, Development and Engineering Center (NSRDEC) et. al. Final Report of Agreement between the United States Agency for International Development (USAID) and the U.S. Army Research, Development and Engineering Command (RDECOM), NSRDEC to Develop an Emergency Food Product and Packaging Specifications, Shelf Life Study, and Drop Test Synopsis, posted on UDAID Food For Peace (FFP) web site http://www.usaid.gov/our_work/humanitarian_assistance/ffp/frdefp.html (see Sec. 14.3.2.).

5.3 Dairy ingredients. The nonfat dry milk shall meet the Standard of Identity for Nonfat Dry Milk (21 CFR § 131.125), and the U.S. Standard for Extra Grade as defined in the United States Standards for Grades of Nonfat Dry Milk (Spray Process) and shall be no more than 9 months old. The dry whey shall meet the U.S. Standard for Extra Grade as defined in the United States Standards for Dry Whey and shall be no more than 9 months old. All dairy ingredients utilized in the EFP must be certified, by the dairy ingredient manufacturer that the dairy ingredients provided are melamine and *Enterobacter sakazakii* free and a Certificate of Conformance (COC) must be provided to the purchaser.

5.4 Fortification. The EFPs shall be fortified with a vitamin and mineral premix, meeting the requirements in Table I, which is in accordance with the Institute of Medicine (IOM) report for *High-Energy Nutrient-Dense Emergency Relief Food Products, 2002* and corrected according to laboratory testing by the U.S. Army RDECOM, NSRDEC. The vitamins and minerals used in the premix shall be USP-FCC compliant, unless otherwise specified and specific vitamins shall be encapsulated to provide the required product shelf life and to avoid objectionable odors and flavors. Unless otherwise required in the solicitation, contract, or purchase order, the manufacturer will provide a COC stating that the vitamin and mineral premix meets the requirement listed in Table I.

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TABLE I. Nutrient requirements per serving

	50 g - Paste	**55.5 g - Bar**
Encapsulated vitamin A (as Palmitate)	126.67µg RAE	116.55 µg RAE
Vitamin D_3 (as Cholecalciferol)	1.11 µg.	1.11 µg.
Vitamin E (as acetate, USP)	3.33 I.U.	3.33 I.U.
Vitamin K_1 (as Phytonadione, FCC)	0.011 mg	0.011 mg
Encapsulated vitamin C (as Ascorbic Acid)	24.44 mg	31.10 mg
Encapsulated vitamin B_1 (as Thiamin Mononitrate)	0.20 mg	0.19 mg
Vitamin B_2 (as Riboflavin)	0.20 mg	0.20 mg
Niacin (as Niacinamide)	1.33 mg	1.33 mg
Vitamin B_6 (as Pyridoxine HCl)	0.22 mg	0.22 mg
Folic Acid	0.044 mg	0.044 mg
Vitamin B_{12} (as Cyanocobalamin, USP)	2.78 µg	2.78 µg
Biotin (FCC)	5.56 µg	5.56 µg
Pantothenic Acid (D-Calcium Pantothenate, USP)	0.78 mg	0.78 mg
Calcium (as Tricalcium Phosphate, FCC)	66.67 mg	66.67 mg
Phosphorus (as Dipotassium Phosphate, FCC and as Tricalcium Phosphate, FCC)	111.11 mg	111.11 mg
Magnesium (as Magnesium Oxide, USP)	22.2 mg	22.2 mg
Zinc (as Zinc Oxide, USP)	2.44 mg	2.06 mg
Copper (as Cupric Oxide)	0.10 mg	0.10 mg
Manganese (as Manganese Sulfate)	0.056 mg	0.056 mg
Selenium (as Sodium Selenate)	4.44 µg	4.44 µg
Chromium (as Chromium Chloride (6 H_2O), USP)	2.78 µg	2.78 µg
Iodine (as Potassium Iodide)	0.011 mg	0.011 mg
Iron	2.0 mg **1/**	1.89 mg **2/**
Potassium (as Dipotassium Phosphate, FCC)	205.44 mg	204.44 mg

1/ Iron for Type I, Paste shall be as ferrous EDTA.
2/ Iron for Type II, Bars shall be as ferrous EDTA.

5.5 Finished product.

5.5.1 Appearance and texture. The Type I, EFP paste shall have a smooth homogeneous finish and shall be lump free, the oil shall not separate and be free of a gritty, grainy, and sandy texture. The Type II, EFP bars shall be compressed into a rectangular shape 63.5 mm long by 44.4 mm wide by 14.7 to 16.0 mm (2-1/2 in long by 1-3/4 in wide by 0.58 to 0.63 in) thick. The Type II, EFP bars shall have a smooth exterior, easily crumble with gentle finger pressure, and the interior particle size is uniform.

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5.5.2 Flavor and odor. The Type I, EFP paste shall have a pleasing sweet, clean dairy flavor and odor. The Type I, EFP paste shall be free from foreign odors and flavors such as, but not limited to burnt, scorched, rancid, malted, sour, or stale. The Type II, EFP bars shall have a slightly sweet grain odor (appropriate for the style of EFP bar) with a blended cereal flavor of the pre-cooked cereal mix. The Type II, EFP bars shall not possess distinct flavor notes attributable to the protein sources or the vitamins and minerals. The Type II, EFP bars shall not contain any artificial flavoring.

5.5.3 Color. The Type I, EFP paste shall have an off white to tan color. The Type I, EFP paste shall not have a dull, grey tinge, or other abnormal cast. The Type II, EFP bars shall have a medium tan to dark tan color. The EFPs shall show no evidence of excessive heating (materially darkened or scorched).

5.6 Foreign material. The EFPs shall be clean, sound, wholesome, and free from evidence of rodent or insect infestation.

5.7 Age requirement. Unless otherwise specified in the solicitation, contract, or purchase order the EFPs shall not be more than 30 days old on date of delivery to purchaser/user and shall have a shelf life of at least 36 months at 26.7°C (80°F).

5.8 Product standard. Unless otherwise specified in the solicitation, contract, or purchase order, a sample of EFPs shall be subjected to product demonstration model (PDM) inspection as applicable, in accordance with the requirements of this CID. The approved sample shall serve as the product standard when evaluating each production lot. Any failure to conform to the finished product requirements or any appearance or palatability failure shall be cause for rejection of the lot. Should the manufacturer at any time plan to, or actually produce the product using different raw material or process methodologies from the approved product standard, which result in a product non comparable to the product standard, the manufacturer shall arrange for a new or alternate PDM approval. In any event, all product produced must meet all requirements of this CID including product standard comparability.

6. ANALYTICAL REQUIREMENTS.

6.1 Analytical and microbiological requirements. Unless otherwise specified in the solicitation, contract, or purchase order the analytical and microbiological requirements for the EFPs shall be as follows:

Test	Tolerance
Moisture	Less than 9.5 percent for Type II bars
Water activity (a_w)	Less than 0.60
PUFA	7.0 to 10.0 percent of kilocalories

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Test	Tolerance
Saturated fat	10.0 percent of kilocalories
Protein	9.0 to 11.0 percent of kilocalories
Standard plate count	Not more than 10,000 per g
Coliform	Less than 10 Colony Forming Units (CFU) per g or less than 3 MPN (Most Probable Number) per g **3/**
Yeast and Mold	Not more than 100 per g
Salmonella	Negative
E. coli	Less than 10 CFU per g or less than 3 MPN per g **3/**
Listeria monocytogenes	Negative
Staph. aureus	Negative
Vitamin A	Not more than 125.0 percent and not less than 75.0 percent as stated on label
Vitamin B_1	Not more than 125.0 percent and not less than 75.0 percent as stated on label
Vitamin C	Not more than 125.0 percent and not less than 75.0 percent as stated on label
Iron	Not more than stated on label

3/ Findings indicate zero colonies (CFU) per plate or zero tubes producing gas for MPN.

6.2 Product verification. When USDA verification of the analytical requirements is specified in the solicitation, contract, or purchase order, analytical testing shall be performed on a composite sample. The composite sample shall be 454 g (1 lb) and prepared from subsamples drawn from randomly selected containers. Subsamples shall be a minimum of one tube/bar and shall contain the appropriate number of tubes/bars to yield a 454 g (1 lb) sample when composited.

6.3 Test portion size. The test portions shall be derived from the composite sample specified in Sec. 6.2. The test portion size for testing *Salmonella* and *Staph. aureus* shall be 25 g (0.88 oz). The test portion size for testing *E.coli* and *Listeria monocytogens* shall be 50 g (1.76 oz).

6.4 Analytical testing. When specified in the solicitation, contract, or purchase order, the analysis shall be made in accordance with the following methods of the Official Methods of Analysis of the AOAC International or the Bacteriological Analytical Manual (BAM) method.

Test	Method
Moisture	925.45A or 925.45B
a_w	978.18
PUFA	996.06

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Test	Method
Saturated fat	996.06
Protein	988.05, 992.15
Standard plate count	966.23, 990.12, or BAM, Ch 3 4/
Coliform	992.30, 966.24, 991.14, 2000.15, or BAM, Ch. 4 4/
Yeast and Mold	995.21, 997.02
Salmonella	2003.09, 2004.03, or BAM, Ch. 5 4/
E. coli	992.30, 966.24, 991.14, 2000.15, or BAM, Ch.4 4/
Listeria monocytogenes	2004.02
Staph. aureus	975.55, 2001.05, or 2003.08
Vitamin A	2001.13
Vitamin B_1	986.27
Vitamin C	984.26
Iron	985.35

4/ 8th Edition, Food and Drug Administration (FDA) Bacteriological Analytical Manual (BAM) or the FDA BAM Online.

6.5 Test results. The test results for moisture and protein shall be reported to the nearest 0.1 percent. The test results for a_w shall be reported to the nearest 0.01 value. No individual sample shall have a a_w value exceeding 0.60. The test results for standard plate count and yeast and mold shall be reported to the nearest 10 CFU per g. The test results for *coliform* and *E. coli* shall be reported to the nearest 10 CFU per g or to the nearest MPN per g. The test results for *Salmonella*, *Listeria monocytogenes*, and *Staph. aureus* shall be reported as negative or positive. The test results for vitamin A, vitamin B_1 (Thiamin), vitamin C, iron, PUFA, and saturated fat shall be according to the test method. Any result not conforming to the analytical testing shall be cause for rejection of the lot.

7. PACKAGING REQUIREMENTS AND EXAMINATIONS.

7.1 Type I, EFP paste, pouch requirements. The flat pouch for Type I, EFP paste shall be a heat sealed tri-laminate pouch with interior dimensions of 50.8 mm wide by 152.4 mm long ± 3.2 mm (2 in wide by 6 in ± 1/8 long). The pouch shall be either nitrogen flushed or vacuum packed. The pouch material shall be fabricated from a 3-ply laminate consisting from inside to outside of minimum 0.0508 mm (0.002 in) thick polyolefin, extrusion coated or laminated to 0.00889 mm (0.00035 in) thick aluminum foil, laminated to 0.0127 mm (0.0005 in) thick polyester. The three plies shall be laminated so that the aluminum foil is between the other two layers. The pouch color shall be white. The polyolefin layer of pouch material shall be suitably formulated for hot filling or post-fill processing, as applicable. The pouch shall be provided with V-, C-, or U-shaped tear notches or tear nicks, parallel to the top edge of the pouch, to facilitate easy opening of the pouch. Closure shall be accomplished with a 9.525 mm ± 3.175 mm (3/8 ± 1/8 in) wide

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heat seal. The closure seal shall be free of entrapped matter (for example, product residue) that reduces the effective closure seal to less than 1.5875 mm (1/16 in) wide. Not less than 24 hours after filling and sealing, the pouches shall withstand an internal pressure of 6 pounds per square inch gauge (psig) for 30 seconds without rupture or seal separation greater than 1.5875 mm (1/16 in) or seal separation that reduces the effective closure seal width to less than 1.5875 mm (1/16 in). The filled and sealed pouch shall not leak or show evidence of delamination. The pouch shall show no fold-over wrinkles or aberrations in the pouch material or heat seals. The pouch material shall not transfer any foreign flavor or odor to the product being packaged.

7.2 Type II, EFP bar, packaging requirements.

7.2.1 Primary packaging. The primary package for the Type II, EFP bars, shall be a polyolefin shrink wrap film that is shrunk, in a thin monolayer wrap to provide low level protection to the bars. The purchasers shall specify in the solicitation, contract, or purchase order the type of polyolefin shrink film to be used.

7.2.2 Brick style pouch material. The nine wrapped EFP bars (3 by 3) shall be placed into a brick style pouch in which interior dimensions are nominally 17.15 cm (6-3/4 in) in width by 22.86 cm (9 in) in length and heat sealed under a vacuum (see 7.2.2.2). The brick style pouch material shall be fabricated from 0.089 mm (0.0035 in) thick linear low density polyethylene sealant layer laminated or extrusion coated to 0.0089 mm (0.00035 in) thick aluminum foil which is then bonded with 4.54 kg (10 lb) per ream low density polyethylene to 0.0152 mm (0.0006 in) thick biaxially oriented nylon. The three plies shall be laminated with the nylon on the exterior of the pouch. Alternatively, the brick style pouch may be fabricated from 0.089 mm (0.0035 in) thick linear low density polyethylene sealant layer laminated or extrusion coated to 0.0152 mm (0.0006 in) thick biaxially oriented nylon, which is laminated to 0.0089 mm (0.00035 in) thick aluminum foil which is bonded to 0.0127 mm (0.0005 in) thick polyester. The linear low density polyethylene sealant film shall be heat sealable and capable of producing a fusion seal or shall be heat sealable and peel able. All tolerances for thickness of pouch materials shall be plus or minus 20 percent. The pouch shall be colored white. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart an odor or flavor to the product.

7.2.2.1 Brick style pouch construction. The brick style pouch shall be a prefabricate, square bottom gusset style bag having inside dimensions of 85.80 mm ± 3.175 mm (3-3/8 in ± 1/8 in) for the face width, 65.09 mm ± 3.175 mm (2-9/16 in ± 1/8 in) for the gusset width, and 254 mm ± 3.175 mm (10 in ± 1/8 in) in length. The brick style pouch shall be fabricated by heat sealing a fin seal down the length of the pouch and a bottom seal along the face of the pouch. Heat seals shall have a minimum width of 6.35 mm (1/4 in). The heat seal shall have an average seal strength of not less than 3.175 kg per linear cm (7 lb per linear in) and no individual specimen shall have a seal strength of less than 2.72 kg per linear cm (6 lb per linear in) when seal strength

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is tested in accordance with ASTM F88, Seal Strength of Flexible Barrier Materials. Heat sealed pouches shall be provided with appropriate tear nicks, notches or serrations to facilitate easy opening of the pouch. Alternatively, a flat style pouch having inside dimensions not greater than 171.45 mm (6-3/4 in) in width by 228.6 mm (9 in) in length may be used in lieu of a gusseted pouch.

7.2.2.2 Brick style pouch filling and sealing. The nine wrapped EFP bars (3 by 3 stack) (Sec. 7.2.1) shall be filled into the brick style pouch. The filled brick style pouches shall be sealed under a vacuum level of 23 inches of mercury. The brick style pouches shall show no evidence of material degradation, or delamination. The closure seal shall be free of foldover wrinkles or entrapped matter that reduces the effective closure seal to less the 1.5875 mm (1/16 in). Seals shall be free of impression or design on the seal surface that would conceal or impair visual detection of seal defects. The heat seal shall have an average seal strength of not less than 3.175 kg per linear cm (7 lb per linear in) and no individual specimen shall have a seal strength of less than 2.72 kg per linear cm (6 lb per linear in) when tested in accordance with ASTM F88, Seal Strength of Flexible Barrier Materials. The filled pouch shall have a minimum 3.175 mm (1/8 in) width heat seal.

7.3 Filled and sealed pouch examination. The filled and sealed flat pouches and brick style pouches shall be examined for the defects listed in Table II utilizing ANSI/ASQC Z1.4, Sampling Procedures and Tables for Inspection by Attributes, in effect on the date of the solicitation. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be I and the acceptable quality level (AQL), expressed in terms of defects per hundred units shall be 1.5 for major defects and 4.0 for minor defects. A minimum of 200 samples shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot.

TABLE II. Filled and sealed pouch defects 5/

Category			Defect
Critical 6/	Major 7	Minor 8/	
			Both Pouches
1			Tear, hole, or open seal.
	101	201	Presence of delamination. 9/
	102		Seal width less than 1.5875 mm (1/16 in). 10/
	103		Not clean. 11/
	104		Required labeling or marking missing, incorrect, illegible, or that smudges. 12/

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TABLE II. Filled and sealed pouch defects (continued) 5/

Category			Defect
Critical 6/	Major 7/	Minor 8/	
			Both Pouches
	105		Pouch color not white.
	106		Abrasion through one or more layers in the pouch material in the body of the pouch or on a seal with 1.5875 mm (1/16 in) of the food product edge.
		202	Tear nick(s), notch(es), or serrations are missing. 13/
		203	Tear nick (s), notch(es), or serrations not located as specified. 13/
			Flat Pouches
2			Swollen pouch.
3			Aberrations in pouch material or heat seals resulting from heat sealing, pouch fabrication, hot filling or heat processing that reduce the effective closure seal width to less than 1.5875 mm (1/16 in). 14/
	107		Seal widths not as specified.
	108		Not heat sealed as specified.
	109		Inside pouch dimensions not as specified.
	110		Closure seal not located as specified.
	111		Closure or top seal extends into or below tear nick, tear notch, or serration location.
	112		Distance between inside edge of tear notch or serrations and inside edge of seal is less than 4.7625 mm (3/16 in).
	113		Presence of entrapped matter (for example, product residue) that reduces the effective closure seal to less than 1.5875 mm (1/16 in) wide. 10/
		204	Excess pouch material at edges exceeds 4.7625 mm (3/16 in).
			Brick Style Pouches
	114		Pouch has foreign odor.
	115		Any evidence of loss of vacuum. 15/

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TABLE II. Filled and sealed pouch defects (continued) 5/

Category			Defect
Critical 6/	Major 7/	Minor 8/	
			Brick Style Pouches
	116		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. **16/**
	117		Peelable pouch does not open where indicated.
		205	Tear nick(s), notch(es), or serrations do not facilitate easy opening (applicable to fusion seals pouches only). **13/**
		206	Seal width less than 3.175 mm (1/8 in) but greater than 1.5875 mm (1/16 in).

5/ Any evidence of insect or rodent infestation shall be cause for rejection of the lot.

6/ A critical defect is a defect that judgment and experience indicate would result in hazardous or unsafe conditions for individuals using the item.

7/ A major defect is a defect, other than critical, that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.

8/ A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

9/ Delamination defect classification. Any product leakage from the pouch or evidence of delamination of the pouch shall be classified as a major defect, except delamination of the outer ply when located in the seal area 1.5875 mm (1/16 in) or further from the food product edge of seal.

a. Major Defects. Delamination of the outer ply in the pouch seal area that can be propagated to expose aluminum foil at the food product edge of the pouch after manual flexing of the delaminated area. To flex, the delaminated area shall be held between the thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delaminated area shall then be rapidly flexed 10 times by rotating both hands in alternating clockwise-counterclockwise directions. Care shall be exercised when flexing delaminated areas near the tear notches to avoid tearing the pouch material. After flexing, the separated outer ply shall be grasped between thumb and forefinger and gently lifted toward the food product edge of the seal or if the separated area is too small to be held between thumb and forefinger, a number two stylus shall be inserted into the delaminated area and a gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to the product edge of the seal with no discernible resistance to the gentle lifting, the delamination shall be classified as a major defect. Additionally, spot delamination of the outer ply in the body of the pouch that is able to be

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propagated beyond its initial borders is also a major defect. To determine if the laminated area is a defect, use the following procedure: Mark the outside edges of the delaminated area using a bold permanent marking pen. Open the pouch and remove the contents. Cut the pouch transversely not closer than 6.35 mm (1/4 in) ± 1.5875 mm (± 1/16 in) from the delaminated area. The pouch shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be classified as a major defect.

b. Minor Defects: Minor delamination of the outer ply in the pouch seal area is acceptable and shall not be classified as a minor defect unless it extends to within 1.5875 mm (1/16 in) of the food product edge of the seal. All other minor outer ply delamination in the pouch seal area or isolated spots of delamination on the body of the pouch that do not propagate when flexed as described above shall be classified as a minor defect.

10/ The effective closure seal is defined as any uncontaminated, fusion bonded, continuous path, minimum 1.5875 mm (1/16 in) wide from side seal to side seal that produces a hermetically sealed pouch.

11/ Outer packaging shall be free from foreign matter, which is unwholesome, has the potential to cause pouch damage (for example, glass, metal fillings, etc.) or generally detracts from the clean appearance of the pouch. The following examples shall not be scored as defects for unclean:

a. Foreign matter which presents no health hazard or potential pouch damage and which can be readily removed by gently shaking the pouch or by gently brushing the pouch with a clean dry cloth.
b. Dried product, which affects less than 3.175 mm (1/8 in) of the total surface area of one pouch face (localized and aggregate).
c. Water spots.
d. Very thin film of grease, oil, or product residue which is discernible to touch but is not readily discernible by visual examination.

12/ All labeling and packaging information shall be specified in the commodity requirement document (CRD), solicitation, contract, or purchase order.

13/ The tear nick(s), notch(es), or serrations shall be located at the top of the flat pouch (parallel to the top edge of the pouch) or brick style pouch and will not extend into heat seal area and reduce effective seal width to less than 1.5875 mm (1/16 in).

14/ Aberrations in pouch material or heat seals include:

a. Major fold-over wrinkles or severe wrinkles, that extend into heat seal area and reduce effective seal width to less than 1.5875 mm (1/16 in); or
b. Severe wrinkles in the body of the pouch along the inside edges of the heat seals.

Pouches exhibiting one or more of these aberrations shall be tested in accordance with Sec. 7.4.

15/ The filled brick style pouches shall be sealed under a minimum vacuum level of 23 inches of mercury and shall be visually examined for conformance to the vacuum requirement not less than 96 hours after filling and sealing. The sealed pouch shall continue to exhibit tight

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adherence to the surface contours of the contents when a pulling force is applied at the top and bottom seal. This force shall be applied by holding the top and bottom seal between the thumb and forefinger of each hand, while simultaneously exerting a slight pull with both hands. Any evidence of loss of vacuum shall be classified as a major defect.

16/ If doubt exists as to whether or not the sealing equipment leaves an impression or design on the closure seal surface that could conceal or impair visual detection of seal defects, samples shall be furnished to the contracting officer for a determination as to acceptability.

7.4 Internal pressure test. Internal pressure resistance shall be tested not less than 24 hours after filling and sealing. Internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates spaced 12.7 ± 1.5875 mm (½ ± 1/16 in) apart. If a three-seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for testing the side and bottom seals of the pouch; for testing of the closure seal, the bottom seal shall be cut off. The pouches shall be emptied and cleaned thoroughly with a mild detergent and water solution prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. Pressure shall be applied at an approximate uniform rate of 1 psig per second until 17 psig of pressure is reached. The 17 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for separation of yield of heat seals. Any rupture of evidence of seal separation that reduces the effective closure seal width to less than 1.5875 mm (1/16 in) shall be considered a test failure. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be S-1. Any test specimen failing to meet the internal pressure requirements specified in Sec. 7.1 and Table II, Footnote **16/** shall be classified as a major defect and shall be cause for rejection of the lot.

7.5 Unfilled preformed brick style pouch seal testing. The pouch manufacturer will provide a COC stating that the seals of the unfilled preformed pouch have been tested for seal strength in accordance with ASTM F 88, Seal Strength of Flexible Barrier Materials and meet the requirements.

7.6 Pouch closure seal testing. The closure seals of the flat pouches and brick style pouches shall be tested for seal strength in accordance with ASTM F88, Seal Strength of Flexible Barrier Materials. The lot size shall be expressed in pouches. The sample size shall be the number of pouches indicated by inspection level S-1. For the closure seal on preformed bags, three adjacent specimens shall be cut from the closure seal of each pouch in the sample. If a folded fin seal juncture is present in the closure seal, one of the specimens shall be cut from the center of the seal incorporating the folded fin seal juncture of the heat seal. The average seal strength of any side, end, or closure shall be calculated by averaging the three specimens cut from that side, end, or closure. For fusion heat seal, any average strength of less than 3.175 kg (7 lb) per linear inch or any test specimen with a seal strength of less than 2.72 kg (6 lb) shall be cause for rejection of the lot.

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8. MANUFACTURER'S PRODUCT ASSURANCE. The manufacturer shall certify that the EFPs provided, meets the requirements of this CID. The purchaser shall require proof of conformance.

9. REGULATORY REQUIREMENTS. The delivered EFPs shall comply with all applicable Federal, State, and local mandatory requirements and regulations relating to the preparation, packaging, labeling, storage, distribution, and sale of EFPs within the commercial marketplace. Delivered EFPs shall comply with all applicable provisions of the Federal Food, Drug, and Cosmetic Act, the Fair Packaging and Labeling Act, and regulations promulgated thereunder. The EFPs shall comply with the allergen labeling requirements of the Federal Food, Drug, and Cosmetic Act.

10. QUALITY ASSURANCE PROVISIONS FOR THE DAIRY COMPONENTS. Purchaser shall specify in the solicitation, contract, or purchase order when the following provisions shall be met.

10.1 Manufacturer's quality assurance. When required in the solicitation, contract, or purchaser order, the dairy component manufacturer shall be required to have their facilities inspected by the Dairy Grading Branch (DGB), Dairy Programs (DP), Agricultural Marketing Service (AMS), USDA, and be eligible for listing in Section I of the AMS publication "Dairy Plants Surveyed and Approved for USDA Grading Service." (An AMS, DP plant survey verifies that, at the time of the survey, the manufacturer produces products in a clean, sanitary environment and satisfactorily meet the requirements contained in *Title 7 Code of Federal Regulations, Part 58 Subpart B - General Specification for Dairy Plants Approved for USDA Inspection and Grading Service and Title 21 Code of Federal Regulations Part 110 – Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food*.)

10.2 USDA, DP certification. When required in the solicitation, contract, or purchase order, the DGB, DP, AMS, USDA, shall certify that the dairy components used for the manufacturing of EFPs meets or exceeds the requirements of the U.S. Standards for Grades of Nonfat Dry Milk (Spray Process) and the U.S. Standards for Dry Whey. The DGB inspectors shall certify the dairy components in accordance with DGB procedures which include random sampling of the dairy components; evaluating the samples for conformance with the appropriate U.S. Standards for Grade, USDA Specifications, and/or CID; and documenting the requirements on official DGB certificates.

11. QUALITY ASSURANCE PROVISIONS. *Purchaser shall specify 11.2, 11.3, or 11.4; purchaser may specify 11.1 with 11.1.1 or 11.1 with 11.1.2.*

11.1 Manufacturer's quality assurance. When required in the solicitation, contract, or purchase order, the product manufacturer shall be required to provide evidence, by certificate, that the manufacturing plant has undertaken one of the following quality assurance measures

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within 12 months prior to providing a bid, or no later than 10 business days from the date of awarding of the contract. Failure to provide this documentation within the proper time frame may result in the contract being terminated for cause.

11.1.1 Plant systems audit. A plant systems audit (PSA) conducted by USDA, AMS, or another audit performed by a third party auditing service is required within 12 months prior to the date of the awarding of the contract. *(An AMS PSA verifies the manufacturer's capability to produce products in a clean, sanitary environment in accordance with Title 21 Code of Federal Regulations Part 110 - Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food; and verifies that the manufacturer has in place an internal quality assurance program. The AMS PSA determines the manufacturer's ability to produce under this CID, if the products of interest are identified at the time of the PSA.)*

11.1.2 Plant survey. A plant survey conducted by USDA, AMS, or another survey performed by a third party auditing service is required within 12 months prior to the date of the awarding of the contract. *(An AMS plant survey audit verifies that, at the time of the survey, the manufacturer produces products in a clean, sanitary environment in accordance with Title 21 Code of Federal Regulations Part 110 - Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food.)*

11.2 Manufacturer's certification. When required in the solicitation, contract, or purchase order, the manufacturer will certify that the finished EFPs distributed meets or exceeds the requirements of this CID.

11.3 USDA certification. When required in the solicitation, contract, or purchase order that product quality and acceptability or both be determined, the Processed Products Branch (PPB), Fruit and Vegetable Programs (FV), AMS, USDA, shall be the certifying agency. PPB inspectors shall certify the quality and acceptability of the EFPs in accordance with PPB procedures which include selecting random samples of the packaged EFPs, evaluating the samples for conformance with the salient characteristics of this CID and other contractual requirements, and documenting the findings on official PPB score sheets and/or certificates. In addition, when required in the solicitation, contract, or purchase order, PPB inspectors will examine the EFPs for conformance to the United States Standards for Condition of Food Containers in effect on the date of the solicitation.

The finished product shall be examined for compliance with the product requirements specified in Sec. 5.5, utilizing the double sampling plans indicated in ANSI/ASQC Z1.4 in effect on the date of the solicitation. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch for the paste and one bar for the bars. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects. Defects and defect classifications are listed in Table III.

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The pouches of Type I paste shall be kneaded prior to conducting any portion of the product examination.

TABLE III. Product defects 17/, 18/

Category		Defect
Major	**Minor**	
		Appearance and Texture
101		Product not fortified, Type I paste, or Type II bar.
102		Type I paste, not a smooth, homogeneous finish and not free of lumps.
103		Type I paste, shows separation of oil.
104		Type I paste, not free of gritty, grainy, and sandy texture.
105		Type I paste or Type II bar, shows evidence of excessive heating (material darkened or scorched).
106		Type II bars, not a compressed rectangular shape with a dimension of 63.5 mm long by 44.4 mm wide by 14.7 to 16.0 mm thick (2-1/2 in long by 1-3/4 in wide by 0.58 to 0.63 in thick). **19/**
107		Type II bars, do not have a smooth exterior and an interior particle size which is uniform; and do not easily crumble with gentle finger pressure.
		Flavor and Odor
108		Type I paste, does not have a pleasing sweet, clean dairy flavor and odor.
109		Type II bars, does not have a slightly sweet grain odor (appropriate for the style) with a blended cereal flavor.
110		Type II bars, possess distinct flavor notes attributable to protein sources or vitamins and minerals.
		Color
	201	Type I paste, not off white to tan color or has a dull grey or other abnormal cast.
	202	Type II bars, not a medium tan to dark tan color, shows evidence of excessive heating (materially darkened or scorched).

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TABLE III. Product defects (continued) 17/, 18/

Category Major	Category Minor	Defect
		Packing
111		Type II bars, not individually shrink-wrapped in a thin monolayer wrap of polyolefin.
112		Type II bars, not nine bars packed into a vacuum packed brick style pouch. 20/

17/ Presence of any foreign materials such as, but not limited to dirt, inspect parts, hair, wood, glass, metal, or any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, malted, sour, or stale shall be cause for rejection of the lot.

18/ Finished product not equal to or better than the approved product standard in palatability and overall appearance shall be cause for rejection of the lot.

19/ The length and width measurements for the Type II bars have an allowable tolerance of ± 3.2 mm (1/8 in).

20/ Each sample bar examined for Table III defects shall be drawn from a separate 9-bar brick pack pouch. Inspection of the 9-bar brick pack pouch for Defect 112 shall be preformed prior to obtaining the sample Type II bar from the 9-bar pack.

11.4 Product standard inspection. The EFPs PDM shall be inspected in accordance with the provisions of this CID and evaluated for overall appearance and palatability. Any failure to conform to the CID requirements or any appearance or palatability failure shall be cause for rejection of the lot. The approved PDM shall be used as the product standard for periodic review evaluation and inspection activities. All food components that are inspected by USDA shall be subject to periodic review sampling and evaluation. The USDA shall select sample units during production of the contract and submit them to USDA Headquarters and the purchasers' designee, as specified in the solicitation, contract, or purchase order. One lot shall be randomly selected during each calendar month of production. Twelve (12) sample units of EFPs shall be randomly selected from that one production lot. The 12 sample units shall be shipped to USDA Headquarters and the purchasers' designee within five working days from the end of the production month and upon completion of all USDA inspection requirements. The sample units shall be evaluated for the salient characteristics including appearance, odor, flavor, texture, and overall quality.

12. PACKAGING. The secondary and tertiary packaging, packing, labeling, and case marking shall be specified in the commodity requirement document (CRD), solicitation, contract, or purchase order.

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13. USDA INSPECTION NOTES. When Sections 11.3 and 11.4 are specified in the solicitation, contract, or purchase order, USDA certification shall include evaluation of the quality and condition of samples of EFPs and compliance with requirements in the following areas:

- Salient characteristics (Sec. 5).
- Product standard evaluation of the PDM (Sec. 5.8 and 11.4).
- Analytical requirements *when specified in the solicitation, contract, or purchase order* (Sec. 6.2). When USDA analytical testing is specified, PPB inspection personnel shall select samples and submit them to the USDA, Science and Technology Programs (S&TP) laboratory for analysis.
- Packaging requirements (Sec. 7 and 12 or as specified in the CRD, solicitation, contract, or purchase order).

14. REFERENCE NOTES.

14.1 USDA certification contacts.

14.1.1 PPB certification contact. For AMS certification, contact the **Branch Chief, PPB, FV, AMS, USDA, STOP 0247, 1400 Independence Avenue, SW, Washington, DC 20250-0247, telephone (202) 720-4693, Fax (202) 690-1527, or via E-mail: Terry.Bane@ams.usda.gov.**

14.1.2 DGB certification contact. For dairy product certification, contact the **Branch Chief, DGB, DP, AMS, USDA, STOP 0230, 1400 Independence Avenue, SW, Washington, DC 20250-0230, telephone (202) 720-3171 or on the Internet at: www.ams.usda.gov/dairygrading.**

14.2 Analytical testing and technical information contacts. For USDA, AMS technical information on analytical testing, contact the **Branch Chief, Technical Service Branch, S&TP, AMS, USDA, STOP 0272, 1400 Independence Avenue, SW, Washington, DC 20250-0272, telephone (202) 690-0621, or via E-mail: shirleyj.wright@ams.usda.gov.**

14.3 Sources of documents.

14.3.1 Sources of information for nongovernmental documents are as follows:

Copies of the Official Methods of Analysis of the AOAC International may be obtained from: **AOAC International, 481 North Frederick Avenue, Suite 500, Gaithersburg, MD 20877. You may contact AOAC International on (301) 924-7077 or on the Internet at: www.aoac.org.**

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Copies of the Food Chemicals Codex and U.S. Pharmacopeia may be purchased from: **United States Pharmacopeial Convention, 12601 Twinbrook Parkway, Rockville, MD 20852-1790, telephone (800) 227-8772 or (301) 881-0666, Fax (301) 816-8148. Internet address: www.usp.org.**

Copies of the Codex Alimentarius standards may be downloaded free from: **Codex Alimentarius, U.S. Codex Office, Room 4861 South Building, Food Safety and Inspection Service, USDA, 1400 Independence Avenue, SW, Washington, D.C. 20250-3700, telephone (202) 205-7760 or (202) 720-2057, Fax (202) 720-3157. Internet address: http://www.codexalimentarius.net/web/index_en.jsp.**

Copies of the IOM report for *High-Energy, Nutrient-Dense Emergency Relief Food Product (2002)* may be downloaded free from: **National Academy Press, 2101 Constitution Avenue, NW, Lockbox 285, Washington, DC 20055, telephone (800) 624-8373 or (202) 334-3313, Fax (202) 334-2451. Internet address: http://www.nap.edu/catalog/10347.html.**

Copies of latest edition of ANSI/ASQC Z1.4 may be purchased from: **ANSI, ATTN: Customer Service Department, 25 W 43rd Street, 4th Floor, New York, NY 10036, telephone (212) 642-4900, (212) 642-4980, Fax (212) 302-1286. Internet address: http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI/ASQC%20Q9000-1-1994.**

Copies of ASTM F88 Seal Strength of Flexible Barrier Materials are available from: **ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, telephone (610) 832-9585. Internet address: www.astm.org/Standard/index.shtml.**

14.3.2 Sources of information for governmental documents are as follows:

Applicable provisions of the: Fair Packaging and Labeling Act are contained in 16 CFR, Parts 500 to 503 and the Federal Food, Drug, and Cosmetic Act are contained in 21 CFR Parts 1 to 199. These documents may be purchased from: **Superintendent of Documents, New Orders, P.O. Box 371954, Pittsburgh, PA 15250-7954. Credit card (Visa, MasterCard, Discover/ NOVUS, and American Express) purchases may be made by calling the Superintendent of Documents on (866) 512-1800, (202) 512-1800, or on the Internet at: http://www.gpoaccess.gov/nara/index.html.**

Copies of the Bacteriological Analytical Manual (BAM) are available from: **Center of Food Safety and Applied Nutrition, U.S. Food and Drug Administration is available on the Internet at: http://www.cfsan.fda.gov/~ebam/bam-toc.html.**

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Copies of the Final Report of Agreement Between the USAID and the U.S. Army RDECOM, NSRDEC, to Develop an Emergency Food Product, Product and Packaging Specifications, Shelf Life Study, and Drop Test Synopsis are available from: **USAID, Democracy, Conflict, and Humanitarian Assistance, Food for Peace, 1300 Pennsylvania Avenue, NW, Washington, DC 20523-7600, telephone (202) 712-5737, FAX (202) 216-3039, or on the Internet at: http://www.usaid.gov/our_work/humanitarian_assistance/ffp/frdefp.html.**

Copies of the U.S. Standards for Grades of Nonfat Dry Milk (Spray Process), and U.S. Standards of Dry Whey are available from: **Branch Chief, Standardization Branch, DP, AMS, USDA, Room 2746-South Building, Stop Code 0230, 1400 Independence Avenue, S.W., Washington, D.C. 20250-0230, telephone: (202) 720-7473. FAX (202) 720-2643 or on Internet at: http://www.ams.usda.gov/dairystandards.**

Copies of Dairy Plants Surveyed and Approved for USDA Grading Service are available from: **Branch Chief, DGB, DP, AMS, USDA, STOP 0230, 1400 Independence Avenue, SW, Washington, DC 20250-0230, telephone (202) 720-3171 or on the Internet at: www.ams.usda.gov/dairygrading.**

Copies of this CID, the United States Standards for Condition of Food Containers, and beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data which may improve this CID are available from and/or provided to: **Branch Chief, PPB, FV, AMS, USDA, STOP 0247, 1400 Independence Avenue, SW, Washington, DC 20250-0247, telephone (202) 720-9939, Fax (202) 690-1527, via E-mail: FQAStaff@ams.usda.gov or on the Internet at: http://www.ams.usda.gov/FQAS.**

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