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SUPERSEDING
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May 28, 1974

FEDERAL SPECIFICATION

MILK AND MILK PRODUCTS, FLUID, FRESH; ULTRA-PASTEURIZED AND ASEPTIC PROCESSED AND PACKAGED (COMMERCIAL STERILITY)

This specification was approved by the Secretary, United States Department of Agriculture, for use by all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements for all listed milk and milk products, processed and packaged in a manner which will provide for an extended shelf life beyond that of the conventionally pasteurized, fresh dairy product counterparts, requiring refrigeration unconditionally (see 3.4). The products described in this specification are grouped under two main categories representing processing under different levels of temperature treatment using presterilized containers (hermetically and non-hermetically sealed) and stored under different temperature conditions.

1.2 Classification. The products covered by this specification shall be of the following groups, types, and classes, as specified (see 5.3).

Group A - Ultra-pasteurized (see footnote 1/, table II)
Group B - Aseptic processed and packaged (see item 5, table II)

Type I - Milk
Type II - Milk, skim and lowfat

Class 1 - Skim milk (less than 0.5 percent milkfat) with added Vitamin A
Class 2 - Skim milk (less than 0.5 percent milkfat) with added Vitamin A and nonfat milk solids
Class 3 - Low fat milk (not less than 0.5 percent milkfat at 0.5 percent fat increments, not to exceed 2.0 percent) with added Vitamin A
Class 4 - Low fat milk (same fat levels as for class 3) with added Vitamin A and nonfat milk solids

Type III - Milk, chocolate flavored
Type IV - Lowfat, chocolate flavored milk (with Vitamin A added (same fat levels as for type II, class 3))

Class 1 - No milk solids added
Class 2 - Nonfat milk solids added

Type V - 3:1 concentrate

Class 1 - Milk concentrate
Class 2 - Skim, milk, concentrate (with Vitamin A added)

Type VI - Cream

Class 1 - Light whipping cream (minimum 30 percent milk fat but less than 36.0 percent milk fat)
Class 2 - Homogenized light cream, table cream, or coffee cream, (minimum 18.0 percent milk fat but less than 30 percent milk fat)
Class 3 - Homogenized half-and-half (minimum 10.5 percent milk fat but less than 18 percent milk fat)
Class 4 - Pasteurized, heavy whipping cream (minimum 36 percent milkfat)

Type VII - Eggnog

Class 1 - Eggnog
Class 2 - Eggnog flavored milk

2. APPLICABLE DOCUMENTS

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

Federal Specifications:

TT-C-495 - Coatings, Exterior, for Tinned Food Cans
PPP-C-96 - Cans, Metal, 28 Gage and Lighter
PPP-B-636 - Boxes, Shipping, Fiberboard
PPP-G-460 - Glass Containers, One Gallon Capacity and Smaller, For Other than Medicinal Products, Packaging and Packing Of
PPP-B-1163 - Box, Corrugated, Fiberboard, High Compression Strength, Weather-Resistant, Wax-Resistant Impregnated

Federal Standards:

FED-STD-123	-	Marking for Shipment (Civil Agencies)
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, U.S. 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, Philadelphia, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Houston, 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 Specification:

MIL-L-1497	-	Labeling of Metal Cans for Subsistence Items

Military Standards:

MIL-STD-105	-	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	-	Marking for Shipment and Storage
MIL-STD-671	-	Sanitary Standards for Milk Evaporating and Drying Plants

(Copies of specifications, standards, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contractong officer.)

LAWS AND REGULATIONS

US Department of Health, Education and Welfare

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

Grade "A" Condensed and Dry Milk Products. Recommendations of the US Public Health Service

Sanitation Compliance and Enforcement Ratings of Interstate Milk Shippers

Thermally Processed Low-Acid Foods Packaged in Hermetically Sealed Containers - Part 128b

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

USDA Visual Aids for Inspection of Metal Containers

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, US Government Printing Office, Washington, DC 20402. When indicated reprints of certain regulations may be obtained from the Federal agency responsibility for issuance thereof.)

US Department of Agriculture

Directory of Meat and Poultry Inspection Program Establishments, Circuits and Officials

United States Standards for Condition of Food Containers

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

Brucellosis Eradication. Recommended Uniform Methods and Rules

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

Animal and Plant Health Inspection Service, US Department of Agriculture Bulletin APHIS, 91-1 Uniform Methods and Rules - Bovine Tuberculosis Eradication

(Application for copies should be addressed to the Animal and Plant Health Inspection Service, Verterinary Service, Federal Center Building, Hyattsville, MD 20782.)

Dairy Plants Surveyed and Approved for USDA Grading Service

United States Standards for Grades of Nonfat Dry Milk (Spray Process)

(Application for copies should be addressed to the US Department of Agriculture, Dairy Division, Agricultural Marketing 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

Compedium of Methods for the Microbiological Examination of Foods

(Copies are published by the American Public Health Association, 1015 18th St., NW, 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, NW, 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.)

3. REQUIREMENTS

3.1 Material.

3.1.1 Non-Dairy. All non-dairy material shall be in excellent condition, clean, wholesome and free from evidence of insect and rodent infestation, foreign and undesirable flavors, colors and extraneous materials. It shall be handled and processed so that the end product shall comply with the finished product requirements of 3.3.

3.1.2 All components. All components listed shall comply with requirements specified in table I.

TABLE I. Components

Item No.	Requirements
1	Fresh raw milk shall be obtained from cows in herds accredited as tuberculosis-free and certified brucellosis-free by the US Department of Agriculture, or herds that have passed an annual tuberculosis test and meet USDA requirements for an individually certified herd, or from cows in herds located in (1) a Modified Accredited Tuberculosis Area; and (2) either (a) a Certified Brucellosis Area, in accordance with Uniform Methods and Rules - Bovine Tuberculosis Eradication or (b) an area in the process of being accredited or certified by the USDA in accordance with USDA APHIS Bulletin 91-1. In addition, the raw milk for Group A products 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 - 1965 Recommendations of the US Public Health Service. For Group B products, the raw milk from individual producer milks shall not exceed a standard plate count (SPC) of 100,000 per ml. prior to comingling with other producer milk and shall not exceed an SPC of 300,000 per ml. after comingling.
2	There shall be no foreign material (such as but not restricted to hair, dirt, insects or insect parts, rodent matter, paper, wood, glass or metal particles in the product).
3	Skim milk, concentrated skim or whole milk, cream or any other equivalent source of milk fat or milk solids shall be used for standardization purposes as applicable, or in the manufacture of the finished product. These products shall be prepared from fresh raw milk meeting the applicable requirements of item 1, above. In addition, these products shall be sweet and clean in flavor. The bacteriological count of the raw milk just prior to processing shall not exceed the maximum limits specified in item 1 of this table. Pasteurized fluid milk product components shall not be over 72 hours old at time of processing.

TABLE I. Components (cont'd)

Item No.	Requirement
4	Nonfat dry milk shall be US Extra Grade Low Heat, produced under the continuous inspection of the US Department of Agriculture, shall be identified by appropriate labeling or marking with the USDA Inspection Shield and shall be, Low Heat Grade A. The raw milk to manufacture this product shall be manufactured in accordance with the Grade A, Condensed and Dry Milk Products. The manufacturing plant shall be approved and listed in the publication Sanitary Compliance and Enforcement Rating of Interstate Milk Shippers. The nonfat dry milk shall be not more than 60 days old at the time of use for military agencies and 120 days old for civil agencies.
5	Nutritive sweetening ingredients in dry or liquid form shall be any one or a combination of cane (or beet) sugar, corn syrup, dextrose or similar sweeteners (lactose, levulose, etc) provided that 75 percent of sweetener solids shall consist of sucrose.
6	Cocoa or chocolate liquor, singly or in combination, shall conform to the Definitions of Standards of the Federal Food and Drug Administration.
7	Plain frozen egg yolk, frozen sugared egg yolk, plain dried egg yolk or dried sugared egg yolk shall have been pasteurized and prepared under the continous inspection of the US Department of Agriculture, 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 Salmonellae negative by the USDA. In addition, these egg products shall show an aerobic count not to exceed 10,000/gm and a combined yeast and mold count not to exceed 10/gm. The temperature of frozen egg products on receipt shall not be more than 10°F nor below 0°F (-12° nor below -18°C) and there shall be no evidence of thawing and refreezing. At the time of use, the egg products shall have no objectionable or abnormal odor. (Use for type VII products, only).

TABLE I. Components (cont'd)

Item No.	Requirements
8	Colloidal stabilizers (vegetable gums or other approved stabilizers), stabilizing salts (disodium phosphate, sodium citrate, polyphosphates or other approved salts) and emulsifying agents shall comply with the provisions of 3.6.
9	Flavoring, spices, color, or commercially prepared eggnog flavoring normally used in the preparation of type VII products shall comply with the provisions of 3.6.
10	Additional flavoring ingredients, used singly or in combination, shall be limited to vanilla (pure or imitation) and to malt flavors (dry, syrup or extract forms) in accordance with FDA Definitions and Standards. (For types III and IV products only.)
11	Salt, if used, shall be white, free flowing, refined sodium chloride (limited to types III, IV and VII products only).
12	Vitamin A shall be an appropriate type complying with 3.6.
13	Vitamin D, when required (see 6.3) shall be an appropriate type complying with 3.6.

3.2 Processing. Processing shall be in accordance with requirements of table II.

TABLE II. Preprocess and processing requirements

Item No.	Requirements
1	All fluid dairy products, raw or pasteurized, unless processed into finished product within 2 hours after receipt shall be cooled immediately to 45°F (7.2°C) or lower and maintained at such temperature until processing is started. All raw product shall be held under conditions which will avoid contamination and quality deterioration and shall be processed as expeditiously as possible. No pasteurized dairy product route returns shall be used as components in the formulation of the finished products.

TABLE II. Preprocess and processing requirements (cont'd)

Item No.	Requirements
2	Any cause for a processing shutdown or delay in continuity of operation of more than 30 minutes shall require prompt refrigeration (below 45°F) (below 7.2°C) and adequate sanitary protection of the partially processed product. Excessive agitation (recirculation pumping) shall be avoided at intermediate temperatures (95° - 125°F) (35° - 51.66°C). Processing shall be resumed within a 24 hour period, provided there has been no perceptible deterioration of organoleptic or physical properties.
3	Any or all of the component parts of commercially recognized ultra-high pasteurizing and aseptic processing and packaging systems, approved by Federal, state or local regulatory agencies, as applicable, shall be employed in the processing of the finished product provided it meets all the requirements of 3.3.
4	The flow process for ultra-pasteurized fluid dairy products (Group A) shall include blending vats (when applicable), product-to-product regenerative heating (and cooling), preheating through heat exchanger, pasteurizing by ultra-high temperatures using steam injection or indirect means, flash (vacuum) cooling, homogenization (as applicable) and cooling prior to aseptic packaging. 1/
5	Requirements for Group B aseptic processed and packaged (commercial sterilization) fluid dairy products shall be in accordance with FDA Part 128b - Thermally Processed Low-Acid Foods Packaged in Hermetically Sealed Containers.
6	All process controls applicable to but not limited to time, temperature, pressures, flow rates, product moisture loss return, automatic flow diversion, shall be maintained and used in accordance with applicable Pasteurized Milk Ordinance, state regulatory requirements and equipment manufacturers recommended instructions.

TABLE II. Preprocess and processing requirements (cont'd)

Item No.	Requirements
7	All types of product shall be homogenized (except type II, classes 1 and 2 and type VI, class 1 and 4 product for which homogenization is optional) and both homogenization pressures (1 or 2 stages) and processing temperatures shall be adapted for the specific product being heat processed and in accordance with recognized good commercial practice. 2/
8	If direct use of steam (injection method) is used, the steam shall be in compliance with the requirements for culinary steam as specified in the Grade "A" Pasteurized Milk Ordinance of the USPHS.
9	Type V product shall be produced by commercially recognized vacuum concentration procedures to a 3:1 concentration. The appropriate dairy product components may be used to standardize the milk fat (as applicable) and the milk solids-not-fat content, as necessary, provided their source is raw milk complying with the requirements of table I, item 1 and that standardization takes place prior to aseptic processing.
10	The finished product shall be cooled in accordance with recognized commercial practice prior to packaging and the finished product, after packaging, shall be stored in accordance with 3.4.

1/ Ultra-pasteurized dairy products shall conform to the processing requirements calling for thermal treatment at or above 280°F (137.7°C) for at least 2 seconds either before or after packaging so as to produce a product which has an extended shelf life under refrigerated conditions.

2/ Good commercial homogenization shall be considered as effective when the milk fat globules are broken up into a size so as to retard substantially the separation of the fat from the milk serum portion and that this separation prevention shall extend during the expected shelf-life of the product when stored at the approximate time and temperature suggested in 6.1.

3.2.1 Formulation and standardization. The applicable components shall be combined in such proportions as to result in a finished product meeting the analytical requirements of table IV (see also table II, item 9). In addition, other pertinent formulation for types III, IV and VII shall be in accordance with recognized good manufacturing practices, or equivalent to the composition suggested in 6.2.

3.3 Finished product. The finished product shall comply with the requirements of table III after incubation of the primary container at 90° to 95°F (32° - 35°C) for 7 days.

TABLE III. Physical characteristics

Item No.	Requirements
	All types
1	Product filled in hermetically sealed cans shall show no swells, leakers, springers or flippers. Product filled in any other type of package (glass, foil lined cartons, plastic) shall show no abnormal condition of the container or closure, e.g. bulging, popping of closure seepage, wicking of paperboard, evidence of delamination, etc.
2	The product shall possess a natural, clean, sweet, nutty, pleasing flavor with no objectionable tastes or odors such as scorched, metallic, high acid, feed, fishy, soapy, rancid, oxidized, stale, tallowy, bitter, etc. A mild, slight heated (cooked) flavor and a slight feed flavor shall be acceptable.
3	There shall be no foreign material which is extraneous to the product such as but not limited to glass, paint or dirt.
4	There shall be no evidence of churned fat particles, cream layer or plug, except as noted in item 13, gelatin (custard-like appearance), granulation (hardened particles of curd) sludge, flocculation (flakes or fragments of coagulated milk protein in suspension), charred particles (dark brown or black particles of burned milk), whey or serum separation, (observable only in glass or see-through containers) can lining material or sealing compound, as applicable. 1/, 2/

TABLE III. Physical characteristics (cont'd)

Item No.	Requirements
5	Except for types III, IV and VII, color shall be a natural white or light cream color.
6	There shall be no coagulation or curdling, lumps, clots, ropiness or gassiness indicative of bacterial spoilage.
	Types III and IV
7	Color shall be a uniform and characteristic chocolate brown, with no evidence of mottling, stratification or greenish or dull grey discoloration.
8	Body shall not acquire a heavy, livery or ropy character, but shall retain smoothness and its normal beverage drinking qualities.
9	Flavor shall be mellow, sweet and free from the harshness, bitter and astringent flavor notes of cocoa or chocolate.
	Type V
10	Before and after reconstituting with a safe, sanitary, quality drinking water, the product shall show no chalkiness or evidence of destabilization or of lactose crystallization. 3/
11	After reconstituting, the resulting milk or skim milk shall have the flavor, appearance, fluidity, color and mouth feel similar to that of fresh pasteurized, homogenized milk or skim milk, as applicable. A slight heated or cooked flavor shall not be considered to be a defect.
12	There shall be no formation of a cream layer upon standing undisturbed (24 hours at 40° - 45°F) (4.4.4° to 7.22°C) or appearance of fat clumps, flakes or particles on the surface of the reconstituted product or on the interior side walls of the container.

TABLE III. Physical characteristics (cont'd)

Item No.	Requirements
	Type VI
	Classes 1 and 4
13	The product may develop a heavy bodied consistency or plug but shall be considered to be defective only if upon gentle mixing or agitation it does not pour as readily and characteristically as fresh, pasteurized whipping cream.
14	The viscosity shall be characteristic of a rich, well-bodied, smooth cream, free from gumminess, and not so thick as to impede flow properties. A thin, watery cream shall not be acceptable.
15	The cream, after whipping in accordance with 4.4.2, shall have obtained an overrun of not less than 100 percent within 4 minutes.
16	The whipped product shall have a natural white or light cream color, a stiff body and smooth texture.
17	When tested for serum separation in accordance with 4.5.2.3, the whipped product shall not exceed 1 ml. of serum drainage.
18	The whipped product shall have a clean, sweet and fresh flavor, comparable to that obtained by whipping fresh, pasteurized cream.
	Classes 2 and 3
19	The product shall be readily miscible when poured into hot coffee and shall show neither "feathering" nor "oiling off" tendencies.
20	The product shall impart a noticeable creamy, characteristic whitening effect when added to hot coffee as normally used for drinking purposes.

TABLE III. Physical characteristics (cont'd)

Item No.	Requirements
	Type VII
	Classes 1 and 2
21	The thoroughly mixed product shall have a color between chip number 23655 and chip number 23793 of FED-STD-595.
22	The product shall have a pleasantly sweet, clean, creamy flavor typical of fresh eggnog, with a mild but distinctly spicy flavor and with a recognizable nutmeg top flavor note. The use of a rum flavor background is optional (see 6.2).
23	Ground spice specks, if present, shall be evenly distributed throughout product. 2/
24	There shall be no objectionable development of viscosity or gumminess (ropiness) in excess of that which is normal for fresh eggnog.

1/ The physical appearance of a slight fat or cream layer shall not be considered a scoreable defect if the product can be mixed with gentle agitation or stirring and the appearance and mouth feel restored to normal.

2/ A soft, flocculent material in the lower portion of the container, or a slight amount of whey or serum separation (not in excess of 1/8 inch (3 mm)), or a trace amount of cocoa or spice particle sediment (types III, IV and VII products, as applicable), all of which can be readily dispersed into a smooth, homogeneous fluid with a slight rotary or mixing action, shall not be considered a defect.

3/ Reconstitute by adding 1 part, by volume, of concentrate to 2 parts, by volume, of cold potable water. Mix well, but gently, without causing excessive foam formation. Cool to 40° - 45°F (4.4° to 7.2°C) before examination.

3.3.1 Analytical requirements. The finished product shall meet the requirements of table IV.

TABLE IV. Analytical requirements 1/

Characteristic	Type I	Type II				Type III	Type IV	
		Class 1	Class 2	Class 3	Class 4		Class 1	Class 2
% Milk fat	3.25 (min)	0.50 (less than)	0.50 (less than)	0.50 to 2.00 (min) (max) in 0.5 increments	0.50 to 2.00 (min) (max) in 0.5 increments	3.25 (min)	0.5 (min) 2.00 (max)	0.5 (min) 2.00 (max)
% Milk solids-not-fat (min)	8.25	8.25	10.00	8.25	10.00	8.25	8.25	10.00
% Total milk solids (min)	-	-	-	-	-	-	-	-
% Egg yolk solids (min)	-	-	-	-	-	-	-	-
I. U. Vitamin A per quart (min) 5/	-	2000	2000	2000	2000	-	2000	2000
I. U. Vitamin D units per quart equivalent of milk (min) when specified, (see 6.3) 5/	400	400	400	400	400	400	400	400

TABLE IV. Analytical requirements 1/ (cont'd)

Characteristic	Type V	Type VI 2/				Type VII 3/	
		Class 1	Class 2	Class 3	Class 4	Class 1	Class 2
% Milk fat	4/	30.00 (min)	18.00 (min)	10.50 (min)	36.00 (min)	6.00 (min)	3.25 (min)
% Milk solids-not-fat (min)	4/	-	-	-	-	12.00	8.75
% Total milk solids (min)	-	-	-	-	-	-	-
% Egg yolk solids (min)	-	-	-	-	-	1.00	0.50
I.U. Vitamin A per quart (min) 5/	4/	-	-	-	-	-	-
I.U. Vitamin D units per quart equivalent of milk (min) when specified, (see 6.3) 5/	4/	-	-	-	-	-	-

1/ Composition of milk fat and milk solids-not-fat for types III, IV and VII shall be ascertained by in-process examination or review of plant formulation records.

2/ See other restrictions under 1.2.

3/ Shall contain a maximum of 0.5% stabilizer, ascertained on basis of in-process examination or by review of plant records (see 3.2.1 and 4.3.2).

4/ On the basis of 3:1 concentration (see table II, item 9), after reconstitution in accordance with table III, footnote 3/, the resulting milk (class 1) shall meet the minimum milk fat and milk solids-not-fat requirements of type I product. When applicable, the resulting skim milk (class 2) shall have a fat content of less than 0.50% and a minimum milk solids-not-fat content of 8.25%. In addition after reconstitution the product shall contain a minimum of 2000 I.U. of Vitamin A and, when applicable, a minimum of 400 I.U. of Vitamin D within the limit of good manufacturing practice.

5/ Maximum unitage shall be within the limits of good manufacturing practice.

3.4 Storage and delivery temperature.

3.4.1 Group A products. Products after packaging shall be held at chilled storage temperature not to exceed 45°F (7.2°C) and the shipping and delivery temperatures shall not exceed 50°F (10°C).

3.4.2 Group B products. Products after packaging may be held under normal nonrefrigerated conditions of storage and distribution. These products shall not be frozen.

3.5 Age of product.

3.5.1 Group A products. The products at time of delivery shall not exceed 14 days after packaging.

3.5.2 Group B products. The products at time of delivery shall not exceed 30 days after packaging.

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

3.7 Plant qualifications and group A products. The products shall originate, be processed, packaged, 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 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 quarterly by the US Public Health Service.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor

may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Plant qualification. 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 3.7.

4.3 Quality conformance inspection. Sampling for inspection shall be in accordance with MIL-STD-105 except where otherwise indicated hereinafter.

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

4.3.1.1 Herd freedom from tuberculosis and brucellosis. 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 and tuberculosis free or in the process of being so designated in accordance with APHIS Bulletin 91 - and Uniform Methods and Rules - Bovine Tuberculosis Eradication. 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 Meat and Poultry Inspection Program Establishments, Circuits and Officials.) Nonconformance to either of the above requirements shall be cause for rejection of the lot.

4.3.1.2 Milk and milk product sources (military agencies). Examination shall be made to determine that all milk and milk products, raw or pasteurized, have been processed, packaged and shipped by establishments having a pasteurization plant rating of 90 or more in the coument titled, "Sanitation Compliance and Enforcement Ratings of Interstate Milk Shippers". Nonconformance to the above requirements shall be cause for rejection of the lot, or the involved quantity of fresh product made therefrom, as applicable.

4.3.1.3 Inspection of raw milk. Inspection and testing of raw milk shall be made to determine compliance with the requirements of table I, item 1, as concerns quality characteristics. Records of all examination and tests shall be maintained and made available for review. Failure to comply with one or more of the specified requirements reflected by actual examination and tests or by examination of records, shall be cause for rejection of the involved lot of finished product.

4.3.1.4 Examination of skim milk, concentrated skim or whole milk, cream or any other equivalent source of milkfat or milk solids (see table I, item 3). Examination of these products when used in formulation or for standardization purposes of the finished product, shall be made to determine compliance with the requirements of table I, item 3, as concerns source, condition and age at time of use. This determination shall be performed by actual examination or by a review of plant records, laboratory reports or other valid documents, as necessary. The sample unit for organoleptic examination shall be an approximate 4-ounce (114 g) sample derived from each of the five primary containers or all containers if less than five form a lot. Failure to comply with one or more of the referenced requirements shall be cause for rejection of the finished product made therefrom.

4.3.1.5 Examination of nonfat dry milk. Nonfat dry milk shall be examined to determine compliance with the requirements of table I, item 4, as concerns grade and age. Such compliance with US Grade shall be evidenced by a USDA grading certificate and marking for age determination displayed on the label. Failure to comply with grading or age requirements or absence of appropriate and legible age marking shall be cause for rejection of the involved lot of finished product.

4.3.1.6 Examination of sweeteners, cocoa, chocolate liquor, colloidal stabilizers, stabilizing salts, eggnog and other flavoring, color, spices, salt Vitamin A and Vitamin D concentrate. Conformance of these non-dairy ingredients to the requirements of the pertinent items of table I as concerns identity (kind and type) shall be determined by examination of appropriate labels, invoices or other valid documents. In addition, each of the ingredients shall be examined organoleptically, as necessary, to determine conformance to 3.1. The sample unit for examination shall be approximately 1 pound (0.45 kg) of each major ingredient used, except that the sample unit for each minor ingredient (i.e. stabilizers, spices, other flavors and Vitamin A and D concentrate) shall be 1 to 2 ounces (28 to 56 g), taken from each of 5 primary containers or all containers if less than 5 form a lot. Nonconformance to one or more identity or condition requirements shall indicat an unacceptable ingredient and use of such shall be cause for rejection of the involved lot of finished product.

4.3.1.7 Examination of frozen and dried egg products. Compliance of these products with the requirements of table I, item 7, as concerns identity shall be ascertained by examination for the presence (on labeling and marking) of USDA Inspection Shield and USDA Certificate as having been laboratory tested for total plate count, yeast and mold count, presence of Salmonella and attesting to meeting all the referenced microbiological requirements. In addition, frozen egg products, upon receipt, shall be examined for temperature condition (i.e. evidence of thawing and refreezing) and odor in accordance with the above referenced requirements. Five primary containers shall be examined individually. If less than 5 containers form a lot, all containers shall be sampled. Use of frozen egg product(s) having one or more defects or failure to meet USDA Shield and Certificate requirements shall be cause for rejection of the involved quantity of finished product made therefrom.

4.3.1.8 Component testing. In addition to quality assurance provisions of referenced documents, components shall be tested as indicated in table V. Results shall be applicable to the lot average. Nonconformance to one or more test requirements shall be cause for rejection of the involved end item.

TABLE V. Component tests (see 4.3.1)

Component	Sample unit	Lot size expressed in	Inspection level	Characteristics	Results reported to	Test ref. & reqmt. para.
Can and lid 1/	1 can and lid	Cans	S-1	Tin plate	Nearest 0.01 lb/ base box (.22 g/m^2)	4.4.4 5.1.1.1
Metal cap 1/	1 metal cap	Caps	S-1	Tin plate	Nearest 0.01 lb/ base box (.22 g/m^2)	4.4.4 5.1.1.1

1/ Testing of can (exterior) and bottle cap coating, when required, and can label shall be in accordance with the applicable subsidiary specifications except that tests shall be performed on the same cans submitted for tin plate testing.

4.3.2 In-process examination. Unless otherwise specified (see 6.3) examination shall be made of component dairy products, as applicable, to determine compliance with the preprocessing requirements of table II, items 1 and 2, as concerns time and temperature limitations, excessive agiation and protection of product. In addition, examination shall be made during processing to determine compliance with applicable procedures, formulation (see table IV, footnotes 1/ and 2/), equipment, heat treatment, homogenization, (when applicable), cooling and storage temperatures and time of the finished product. Records of time, time intervals, temperatures, pressures, vacuum (type V products) and other applicable control data shall be maintained and made available for review. Noncompliance, as determined by actual examination or as reflected by examination of records, or failure to provide adequate sanitary protection to partially processed product shall be cause for rejection of the involved lot of finished product.

4.3.3 End item inspection. Inspection of the end item shall be in accordance with tables VII through IX. Sampling plans and acceptable quality assurance levels (AQLs) shall be as shown in table VI. AQLs shall be expressed in defects per hundred units.

TABLE VI. End item examination criteria

Table	Inspection level	Sample unit	Lot size expressed in	AQLs Major A	Major B	Minor
VII	S-3	1 primary container	Primary containers	-	-	2.5
VIII	S-2	1 can or 1 bottle closure	Cans or bottle closures	-	1.5	4.0
IX	S-2	1 filled and sealed primary container	Primary containers	1/	1.5	-

1/ Finding of one or more major A defects shall be cause for rejection of the lot.

TABLE VII. Examination for volume 1/ 2/

Category	Defect
Minor	
201	Volume, as determined by weight of contents, more than 5 percent under applicable weight (applicable to containers of 1 pint (473 cc) or less). 3/
202	Volume, as determined by weight of contents, more than 2 percent under applicable weight (applicable to containers over 1 pint (473 cc), but not more than 1 gallon (3.78 L)). 3/
203	Volume, as determined by weight of contents, more than 1 percent under applicable weight (applicable to containers over 1 gallon (3.78)). 3/
204	Volume of contents where the product level is more than 1/4 inch (6 mm) below the plane of the sealing surface (in see-through or glass bottles whose inside diameter is 2 inches (51 mm) or less, measured immediately below that plane). 4/
205	Volume of contents where the milk level is more than 1/8 inch (3 mm) below the plane of the sealing surface (in see-through or glass bottles whose inside diameter is greater than 2 inches (51 mm), measured immediately below that plane). 4/

1/ Report weights to the nearest 1/8 ounce (1 g) for defect 201; to the nearest 1/4 ounce (10 g) for defect 202; and to the nearest 1/2 ounce (10 g) for defect 203.

2/ Lot shall be rejected if sample data indicates lot average net weight is less than specified net weight.

3/ When weight determinations in lieu of volume measurements are to be determined, particularly in the case of blind containers such as paperboard containers the following weight standards shall be used in the computations: (Note - if supplier uses other weights per gallon than those listed, these weights shall be based on a number of determinations made in accordance with approved National Bureau of Standards methods using standard calibrated devices):

Type and class	lbs/gal	kg/m^3
I (whole milk)	8.60	1030.3
II (classes 1 and 2)	8.60	1030.3
II (classes 3 and 4)	8.70	1042.3
III milk, choc. flavored	8.80	1052.2
IV class 1	8.80	1052.2
IV class 2	8.90	1066.2
V class 1	9.15	1096.2
V class 2	9.20	1102.2
VI class 1	8.41	1007.5
VI class 2	8.48	1015.9
VI class 3	8.55	1022.3
VI class 4	8.39	1005.1
VII class 1	9.25	1108.2
VII class 2	9.20	1102.2

4/ The fill point (volume) shall be ascertained only on see-through or glass containers at an adjusted product temperature of 40-45°F (4.4 to 7.2°C). Measurements shall be reported to the nearest 1/16 inch (2 mm). The lot shall be rejected if sample data indicate the lot average volume is less than specified volume.

TABLE VIII. Examination for interior coating (applicable to cans and metal bottle closures) 1/

Category		Defect
Major B	Minor	
151		Interior rusted.
152		Enamel missing.
153		Blistered or softened areas which can be peeled by fingertip abrasion.
	201	Blistered or softened areas which cannot be peeled by fingertip abrasion.
154		Scratches through enamel. 2/
155		Denuded areas (other than scratches).

1/ Examination of metal cap shall include exterior coating as well.

2/ Scratches resulting from normal fabrication and handling or from opening the sealed can for inspection shall not be considered a defect.

TABLE IX. Examination for product characteristics 1/ 2/

Category		Defect
Major A	Major B	
101		Evidence of swells, leakers, springers or flippers (for cans), or container or closure shows abnormal appearance, e.g., excessive bulging, popping of closure, product seepage, wicking of paperboard, evidence of delamination, etc., (other type containers).
102		Presence of objectional tastes, e.g., scorched, metallic, high acid, feed, rancid, oxidized, stale, etc.
103		Presence of foreign material extraneous to the product, e.g., dirt, insect parts, rodent material, fiber, hair, wood, paint, glass, metal particles, etc.
104		Presence of lumps, clots, ropiness, curdling, coagulation, or gassiness characteristic of bacterial spoilage.

TABLE IX. Examination for product characteristics 1/ 2/ (cont'd)

Category		Defect
Major A	Major B	
	151	Not a natural, clean, sweet, nutty, pleasing flavor (see also specific type, below). 3/
		All types
	152	Evidence of churned fat particles, cream layer or plug (except as noted in item 13, table III), gelation, granulation, sludge, flocculation, charred particles, whey or serum separation, sediment (see restriction table III, item 4), can lining material or sealing compound, as applicable, (see also footnotes 1/ and 2/ table III). 4/
		Types I, II, V and VI
	153	Not a white or light cream color or presence of a caramelized color.
		Types III and IV
	154	Color not as specified.
	155	Heavy, viscous or ropy body.
	156	Flavor not as specified, or product has a harsh, bitter or astringent flavor character.
		Type V
	157	Evidence of sandy texture (lactose crystallization), destablization, or chalkiness (before or after reconstitution). 5/
	158	After reconstitution, flavor, appearance, fluidity, color and mouth feel not like fresh, pasteurized, homogenized milk or skim milk, as applicable. 3/

TABLE IX. Examination for product characteristics 1/ 2/ (cont'd)

Category		Defect
Major A	Major B	Type V
	159	Fat clumps, flakes, or particles on the surface of the reconstituted product or on the interior side walls of the container, or formation of a cream layer upon standing undisturbed for 24 hours at 40°-45°F (4.4° to 7.2°C).
		Type VI
	160	Product shows cream plug or is very viscous so as to impede normal flow when pouring, or product thin or watery (class 1 and 4).
	161	After whipping (see 4.4.2) flavor, color, body and texture not as specified (class 1 and 4). 6/
	162	Product not readily miscible in hot coffee or shows evidence of "feathering" or "oiling off" (class 2 and 3).
	163	Lacks creamy characteristic whitening capability in hot coffee (class 2 and 3).
		Type VII
	164	Color not as specified.
	165	Flavor character not as specified.
	166	Ground spice specks not evenly distributed.
	167	Excess viscosity or gumminess over that of a normal fresh product.

1/ Prior to examination the sample units shall be incubated at 90 to 95°F (32 - 35°C) for 7 days.

2/ Finding of one or more Major A defects shall be cause for rejection of the lot.

3/ A slight cooked or feed flavor shall not be scored as a defect.

4/ Examination for sediment and serum separation (skim layer) shall be applicable only to product in glass or see-through containers. The presence of more than five tiny flecks of sediment or more than 1/8 inch (3 mm) serum separation shall be scored as a defect. (Report measurement to the nearest 1/16 inch (1 mm)).

5/ Reconstitute by adding 1 part by volume of concentrate to two parts by volume of cold potable water. Mix well but gently without causing excessive foam formation. Cool to 40° to 45°F (4° to 7°C) before examination.

6/ At the time of testing for the specified overrun (see 4.4.2), examination of the whipped product shall be made for body, texture and color.

4.3.4 Examination of can labeling. Examination of can labeling shall be in accordance with the examination criteria of MIL-L-1497.

4.3.5 Examination of primary containers. Examination of primary containers for external condition shall be in accordance with applicable requirements of the United States Standards for Condition of Food Containers.

4.3.6 Examination of storage and delivery temperatures and age of product. Determination of compliance with the requirements of 3.4 and 3.5 (see also table II, item 10) shall be ascertained from manufacturing, storage and delivery records (age and temperature) or code or marked date of packaging. All pertinent records, including daily temperature logs, shall be maintained and appropriately identified to permit required examinations. Failure to comply with the above referenced requirements, reflected by actual examination or by records shall be cause for rejection of the involved lot of finished product.

4.3.7 End item testing. The product shall be tested to determine compliance with the applicable analytical requirements of table IV (see 6.3, footnote 1/) with the whipping ability (type VI, class 1 and 4) and serum separation (type VI, class 1 and 4) requirements of table III, items 15 and 17. Procedures for testing shall be in accordance with 4.4. The sample unit for testing shall be an approximate 1-quart composite derived from the number of primary containers indicated by inspection level S-1. The composite shall be made up just prior to testing. Lot size shall be expressed in terms of primary containers. Each result shall be reported to the same decimal place or unit specified for the pertinent requirement except, when applicable, Vitamin D shall be reported to the nearest 50 International units, the whipping test to the nearest 5 percent overrun and serum separation to the nearest 0.5 ml. Nonconformance to one or more test requirements shall be cause for rejection of the involved lot of finished product.

4.3.8 Packaging inspection.

4.3.8.1 Examination of shipping containers. Examination of shipping containers shall be in accordance with the examination criteria contained in the appendix to PPP-B-636 or PPP-B-1163. In addition, the following defects shall be included in the table of examination: Major: NSN, nomenclature, contract number and date of pack missing, illegible or incorrect; Minor: Other required marking, missing, illegible or incorrect. Arrangement not as specified. For level B pack, when applicable, reinforcement of the shipping container with other than pressure sensitive adhesive filament-reinforced tape or nonmetallic strapping shall not be acceptable. When packing for level C is required to be in accordance with 5.2.1.2, examination shall be in accordance with the aforementioned specification, except that only the defects for marking and arrangement shall apply.

4.3.8.2 Examination of shipping containers for glass bottles (levels B or C packing). Examination of shipping containers for glass bottles packing shall be in accordance with the examination criteria of PPP-G-460, except that for level C packing, only the defects for workmanship, content and marking shall apply.

4.4 Methods of inspection.

4.4.1 Chemical analyses. Chemical analyses of the finished product shall be made in accordance with the following methods from Official Methods of Analysis of the Association of Official Analytical Chemists (see exception below):

Test	Source	Method
Milk Fat		
Types I, II, VI Types III, IV, V and VII	2/ Chapter: Dairy Products (see applicable sections for milk and cream)	Babcock Roese-Gottlieb
Total solids	Same as above	Method I (Official final action)
Milk solids not fat 1/		
Vitamin A	Chapter: Vitamin and Other Nutrients	Vitamin A in Margarine (Official Final Action)

Test	Source	Method
Vitamin D	Chapter: Vitamins and Other Nutrients	Vitamin D (Official Final Action)

1/ Determine by subtracting percent milk fat from total solids.

2/ The Babcock test for homogenized milk and skim milk (types I and II) shall be in accordance with Standard Methods for Examination of Dairy Products. If the sulfuric acid used has a specific gravity range of 1.82 - 1.83, approximately 20 ml of sulfuric acid shall be used in a given test. The Babcock test for Creams (type VI) shall be in accordance with AOAC procedures. In case of dispute as to fat content, the results of analysis by the AOAC Roese Goftleib method shall govern.

4.4.2 Whipping test. The whipping test shall be conducted as follows:

(1) Cream temperature shall be adjusted to from 40° to 45°F (4.4° to 7.2°C), 24 hours before whipping.

(2) A Hobart model 4C, or equivalent, mixer equipped with all purpose beater shall be used.

(3) One pint of cream at 40° to 45°F (4.4° to 7.2°C) shall be added to a clean, chilled (40°F or lower) (7°C or lower), Pyrex or stainless steel bowl.

(4) Start whipping at dial setting No. 2 to avoid splashing. Shift to speed No. 6. When a noticeable volume increase has been obtained, finish whipping at speed No. 10 until standing peaks are formed.

(5) Flush fill a straight sided 8 ounce (227 g) rimless, stainless steel or aluminum cup with cream. Weigh and record results. Clean and dry and refill flush fill with whipped cream being careful to eliminate air pockets or voids formed while filling the cup. Level excess whipped cream with a spatula. Weigh and record results. A minimum overrun of 100 percent shall be obtained within 4 minutes whipping time when calculated by the following formula. The results obtained shall represent the average of two separate determinations.

$$\% \text{ overrun} = \frac{\text{Wt. of cream - wt. of same volume whipped cream}}{\text{Wt. of same volume of whipped cream}} \times 100$$

If 100 percent overrun is attained in less than 4 minutes, test is complete, regardless of the appearance of the whip. If 100 percent overrun has not been reached, return the whipped samples to the bowl, whip at high speed up to a total of 4 minutes and repeat as above.

4.4.3 Serum separation test. Whip product using procedure specified in 4.4.2, but whip to a point where the standard peaks are stiff and relatively dry. Using a spatula, transfer the contents of the cup onto a 6-inch (152 mm) square of No. 26 B&S gauge 16 mesh woven wire. Place the screen containing the cream in a single heap, over an appropriate size funnel in a ring stand and collect any drainage of serum in a graduate cylinder graduated in 0.5 ml. increments. After two hours exposure to room temperature (70° to 80°F) (21° to 26.66°C) measure the volume of collected serum. (See table III, item 17).

4.4.4 Tin coating weight. Tin coating weight shall be tested in accordance with PPP-C-96.

5. PACKAGING

5.1 Preservation. The product shall be filled and sealed under aseptic conditions in accordance with level B or C, as specified (see 6.3). The container, lids and closures shall be sterilized immediately prior to the filling and sealing operation and shall be capable of resisting the effects of the residual heat sterilization. All cans shall be hermetically sealed.

5.1.1 Level B. The product shall be packaged in accordance with 5.1.1.1 or 5.1.1.2, as specified (see 6.3).

5.1.1.1 Metal cans. The product shall be filled into cans, the size and net contents of which shall be in accordance with table X, as specified (see 6.3). Cans shall be round, open-top style, with soldered seam and compound-lined, double seamed ends. When specified (see 6.3), the can shall have a flat center panel not less than 1-1/2 inches (38 mm) in diameter on each end of the can. Cans shall be made throughout from not less than 0.25-pound per base (5.1 g/m^2) box electrolytic tin plate (see 4.4.4) and shall be coated overall inside with an enamel furnished by the can manufacturer in accordance with best commercial practice for the product. Cans shall be coated outside with a coating conforming to type I or, when specified (see 6.3), type III of TT-C-495.

TABLE X. Can sizes, net contents, number per case, and arrangement in shipping container

Can size	Net contents (fl. oz.)	Number per case	Arrangement in shipping container		
			Length	Width	Depth
202 by 314	6 (177.4 cc)	48	6	4	2
202 by 314	6 (177.4 cc)	72	6	4	3
207 x 314	8 (237 cc)	48	6	4	2
208 by 313	8 (237 cc)	48	6	4	2
208 x 313	8 (237 cc)	72	6	4	3
211 x 304	8 (237 cc)	48	6	4	2
211 by 306	8 (237 cc)	48	6	4	2
307 by 710	32 (946 cc)	12	4	3	1
400 by 508	32 (946 cc)	24	4	3	2
400 by 509 or 510	32 (946 cc)	24	4	3	2
404 by 414	32 (946 cc)	24	4	3	2
603 by 700	96 (2839 cc)	6	3	2	1

5.1.1.2 Glass bottles. The product shall be aseptically packaged in 1-quart (946 cc) glass bottles normally used in dairy plants. The closure shall be press-on or tamperproof metal cap made from not less than commercial 0.25-pound per base box electrolytic tin plate (see 4.4.4), and shall be coated overall inside with an enamel suitable for the product.

5.1.2 Level C. Commercial aseptic packaging in metal cans, glass bottles, foil-lined paperboard cartons or plastic containers shall be acceptable. Cans with or without commercial exterior coating will be acceptable.

5.2 Packing. The product shall be packed in accordance with 5.2.1, 5.2.2, or 5.2.3, as applicable.

5.2.1 Cans. The filled cans, arranged as specified in table X, shall be packed in accordance with level B or C, as specified (see 6.3).

5.2.1.1 Level B. The 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. Style RSC boxes may be top-opening or end-opening. Alternatively, the shipping container shall be a snug-fitting, wax-impregnated, fiberboard box constructed in accordance with style RSC, class I, 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 wax-impregnated box shall be reinforced with two lengthwise bands and one girthwise bands in accordance with the appendix of PPP-B-636.

5.2.1.2 Level C. The filled cans shall be packed into a snug-fitting fiberboard box, constructed and closed in accordance with style RSC, type CF or SF, class domestic, of PPP-B-636. Style RSC boxes may be top-opening or end-opening. Alternatively, the shipping container shall be a snug-fitting, wax-impregnated, fiberboard box constructed in accordance with style RSC, class I, type SWCFI, grade 200, of PPP-B-1163. Closure shall be made with hot melt adhesive in accordance with the appendix of PPP-B-636. The wax-impregnated box shall be reinforced with two lengthwise bands, and one girthwise band in accordance with the appendix of PPP-B-636.

5.2.1.2.1 When specified (see 6.5), the shipping container shall be in accordance with Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.

5.2.2 Glass bottles (levels B and C). The product in glass bottles shall be packed in accordance with the level B or C requirements of PPP-G-460, as specified (see 6.3).

5.2.3 Foil-lined paperboard cartons and plastic containers, level C. The shipping container for foil-lined paperboard cartons and plastic containers shall be in accordance with Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.

5.3 Labeling and marking.

5.3.1 Civil agencies.

5.3.1.1 Unit containers. Any commercial labeling and additional labeling as specified in 5.3.3 that complies with the Federal Food, Drug, and Cosmetic Act, and Regulations promulgated thereunder is acceptable.

5.3.1.2 Shipping containers. Shipping containers shall be marked in accordance with the requirements of FED-STD-123 and such other information as specified by the individual agencies.

5.3.2 Military agencies. The cans or bottles of product shall be labeled in accordance with MIL-L-1497 or PPP-G-460.

5.3.2.1 Foil-lined paperboard cartons and plastic containers. The shipping container for foil-lined paperboard cartons and plastic containers shall be marked in accordance with 5.2.3.

5.3.3 Additional labeling information. Additional required labeling information for the specified types of product shall be as follows:

Types I, II, III and IV

Date of processing (date, month, year).
Chill product in container before serving.

Type V

(As applicable):

Class 1 - Milk Concentrate
Date of processing (day, month, year).
I.U. Vitamin D units (when added).
I.U. Vitamin A (when added).

Main use - For beverage milk, dilute with 2 volumes of cold water and chill before using.

Type V (cont'd)

Other uses - For cereal cream or coffee, dilute with 1 volume of cold water.
For coffee, optionally, use undiluted.
For cooking or baking, dilute with 1-2 volumes of water, or as needed.

Class 2 - Skim Milk, Concentrate
Date of processing (day, month, year).

Main use - For beverage skim milk, dilute with 2 volumes of cold water and chill before using.

Special dietary or for general kitchen use - Dilute with cold water in any proportion as needed.

Type VI - Cream

Date of processing (day, month, year).

Class of product:

Class 1 - Light Whipping Cream with manufacturer's instructions for whipping, or,

Class 2 - Light Table Cream, Homogenized
or,

Class 3 - Half and Half, Homogenized

Class 4 - Heavy Whipping Cream with manufacturer's instructions for whipping

Type VII - Eggnog

Class 1 - Eggnog

Class 2 - Eggnog flavored milk
Date of processing (day, month, year).
Chill product in container before serving.

5.3.4 Shipping containers. Shipping containers shall be marked in accordance with MIL-STD-129, and as specified in 5.3.4.2.

5.3.4.1 When specified (see 6.3), commercial markings plus any special markings specified in the contract or order, and as specified in 5.3.4.2, will be acceptable.

5.3.4.2 Precautionary marking. In addition to the marking specified in 5.3.4 and 5.3.4.1, the following precautionary marking shall appear on top of the shipping container:

PERISHABLE

KEEP REFRIGERATED - 45°F OR BELOW

DO NOT FREEZE

_____ Date of pack (date, month, year). 1/

1/ Lines 1 thru 4 are applicable to Group A only and lines 3 and 4 are applicable to Group B.

6. NOTES

6.1 Intended use and technical information. The two major groups of product described in this specification and represented by the various types of fresh, fluid dairy products are intended as substitutes for their fresh counterparts, processed by conventional pasteurization methods, especially when the latter are not readily available or when extended shelf life is needed. Ultra-pasteurized dairy products (Group A) are subject to a heat treatment utilizing temperatures higher than are required for pasteurization and while they are not considered "sterile", the additional factors of a special protective package (hermetical or nonhermetical sealed) and aseptic filling methods have made it possible to increase shelf stability. Ultra-pasteurized dairy products require refrigerated handling and storage to permit both safety (wholesomeness) and prolonged shelf life. Group B dairy products packaged only in hermetical sealed containers (also see item 5, table II) are considered by definition "commercially sterile" wherein such food is free of viable forms of microorganisms having public health significance as well as being free of any other microorganisms of nonhealth significance capable of reproducing in the food under normal, nonrefrigerated conditions of storage and distribution. The products should be protected from freezing which will destroy the natural emulsion and result in a separation. The following tabulation presents the probable storage capabilities of the various dairy product types when processed in accordance with the requirements of table II:

	Refrigerated Storage (below 45°F)	Non-Refrigerated Storage (limited to Group B items)
	(from time of packaging)	
Hermetically sealed package	12 weeks	5 mos. 1/
Nonhermetically sealed package	6 weeks	-

1/ When refrigerated the self life may extend up to one year.

6.2 Formulation. Suggested formulation for type III, IV and VII are given herewith, within the limitations of the analytical requirements (see table IV), to serve as guidelines for the production of desirable end items. Any suitable combination of specified components, using appropriate processing equipment and procedures and meeting all pertinent finished product requirements will be acceptable.

Type III - Chocolate Flavored Milk (per cwt)

	Pounds	Fat	SNF	Total Solids
Milk 1/	92.00			
Milkfat	-	3.22	-	3.22
MSNF	-	-	7.91	7.91
Cocoa (Chocolate flavor) 2/	1.30			
Cocoa fat	-	0.13	-	0.13
Cocoa solids	-	-	1.17	1.17
Sweetener 3/	6.50	-	6.50	6.50
Stabilizer	0.20	-	0.20	0.20
	100.00	3.35	15.78	19.13

% Total Fat - 3.35
% Total Solids - 19.13

1/ Raw milk testing 3.5% milkfat and 8.6% solids-not-fat.

2/ Cocoa testing 10.0% cocoa fat.

3/ Equivalent to 100% sucrose sweetening.

Type IV - Lowfat Chocolate Flavored Milk (per cwt)

		Class 1			Class 2		
	Pounds	% Composition			% Composition		
		Fat	SNF	Total Solids	Fat	SNF	Total Solids
Standardized Milk 1/	92.00						
Milk Fat		1.97			1.97		
Milk solids-not-fat			7.91			9.20	
				9.88			11.17
Cocoa (Chocolate flavor) 2/	1.30						
Cocoa fat		0.13			0.13		
Cocoa solids-not-fat			1.17			1.17	
				1.30			1.30
Sweetener 3/	6.50			6.50			6.50
Stabilizer	0.20			0.20			0.20
	100.00	2.10	9.08	17.88	2.10	10.37	19.17

1/ Standardized milk testing 2.14% milk fat and 8.6% solids-not-fat for class 2 product, milk of same fat content, but standardized to contain at least 10% milk solids-not-fat.

2/ Cocoa testing 10.00% cocoa fat.

3/ Equivalent to 100% sucrose sweetening.

Type VII - Eggnog

Percent composition:

	Class 1	Class 2
Milk fat	6.00	3.25
Milk solids-not-fat	12.00	8.75
Sweetener 1/	8.00	8.00
Egg yolk solids	1.00	0.50
Stabilizer	0.50	0.50
Eggnog flavoring and coloring	2/	2/

1/ Equivalent to 100% sucrose.

2/ Eggnog flavoring may be any suitable commercial product with or without coloring and used in accordance with manufacturers' instructions. Although the top flavor character shall be that of nutmeg (see table III, item 22) the product may contain rum, vanilla, cinnamon, mixed spices and salt if used in accordance with recognized good manufacturing practices.

6.3 Ordering data. Purchasers should select the preferred option permitted herein and include the following information in procurement documents:

(a) Title, number and date of this specification.
(b) Group, type and class of product required (see 1.2).
(c) When chilled storage temperature of 45°F (7.2°C) or below is required (see 3.4).
(d) When added vitamin D is required (see table I, item 13). 1/
(e) When in-process examination is not required (see 4.3.2).
(f) Levels and type of packaging and packing required (see 5.1 and 5.2).
(g) When type III can coating in accordance with TT-C-495 is required.
(h) When cans with flat center panel areas on each end are required (see 5.1.1.1). (These cans are to be used when the product is intended for Air Force in-flight feeding.)
(i) Can size required (see 5.1.1.1 and table X).
(j) When packing specified in 5.2.1.1.1 and 5.2.1.2.1 is required (see 6.4).
(k) When commercial marking of shipping containers will be acceptable (see 5.3.4.1).

(1) When the shipping container shall be in accordance with Uniform Freight Classification or National Motor Freight Classification (see 5.2.1.2.1).

1/ If any assay for vitamin A and D made on the initial production lot complies with the specification requirement, thereafter, for every 4 month period, the supplier need only furnish a Certificate of Compliance, on subsequent contracts to satisfy the vitamin A and D requirement. The Certification of Compliance accepted in lieu of the vitamin A and D assay, is subject to verification by the Government of each contract or when special testing is deemed necessary. If the initial production lot does not comply with the vitamin A and D requirement, testing of subsequent lots shall be continued until two successive lots are in compliance with the requirements.

6.4 Packing specified in 5.2.1.1.1 is intended for transfer at sea operations or for specific overseas operations.

6.5 Packing specified in 5.2.1.2.1 is intended for direct shipment from the supply source to the first receiving activity for immediate use within CONUS.

6.6 Destination inspection (for civil agencies only). 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 at 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.

6.7 Award of contract for the product specified in this document will be limited to plants known to maintain the required sanitary conditions of 3.7 (see also 4.2).

6.8 (For military agencies). Based on conditions 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 pack in accordance with the criteria established in AR 700-15, NAVSUPINST 4030.28, AFR 71-6, MCO 4030.14D, DSAR 4145.7.

6.9 Supersession data. This specification includes the requirements of Military Specification MIL-M-3722D, dated 31 December 1969; MIL-F-35004D, dated 27 March 1967; MIL-M-43494, dated 30 March 1967; MIL-C-6883, dated 6 August 1969. It also includes the requirements of type II of Limited Production Purchase Description, LP/P DES 31-69, dated 10 July 1969.

6.10 Metric equivalents. Metric equivalents, indicated in parentheses throughout this document, are based on practices, conversion factors, and symbols specified in ASTM E 380 Standard for Metric Practice, and are for information only. In each instance, the value stated in US customary units shall be controlling.

Custodians:

Army - GL
Navy - SA
Air Force - 50

Review activities:

Army - MD
Navy - MC, MS
DP - SS

Preparing activity:

Army - GL

Civil Agency Coordinating Activities:

AMS - USDA
FSS - GSA

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Orders for this publication are to be placed with the 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.