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C-C-281F
July 12, 1974
SUPERSEDING
Fed. Spec. C-C-281E
July 30, 1970

FEDERAL SPECIFICATION

CHEESE, COTTAGE

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 Scope. This specification covers the requirements for cottage cheese for use by all Federal agencies.

1.2 Classification.

1.2.1 Groups, types, classes, grades and styles. Cottage cheese covered by this specification shall be of the following groups, types, classes, grades and styles as specified (see 6.2).

Group I - Normal shelf life (14 days or over - see 3.3.4)
Group II - Extended shelf life (21 days or over - see 3.2.8 and 3.3.4)
Subgroup (a) Cultured method - (see 3.2.1)
Subgroup (b) Direct acidification method - (see 3.2.2)
Type I - Dry curd (less than 0.5 percent milkfat)
Type II - Lowfat (not less than 0.5 percent and not more than 2 percent milkfat)
Type III - Cottage cheese (not less than 4 percent milkfat)
Type IV - With fruits, nuts, chives or other vegetables (see 3.2.6)
Class 1 - Made with type I product
Class 2 - Made with type II product
Class 3 - Made with type III product
Grade A - (See 3.1.1.2.1)
Grade B - (See 3.1.1.2.2)
Style a - Small curd (see 3.3.2)
Style b - Large curd

FSC 8910

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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 Standard:

FED-STD-123 - Marking for Domestic Shipment (Civil agencies)

(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 Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-668 - Sanitary Standards for Food 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 contracting officer.)

LAWS AND REGULATIONS

US Department of Health, Education and Welfare

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

Definitions and Standards of Identity for Cottage Cheese

Sanitation Compliance and Enforcement Ratings of Interstate Milk Shippers

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

Grade A Pasteurized Milk Ordinance-1965 Recommendations of the US Public Health Service

Grade A Condensed and Dry Milk Products-1971 Edition, A Recommended Sanitation Ordinance for Condensed and Dry Milk Products Used in Grade A Pasteurized Milk Products

(Single copies may be obtained from the Division of Food Sanitation, Food and Drug Administration, US Department of Health, Education and Welfare, Washington, DC 20204.)

US Department of Agriculture

Directory of Meat and Poultry Inspection Program Establishments, and Officials

Brucellosis Eradication - Recommended Uniform Methods and Rules, Animal and Plant Health Inspection Service, US Department of Agriculture, Bulletin ARS 91-79

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

General Specifications for Dairy Plants Approved for USDA Inspection and Grading Service

US Standards for Grades on Nonfat Dry Milk (Spray Process)

Dairy Plants Surveyed and Approved for USDA Grading Service

Methods of Laboratory Analysis for Dry Whole Milk, Nonfat Dry Milk, Dry Buttermilk and Dry Whey

(Application for copies should be addressed to the Dairy Division, Agricultural Marketing Service, US Department of Agriculture, 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 on invitation for bids or request for proposal shall apply:

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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, Box 540, Benjamin Franklin Station, Washington, DC 20044.)

American Public Health Association

Standard Methods for the Examination of Dairy Products

Standard Methods for the Examination of Water and Waste Water

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

National Motor Freight Traffic Association, Inc., Agent

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Tariff Order Section, 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 Material.

3.1.1 Milk. The raw milk used in the preparation of cottage cheese shall be drawn 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-free area; or
(b) Modified certified brucellosis area; or
(3) An area in the process of being accredited or certified by the USDA in accordance with USDA Bulletin 91-79.

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The milk shall be practically free from colostrum, shall be fresh, wholesome and normal in appearance and odor and shall be subject to inspection by the procuring agency or duly authorized representative.

3.1.1.1 Source of raw milk.

3.1.1.1.1 Grade A cottage cheese. The raw milk shall conform to the Grade A Pasteurized Milk Ordinance, 1965 Recommendations of the US Public Health Service for Grade A.

3.1.1.1.2 Grade B cottage cheese. The raw milk shall conform to the requirements for No. 1 milk (Military agencies only) and for No. 2 milk (Civil agencies only) as set forth in the General Specifications for Dairy Plants Approved for USDA Inspection and Grading Service for Grade B product.

3.1.1.2 Milk products. Milk products commonly used in the manufacture of cottage cheese shall be produced from milk complying with 3.1.1.1.1 (Grade A product) or 3.1.1.1.2 (Grade B product), as applicable. At the time of use these products shall impart a pleasing characteristic flavor to the finished product.

3.1.1.2.1 Nonfat dry milk (Grade A). Nonfat dry milk, at time of use (if applicable) shall conform to the requirements of the Grade A Condensed and Dry Milk Products - 1971 Edition, A Recommended Sanitation Ordinance for Condensed and Dry Milk Products Used in Grade A Pasteurized Milk Products.

3.1.1.2.2 Nonfat dry milk (Grade B). Nonfat dry milk at time of use (if applicable) shall conform to the US Extra Grade requirements and the US low heat classification (not less than 6.0 mg undenatured whey protein nitrogen per gram of nonfat dry milk) as defined in the US Standards for Grades of Nonfat Dry Milk (Spray Process).

3.1.2 Non-milk ingredients.

3.1.2.1 Optional non-milk ingredients other than fruits, nuts or vegetables. Optional non-milk ingredients other than water and the ingredients listed in 3.1.2.2 used in the manufacture of cottage cheese, curd, low fat cottage cheese, and cottage cheese shall be those ingredients and used at the levels permitted by the Cottage Cheese Definitions and Standards under the Federal Food, Drug, and Cosmetic Act.

3.1.2.2 Fruits, nuts, or vegetables. Fruits, nuts, or vegetables used in type IV product shall be in a form commonly used and shall be sound and wholesome. Vegetables may be soaked for approximately 15 minutes in 25 to 50 ppm chlorine solution, drained, and used soon thereafter consistent with good commercial practice.

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3.1.2.3 Water. The water used in the preparation of products specified herein shall be of a safe sanitary quality and approved by State or Federal authorities. It may be subjected to suitable chemical or heat treatment and shall not impart undesirable odors of flavors to the finished product.

3.2 Group I - preparation and processing.

3.2.1 Cottage cheese Subgroup (a) cultured method. All incoming raw milks whether fluid or concentrated unless processed within two hours, shall be cooled immediately and held at 50°F or lower or 450°F or below for incoming grade A milk products until start of processing. The cottage cheese shall be prepared from milk and cream products which have been pasteurized as specified in 3.2.7 and in accordance with good manufacturing practices. A starter culture consisting of harmless lactic acid producing bacteria in a medium of milk, skim milk, or other suitable milk derivative shall be used in the preparation of cottage cheese or cultured cottage cheese creaming mixture manufactured under this specification. The curd shall be thoroughly washed to removed residual whey. Immediately after manufacture the cheese shall be cooled to a temperature not to exceed 45°F and shall be held at 45°F or lower. Salt may be added for seasoning the final product. The cheese shall be of the large or small curd style (see 3.3.2), as required by the purchaser in the invitation for bids (see 1.2.1).

3.2.2 Cottage cheese Subgroup (b) direct acidification method. The product shall be processed as in 3.2.1 except that in manufacture of the curd, coagulants and flavor components other than microbial cultures shall be used. Such optional ingredients as used in the direct acidification method shall be in accordance with the Federal Standards of Identity. The curd formed by this procedure shall be the equivalent of that produced under 3.2.1.

3.2.3 Type I. Type I cottage cheese (dry curd) shall be prepared from sweet skim milk, concentrated skim milk, nonfat dry milk or a combination of these. Concentrated skim milk or nonfat dry milk may be used in combination with water or skim milk, in whole or in part, to produce a product with a milkfat content of less than 0.5 percent.

3.2.4 Type II. Type II, lowfat cottage cheese, shall be made from type I dry curd cottage cheese blended with pasteurized cream or a pasteuirzed mixture of cream with milk, skim milk, concentrated milk or skim milk, dried milk, nonfat dry milk or any combination thereof. A quantity of cream or creaming mixture, cultured or uncultured, as specified (see 6.2), shall be used to produce a product with a milkfat content of not less than 0.5 percent and not more than 2 percent.

3.2.5 Type III. Type III cottage cheese shall be made from type I dry curd cottage cheese blended with pasteurized cream or a pasteurized mixture of cream with milk, skim milk, concentrated milk or skim milk, dried milk, nonfat dry milk or any combination thereof. A quantity of cream of creaming mixture, cultured or uncultured, as specified (see 6.2), shall be used to produce a product with a milkfat content of not less than 4.0 percent be weight of the finished product.

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3.2.6 Type IV. Type IV cottage cheese shall be made from types I, II or III (see 6.2) product to which fruits, nuts, chives or other vegetables are added to produce a desirable and characteristic flavor. After the addition of flavor material, the extent of milkfat dilution below 4.0 percent when using type III product as a base shall be limited to not more than the ratio of flavoring agent to type III product.

3.2.7 Pasteurization. If the interval between pasteurization or reconstitution and the time of setting exceeds two hours, all milk or milk products shall be cooled promptly to a temperature of 45°F or colder and held at a temperature not in excess of 45°F until time of setting.

3.2.7.1 Skim milk. Skim milk shall have been pasteurized prior to time of setting by subjecting every particle of milk to (1) a temperature of not less than 145°F for not less than 30 minutes; (2) a temperature of not less than 161°F for not less than 15 seconds; or (3) any other combination of temperature and time treatments equivalent thereto in microbial destruction approved by the local or State regulatory authorities. Previously pastuerized nonfat dry milk need not be pasteurized provided it is reconstituted within a period of two hours prior to time of setting. Skim milk separated from pasteurized whole milk need not be repasteurized provided it is separated in equipment from which all trace of raw milk from previous operations has been removed from all parts or equipment coming in direct contact with the pasteurized product.

3.2.7.2 Cream or creaming mixture. The cream or mixture of cream with milk, skim milk, concentrated milk or skim milk, dried milk, nonfat dry milk or any combination thereof shall have been held at a temperature of not less than 150°F for at least 30 minutes, or at not less than 166°F for not less than 15 seconds, or by any other combination of temperature and time treatments equivalent thereto in microbial destruction approved by the local or State regulatory authorities.

3.2.8 Group II - extended shelf life product (for Military agencies). Unless otherwise specified, when delivery time is extended to six days from date of packaging (see 3.4.1 and 6.2) the product shall conform to the requirements of 3.2.1 through 3.2.7. In addition, the manufacture of this product shall be limited to those suppliers whose facilities and procedures meet the following supplementary requirements.

(a) Processing water shall be free of off flavors particularly of the chlorophenol type. The pH of the water used in washing curd shall be in the range of pH 4.2-6.5. The water shall be essentially sterile when 1 ml is plated on Standard Methods Agar at 20°C and incubated for 48 hours.

(b) The cheese making room shall be equipped with an air filtration system capable of filtering out particles of 0.5 micron or less in size. In addition a positive air pressure shall be maintained, equivalent to not less than 0.5 inch of water. Procedures for limiting personnel movement into the cheese making area shall be in effect. Alternatively, cottage cheese shall be manufactured by using closed process designed equipment which will insure microbial exclusion.

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(c) No less than 2 wash waters or equivalent shall be used to wash the curd after substantial removal of the whey. The temperature of the curd before creaming shall not exceed 40°F.

(d) Salt to be used shall be incorporated into the creaming mixture either before or after pasteurization and the mixture shall be cooled and held at at temperature not in excess of 35°F. The creaming mixture shall be adjusted to a pH of 5.7-6.3 before use.

(e) After creaming and packaging, product temperature shall not exceed 38°F. at any time prior to delivery.

(f) Holdover of curd shall be limited to 24 hours for next day's creaming and packaging.

(g) Random samples representing each lot and type of product shall be retained for keeping quality purposes. Keeping quality examination shall be initiated at the approximate time of delivery.

3.3 Finished product.

3.3.1 Flavor.

3.3.1.1 Types I, II and III. The cottage cheese shall possess a pleasing and desirable flavor similar to fresh skim milk (if plain) or cream (if creame and may possess the delicate flavor and aroma of a good lactic starter. The product may possess to a slight degree feed, acid, flat or salty flavor but shall be free from bitter, utensil, fruity, fermented, yeasty, or other objectionable flavors.

3.3.1.2 Type IV. In addition to 3.3.1.1, the cottage cheese shall possess the desirable characteristic flavor of the added fruits, nuts, chives, or other vegetables.

3.3.2 Curd styles. Small curd shall be less than 3/8 inch in size cut with 3/8 inch or 1/4 inch curd knives. Large curd shall be over 3/8 inch in size cut with curd knives sized 1/2 inch or over.

3.3.2.1 Body and texture. The curd particles shall be firm, properly cooked and reasonable uniform in size, but sufficiently tender to permit proper adsorption and absorption of the creaming mixture. The body and texture shall be smooth and velvety and shall not be mealy, grainy, or crumbly, pasty or sticky, mushy, weak, or watery, rubbery or over firm, slimy, or possess any other objectionable characteristics of body and texture.

3.3.3 Color and appearance. The finished cottage cheese, creamed or plain curd, shall have an attractive natural color and appearance with curd particles of reasonably uniform size. The creamed cottage cheese shall be uniformly mixed with the creaming mixture properly absorbed or adhering to the curd. The added fruits, nuts, chives, or vegetables in type IV product shall be distributed uniformly throughout the product.

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3.3.4 Bacteriological, analytical and keeping quality requirements:

Fat and Moisture:		Fat (%)	Moisture (%)
Type I	less than	0.5	
	not more than		80.0
Type II	not less than	0.5	
	not more than	2.0	
	not more than		82.5
Type III	not less than	4.0	
	not more than		80.0
Type IV	1/	No standard	

All types:	
pH (not higher than)	5.2
Phosphatase activity	2/
Coliform estimate (not more than) 3/	10 per gram
Yeast and mold; combined counts (not more than) 3/	10 per gram
Psychrophiles (not more than) 3/	100 per gram
Keeping quality 4/ (see also 4.4.1.2)	
Group I - Cottage cheese:	
(at 40°-45°F; not less than)	14 days
or	
(at 70° to 75°F; not less than)	24 hours
Group II - Cottage cheese:	
(at 40°-45°F; not less than)	21 days (see 3.2.8)

1/ By calculation of formula used (see 3.2.6).

2/ The cottage cheese shall be unacceptable if the phosphatase activity equals or exceeds 1 micorgram of phenol per ml of cheese extract (equals 0.25 gram cheese).

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3/ Nonconforming if 3 out of the last 5 samples tested exceed requirements or if any one sample exceeds 20 per gram (coliform and yeast and mold). All microbiological testing is to commence within 72 hours for military agencies and within 24 hours for civil agencies after packaging in the final consumer package. All samples shall be held below 40°F until tested but shall not be frozen.

4/ After storage the samples shall possess a flavor, body, texture, color and appearance equivalent to cottage cheese of similar type and style and meeting the condition requirements of 3.3. Keeping quality (in days) shall be the basis for expressing the date of expiration of the individual packages (see 5.3.2.1).

3.4 Delivery time, group I. The finished product prepared by the cultured method shall be delivered within 96 hours after date of packaging and finished product prepared by the direct acidification method (non-cultured) shall be delivered within 120 hours after date of packaging.

3.4.1 Extended delivery time, group II. The cottage cheese shall be delivered within 6 days after date of packaging provided the product has been produced to meet the requirements of 3.2.8 and 3.3.4 as applicable.

3.5 Delivery temperature. The internal temperature of the products covered by this specification at the time of delivery shall not exceed 50°F except as specified in 3.2.8(e).

3.6 Plant qualification. The receiving stations, processing plant, premises, equipment, personnel practices and sanitary practices used in the production and transportation of these items shall meet the applicable facilities and sanitary requirements specified in the General Specifications for Dairy Plants Approved for USDA Inspection and Grading Service (Crade B), Interstate Milk Shippers List (Grade A), or MIL-STD-668. The product shall be prepared and processed with minimum delay between the various steps in production.

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

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. 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.

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4.2 Sampling. 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.

4.2.1 For Military agencies. Sampling for inspection shall be in accordance with MIL-STD-105 except as indicated herein.

4.3 Inspection.

4.3.1 Plant qualification conditions. The product furnished under this document shall be unacceptable if not produced and stored in plants which currently meet the qualification conditions of 3.6.

4.3.1.1 Listing, or eligibiltiy for listing of plants in the current bulletin; Dairy Plants Surveyed and Approved for USDA Grading Service, or Directory of Sanitarily Approved Food Establishments for Armed Forces Procurements, or plants which have a pasteurization plant milk sanitation rating of 90 or more and are listed in the document titled "Sanitation Compliance and Enforcement Ratings of Interstate Milk Shippers", may be accepted as evidence of compliance with the qualification conditions of 3.6.

4.3.2 USDA Grade certificate for nonfat dry milk. The contractor shall furnish a USDA grading certificate as evidence of compliance with the US Extra Grade and low heat classification requirements of 3.1.1.2.2.

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

4.3.3.1 Milk. Records of the results of the bacterial examination of the milk supply shall be available for review by the procuring agency. If upon actual examination of the records it is determined that the processing plant has processed raw milk not in compliance with the requirements of 3.1.1, the finished product shall be rejected.

4.3.3.1.1 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. 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 may be ascertained by consulting the publication titled "Directory of Meat and Poultry Inspection Program Establishments and Officials". Nonconformance to either of the above requirements shall be cause for rejection of the lot.

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4.3.3.2 Milk products. In the event milk products are obtained from sources other than the plant where the end product is manufactured, representative samples of the milk products used in the manufacture of the end product shall be tested for conformance to the bacterial requirement of 3.1.1.1 or 3.1.1.2 as applicable. The standard plate count shall be conducted in accordance with the procedure outlined in the latest edition of Standard Methods for the Examination of Dairy Products, Chapter Agar Plate Method. The sample for testing for analytical requirements shall be a one-pound sample. At least two determinations shall be made and reported for each sample.

4.3.3.2.1 Sources other than the plant where the milk product is manufactured must be approved sources (see 4.3.1). Evidence of compliance of these places may be verified from listings in the bulletins listed in 4.3.1.1.

4.3.3.3 Optional non-milk ingredients. Acceptance of these ingredients for compliance with the requirements of 3.1.2 shall be based on the examination of the applicable labels, invoices, and similar documents. This examination shall be made on each new lot of the component received and not less than once during each contract. A statement of compliance shall be provided by the supplier that the optional non-milk ingredients used conform to the requirements of 3.1.2.

4.3.3.3.1 Fruits, nuts, or vegetables. In addition to the identity and condition provisions of 4.3.3.3, each container of product shall be examined for compliance with the requirements of 3.1.2.2 before the contents of the container are blended into the creamed cottage cheese. Failure to comply with above-referenced requirements shall be cause for rejection of the finished product made therefrom.

4.3.3.4 Water. Semi-annual laboratory test reports by the plant, the State, or the municipality in which the plant is located, or the Federal Government indicating that the water supply is of a safe sanitary quality, shall be available for review by the Government inspector and may be accepted as evidence of compliance with 3.1.2.3.

4.3.4 In-process examination.

4.3.4.1 Equipment, procedures and controls. Examination shall be made during processing to determine compliance with the requirements of 3.2.1, 3.2.7, 3.2.8, and 5.1 as concerns processing, heat treatments, addition of flavors, creaming mixture, packaging and other pertinent procedures. Records shall be maintained for specific operating procedures including pH, time, and temperature controls for each lot of product included in the purchase contract. Noncompliance with one or more of the above referenced requirements, reflected by actual examination or by examination of records, shall be cause for rejection of the involved finished product.

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4.3.5 Finished product inspection.

4.3.5.1 Lot size (Civil agencies). An inspection lot for examination or testing shall be one type or style. The size shall be expressed in terms of primary containers. More than one production code, that is, product produced in one day, may be included in the lot if the number of cases from each code represented in the lot is known and the production dates are all within 96 hours (cultured method) or 120 hours (acidified method).

4.3.5.2 Examination of end item for the net weight, packaging, and product characteristics shall be in accordance with the following procedures. The appropriate minimum sample size designated in table IA as applicable shall be formed by drawing one sample unit per shipping case selected proportionately from the production codes represented in the inspection lot. The applicable acceptance (AC) and rejection (RE) numbers are given in table IA. Classification of defects found during the examination shall be in accordance with tables II, III, and IV. In table IB the Acceptable Quality Levels (AQL's) shall be expressed as percent defective for table II and as defects per hundred units (DHU's) for tables III and IV.

TABLE IA. Plans for end-item examination (for Civil agencies only)

Number of primary containers in the inspection lot	Minimum sample size	Major		(Major & Minor) Total	
		Ac	Re	Ac	Re
2 - 50	2	1/	1/	0	1
51 - 500	8	0	1	1	2
501 and over	13	0	1	2	3

1/ Lot with one or more defects shall be rejected.

TABLE IB. End-item examination criteria (for Military agencies only)

Table	Inspection level	Sample unit	Lot size expressed in	AQLs Major	AQLs Minor	AQLs Total
II	S-3	1 filled and sealed container	Primary containers	--	2.5	--
III	I	1 filled and sealed container	Primary containers	2.5	--	6.5
IV	S-2	Contents of 1 container	Primary containers	1.5	--	6.5

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TABLE II. Examination for net weight 1/

Category	Defect
Minor	
201	Weight of contents more than five percent under specified weight (applicable to containers of one pound or less). (Report results to nearest 1/8 ounce).
202	Weight of contents more than two percent under specified weight (applicable to containers of over one pound but not more than 10 pounds). (Report results to nearest 1/4 ounce).

1/ Lot shall be rejected if the average net weight of the sample is less than specified net weight.

TABLE III. Examination of primary container

Category		Defect
Major	Minor	
101		Open seam or seal; or tear or hole through container.
102		Improperly closed or cover missing exposing product to contamination.
103		Inner liner or bag, when applicable, broken, torn, missing or otherwise exposing product.
104		Interior of container, liner or bag unclean, as applicable.
105		Nomenclature missing, incorrect or illegible.
	201	Objectionable odor.
	202	Exterior unclean.
	203	Labeling information other than nomenclature missing, incorrect, or illegible.

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TABLE IV. Examination of product characteristic 1/ 2/

Category		Defect
Major	Minor	
101		Flavor not as specified.
102		Body and texture not as specified.
103		Color and appearance not as specified.
	201	Curd particles not as specified.
	202	Product not processed as specified (cultured or acidified).

1/ Presence of foreign material, e.g., dirt, insect(s) insect part(s), wood, paint, glass, metal, etc., shall be cause for rejection of the lot.

2/ Presence of foreign flavor or odor, e.g., bitter, fruity (other than good natural flavor of added fruits, when applicable), yeasty, sour, putrid, disinfectant, etc., shall be cause for rejection of the lot.

4.3.5.3 Examination for age and internal temperature product at time of shipment. The product shall be examined to determine compliance with 3.4 and 3.5. Noncompliance with above requirements as indicated by temperature measuring device, marked date of pack, or examination of code or records, shall be cause for rejection of the lot.

4.3.5.3.1 For Military agencies. Examination shall be made at time of delivery to determine conformance with the requirements in 3.4 and 3.5. This determination shall be ascertained by examination of temperature measuring device, marked date of packaging or examination of code date or records pertaining thereto. Lot size shall be expressed in filled and closed shipping container. Sample size shall be the number of containers indicated by inspection level S-1 of MIL-STD-105. The AQL, expressed as percent defective, shall be 2.5. One determination shall be made on each sample unit.

4.3.5.4 Examination of marking (Military only). Shipping containers shall be examined to determine compliance with the marking requirements in 5.3.2. The sample unit shall be one marked shipping container and the sample size shall be the number of shipping containers indicated by inspection level S-4. The AQL, expressed as percent defective, shall be 1.5. A defect shall be: Major: marking missing, incomplete or illegible.

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4.3.6 Sampling procedure and acceptance criteria for testing of finished product (for Civil agencies). The finished product shall be tested for moisture, milkfat, pH, phosphatase activity, coliform, yeast and mold, psychrophiles and keeping quality in accordance with the requirements of 3.3.4, as applicable. Procedures for testing shall be in accordance with 4.4. The sample size for testing shall be the primary container, when two pounds net weight or less, of each inspection lot selected for testing. In the case of packages over two pounds net weight, a minimum one-pound sample shall be withdrawn aseptically, making certain that both surface and subsurface contents are included in the sample. Nonconformance to one or more test requirements of each lot shall be cause for administrative action.

4.3.6.1 Sampling procedure and acceptance criteria for testing of finished product (for Military agencies). The finished product shall be tested for milkfat, moisture, pH, phosphatase, keeping quality (contractor records of keeping quality tests shall be made available for review in lieu of testing by the Government) and for microbiological counts as specified in 3.3.4. Procedures for testing shall be in accordance with 4.4. The sample for testing shall be a one-pound composite derived from the number of primary containers indicated by inspection level S-2, for fat, moisture, pH, and phosphatase determination. Lot size shall be expressed in terms of primary containers. For microbiological determinations, test requirements shall be on a unit basis and the sample size shall be the number of primary containers indicated by inspection level S-1. When the filled and sealed primary container is in excess of two-pound capacity, an eight-ounce sample shall be extracted, aseptically, from each of the sample units and placed into a sterile container. The composite sample for lot average requirements may be drawn, in part, from the unit samples used for microbiological requirements. Samples shall be composited in the laboratory. The sample unit for the keeping quality tests shall be in accordance with 4.4.1.2. Results shall be reported as follows: Milkfat and moisture, to the nearest 0.1 percent; pH, to the nearest 0.1 unit; phosphatase, pass or fail and microbiological results in accordance with Standard Methods for the Examination of Dairy Products. Nonconformance to one or more test requirements or failure to meet the keeping quality tests (see footnote 3/ to 3.3.4), by a review of records, shall be cause for considering the product unacceptable.

4.4 Test methods. Examination and test procedures which differ from those specified herein, unless otherwise excepted, may be used by the supplier if they provide a quality assurance 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 examination or test results, the procedures specified herein will govern.

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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 and the pH of the processing water, see 3.2.8(a) shall be ascertained in accordance with the method from Standard Methods for the Examination of Water and Waste Water, or in accordance with methods that give equivalent results:

Test	Chapter and section	Method
Moisture	Chapter: Dairy Products Section: Cheese	Method I, Official
Milkfat	Chapter: Dairy Products Section: Cheese	Fat
Hydrogen-Ion concentration (pH) finished product	Chapter: Beverages, Malt Beverages and Brewing Materials	Electrometic Method*
	Section: Beer	
Hydrogen-Ion concentration, (pH) water	Part I: Physical and Chemical Examination of Natural and Treated Waters in the Absence of Gross Pollution. pH Value	Glass electrode

*In determining the pH of the finished product, the curd and cream shall be prepared into a homogenous mixture before the pH test is made.

4.4.1.1 Phosphatase activity. Phosphatase shall be determined utilizing the Scharer-Rapid Phosphatase Test method specified in the American Public Health Association publication 'Standard Methods for the Examination of Dairy Products; Chapter: Phosphatase Methods to Determine Pasteurization.'

4.4.1.2 Keeping quality test. At least one sample of packaged cottage cheese (or 16 ounces of the product taken aseptically from bulk units) representing each vat lot, shall be taken at time of delivery and held at 40°-45°F for 14 to 21 days as applicable or at 70°F to 75°F for 24 hours, undisturbed, as applicable. At the end of the specified holding period, the product shall be examined for the keeping quality requirements of 3.3.4.

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4.4.2 Microbiological analyses. Microbiological requirements for the finished product and for processing water (see 3.2.8(a)), shall be determined in accordance with the following methods described in Standard Methods for the Examination of Dairy Products and in Standard Methods for the Examination of Water and Waste Water, respectively.

Test	Chapter	Procedure
Coliform estimate	Microbiological Methods for Cheese and other Cultured Products	Test for Coliforms 1/
Yeast and Mold	Same	Yeast and Mold Count 1/2/
Psychrophiles	Same	Psychrophilic Bacterial Count 1/
Standard Plate Count at 20°C	Part VII: Routine Bacteriologic Examination of Water to Determine Its Sanitary Quality	Standard Plate Count

1/ See 3.3.4, footnote 1/ for exception to testing time.

2/ The procedure outlined in referenced publications shall be followed except that instead of distributing 10 ml of the inoculum evenly among three plates, transfer 1 ml into each of 5 Petri plates and pour the plates with the potato glucose agar as specified. Multiply the total numbers of colonies on the five plates by 2 to obtain the count per gram of cheese. The accuracy may be increased by plating 1 ml into each of 10 petri plates in which case the total number of colonies will represent the count per gram of cheese.

5. PREPARATION FOR DELIVERY

5.1 Packaging, level C. The finished cottage cheese shall be packaged in the final consumer package within 24 hours after manufacture, in accordance with the temperature limitations of 3.5 or 3.2.8(e) as applicable. The product, in the net weight specified (see 6.2) shall be packaged to afford adequate protection against deterioration and damage during shipment from the supply source to the first receiving activity. The following tolerances from net weight will be allowed in any one container provided the average net weight of the containers inspected in accordance with table II is not less than the net weight specified: minus 5 percent (applicable to containers of one pound or less) or minus 2 percent (applicable to containers of more than one pound but not more than 10 pounds).

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No material shall be used in the packaging of the product which will impart an odor or flavor to the cottage cheese. Interior containers shall be sound and clean and shall adequately protect the contents from contamination. The supplier's commercial practice may be used if it fulfills these requirements.

5.2 Packing, level C. The shipping container 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 Individual packages. Any labeling that complies with the provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder will be acceptable.

5.3.1.2 Shipping containers. Shipping containers shall be marked in accordance with FED-STD-123 and in addition shall bear the following:

Produced from Pasteurized Milk Products.

5.3.2 Military agencies.

5.3.2.1 Individual packages. Labeling in accordance with 5.3.1.1 and, in addition, the expiration date shall appear on each individual package. For cheese produced in conformance to the requirements of 3.4.1, all individual packages shall be imprinted with a 21 day pick-up date from date of packaging using an open date with a vat or lot identification number.

5.3.2.2 Shipping containers. Shipping containers shall be marked in accordance with MIL-STD-129 and, in addition, shall bear the following:

Produced from Pasteurized Milk Products.

6. NOTES

6.1 Intended use. This specification covers cottage cheese with characteristic flavor and aroma to meet a variety of food service requirements. The products should be refrigerated prior to use.

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

(a) Title, number and date of this specification.
(b) Group, type, class (when applicable), grade and style required (see 1.2.1).

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(c) When a cultured cream or creaming mixture is required (see 3.2.4 and 3.2.5).
(d) When delivery time is extended to 6 days (see 3.4.1).
(e) Where final inspection shall take place if not at the point of destination (see 4.3.4).
(f) Net weight of individual packages (see 5.1).
(g) When verification inspection is not required (see 6.5.1 and 6.5.2).

6.3 Destination inspection (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 shall be made by the receiving facility.

6.4 Changes in designation and deletions of types and classes. Former type I, plain curd has been replaced by type I, dry curd, and type II, lowfat cottage cheese. Former type II creamed cottage cheese (plain curd with added cream or milk or cream mixture) has been replaced by type III cottage cheese (not less than 4 percent fat). Former type III, with fruits, nuts, chives or other vegetables is now designated as type IV. Former classes A and B have been deleted and replaced with grade A and B cottage cheese.

6.5 Verification inspection for Civil agencies.

6.5.1 Examinations. Unless otherwise specified (see 6.2), the procuring agency or duly authorized representative will select verification samples according to table IA to check compliance with applicable finished product requirement in tables II, III and IV at not less than the following rate:

Initial or retest period	Sampling rate
If supplier has not had a contract in previous 90 days; or if the last samples tested from a supplier were unsatisfactory.	One sample from each inspection lot (see 4.3.8.1) until three consecutive lots are satisfactory and then sample at routine rate.
Routine examination period	
After three consecutive satisfactory inspection lots.	At least twice a month from an inspection lot. 1/

1/ Samples may be drawn from each inspection lot, but it is the intent of this specification to test a representative lot from a satisfactory supplier and to consider that other inspection lots have been comparable produced.

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6.5.2 Testing. Unless otherwise specified (see 6.2), the procuring agency or duly authorized representative, will select verification samples to check contractor compliance with applicable finished product requirements (see 3.3.4) at not less than the following rate:

Initial or retest period	Sampling rate
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 inspection lot (see 4.3.8.1) until three of the last five are satisfactory and then sample at routine testing rate.
Routine test period	
(At least three of the last five samples tested from supplier shall be satisfactory.)	At least one sample from an inspection lot per month. 1/

1/ Samples may be drawn from each inspection lot, but it is the intent of this specification to test a representative lot from a satisfactory supplier and to consider that other inspection lots have been comparably produced.

Custodians:

Army - (
Navy - SA
Air Force - 45

Review activities:

Army - MD
Navy - MC, MS
DP - SS

Preparing activity:

Army - GL

Civil Agency Coordinating Activities:

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

Project No. 8910-0240

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