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SUPERSEDING
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FEDERAL SPECIFICATION

MILK AND MILK PRODUCTS, FRESH, FLUID, CONCENTRATED, AND FROZEN

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 This specification covers the requirements of all listed fresh and frozen fluid milk and milk products.

1.2 Classification.

1.2.1 Types, classes and forms. The products covered by this specification shall be of the following types, classes and forms, as specified (see 6.1):

Type I - Milk, whole, fresh

- Class 1 - Pasteurized, homogenized
- Class 2 - Pasteurized

Type II - Cream, and half-and-half, fresh

- Class 1 - Pasteurized heavy whipping cream (minimum 36.0 percent milk fat)
- Class 2 - Pasteurized light whipping cream (minimum 30.0 percent milk fat but less than 36.0)
- Class 3 - Pasteurized homogenized table cream, light cream or coffee cream, minimum 18.0 percent milk fat)
- Class 4 - Pasteurized homogenized half-and-half (minimum 10.5 percent milk fat and 18.0 percent total solids)

Type III - Milk, skim and lowfat, fresh (see 3.2.3 note on homogenization requirements)

Class 1 - Pasteurized skim milk (less than 0.5 percent milk fat) with added vitamin A
Class 2 - Pasteurized skim milk (less than 0.5 percent milk fat) with added vitamin A and nonfat milk solids
Class 3 - Pasteurized lowfat milk (not less than 0.5 percent milk fat at 0.5 percent fat increments, not to exceed 2.0 percent) with added vitamin A
Class 4 - Pasteurized lowfat milk (same fat levels as for class 3) with added vitamin A and nonfat milk solids
Class 5 - Pasteurized 2.0 percent milk fat (plain) with added vitamin A
Class 6 - Pasteurized 2.0 percent milk fat with added vitamin A and nonfat milk solids

Type IV - Milk, frozen, pasteurized, homogenized

Class 1 - Plain
Class 2 - Stabilized

Type V - Milk, concentrated, whole or skim, fresh, or frozen

Class 1 - Concentrated whole milk
Class 2 - Concentrated skim milk

Type VI - Flavored milk (chocolate) and flavored dairy drink (chocolate)

Class 1 - Chocolate flavored milk, pasteurized (minimum 3.25 percent milk fat)

Form A - Plain
Form B - Nonfat milk solids added

Class 2 - Chocolate flavored lowfat milk, or chocolate flavored drink pasteurized (minimum 0.50 percent milk fat, maximum 2.0 percent milk fat) with added vitamin A

Form A - Plain
Form B - Nonfat milk solids added

Class 3 - Chocolate flavored skim milk, or chocolate flavored drink, pasteurized (less than 0.50 percent milk fat), with added vitamin A

Form A - Plain
Form B - Nonfat milk solids added

Type VII - Eggnog, pasteurized fresh

Class 1 - Standard (minimum 6.00 percent milk fat)
Class 2 - Premium (minimum 8.00 percent milk fat)

1.2.1.1 For civil agencies. The minimum composition requirements for the finished products shall be governed by the local or state laws or regulations in the area where the finished product is delivered, but shall be not less than the composition specified in 3.3.2 for each type, class and form.

1.2.1.2 All types, except types II and VII, shall contain vitamin D, when specified by the procuring agency (see 6.1). When vitamin D is not specified or specifically excluded by the procuring agency, it may be added, as applicable.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

Federal Specifications:

C-M-1730	-	Milk and Milk Products, Fluid, Fresh: Ultra-Pasteurized and Aseptic Processed and Packaged (Commercial Sterility)
PPP-B-636	-	Boxes, Shipping, Fiberboard
PPP-B-1163	-	Box, Corrugated Fiberboard, High Compression Strength, Weather-Resistant, Wax-Resin Impregnated

Federal Standard:

FED-STD-595	-	Colors

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Standard:

MIL-STD-175 - Equipment and Methods for the Handling of Milk and Milk Products in Bulk Milk Dispensing Operations

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

Laws and Regulations:

US Department of Health, Education and Welfare

Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder

Code of Federal Regulations title 21
part 18, U.S. Food and Drug Administration

Grade A Pasteurized Milk Ordinance, Recommendations of the U.S. Public Health Service

Grade A Condensed and Dry Milk Products - Recommended Sanitation Ordinance and Code for Dry Milk Products used in Grade A Pasteurized Milk Products

Sanitation Compliance and Enforcement Ratings of Interstate Milk Shippers

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

US Department of Agriculture

United States Standards for Grades of Edible Dry Casein (Acid)
United States Standards for Dry Whey

Brucellosis Eradication - Recommended Uniform Methods and Rules, Agricultural Research Service, US Department of Agriculture, Bulletin ARS 91-79

Directory of Consumer Protection Programs, Establishments, Circuits and Officials

(Application for copies should be addressed to the US Department of Agriculture, Agricultural Research Service, Washington, DC 20250.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply:

American Public Health Association, Inc.

Compendium of Methods for the Microbiological Examination of Foods

Standard Methods for the Examination of Dairy Products

(Applicatcn for copies should be addressed to the American Public Health Association, 1015 18th Street, N.W., Washington, DC 20036.)

Association of Official Analytical Chemists

Official Methods of Analysis of the Association of Official Analytical Chemists

(Application for copies should be addressed to the Association of Official Analytical Chemists, P.O. Box 540, Benjamin Franklin Station, Washington, DC 20044.)

National Motor Freight Traffic Association, Inc., Agent

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agent

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Materials.

3.1.1 Raw whole milk. The raw milk used in the preparation of products covered by this specification shall conform to the requirements of the Grade "A" Pasteurized Milk Ordinance, 1965 Recommendations of the United States Public Health Service.

3.1.1.1 Bacterial requirements. Individual producer's raw milk shall not exceed 100,000 per ml prior to commingling with other producer's milk. After commingling, the raw milk supply shall not exceed 300,000 per ml prior to pasteurization. Raw milk bacterial counts shall be obtained for each load or delivery at least twice weekly.

3.1.1.2 Source. The raw milk shall be produced in localities having and enforcing milk ordinances that conform to the requirements for Grade "A" raw milk for pasteurization as defined in the Grade "A" Pasteurized Milk Ordinance and the production and processing facilities, and regulatory laboratories shall meet the equivalent requirements of the 1965 Grade "A" Pasteurized Milk Ordinance.

3.1.2 Skim milk, cream, concentrated skim milk, concentrated whole milk and nonfat dry milk. These products used for standardization or formulation purposes, shall be prepared from fresh raw whole milk meeting the requirements of 3.1.1. As applicable, only milk products meeting the requirements of Grade "A" Condensed and Dry Milk Products shall be used as the source of milk solids if milk solids are added.

3.1.2.1 Milk derived nonfat ingredients. Milk derived nonfat ingredients, consisting essentially of whey, modified whey, caseinates, and milk proteins, and when used for protein fortification or in part, to supplement nonfat dry milk solids shall be of food grade quality meeting the provisions of 3.7. If all or part of the fortification is accomplished by the addition of these ingredients, the ratio of protein to the total nonfat solids and the protein efficiency ratio (PER) of all proteins present shall not be less than that which would be achieved had only nonfat milk solids been added. These products shall be free from objectionable tastes and odors prior to use.

3.1.2.1.1 Casein and caseinates. Casein used shall be US Extra Grade, and at time of use, shall be free from objectionable tastes and odors, such as, but not limited to sour, stale or cheesy. Color shall be white to cream colored. Sodium caseinate shall be food grade, spray dried, made from food grade edible casein or from fresh skim milk.

3.1.2.1.2 Whey products. Whey, concentrated and dried whey shall be derived from sweet cheese whey and at time of use, shall be free from objectionable tastes and odors and when used in the finished product formulation shall not affect the normal flavor, body and texture characteristics of the finished product. Dried whey shall be U.S. Extra Grade.

3.1.3 Plain frozen egg yolks and frozen sugared egg yolk. Egg products shall have been prepared under the continuous inspection of the US Department of Agriculture and shall be identified by appropriate labeling or marking with the USDA Inspection Shield and shall be certified as having been laboratory tested and found to be negative for Salmonellae by the US Department of Agriculture. The temperature of frozen egg products on receipt shall not be more than 5°F (-15°C) and there shall be no evidence of thawing and refreezing. At the time of use there shall be no abnormal odor. In addition, the following microbiological requirements shall apply:

	Frozen yolk	Frozen sugared yolk
Total colonies not to exceed (per gram)	25,000	25,000
Yeast and mold colonies not to exceed (per gram)	50	50

3.1.4 Flavoring agents. The chief flavoring agent used in type VI products shall be derived from cocoa or chocolate liquor or a combination of both. The chocolate flavoring material may be added to the product in the form of a powder or syrup. In addition to cocoa or chocolate liquor (or a combination of both) sweetening agents, salt, natural or artifical flavors (except artificial or imitation chocolate), and stablizers may be included in the flavoring compound or added separately.

3.1.4.1 Cocoa and chocolate liquor. Cocoa, or chocolate liquor (or a combination of both), shall conform to the Definitions and Standards of the Federal Food and Drug Administration.

3.1.4.2 Additional flavoring. Flavoring, in addition to cocoa or chocolate liquor, sweetening ingredients and salt, shall be limited to pure vanilla, vanilla extracts, imitation vanilla, vanillin, and ethyl vanillin (artificial flavors), dry malt, malt syrup, or malt extract, either singly or combination thereof and eggnog flavoring, as applicable. When the vanilla flavoring is in a dry form, it may contain carriers such as lactose, dextrose, sucrose, starch, tricalcium phosphate, or other approved food carriers.

3.1.5 Sweetener ingredients. Sweetener ingredients shall be one or more of the following: sugar, or sugar syrup (sucrose), corn syrup (high maltose and high fructose), dextrose (corn sugar), corn syrup solids (dried), lactose, invert sugar, levulose, and similar sweeteners permitted under the provisions of 3.7. Combinations of these sweeteners, when used, shall be in accordance with good commercial practice. In no case shall the finished product flavor, appearance, body and texture be affected by the inherent character of a particular sweetener. An example would be a corn syrup flavor tone, imparted to the product.

3.1.5.1 Sugar. Sugar shall be sucrose (either beet or cane) of food grade quality either dry or in liquid form.

3.1.5.2 Corn syrup. Corn syrup shall be a clarified and concentrated aqueous solution of the products obtained by the incomplete acid or enzyme hydrolysis of corn starch and shall be food grade quality.

3.1.5.3 Corn syrup solids. Corn syrup solids shall be a spray-dried corn syrup and shall be of food grade quality.

3.1.5.4 Dextrose. Dextrose shall be of food grade quality.

3.1.5.5 Invert sugar. Invert sugar shall be a mixture of equal parts of glucose and fructose such as results from the hydrolysis of sucrose and shall be of food grade quality.

3.1.5.6 Lactose, levulose and similar sweeteners. These shall be of food grade quality.

3.1.5.7 High fructose and high maltose. These shall be of food grade quality.

3.1.6 Salt. Salt shall be non-iodized, white, refined sodium chloride of food grade quality, with or without anti-caking agents.

3.1.7 Colloidal stabilizers, stablizing salts, emulsifiers, coloring material and spices. These ingredients, when used, shall be in compliance with 3.7 and shall be capable of producing a finished product complying with the applicable requirements of 3.3. Emulsifiers and stabilizers may be used in type III products for classes 1, 3 and 5.

3.1.8 Vitamins A and D concentrates. When vitamins A and D are specified, the product shall meet the requirements of 3.3.2. Vitamin A content may be increased by the addition of a concentrate of vitamin A dissolved in an appropriate carrier. Vitamin D may be increased by the addition of a concentrate of vitamin D dissolved in an appropriate carrier, but if such oil is not milk fat, the quantity thereof shall be not more than 0.01 percent of the weight of the finished product.

3.2 Processing.

3.2.1 Preprocessing requirements. Unless the raw milk is delivered to the receiving facility within two hours after milking, it shall be cooled immediately to 50°F (10°C) or lower, and maintained at that temperature until delivered or processed. Raw milk received at the processing facility shall be cooled immediately upon arrival to a temperature of 45°F (7°C) or lower, and maintained at that temperature until processed.

3.2.1.1 Delay in process. Any cause for a processing shutdown or delay in continuity of operation longer than 30 minutes shall require prompt refrigeration (below 45°F (7°C)) and adequate sanitary protection of the partially processed product. Excessive agitation (recirculation pumping) shall be avoided at intermediate temperatures (95° to 125°F (35°C to 52°C)). Processing shall be resumed within a 24-hour period, provided there has been no perceptible deterioration of organoleptic or physical properties.

3.2.2 Formulation. All formulation shall be in accordance with recognized commercial practices and shall comply with the pertinent material requirements of 3.1. In addition, the resulting finished product shall comply with the applicable requirements of 3.3. Type VII product (eggnog) shall be produced in accordance with the following formula:

	Class 1 Percent	Class 2 Percent
Milk fat (minimum)	6.00	8.00
Milk solids-not-fat (minimum)	10.00	12.00
Sugar (see 3.1.5)	1/	1/
Egg yolk solids (see 3.1.3) (minimum)	1.00	1.50
Stabilizer (maximum)	0.50	0.50
Salt	1/	1/
Eggnog flavoring and coloring	2/	2/

1/ Amount of sugar or salt used shall be in accordance with good commercial practice.

2/ In lieu of spices and other characteristic eggnog flavoring components, any suitable commercial eggnog flavoring, with or without color, may be used.

3.2.3 Preparation, homogenization and pasteurization. As applicable, blending, standardizing and concentrating shall be performed in the correct proportions so as to produce a finished product commensurate with the type, class and form desired. Types IV, class 2 and V (frozen) shall be produced by stabilizing the standardized product by any commercially recognized process (example: lactose hydrolysis, addition of anhydrous dextrose or thermal treatment) which shall yield an end product meeting the requirements of 3.3. Pasteurization and homogenization, in accordance with sound commercial practice, shall follow immediately for all types of products (see note below) and shall be performed in a manner which shall insure that every particle will be heat treated to a minimum temperature and time combination in accordance with the following:

(a) Types I, III and IV - 145°F (63°C) for 30 minutes or
161°F (72°C) for 15 seconds

(b) Types II and VI - 150°F (66°C) for 30 minutes or
166°F (74°C) for 15 seconds

(c) Types V and VII - 155°F (68°C) for 30 minutes or
175°F (79°C) for 25 seconds

Alternatively, for all types of product, any other combination of temperature and time recognized by the US Public Health Service to be equally efficient and which is approved by State or Federal authorities may be used. After pasteurization, the product shall be cooled immediately to 45°F (7°C) or lower and stored thereat.

NOTE: The homogenization process shall be limited to: type I, class 1; type II, classes 3 and 4; type III, classes 3, 4, 5, and 6; (homogenization for classes 1 and 2 may be considered optional, provided no visible cream separation occurs); type IV, type V, class 1; and types VI and VII. This process shall insure breakup of the fat globules so as to retard substantially the separation of the fat from the remaining milk serum and meet the requirements of 3.3.1.

3.2.4 Freezing (types IV and V frozen only). After cooling, the product shall be packaged promptly and frozen solid within a period of 48 hours after packaging. The product shall not be frozen prior to packaging. Freezing within a temperature range of -10°F (-23°C) to -20°F (-29°C) to insure maximum stability against gelation and denaturation is preferable. The frozen product shall be stored and transported in such a manner that its temperature does not rise above 0°F (-18°C). Fluctuating storage and transportation temperatures are to be avoided. Dry ice shall not be used in packing for shipment if it will result in lowering the temperature of the product below -20°F (-29°C).

3.3 Finished product. The finished product (all types) shall meet the requirements of 3.3.1 through 3.3.3, as applicable.

3.3.1 Physical requirements. The finished product shall possess a fresh sweet, pleasing, desirable flavor and shall be normal for the specific type involved. There shall be no objectionable or foreign flavor, odor and color such as oxidized, tallowy, rancid, bitter, metallic, fishy, sour, stale, unnatural or definite cooked. Type I, class 2 shall show normal cream line, without cream plug formation. Type V may have not more than a slight heated flavor. Type II products shall have characteristically good body, shall show no plug formation and serum separation and shall show no apparent fat separation at time of delivery. Type II, classes 1 and 2 shall have good whipping ability and the whipped cream shall have a stiff body and smooth texture. Classes 3 and 4 cream shall be readily miscible when poured in hot coffee and shall show neither feathering nor oiling-off tendencies. All types, except types VI and VII, shall have a white or light cream color. Type VI shall have a uniform, typically chocolate brown color throughout and shall be smooth, but not excessively viscous. The product shall show no evidence of ropiness and shall be free from layering or stratification of the chocolate and milk components. The product shall show no wheying-off, settling or chocolate particles (only a trace may be permitted) or floating clots of fat. The appearance and texture of types IV and V shall be similar to type I, except that a slight cream layer will be allowed and there shall be no evidence of thawing and refreezing. Type V shall be free of lumps, clots, sediment, fat separation or churned fat and free from gelation after thawing and the texture of the reconstituted milk (see 4.5.4) shall be smooth, not chalky, and have a mouth feel and appearance similar to that of fresh, pasteurized, homogenized milk or skimmed milk, as applicable. Type VII shall show no serum separation, ropiness or apparent thickening and the thoroughly mixed product shall have a color in between chip No. 23793 and chip No. 23655 of FED-STD-595. When homogenization is specified, the product shall meet the definition for homogenized milk as set forth in the Grade "A" Pasteurized Milk Ordinance.

3.3.2 Analytical requirements. The analytical requirements of the finished product shall comply with table I.

TABLE I. Analytical requirements

Product	Percent milk fat	Percent MSNF (min)	Percent total solids (min) 4/	Percent titratable acidity 1/ (not to exceed)	Percent egg yolk solids	Protein stability ml sediment /50 ml (not to exceed)	International Units (I.U.) per quart Vit.A (not less than)	Vit.D when specified (not less than)
Type I								
Classes 1 and 2	3.25 (min)	8.25	-	-	-	-	-	400
Type II								
Class 1	36.00 (min)	-	-	0.10	-	-	-	-
Class 2	30.00 (min) (also see 1.2.1)	-	-	0.12	-	-	-	-
Class 3	18.00 (min)	-	-	0.14	-	-	-	-
Class 4	10.50 (min)	-	18.0	0.16	-	-	-	-
Type III								
Class 1	0.50 (max)	8.25	-	-	-	-	2000	400
Class 2	0.50 (max)	10.00	-	-	-	-	2000	400
Class 3	0.50 (min) 2.00 (max)	8.25	-	-	-	-	2000	400

TABLE I. Analytical requirements (cont'd)

Product	Percent milk fat	Percent MSNF (min)	Percent total solids (min) 4/	Percent titratable acidity 1/ (not to exceed)	Percent egg yolk solids	Protein stability ml sediment /50 ml (not to exceed)	International Units (I.U.) per quart Vit.A (not less than)	Vit.D when specified (not less than)
Type III (cont'd)								
Class 4	0.50 (min) 2.00 (max)	10.00	-	-	-	-	2000	400
Class 5	1.90 (min) 2.10 (max)	8.25	-	-	-	-	2000	400
Class 6	1.90 (min) 2.10 (max)	10.00	-	-	-	-	2000	400
Type IV								
Class 1 and 2	3.25 (min)	8.25	-	-	-	0.1	-	400
Type V								
Class 1	9.75 (min)	-	34.50	-	-	0.1 2/	-	400 2/
Class 2	0.30 (max)	-	24.75	-	-	0.1 2/	-	-
Type VI								
Class 1								
Form A	3.25 3/ (min)	8.25 3/	-	-	-	-	2000	400
Form B	3.25 3/ (min)	10.00 3/	-	-	-	-	2000	400

TABLE I. Analytical requirements (cont'd)

Product	Percent milk fat	Percent MSNF (min)	Percent total solids (min) 4/	Percent titratable acidity 1/ (not to exceed)	Percent egg yolk solids	Protein stability ml sediment /50 ml (not to exceed)	International Units (I.U.) per quart Vit.A (not less than)	Vit.D when specified (not less than)
Type VI (cont'd)								
Class 2								
Form A	0.50 3/ (min) 2.00 (max)	8.25 3/	-	-	-	-	2000	400
Form B	0.50 3/ (min) 2.00 (max)	10.00 3/	-	-	-	-	2000	400
Class 3								
Form A	0.50 3/ (max)	8.25 3/	-	-	-	-	2000	400
Form B	0.50 3/ (max)	10.00 3/	-	-	-	-	2000	400
Type VII								
Class 1	6.00 (min)	10.00 3/	25.50	-	1.00 3/	-	-	-
Class 2	8.00 (min)	12.00 3/	30.00	-	1.50 3/	-	-	-

The Phosphatase activity (by the Scharer Rapid Phosphatase Test) of all types of product specified shall show an activity equivalent of less than 1 mcg. of phenol per ml of product.

1/ Calculated as lactic acid.

2/ On reconstituted basis.

3/ Plant records shall be maintained and made available upon request.

4/ See 4.5.1.1 for tolerance.

3.3.3 Bacteriological requirements. The bacterial limit of the product (all types) shall not exceed a standard plate count of 20,000 per ml (or per gram, as applicable) and a coliform count of 10 per ml (or per gram).

3.4 Age of product. The finished product shall be delivered within 72 hours after date of pasteurization, types IV and V (frozen) products shall be shipped within five days after freezing. Product processed by the Ultra High Pasteurization method and packaged aseptically shall have an extended delivery time of up to 10 days after packaging in accordance with C-M-1730.

3.5 Delivery vehicles and delivery temperature. All vehicles used for transportation of pasteurized milk and milk products shall be constructed and operated so that such products are maintained at 45°F (7°C) or less, and are protected from sun, freezing and contamination. The final product delivery temperature shall be 45°F (7°C) or less.

3.6 Plant qualification. The product shall originate, be processed, packaged, marked and stored under modern sanitary conditions and in accordance with good, recognized commercial practice in establishments which have received prior sanitary approval by the Military Veterinary Services in accordance with the Grade "A" Pasteurized Milk Ordinance or which have a pasteurization plant compliance rating of 90 or more, as certified by a State Milk Sanitation rating officer and listed in the document titled, "Sanitation Compliance and Enforcement Ratings of Interstate Milk Shippers" published quaterly by the US Public Health Service.

3.7 Federal Food, Drug, and Cosmetic Act. All deliveries shall conform in every respect to the provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder and the Fair Packaging and Labeling Act.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government.

4.1.1 Inspection records of the examination and tests shall be complete and made available to the Government as specified in the contract or order.

4.2 Sampling. Samples of finished products covered by this specification and samples of any materials, components, or constituents entering into the preparation of finished products may be taken at any time by the Government inspector to determine compliance with the requirements. Procedures for the collection and holding of samples; the selection and preparation of apparatus, media, and reagents; and the analytical procedures, incubation, reading, and reporting of results shall be in compliance with Standard Methods for the Examination of Dairy Products, and the Official Methods of Analysis of the Association of Official Analytical Chemists. Such samples, as are required, shall be at the expense of the supplier, except that samples taken at destination shall be at the expense of the Government.

4.3 Inspection.

4.3.1 General. Inspections shall be made by the procuring agency or a duly authorized representative at the time and place designated by the procuring agency. It may be at the dairy farm or milk plant, both during and afer processing, or at any point in transit, or no later than at time of delivery at destination.

4.3.2 Plant qualification conditions. The product(s) furnished under this document shall be unacceptable if not produced and stored in plant(s) which currently meet the qualification conditions of 3.6.

4.3.2.1 Milk and milk product component source(s) (military agencies). Examination shall be made to determine that all milk products have been manufactured, packaged and shipped by plants approved as Military sources in accordance with 3.6. Nonconformance to the above referenced requirements shall be cause for rejection of the lot or the involved quantity of finished product made therefrom, as applicable.

4.3.3 Plant inspection. The passing as satisfactory of any detail of processing or materials shall not relieve the supplier of the responsibility for faulty workmanship or materials which may be discovered at any time.

4.3.4 Final inspection. Unless otherwise specified (see 6.1), final inspection shall be made after delivery at the point of destination.

4.3.5 Basis for acceptance by the Government. The supplier is responsible for offering to the Government for acceptance only those items that conform to the contractual requirements. The Government will conduct quality conformance inspections required to determine acceptability of the components and finished product in accordance with inspection procedures set forth in 4.3.6 through 4.5.4.

4.3.6 Component and material inspection. In accordance with 4.1, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase document.

4.3.6.1 Milk and milk products. Records of the results of the examination and testing of the milk product supply shall be available for review by the procuring agency. If upon examination of the records, or actual testing, it is determined that the processing plant has processed milk and milk products not in compliance with the requirements of 3.1, the involved finished product(s) made therefrom shall be rejected.

4.3.6.1.1 Animal sources. Inspection shall be made to determine that cows supplying the milk used in the preparation of this product are in herds designated by the US Department of Agriculture as tuberculosis-free and from herds designated brucellosis-free or in the process of being so designated in accordance with ARS Bulletin 91-79. Determination of herd status regarding tuberculosis and brucellosis shall be made by contacting the nearest office of the Agricultural Research Service of the Animal Health Division. (Location of this office can be ascertained by consulting the publication entitled "Directory of Consumer Protection Programs, Establishments, Circuits and Officials"). Nonconformance to the above requirements shall be cause for rejection of the involved lot of finished product.

4.3.6.2 Examination of non-dairy ingredients. Conformance of non-dairy ingredients to the requirements specified in 3.1.3 through 3.1.8 as concerns identity shall be ascertained by examination of pertinent labels, marking, and invoices. Conformance of egg products to the requirements concerning continuous inspection shall be ascertained by the examination of a USDA Inspection Shield and a USDA Certificate. The presence of the USDA Certificate shall attest that the product(s) was found to be negative for Salmonellae and was in compliance with the microbiological requirements referenced above. In addition, frozen egg products upon receipt, shall be examined organoleptically, for temperature, and for evidence of thawing and freezing. Records of temperature, organoleptic observations and microbiological counts shall be

maintained. Five primary containers shall be examined individually. If less than 5 containers form a lot, all containers shall be sampled. Nonconformance to one or more of the above referenced requirements, reflected by examination of records or actual examination shall be cause for rejection of the component lot or finished product made therefrom.

4.3.6.3 Multi-use and single-service containers. Records of tests for compliance with the bacterial requirements of 5.1.1 shall be examined by the procuring agency or a duly authorized representative. Noncompliance with the above referenced requirements shall be cause for rejection of the lot of the involved quantity of finished product.

4.4 In-process examination.

4.4.1 Equipment, procedures and controls. Unless otherwise specified (see 6.1), examination shall be performed during preprocessing and processing to determine compliance with 3.2 and 5.1.2 requirements pertaining to procedures, controls and packaging. Records shall be maintained for specific procedures of time and temperature covering product included in purchase contract. Noncompliance with the requirements of 3.2 and 5.1.2, as determined by examination of records or actual examination, shall be cause for rejection of the involved finished product.

4.4.2 Formulation. Examination shall be made during formulation of the product to determine compliance with applicable type requirements of the finished product (see 3.2.2 and 3.3). Formulation records covering involved product shall be maintained and made available for review. Noncompliance with the above referenced requirements, as determined by examination of records or by actual examination, shall be cause for rejection of the involved quantity of finished product.

4.4.3 Examination of finished product characteristics. Examination shall be made of the finished product to determine compliance with the pertinent requirements of 3.3.1, as concerns flavor, body, texture, color and other specified physical attributes. Frequency of this examination shall be established by the procuring agency and as specified in the contract or order (see also 4.1.1 and 4.3.1). Noncompliance with the above referenced requirements as determined by examination of records or by actual examination, shall be cause for rejection of the involved quantity of finished product (see also 4.4.7.2).

4.4.4 Testing of the finished product. The finished product shall be tested for the applicable analytical and bacteriological characteristics specified in 3.3.2 and 3.3.3. Test procedures shall be in accordance with 4.5. Frequency of test shall be established by the procuring agency and as specified in the contract or order (see also 4.1.1 and 4.4.7.1). Noncompliance with the above referenced requirements, as determined by examination of records or by actual examination, shall be cause for appropriate administrative action against the supplier.

4.4.5 Examination of the single or multi-service container, bulk single service or multi-service dispenser containers. Examination shall be made of the primary container to determine compliance with the requirements of 5.1, 5.2 and 5.3, as concerns condition, size, construction or fabrication, cleaning, closure, sealing and labeling, as applicable. Plant records shall be maintained for specific procedures of time and temperature controls and to include appropriate labels, invoices or other valid documents to cover identity requirements of 5.1.4, 5.3.1 and 5.3.2. Noncompliance with the aforementioned referenced requirements, as determined by examination of records or by actual examination, shall be cause for rejection of the involved quantity of finished product.

4.4.5.1 Examination of the filled and closed shipping container (weather-resistant fiberboard). Examination of the filled and closed shipping container of weather-resistant fiberboard level B pack, shall be in accordance with the examination criteria of the appendix to PPP-B-636. In addition, the following defects shall be included in the table of examination: Major: (1) Marking: missing, incorrect or illegible. (2) Not protected as specified (see 5.2.1.1). Minor: Paperboard pad not slotted or notched. For level C pack, examination shall be in accordance with the aforementioned specifications except that only the additional defects shall apply.

4.4.5.2 Examination of the filled and closed shipping container (wax-impregnated fiberboard). Examination of the filled and closed shipping container (wax-impregnated fiberboard) level B pack, shall be in accordance with the examination criteria of PPP-B-1163. In addition, the following defects shall be included in the table of examination: Major: (1) Marking: missing, incorrect or illegible. (2) Not protected as specified (see 5.2.1.2). Minor: Paperboard pad not slotted or notched. For level C pack, examination shall be in accordance with the aforementioned specification except that only the additional defects shall apply.

4.4.6 Examination for age and temperature of product at time of delivery. Determination of compliance with requirements of 3.4 and 3.5 shall be ascertained from storage records and code or marked data of packaging. Non-compliance with the aforementioned referenced requirements, or absence of required information, shall be cause for rejection of the lot.

4.4.7 Sampling for verification testing (not applicable to military agencies). Unless otherwise specified (see 6.1), the procuring agency or duly authorized representative, will select verification samples to check supplier compliance with applicable finished product requirements (see 3.3) at not less than the following rate:

Initial or retest period	Sample rate 1/
(If supplier has not had a contract in previous 90 days; or if three or more of the last five samples tested from supplier are unsatisfactory).	One sample from each delivery until three of the last five are satisfactory and then sample at routine testing rate.
(At least three of the last five samples tested from supplier shall be satisfactory).	One sample per month.

1/ The total volume needed for all tests (see 4.5) could be as much as a half-gallon (1.9 liters), if fewer tests are required (see 6.1), a proportionally smaller volume will be needed. Total volume may be contained in any combination of container sizes. A representative aseptically drawn sample should be obtained from containers larger than 1/2 gallon (1.9 liters).

4.4.7.1 (Applicable to both civil and military agencies). Product supplied under the provisions of this specification to more than one receiver from the same production lot by a supplier may, for the purpose of this paragraph, be sampled as one delivery. This does not preclude more intensive sampling by the receiver of product suspected of noncompliance.

4.4.7.2 Noncompliance with one or more requirements shall be considered in future assignment of approval under 4.3.2 and may be evidence of noncompliance as defined in 4.3.3.

4.5 Test methods. Test procedures which differ from those specified herein unless otherwise excepted, may be used by the supplier if they provide a quality equivalent to that specified. If the Government contracting officer determines that such procedures and controls do not provide as a minimum such quality assurance, the supplier will use the procedures set forth herein. In case of dispute as to test results, the procedures specified herein shall govern. Prepare sample for testing in accordance with Compendium of Methods for the Microbiological Examination Foods: Chapter: Egg Products: Section: Frozen Eggs.

4.5.1 Chemical analyses. Unless otherwise specified, chemical analyses, if required by the purchaser (see 6.1), shall be made in accordance with the following methods from the Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), Standard Methods for Examination of Dairy Products.

4.5.1.1 Test methods.

Test	Method
Milk fat	Babcock or Roese-Gottlieb 1/
Milk solids not fat	Total solids (method I) (Subtract percent milk fat from percent total solids)
Total solids	Total solids (method I) 3/
Protein stability (sediment) (for types IV and V products only)	2/
Titratable acidity expressed as lactic acid (for type II products and type VII)	Titratable acidity
Phosphatase activity	Scharer Rapid Method

1/ For civil agencies, recognized Babcock test modifications may be used for homogenized products and sweetened, flavored products. The Gerber test for fat outlined in Standard Methods for the Examination of Dairy Products may be used. In case of dispute, the Roese-Gottlieb test shall be final. For military agencies, the Roese-Gottlieb test shall be the official method.

2/ Protein stability shall be determined as follows: Thaw the milk at or below 40°F (4°C) overnight. Keep the temperature of the milk below 70°F (21°C) during all preparatory and centrifuging steps. Thoroughly mix the completely defrosted milk by pouring back and forth from one container to another four times. Immediately measure 50 ml of milk into a conical centrifuge tube and centrifuge for 5 minutes. A reading of 0.1 ml or less of sediment, when tested prior to shipment, indicates a satisfactory product (see 3.3.2, reference type IV). The centrifuge shall not be a steam turbine or heated Babcock model. It shall be provided with cups to accommodate conical centrifuge tubes and shall be operated at the required r.p.m. as determined from the following information:

Diameter of centifuge head		Required r.p.m.
inches	mm	
10	254	1,047
12	305	950
14	356	909
16	406	848
18	457	800
20	508	759
22	559	724
24	610	695

3/ Tolerance ± 0.5 percent.

The diameter of the head is the distance between the inside bottoms of opposite cups measured through the center of rotation of the centrifuge head while the cups are horizontally extended. The conical centrifuge tubes shall be graduated as follows:

From 0-1.0 ml in 0.1 ml divisions
From 1.0-2.0 ml in 0.2 ml divisions
From 2.0-10.0 ml in 0.5 ml divisions
From 10.0-20.0 ml in 1.0 ml divisions

A mark shall be made at least 0.5 inch (13 mm) from the top of the tube.

4.5.1.2 Residual bacterial count of primary containers for milk and milk products (see 5.1.1). Determination of residual standard plate count of product containers shall be made in accordance with the method described in Standard Methods for the Examination of Dairy Products; Chapter: Microbiological Tests for Equipment, Water and Air; Rinse Solution Method.

4.5.1.3 Vitamin A or D content. When formulation records (see 4.4.2) concerning the quantity of vitamins A or D are to be verified, the quantity of vitamins A or D shall be determined by the official methods as described in AOAC, Chapter: Vitamins and Other Nutrients.

4.5.2 Bacteriological examination. Unless otherwise specified, bacteriological examination if required by the purchaser (see 6.1), shall be made in accordance with the methods described in Standard Methods for the Examination of Dairy Products. The procedures shall be those specified therein for:

(a) Standard plate count at 32°C
(b) Simplified methods for viable counts of raw milk at 32°C
(c) Coliform test with solid media at 32°C

4.5.3 Homogenization efficiency. Homogenization efficiency for all types and classes of product specified in 3.2.3 shall be determined as defined in the Grade "A" Pasteurized Milk Ordinance.

4.5.4 Reconstitution of type V product. Defrost contents of container (if frozen) at room temperature (70°-75°F) (21° to 24°C) or overnight at 40°-45°F (4° to 7°C). Proceed with reconstitution by adding two volumes of water (40°-45°F) (4° to 7°C) to one volume of concentrate. Pour back and forth from one container to another four times.

5. PREPARATION FOR DELIVERY

5.1 Packaging, level C. Milk and milk products shall be delivered in single or multiservice containers as applicable, of the capacity specified in the contract or order, or when specified in sealed milk dispenser containers complying with MIL-STD-175 (see 6.1). Lengths of dispensing tube shall be as specified (see 6.1).

5.1.1 All containers shall be sound and clean and shall afford adequate and proper protection of the contents from contamination. The residual bacterial count of multi-use and single-service containers used for packaging pasteurized milk and milk products tested in accordance with 4.5.1.2 shall not exceed one per ml of capacity or 50 colonies per 8 sq. inches (51.6 cm^2) of product-contact surface in three out of four samples taken at random on a given day, at least once weekly, for each size container.

5.1.2 All containers, except dispenser containers, shall be filled and closed by sanitary mechanical methods. Containers fabricated or formed at the supplier's plant shall be suitably protected from contamination during fabrication, forming and filling. The bulk milk dispenser containers shall be filled in a manner that will protect the top of the container effectively during filling, and after filling shall be immediately closed and sealed.

5.1.3 The pouring lip of all containers closed by cap or cover shall be completely covered to at least its largest diameter by the cap or cover. Paperboard containers which do not form a pouring lip until opened are exempt from this requirement. The dispensing tube of dispenser containers shall be of the length specified by the purchaser and shall be provided with a moisture-tight compartment or covering which is removable after the container is placed in the cabinet and which cannot be removed or returned to its original condition after removal. The discharge opening of the dispensing tube shall be provided with a moisture-tight, single closure or plug.

5.1.4 Five-gallon (18.9 liters) non-returnable cans. When specified (see 6.1), 5 gallons (18.9 liters) of type I product shall be packaged in a size 906 by 1312 or 1314 metal can. The cans shall be constructed with soldered side seams and double seamed, soldered or unsoldered ends. The weight of tin coating and base weight of plate shall be in accordance with the can manufacturer's recommendation. The closure of the can shall be as specified by the ordering agency. Cans shall be cleaned not more than four hours before filling, using water at a temperature of not less than 175°F (79°C) to clean the can interior thoroughly. Cans shall be drained of water thoroughly. Cans shall comply with MIL-STD-175.

5.2 Packing. Packing shall be in accordance with level B or C as specified (see 6.1 and 6.4).

5.2.1 Level B. As specified (see 6.1), the shipping container shall be in accordance with 5.2.1.1 or 5.2.1.2. For dispenser packs, the container shall be slotted or perforated to allow ready access to the dispensing valves. When the flaps of the shipping container are closed with metal stitches, the dispenser pack shall be protected from the stitches by placing a paperboard pad between the stitches and the dispenser pack. The paperboard pad shall also be slotted or notched at the dispensing end to allow ready access to the valve. Quarts shall be packed in the number and arrangment normally used by the supplier.

5.2.1.1 Weather-resistant fiberboard. The shipping container shall be a snug-fitting fiberboard box constructed, closed, and reinforced in accordance with style RSC, V3c, V3s, or V4s of PPP-B-636.

5.2.1.2 Wax-impregnated fiberboard. The shipping container shall be a snug-fitting fiberboard box constructed, closed, and reinforced in accordance with style RSC, class 1, type SWCFI, grade 275 of PPP-B-1163. Closure shall be made with hot melt adhesive in accordance with the appendix of PPP-B-636. The container shall be reinforced with two lengthwise bands and one girthwise band in accordance with the appendix of PPP-B-636.

5.2.1.3 When specified (see 6.1 and 6.5), the shipping containers specified in 5.2.1.1 and 5.2.1.2 shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive, filament reinforced tape in accordance with the appendix of PPP-B-636, except that for V3c, V3s and V4s boxes two reinforcing bands may be used, one lengthwise and one girthwise.

5.2.2 Level C. The shipping container shall be in accordance with Uniform Freight Classification or National Motor Freight Classification, as applicable.

5.3 Labeling and marking. Any commercial labeling and marking complying with the local or state milk ordinances regulations will be acceptable. In addition, all required nutrition information and labeling shall appear on the appropriate panel in accordance with the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder and the Fair Packaging and Labeling Act (see 3.7).

5.3.1 Labeling for refrigerated product. When specified for authorized Department of Defense procurements (see 6.1), single service paperboard containers of 1/2 gallon (1.9 liter) size or less shall be labeled in accordance with 5.3 and figures 1 and 2. The color of all labeling and marking on the carton shall be green, corresponding to chip No. 14110 of FED-STD-595 except that the color shall be in a semi-gloss; or the color of all labeling and marking on the carton shall be the color of the carton, corresponding to chip No. 14110 of FED-STD-595, but the lettering shall be in a semi-gloss with a contrasting background.

5.3.2 When specified, each shipping container (except for type IV product see 5.3.3), shall include precautionary markings imprinted or stenciled in bold capital letters between 1 and 1-1/2 inches (25 and 38 mm) high (all letters being of the same height) on top as follows:

PERISHABLE

KEEP REFRIGERATED (40°F) (4°C) (OR LESS)

DO NOT FREEZE

5.3.3 Labeling for frozen product. In addition to the required marking specified in 5.3 and 5.3.1, special marking shall be applied to shipping containers packed with type IV product. The following information shall be printed or stenciled in bold capital letters between 1 (25 mm) and 1-1/2 (38 mm) inches high (all letters being the same height) on top of the shipping container:

HOLD AT NOT OVER 10°F (-12°C) OR

BELOW 0°F (-18°C)

AVOID FLUCTUATING TEMPERATURES

DO NOT REFREEZE

THIS SIDE UP

6. NOTES

6.1 Ordering data. Purchasers should select the preferred options offered herein and include the following data in procurement documents:

(a) Title, number and date of this specification.
(b) Type, class, and form of product required (see 1.2).
(c) When vitamin D is required (see 1.2.1.2).
(d) When final inspection shall take place if not at the point of destination (see 4.3.4).
(e) When in-process examination is not required by civil agencies (see 4.4.1).
(f) When verification testing may be waived or when fewer tests are required (see 4.4.7).
(g) When chemical analyses are required (see 4.5.1).
(h) When bacteriological analyses are required (see 4.5.2).
(i) Type and capacity of container required (see 5.1).
(j) When sealed milk dispenser containers are required and lengths of dispensing tubes (see 5.1).
(k) When 5-gallon (18.9 liter), non-returnable cans are required (see 5.1.4).

(l) Level of packing required (see 5.2).
(m) Type of container required for level B packing (see 5.2.1).
(n) When packing specified in 5.2.1.3 is required.
(o) When cartons are to be labeled in accordance with figures 1 and 2 (see 5.3.1).
(p) Figure 1:

(1) Designs in figure 1 represent adjacent side panel designs. Opposite side panels shall be designed the same.

(2) Dairy name, company name, or code identification, shall appear on the top or cover of the carton. Code identification only is preferred. The code identification may, at the option of the supplier, be either the State Plant identification number, including the State abbreviation, or a code number mutually acceptable to the supplier and the contracting officer. Local permit numbers will not be used as code identification numbers. The code identification number will be furnished to the contracting officer. This marking shall be positioned in accordance with normal commercial practice similar to the methods employed on commercial milk paperboard cartons.

(3) Top panel design is applicable only to containers that form gabled top panels. The global design with nomenclature "Homogenized Milk" will be required to appear on front and rear panels of top. When space is needed for (1) data specific to the milk processor, such as name and address of processing plant, etc., or (2) data applicable to the carton manufacturer, such as opening instructions, trade marks, etc., or (3) any other information that may be required by local ordinances and statutes, the top rear panel only will be used for that purpose. The global design and words "Homogenized Milk" may be omitted therefrom when space is required for the above purpose.

(4) The wording "Defense Personnel Support Center, Philadelphia, PA" appearing on the side panel design of figure 1 is only an example. The name and location of the procuring activity, if other than Defense Personnel Support Center, will be substituted.

(5) For flat top cartons with separate panel for top covers: When space is needed for (1) data specific to the milk processor, such as name and address of processing plant, etc., or (2) to the carton manufacturer, such as opening instructions, trade marks, etc., or (3) any other information that may be required by local ordinances and statutes, such information shall appear only on the top cover panel of carton. It shall be positioned on the top cover panel in accordance with normal commercial practice for standard flat top paperboard milk carton. Such printing shall not interfere in any way with the side of body panel design.

(6) For one-half pint (235 ml) containers with gabled top construction, the design of figure 1 may be altered as follows: The global design figure may be omitted from all side pannels. All information below "MILK" may be omitted from left pannel. Opposite panel would then contain the "Procured by..." statement. In addition, the "Notice to Patrons..." legend may be modified to conform to space limitations.

6.2 Intended use and technical information.

(a) Type II, class 1: It is recommended that for best whipping performance, product should be held at a temperature of not more than 45°F (7°C), for not less than 24 hours after pasteurization.

(b) Type IV: The two classes of product covered by this specification are intended for use, when authorized, as an alternate for fresh fluid milk. It should be considered as a perishable product. Product should have similar acceptance to fresh homogenized whole milk. It has the additional advantage of an extended shelf life when stored properly. Product is ready for serving by merely thawing. Class 1 product can be expected to have a shelf life of approximately 10 to 12 weeks when stored properly. Both classes should be stored at a constant temperature, since fluctuating temperatures or temperature shocks may result in destablization of the protein, resulting in excessive sedimentation upon thawing. Sediment in itself does not make the product unfit for use. It will still be safe from a public health viewpoint, but acceptance will be decreased by its appearance. See 3.2.4 for temperature requirements.

(c) Type V (fresh or frozen): The two classes of concentrated products are intended for use, when authorized, as alternates for fresh fluid milk and skim milk. Both classes should be considered as perishable and should be given adequate refrigeration or freezing (as applicable) protection as fresh natural products. Product procured as fluid product should not be frozen. When diluted in the ratio of one volume of product plus two volumes of potable cold (40°F-50°F) (4° to 10°C) water, the resultant products are acceptable replacements for fresh pasteurized, homogenized milk (class 1) or fresh pasteurized skimmed milk (class 2), (see also 4.5.4). Class 1 concentrated product makes an excellent alternate for coffee and cereal cream and class 2, reconstituted to original strength as suggested above, may be used as a low calorie beverage milk. (See 3.2.4 for temperature requirements for the frozen concentrate).

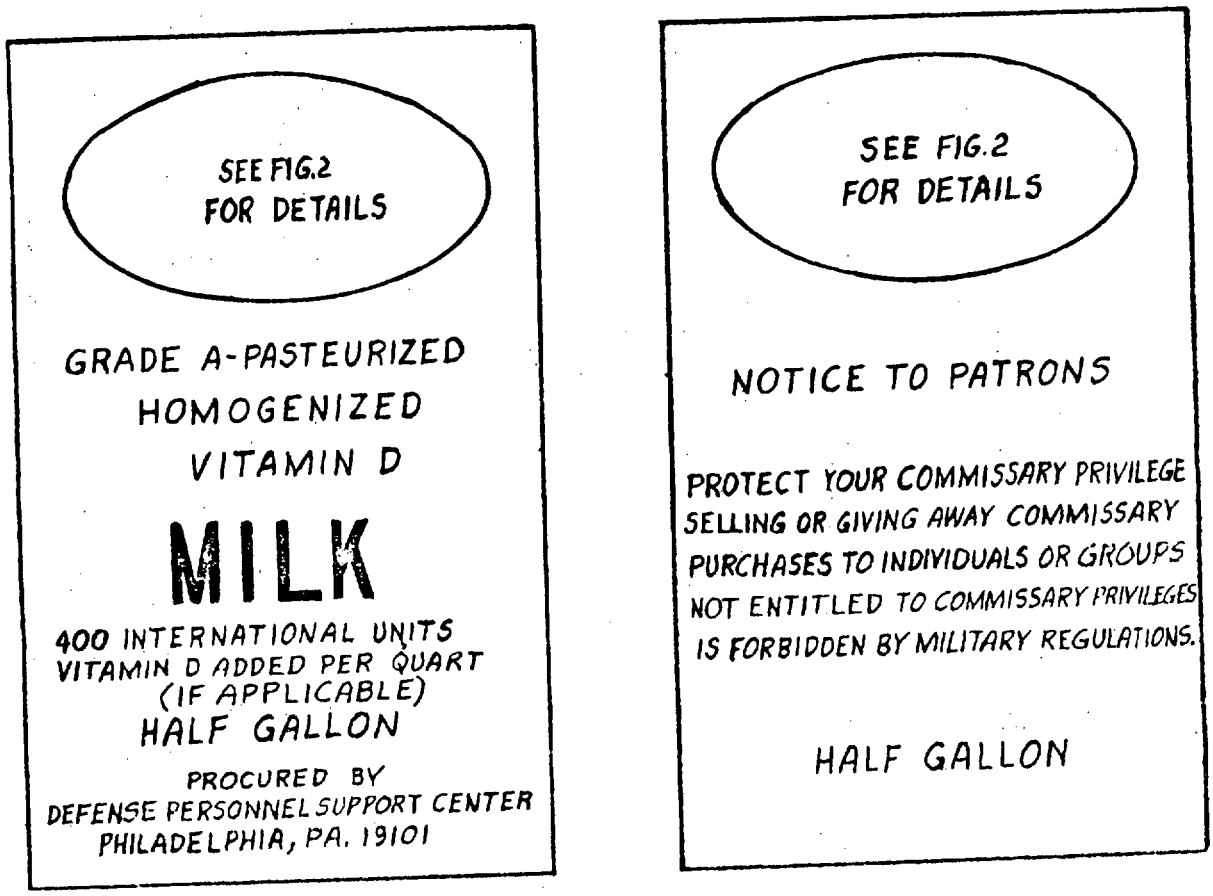
6.3 Destination inspection (for civil agencies). When the finished product has been inspected and passed at point other than destination, the contract should require that the product be inspected at destination for condition and quantity only. Unless otherwise specified, such inspection should be made by the receiving facility. However, inspection for quality may be made by the procuring agency or a duly authorized representative, when deemed necessary to verify contract compliance.

6.4 Military agencies. Based on condtions known or expected to be encountered during shipment, handling, and storage of the specific item being procured, the contracting officer should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.28/AFR 71-6/MCO 4030.14D/DSAR 4145.7.

6.5 Reinforcement specified in 5.2.1.3 is intended for transfer at sea operations or specific overseas operations.

TOP AND SIDE PANEL DESIGN FOR PAPERBOARD CONTAINERS
(SEE ALSO 5.3 FOR REFERENCED NUTRITION LABELING PANEL)

SIDE PANEL DESIGN



TOP PANEL DESIGN

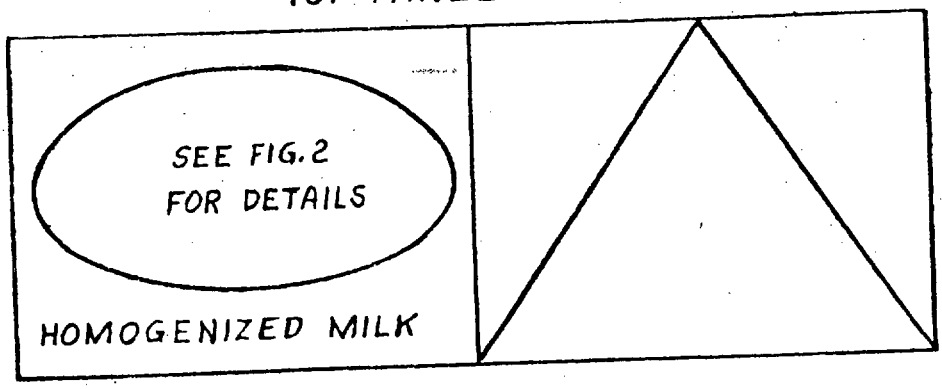


FIGURE 1

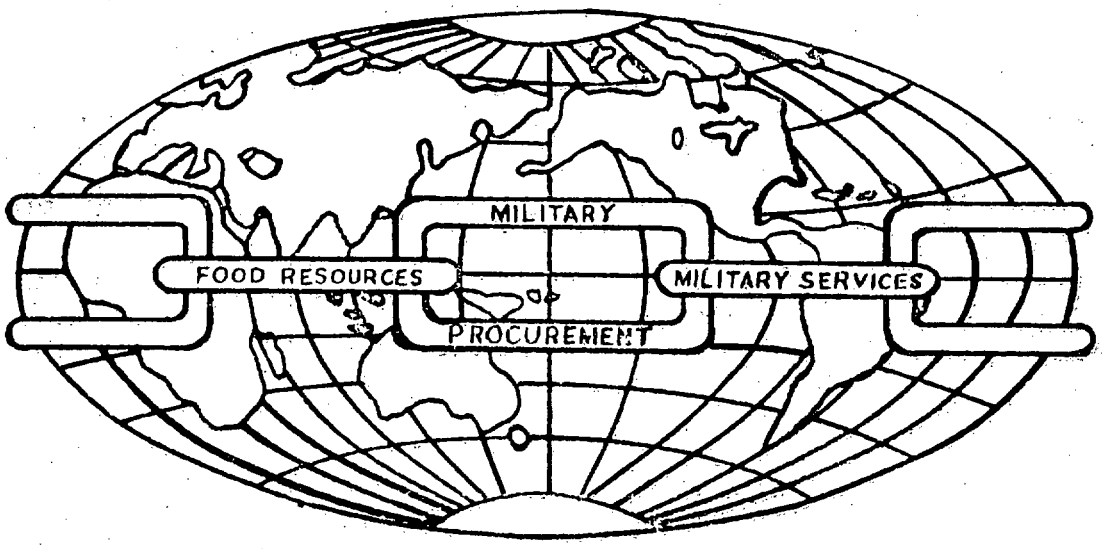


FIGURE 2

Military Custodians:

Army - GL
Navy - SA
Air Force - 45

Review activities:

Army - MD
Navy - MS, MC
DP SS

Civil Agency Coordinating Activities:

GSA-FSS
HEW-FDA, NIH
USDA-AMS
VA-DMS

Preparing activity:

Army - GL

Project No. 8910-0382

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See Section 2 of this specification to obtain extra copies and other documents referenced herein. Price 1.30 cents each.