

MIL-C-44295

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SUPERSEDING

PP-C-002198 (Army-GL)

June 22, 1984

MILITARY SPECIFICATION

CHICKEN BREASTS IN GRAVY, THERMOSTABILIZED, TRAY PACK

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This document covers chicken breasts in gravy thermostabilized in tray pack cans for use by the Department of Defense as a component of operational rations.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Documents. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

FEDERAL

- TT-C-495 - Coatings, Exterior, For Tinned Food Cans
- PPP-B-636 - Boxes, Shipping, Fiberboard

MILITARY

- MIL-L-1497 - Labeling of Metal Cans for Subsistence Items
- MIL-L-35078 - Loads, Unit: Preparation of Nonperishable Subsistence Items; General Specifications For

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8940

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

MIL-C-44295

STANDARDS

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection
by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-900 - Bacterial Standards for Starches, Flours,
Cereals, alimentary Pastes, dry Milks and
Sugars Used in the Preparation of
Thermostabilized Foods for the Armed Forces

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the procuring activity or as directed by the contracting activity.)

2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on date of the solicitation.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder
(21 CFR Parts 1-199)

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

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Poultry Products Inspection Regulations

Voluntary Grading of Poultry Products and Rabbit Products and U.S. Classes, Standards, and Grades (7 CFR Part 70)

U.S. Standards of Identity for Cream Cheese

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

United States Standards for Condition of Food Containers

(Application for copies should be addressed to the Director, Market Research and Development Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington, DC 20250.)

Food Safety and Inspection Service, Canning of Meat and Poultry Products
(9 CFR Part 318)

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

MIL-C-44295

ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

(Application for copies should be addressed to the Office of Drinking Water Environmental Protection Agency, WH550D, 401 M Street, S.W., Washington, DC 20460.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issues of the nongovernment documents which are current on the date of the solicitation.

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS (AOAC)

Official Methods of Analysis of the Association of Official Analytical Chemists

(Application for copies should be addressed to the Association of Official Analytical Chemists, 1111 North 19th Street, Suite 210, Arlington, VA 22209.)

AMERICAN ASSOCIATION OF CEREAL CHEMISTS

Approved Methods of the American Association of Cereal Chemists

(Application for copies should be addressed to the American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.)

AMERICAN DEHYDRATED ONION AND GARLIC ASSOCIATION (ADOGA)

Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products

(Application for copies should be addressed to the American Dehydrated Onion and Garlic Association, 650 California Street, Suite 800, San Francisco, Ca 94108.)

NATIONAL ACADEMY OF SCIENCES

Food Chemicals Codex

(Application for copies should be addressed to the National Academy Press, 2101 Constitution Avenue, Washington, DC 20418.)

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

MIL-C-44295

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified, a sample shall be subjected to first article inspection in the contract or purchase order (see 4.4, 6.1, and 6.3).

3.2 Ingredients. All ingredients shall be clean, sound, wholesome, and free from foreign material, evidence of rodent or insect infestation, extraneous material, off-odors, off-flavors, and off-colors.

3.2.1 Chicken breasts. Chicken breasts shall be uncooked, boneless, and skinless breast halves prepared from fryers or broilers in accordance with USDA Poultry Products Inspection Regulations. Tenderloins shall not be included. Chicken breasts shipped between plants shall be accompanied by a USDA Poultry Products Grading Certificate to certify quality, class, weight range requirements, and condition of the product and either the initial chilling date or initial freezing (in-storage) date.

3.2.1.1 Chicken breasts, chilled. Chicken breasts halves received in the chilled state shall not have been previously frozen and shall have been held at a temperature not to exceed 40°F for a period of time not to exceed 4 days following initial chilling and prior to preparation and further processing (see 3.3).

3.2.1.2 Chicken breasts, frozen. Raw (uncooked) chicken breast halves received in the frozen state shall have been held at a temperature not to exceed 0°F for a period of time not to exceed 60 days following initial freezing and prior to preparation and further processing (see 3.3).

3.2.2 Broth, chicken. Chicken broth may be frozen or canned (thermo-stabilized). The broth shall be inspected in accordance with USDA Poultry Products Inspection Regulations. The broth shall be free from extraneous material and cracklings. If frozen, broth shall have been held at 0°F or below for a period not to exceed 75 days prior to use in product formulation. The broth shall be clear, essentially fat free, and concentrated to a soluble solids level sufficient to comply with the solids requirements in the product formulation. The broth shall have a characteristic mild chicken broth odor and flavor and may contain flavor enhancers approved by Food and Drug Administration (FDA).

3.2.3 Starch food, modified, high opacity. The high opacity starch shall be white, odorless, finely pulverized, modified maize food starch for use in canned foods and shall comply with MIL-STD-900. The modified starch shall demonstrate initial viscosity development in the temperature range of 140° to 170°F and a typical viscosity (be fully hydrated) at common retort temperatures. The starch

MIL-C-44295

shall resist breakdown at low pH, under stress, and under conditions of cold storage. The cooked slurry prepared from the starch shall be bland with essentially no cereal or starch taste.

3.2.4 Cheese, cream, fresh. Fresh cream cheese shall possess a delicate butter-like or creamy flavor and shall be moderately salted. The body and texture shall be smooth, creamy and free from lumps or excess gumminess. The cream cheese shall be in excellent condition and free from discoloration and burnt particles. Fresh cream cheese shall comply with U.S. Standards of Identity for Cream Cheese.

3.2.5 Fat, chicken, rendered, frozen. Frozen rendered chicken fat shall have a clear yellow color and a characteristic mild chicken fat odor and flavor. The chicken fat may contain USDA approved antioxidants. The chicken fat shall have a peroxide value not to exceed 6 meq./kg, a free fatty acid value not to exceed 0.50 percent as oleic acid, and a moisture content not to exceed 0.25 percent. The chicken fat shall be produced in a USDA inspected plant in accordance with Poultry Products Inspection Regulations and shall have been held at 0°F or below for a period not to exceed 75 days prior to gravy formulation.

3.2.6 Celery seed, ground. Ground celery seed shall be prepared from the seed of Apium graveolens L. The ground celery seed shall be light to rich brown in color and possess a characteristic celery odor and flavor with a warm, slightly bitter taste. The ground celery seed shall contain not less than 2.0 mL of volatile oil per 100 grams and shall be of such size that not less than 95 percent, by weight, shall pass through a U.S. Standard No. 35 sieve.

3.2.7 Onion powder. Onion powder shall be Fancy Grade as defined in the Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products.

3.2.8 Shortening, powdered, vegetable. The powdered vegetable shortening shall consist of components which, when combined, will serve as a product whitening agent. The powdered shortening, when used as an ingredient in this product, shall withstand the conditions of thermoprocessing specified in this document without browning. A typical analysis of this powdered shortening follows:

Fat	75.00 percent + 1.50 percent
Protein	5.50 percent + 0.50 percent
Carbohydrates	15.00 percent + 1.00 percent
Moisture	2.00 percent maximum

3.2.9 Garlic powder. Garlic powder shall be Fancy Grade as defined in the Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products.

3.2.10 Monosodium glutamate. Monosodium glutamate shall meet the requirements of the Food Chemicals Codex.

MIL-C-44295

3.2.11 Salt. Salt shall be noniodized, free flowing, white, refined sodium chloride with or without anticaking agents and shall comply with purity standards for sodium chloride of the Food Chemicals Codex.

3.2.12 Thyme, ground. The ground thyme shall be derived from the dried leaves and flowering tops of Thyme vulgaris L. and shall have a fragrant, aromatic odor, and minty flavor. Volatile oil content shall be not less than 0.8 percent mL of volatile oil per 100 grams of ground thyme and be of such size that not less than 95 percent shall pass through a U.S. Standard No. 30 sieve.

3.2.13 Lecithin. Lecithin shall comply with the Food Chemicals Codex.

3.2.14 Pepper, white, ground. Ground white pepper shall be derived from the dried mature berries of Piper nigrum L. from which the outer covering or the outer and inner coverings have been removed. The pepper shall have a characteristic, penetrating odor, a hot biting pungent flavor and a light color. The white pepper shall contain not less than 1.0 mL of volatile oil per 100 grams of ground white pepper and be of such size that not less than 95 percent shall pass through a U.S. Standard No. 40 sieve.

3.2.15 Bay leaves, ground. Ground bay leaves shall be derived from the dried leaves of Laurus nobilis L. The bay leaves shall possess a pleasant, aromatic odor and pungent, mildly bitter flavor with a pale green to yellow green color. A minimum of 95 percent shall pass through a U.S. Standard No. 30 sieve. Volatile oil content shall be not less than 1.0 mL of volatile oil per 100 grams of ground bay leaves.

3.2.16 Preblended spice and seasoning mixture. Preblended spices and seasonings may be used. The spices and seasonings in the mixture shall comply with the individual requirements specified in this document. The containers used for the spice and seasoning blend shall be labeled with each ingredient and the percentage of each ingredient in the blend. The ingredients shall be in the same proportions as specified in the ingredient formula.

3.2.17 Water. Water used for ice-making, formulation, rehydration and washing shall conform to the National Primary Drinking Water Regulations.

3.3 Preparation and further processing. Processing shall be on a continuous basis.

3.3.1 Chicken preparation. The chicken shall be prepared as follows:

- a. The chicken shall consist of all breast meat with skin and essentially all adhering fat removed.
- b. The uncooked chicken breast halves shall weigh 7 ounces (+ 0.5 ounces) each and shall be water cooked, roasted, or steamed so as to conform to the finished product requirements (see 3.6).

MIL-C-44295

- c. The broth obtained from cooking the chicken may be used in the gravy preparation in the amount and in compliance with the solids content as required.
- d. The cooked chicken breasts shall be filled into the tray pack cans within 1 hour after cooking or shall be held for not more than 24 hours in the temperature range of 28° to 40°F prior to filling.

3.3.2 Gravy preparation. The gravy shall be formulated as follows:

<u>Ingredients</u>	<u>Percent</u>
Chicken broth, 3.0 to 3.5 percent solids <u>1/</u>	79.76
Starch, modified, high opacity	5.50
Cream cheese, fresh	4.00
Chicken fat	4.00
Onion powder	3.00
Powdered vegetable shortening	1.50
Salt <u>2/</u>	1.40
Monosodium glutamate	0.50
Lecithin	0.20
Pepper, white	0.08
Garlic powder	0.02
Celery seed, ground	0.02
Bay leaves, ground	0.01
Thyme, ground	0.01

1/ Chicken broth with different soluble solids content shall be adjusted to the 3.0 to 3.5 percent solids.

2/ The total amount of salt in gravy formula shall be adjusted as necessary to produce a product that complies with the finished product salt requirement.

a. A slurry shall be made using part of the chicken broth, the starch, and the powdered vegetable shortening.

b. The remainder of the chicken broth, chicken fat, and lecithin shall be heated to a boil in a steam-jacketed kettle with continuous and vigorous mixing to attain maximum emulsification of the fat into the broth.

c. An emulsion shall be made by mixing the cream cheese and remainder of the ingredients with the broth.

d. The emulsion shall be heated to a boil with continuous and vigorous mixing to attain maximum emulsification of the cream cheese.

e. The steam supply to the kettle shall be shut off, the slurry shall be added and uniformly mixed to form the gravy.

MIL-C-44295

f. The volume of the final mixture shall be adjusted with water to compensate for evaporation loss during heating and holding.

g. If the gravy is not to be immediately filled into the cans, it shall be maintained in the temperature range of 150° to 180°F. The holding time from end of preparation until filling into the cans shall not exceed 4 hours.

3.4 Tray pack filling and sealing. Each tray pack can (see 5.1.1) shall be filled with product such as to conform to the finished product requirements and to the following requirements:

- a. Not less than 12 intact chicken breast halves shall be placed into the tray pack can and the can filled with gravy.
- b. The temperature of the chicken breasts at the time of filling shall be 28° to 40°F, if not filled immediately after cooking (see 3.3.1.d)
- c. The temperature of the gravy at the time of filling shall be 150° to 180°F.
- d. Each can shall be hermetically sealed under a vacuum established by a processing authority and specified in the scheduled process so as to assure compliance with 3.6.r.
- e. Each filled and sealed tray pack can shall be in the retort process within 1 hour after sealing.

3.5 Tray pack thermoprocessing. The filled and sealed tray pack cans shall be thermostabilized by retorting until a sterilization value (F_0) of not less than 6.0 has been achieved.

3.6 Finished product requirements. The finished product shall comply with the following requirements:

- a. There shall be no foreign material such as, but not limited to, dirt, insect parts, hair, wood, glass, or metal.
- b. There shall be no foreign odors or flavors such as, but not limited to, burnt, scorched, stale, sour, rancid, or moldy.
- c. There shall be no color foreign to the product.
- d. There shall be no feathers or feather parts.
- e. No individual can shall contain a bone piece measuring more than 0.3 inch in any dimension.
- f. The total weight of skin, cartilage, coarse connective tissue, section of tendons or ligaments, and discolored meat, collectively, in a can shall be not more than 1 ounce.

MIL-C-44295

- g. The average net weight shall be not less than 106 ounces.
- h. No individual can shall contain less than 104 ounces of product.
- i. No individual can shall contain less than 46.0 ounces of 12 drained chicken breast halves.
- j. The average drained weight of chicken breast halves shall be not less than 48.0 ounces.
- k. Texture of chicken breast halves shall not be dry, rubbery, or mushy.
- l. The gravy shall not be lumpy.
- m. The viscosity of the gravy shall be not less than 7.5 cm per 10 seconds nor greater than 16.0 cm per 10 seconds when determined by the Bostwick Consistometer, or not less than 4200 centipoise nor greater than 19000 centipoise when determined by the Brookfield Viscosimeter equipped with a No. 4 spindle stirring at a speed of 5 rpm.
- n. The average fat content shall be not greater than 7.0 percent.
- o. The fat content of an individual tray pack shall be not greater than 9.0 percent.
- p. The salt content of an individual tray pack shall be not greater than 1.5 percent nor less than 1.0 percent.
- q. The product shall show no evidence of excessive heating (materially darkened or scorched).
- r. Filled, sealed and retorted cans must show evidence of proper vacuum as determined by concavity of the can lid (see 4.5.6).

3.6.1 Palatability. The product shall be equal to or better than the approved preproduction sample (see 6.1) in palatability and overall appearance.

3.7 Plant qualification. The poultry component and the finished product shall originate and be produced, processed, and stored in plants regularly operating under Poultry Products Inspection Regulations of the U.S. Department of Agriculture.

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

MIL-C-44295

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor's responsibility. Inspection and acceptance by the USDA shall not relieve the contractor of obligation and responsibility to deliver a product complying with all requirements of this document. The contractor shall assure product compliance prior to submitting the product to the USDA for any inspection.

4.2 Inspection and certification. Product acceptability shall be determined by the USDA. The USDA will determine the degree of supervision necessary to assure compliance with the requirements of this document.

4.3 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.4).
- b. Quality conformance inspection (see 4.5).

4.4 First article inspection. When a first article is required (see 6.1), it shall be inspected in accordance with the quality assurance provisions of this document and evaluated for overall appearance and palatability. Any failure to conform to the quality assurance provisions of this document or any appearance or palatability failure shall be cause for rejection of the first article.

4.5 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

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

4.5.1.1 Ingredient and component examination. Conformance of ingredients and components to identity, condition, and other requirements specified in 3.2 shall be certified by the ingredient supplier or ingredient manufacturer, or compliance be evident by examination of pertinent labels, markings, U.S. Grade certificates, certificates of analyses, or other such valid documents acceptable to the inspection agency. If necessary, each ingredient shall be examined organoleptically or inspected according to generally recognized test methods, such as the standard methods described in the Official Methods of Analysis of the Association of Official Analytical Chemists and in the Approved Methods of the American Association of Cereal Chemists, to determine conformance to the condition requirements. Any nonconformance to an identity, condition, or other requirement shall be cause for rejection of the ingredient or component lot or of any involved product.

MIL-C-44295

4.5.2 In-process examination. In-process examination shall be performed to determine conformance to the preparation, processing, can interior coating, filling, sealing, and packing requirements. Any nonconformance revealed by actual examination or by review of records of time, temperature, and formulation or of other valid documents shall be cause for rejection of the involved product.

4.5.3 Tray pack inspection. The inspection lot shall include only tray packs produced in one workshift. The USDA reserves the right to separate the inspection lot into smaller inspection lots.

4.5.3.1 Net weight inspection. Randomly select 30 filled and sealed tray pack cans from the inspection lot and weigh separately. Subtract the average tare weight (determined by randomly selecting and weighing 30 of the empty tray pack cans and lids used in preparing the product and dividing the total weight by 30) from the weight of each tray pack in the sample. The results shall be reported to the nearest 1 ounce. If the average net weight is less than 106 ounces or if the net weight of any individual can is less than 104 ounces, the lot shall be rejected.

4.5.3.2 Product inspection. The sample size shall be as indicated by the double sampling plan specified in table I. The tray pack cans shall be selected at random from the lot. The tray pack cans shall be heated in accordance with heating instructions on the can label, opened, and inspected for the defects listed in table II.

TABLE I. Double sampling plan for product inspection. 1/

Lot size (cans)	Sample size	Cumulative sample	Acceptance number	Rejection number
0 to 3200	8	-	0	2
	8	16	1	2
3201 to 35000	13	-	0	3
	13	26	3	4

- 1/ a. If no defects are found in the first sample, the lot shall be accepted.
- b. If the number of defects found in the first sample equals or exceeds the rejection number, the lot shall be rejected.
- c. If the number of defects found in the first sample exceeds the acceptance number but is less than the rejection number, the second sample shall be inspected. Defects found in the first and second samples shall be combined and if the number of defects in the cumulative sample equals or exceeds the rejection number, the lot shall be rejected.

MIL-C-44295

TABLE II. Product inspection 1/ 2/

Category	Defect
<u>Major</u>	
101	Presence of bone measuring more than 0.3 inch in any dimension.
102	Presence of feathers or feather parts.
103	Total weight of skin, cartilage, coarse connective tissue, sections of tendons or ligaments, and discolored meat, collectively, is more than 1 ounce.
104	Drained weight of 12 chicken breast halves in an individual can is less than 46.0 ounces. 3/ 4/
105	Texture of chicken breast halves dry, rubbery, or mushy. 5/
106	Less than 12 distinct chicken breast halves.
107	Gravy consistency is lumpy.
108	Product shows evidence of excessive heating (materially darkened or scorched). 6/

- 1/ The presence of foreign material (e.g. glass, dirt, insect parts, hair, wood, metal), foreign odor or flavor (e.g. burnt, scorched, moldy, rancid, sour, stale), or foreign color shall be cause for rejection of the lot.
- 2/ Product not equal to or better than the approved preproduction sample (see 6.1) in palatability and overall appearance shall be cause for rejection of the lot. (This comparison shall be performed only when deemed necessary by an Agricultural Marketing Service (AMS) agent.)
- 3/ To determine drained weight, the free liquid in the can shall be poured off, strained through a U.S. Standard No. 8 sieve, and reserved for viscosity determinations. The remaining contents shall be poured into a flat bottom container. A minimum of three times the tray pack can's volume of 190° to 212°F water shall be added to the container so as to cover the contents. The contents and water shall be agitated such as to liquify rendered fat and to remove the gravy without breaking the chicken breast halves. The contents shall then be poured into a U.S. Standard 1/4-inch sieve in a manner that will distribute the product over the sieve without breaking the chicken breast halves. Sieve area shall be such that the

MIL-C-44295

distributed product does not completely cover all the openings of the sieve. The sieve shall be tilted at an approximate 45° angle and allowed to drain for 2 minutes before determining the drained weight by subtracting the sieve tare weight from the gross weight. The drained weight shall be reported to the nearest 0.1 ounce.

- 4/ The lot shall be rejected if the sample average drained weight of the chicken breast halves is less than 48.0 ounces.
- 5/ Examination for texture conformance of the chicken breast halves shall be made of representative chicken breasts immediately following the determination of drained weight.
- 6/ Defect scored only once per tray can.

4.5.3.3 Fat and salt content testing. Nine tray packs shall be selected at random from the lot and distributed as follows:

- Three for laboratory analysis
- Three for submission to the contractor.
- Three for retention by the AMS agent as reserve samples.

The three tray packs for laboratory analysis shall individually be tested for fat and salt content in accordance with the Official Methods of Analysis of the Association of Official Analytical Chemists, Chapter: Meat and Meat Products, except that preparation of the samples shall be as follows: The three unopened cans shall be gently warmed in a water bath to melt fat adhering to the inside of the cans. The cans shall be opened and the entire contents of each can shall be separately blended in a Waring blender or equivalent. The test results shall be reported to the nearest 0.1 percent. The lot shall be rejected if:

- a. The average fat content of the three tray packs is greater than 7.0 percent.
- b. The fat content of any individual tray pack is greater than 9.0 percent.
- c. The salt content of any individual tray pack is less than 1.0 percent or greater than 1.5 percent.

Analysis of reserve samples at the request of the contractor shall not be permitted unless the original laboratory analysis indicated that the involved lot will be rejected because of noncompliance with the fat or salt content requirement. When the reserve samples are analyzed, the analyses for both fat and salt shall be made and will be considered final. Unused reserve samples shall be returned to the contractor for inclusion in subsequent lots.

4.5.3.4 Viscosity testing. The strained free liquid collected from each of the cans in the first sample of cans selected for drained weight inspection (see 4.5.3.2 and 3/ to table II) shall be individually tested for viscosity as specified in 4.5.3.4.1 or, alternatively, as specified in 4.5.3.4.2 (see 6.4).

MIL-C-44295

4.5.3.4.1 Bostwick Consistometer method.

Instrument:	Bostwick Consistometer	
	Catalog Number: 23270-004	Catalog Number: 15-347-50
	VWR Scientific Company	or Fisher Scientific
	P.O. Box 7900	585 Alpha Drive
	San Francisco, CA 94120	Pittsburgh, PA 15238

Method:

- a. Level the instrument.
- b. Bring gravy to $100^{\circ}\text{F} \pm 1^{\circ}\text{F}$ in a water bath in a covered container.
- c. Stir gravy thoroughly before filling the Bostwick cavity.
- d. Scrape gravy evenly across upper edge of cavity.
- e. Release gravy and time gravy flow to the nearest 1 second and measure distance traveled to the nearest 0.1 cm.

The lot shall be rejected if the Bostwick viscosity value of the gravy from any can in the sample is less than 7.5 cm per 10 seconds or greater than 16.0 cm per 10 seconds.

4.5.3.4.2 Brookfield Viscosimeter method.

Instrument: Brookfield Viscosimeter (variable speed) equipped with a No. 4 spindle.

Brookfield Engineering Laboratories, Inc.
Stoughton, MA 02072

Method:

- a. Bring gravy to $80^{\circ}\text{F} \pm 1^{\circ}\text{F}$ in a water bath in a covered container.
- b. Stir gravy thoroughly and pour 500 mL of the gravy into a 600 mL beaker.
- c. Using a number 4 spindle, stir at a speed of 5 RPM and record dial reading.
- d. Convert dial reading to centipoise. Record result to nearest 100 centipoise.

The lot shall be rejected if the Brookfield viscosity value of the gravy from any can in the sample is less than 4200 centipoise or greater than 19000 centipoise.

MIL-C-44295

4.5.4 Can condition examination. Examination of filled and sealed tray pack cans shall be in accordance with the United States Standards for Condition of Food Containers, except that inspection for labeling shall be in accordance with MIL-L-1497 (see 5.4).

4.5.5 Can closure examination. Can closure shall be examined visually and by teardowns in accordance with the can manufacturer's requirement and CFR 21, Part 113, Subpart D, or CFR 9, Part 318, Subpart G, as applicable.

4.5.6 Vacuum examination. The sampling plan shall be as specified in table III. Cans shall be allowed to cool to $75^{\circ} \pm 5^{\circ}\text{F}$, held for at least 24 hours after sealing, and then examined for vacuum retention. To examine, lay a straight edge across the top of the double seam and verify that the distance from the straight edge to the middle of the center panel is greater than near the double seam. The inspection lot shall include only tray packs produced in a single day on a single sealing machine.

TABLE III. Sampling plan for can vacuum examination

Lot size (cans)	Sample size (cans)	Acceptance number	Rejection number
0 to 1200	32	0	1
1,201 to 3,200	50	0	1
3,201 to 10,000	80	1	2

4.5.7 Shipping container examination. Shipping containers shall be examined for defects in assembly, closure, and reinforcement (when applicable) in accordance with PPP-B-636. In addition, the following defects shall be classified as follows:

Major: National stock number, item description, contract number, or date of pack markings missing, incorrect, or illegible.
Reinforced with other than nonmetallic strapping or tape.
Dimensions of pads not as specified.
Interior packing with fiberboard liner or pads not as specified.

Minor: Other required markings missing, incorrect, or illegible.
Arrangement or number of cans not as specified.

4.5.8 Unit load inspection. Inspection of unit loads shall be in accordance with the quality assurance provisions of MIL-L-35078.

MIL-C-44295

5. PACKAGING

5.1 Preservation. The product shall be preserved in accordance with level A or C as specified (see 6.1).

5.1.1 Level A. A size 1001 by 1206 by 200 tray pack can shall be filled with 106 ounces of the food product, sealed, and thermoprocessed as specified in 3.4 and 3.5. The base plate of the can shall be electrolytic chromium-coated steel and shall be of sufficient temper to protect the product during shipment and storage. The base plate weight of the body and end of each can shall be 90 pounds per base box. The entire inside area of the can shall be coated. Scratches or fractures shall not penetrate through the interior can coating. The interior can coating shall not peel or blister when in contact with the product. The interior can coating shall neither affect nor be affected by the packaged product. A certificate of conformance shall be furnished to certify compliance with the interior can coating requirements. The can shall be coated overall on the outside with a coating conforming to type I of TT-C-495.

5.1.1.1 When specified (see 6.1), the base plate of the can shall be electrolytic chromium-coated steel and shall be of sufficient temper to protect the product during shipment and storage. The base plate weight of the body and end of each can shall be 98 pounds per base box. The body design shall be reinforced on the bottom with six longitudinal beads or ribs 0.050 ± 0.010 inches deep. The beads shall be 9 inches by $3/4$ inch in length and width and shall be equidistant in the center panel of the bottom. The end design shall be reinforced with eight longitudinal beads 0.018 ± 0.004 inches deep. The beads shall be 11 inches by $3/4$ inch in length and width and shall be equidistant in the center panel of the end. The center four beads on the end design shall be interrupted to provide a 5-inch by 5-inch flat center panel for labeling. The apex of all these beads shall be outward. The interior and exterior can coating requirements shall be as specified in 5.1.1.

5.1.2 Level C. The product shall be preserved as specified in 5.1.1, except that cans with commercial exterior coating will be acceptable.

5.2 Packing. The product shall be packed in accordance with level A, B, or C as specified (see 6.1).

5.2.1 Level A packing. Four cans of product, preserved as specified in 5.1, shall be packed in a fiberboard box, constructed and closed in accordance with style HSC-L with a HSC full depth cover, grade V2s of PPP-B-636. The inside of each box dimensions shall be $12-3/4$ inches in length by $10-1/2$ inches in width by $8-1/2$ inches in depth. The cans shall be packed flat, four in depth within the box, with the first two cans placed with ends down and the next two cans with ends up. The inside of each box shall be provided with a box liner and five fiberboard pads fabricated of grade V3c fiberboard. The dimensions of the fiberboard pads shall be $11-1/4$ inches by $9-1/4$ inches ($\pm 1/8$ inch). The pads shall be placed between the cans and on the top and bottom of the stacked cans.

MIL-C-44295

Each box shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive filament-reinforced tape in accordance with the appendix of PPP-B-636. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.1) except that the unit load shall consist of 48 boxes with 12 boxes per course and four courses per load with all courses having the same pattern so as to create columnar stacking. When unit loads are strapped, strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.2 Level B packing. Four cans of product, preserved as specified in 5.1, shall be packed as specified in 5.2.1 except the box shall be constructed of grade V3c, V3s, or V4s fiberboard.

5.2.3 Level C packing. Four cans of product, preserved as specified in 5.1, shall be packed in a snug-fitting fiberboard box, constructed and closed in accordance with style RSC-L, class domestic, grade 275 of PPP-B-636. The cans shall be packed flat, four in depth within the box, with the first two cans placed with the lids together and the next two cans with the lids together. The inside of each box shall be provided with a box liner and five fiberboard pads. The height of the box liner shall be equal to the full inside depth of the box (+0 inch, -1/8 inch). The pads shall be placed between the cans and on the top and bottom of the stacked cans. The pad dimensions shall be not less than 1/8 inch of the full length and width dimensions of the box and shall be fabricated of the same material as the box.

5.3 Unit loading. When specified (see 6.1), the product, packed as specified in 5.2.2 and 5.2.3 shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified except that the unit load shall consist of 48 boxes with 12 boxes per course and four courses per load with all courses having the same pattern so as to create columnar stacking. When unit loads are strapped, the strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.4 Labeling. Each package shall be labeled in accordance with MIL-L-1497. Each tray pack shall be labeled with:

- Official establishment number (e.g., EST 38) or a three digit letter code identifying the establishment.
- Lot number 1/
- Production shift number 1/
- Retort identification number 1/
- Retort cook number 1/

1/ The lot number shall be expressed as a four digit Julian code. The first digit shall indicate the year of production and the next three digits shall indicate the day of the year. (Example, March 19, 1987 would be coded as 7078.) The Julian code shall represent the day the product was packaged and processed. Sub-lotting (when used) shall be represented by an alpha

MIL-C-44295

character immediately following the four digit Julian code. Following the four digit Julian code and the alpha character (when used), the other required code information shall be printed in the sequence as listed above.

In addition, the name of product shall be marked, stamping is permitted, on one 1001 by 200 side of the can. The labeling shall be legible when examined in accordance with 4.5.4 after submerging the can in boiling water for 30 minutes. Paper labels are not permitted. Cans shall show the following statements:

TO HEAT

- a. To heat in water: Submerge sealed can in boiling water. Bring to boil, continue boiling for 40 to 45 minutes. Avoid overheating to the point where internal pressure is evident (can shows evidence of bulging). Remove from water and open lid for serving. Caution: Use care when opening as pressure may have been generated within the can.
- b. To heat in oven: Either punch several holes in lid of tray can or open can in usual manner leaving the loose lid in place to prevent moisture loss. Place in a 350°F oven for approximately 35 minutes until contents reach an internal temperature of 165°F.

WARNING: Do not place closed cans in oven, as heating will increase internal pressure which may cause the can to burst.

YIELD

Twelve (12) servings (1 chicken breast plus approximately 4 ounces gravy per serving)

5.5 Marking.

5.5.1 Shipping containers. In addition to any special marking required by the contract, shipping containers shall be marked in accordance with MIL-STD-129.

5.5.2 Unit loads. Unit loads shall be marked in accordance with MIL-L-35078. In addition, when tray pack cans are fabricated from 90 pounds per base box, the following precautionary markings in capital letters larger than other markings shall be included:

CAUTION: DO NOT STACK PALLETS IN TRANSIT OR MORE THAN TWO HIGH IN STORAGE.

MIL-C-44295

6. NOTES

6.1 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. When a first article is required (see 3.1, 4.4, and 6.3).
- c. Provisions for approved preproduction samples (see 3.6.1, and 6.3).
- d. Level of preservation and packing required (see 5.1 and 5.2).
- e. When tray pack cans are to be fabricated from 98 pounds per base box (see 5.1.1.1).
- f. Type and class of unit load when unit loading is required (see 5.2.1 and 5.3).

6.2 Appropriate level of pack. Based on the conditions known or expected to be encountered during shipment, handling, and storage of the specific item being procured, the contracting activity should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.18/AFR 71-6/MCO 4030.33A/DLAR 4145.7.

6.3 First article inspection. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should include specific instructions in all acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 The contracting officer may authorize an alternative contractor recommended method of viscosity testing if the alternative method is approved by U.S. Army Natick Research, Development, and Engineering Center.

6.5 Subject term (key word) listing.

Canned foods
Chicken
Rations
Tray Pack

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL
Project No. 8940-A533

Review activities:

Army - MD, TS
Navy - MC
DP - SS