

MIL-C-44288A
14 October 1988
SUPERSEDING
MIL-C-44288
20 August 1987

MILITARY SPECIFICATION

CHICKEN STEW, 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 stew 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 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this specification 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

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.

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- MIL-L-1497 - Labeling of Metal Cans for Subsistence Items
- MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification for
- MIL-C-44340(GL) - Can, Tray Pack

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 specifications, standards, and handbooks required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

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

ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

(Copies may be obtained from the Office of Drinking Water, Environmental Protection Agency, WH550D, 401 M Street, S.W., Washington, DC 20460.)

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Meat and Poultry Products Inspection Regulations

(Copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

U.S. Standards for Grades of Frozen Carrots

U.S. Standards for Grades of Frozen Peas

(Copies may be obtained from the Chief, Processed Products Branch, Agricultural Marketing Service, U.S. Department of Agriculture, Washington, DC 20250.)

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U.S. Standards for Condition of Food Containers

(Copies may be obtained from the Chairman, Condition of Food Container Committee, Agricultural Marketing Service, U.S. Department of Agriculture, Room 0610, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

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

(Copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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

U.S. Standards of Identity for Cream Cheese

(Copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

(Copies of drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

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.

AMERICAN ASSOCIATION OF CEREAL CHEMISTS (AACC)

Approved Methods of the American Association of Cereal Chemists

(Copies should be obtained from 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

(Copies should be obtained from the American Dehydrated Onion and Garlic Association, 650 California Street, Suite 800, San Francisco, CA 94108.)

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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3330 - Peel Adhesion of Pressure-sensitive Tape

(Copies should be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS (AOAC)

Official Methods of Analysis of the Association of Official Analytical Chemists

(Copies should be obtained from the Association of Official Analytical Chemists, 1111 North 19th Street, Suite 210, Arlington, VA 22209.)

NATIONAL ACADEMY OF SCIENCES

Food Chemicals Codex

(Copies should be obtained from the National Academy Press, 2101 Constitution Avenue, N.W., Washington, DC 20418.)

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

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 specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (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. Chicken shall be prepared from chilled or frozen ready-to-cook fowl (mature female chicken) which has been processed in accordance with USDA Poultry Products Inspection Regulations. All chicken (raw or cooked) shipped between plants shall be accompanied by a USDA Poultry Grading Certificate to certify class and condition of the product and either the initial chilling date or initial freezing (in-storage) date.

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3.2.1.1 Chicken, chilled. Raw bone-in or boneless chicken 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 6 days following initial chilling and prior to preparation and further processing (see 3.3).

3.2.1.2 Chicken, frozen. Raw bone-in or boneless chicken 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 120 days following initial freezing and prior to preparation and further processing (see 3.3).

3.2.1.3 Chicken, cooked, frozen. Frozen cooked chicken shall be prepared from chilled chicken that complies with 3.2.1 and 3.2.1.1. The chicken shall be processed in accordance with 3.3.1 and 3.3.1.1 or 3.3.1.2. The chicken, in either log or dice form, shall be packaged and vacuum-sealed in water impermeable material having an oxygen permeability rate of not more than 10cc of oxygen per square meter per 24 hours at 73°F and 0 percent relative humidity and shall be frozen to an internal temperature of 0°F or below within 72 hours. The packaged, frozen cooked chicken shall have been held at 0°F or below for a period not to exceed 60 days prior to tray pack filling (see 3.4). The initial freezing (in-storage) date and processing and packaging requirements shall be certified by a USDA Agricultural Marketing Service (AMS) Poultry Products Agent. Alternatively, chicken dices produced from cooked chicken logs may be packaged in suitable material other than that described above and placed in a freezer immediately after dicing and frozen to 0°F or below within 24 hours after placement in the freezer. Cooked, frozen chicken dices packaged in other than impermeable material shall be held at an internal temperature of 0°F or below for a period of time not to exceed 30 days. If other than impermeable packaging material is used, the type of material shall be approved by USDA.

3.2.2 Potatoes. Potatoes shall be either fresh or dehydrofrozen and shall meet the requirements of 3.2.2.1 or 3.2.2.2.

3.2.2.1 Potatoes, fresh. The potatoes shall be fresh, firm, and of a white flesh variety suitable for canning. The maximum specific gravity for the potatoes shall be 1.075 with a reducing sugar content of not more than 2.0 percent on a dry weight basis.

3.2.2.2 Potatoes, dehydrofrozen, diced. Dehydrofrozen potatoes shall be firm, possess a good color and flavor and be of a white flesh variety suitable for canning. The maximum specific gravity for the potatoes shall be 1.075 with a reducing sugar content of not more than 2.0 percent on a dry weight basis. The potatoes shall be mechanically diced to dimensions that comply with finished product requirements.

3.2.3 Carrots. The carrots may be either fresh or frozen.

3.2.3.1 Carrots, fresh. The carrots shall be fresh, firm, of good color, and of a variety suitable for canning.

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3.2.3.2 Carrots, frozen, diced. The frozen diced carrots shall comply with the U.S. Grade A requirements of the U.S. Standards for Grades of Frozen Carrots and shall be of the latest season's crop. The carrots shall be mechanically diced to approximately 3/8 by 3/8 by 3/8 inch dimensions. The frozen carrots shall be of the latest date of pack.

3.2.4 Broth, chicken. Chicken broth may be frozen or canned (thermo-stabilized). The chicken broth shall be inspected in accordance with USDA Poultry Products Inspection Regulations. It shall be free from extraneous material and cracklings. If frozen, broth shall have been held at an internal temperature of 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 requirement in the product formulation. The broth shall have a characteristic mild chicken broth odor and flavor and may contain flavor enhancers approved by FDA.

3.2.5 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 140° to 170°F and a typical viscosity (be fully hydrated) at common retort temperatures. The starch shall resist breakdown at low pH and under shear stress, and under conditions of cold storage. The cooked slurry prepared from the starch shall be bland with essentially no cereal or starch taste.

3.2.6 Fat, chicken, rendered, frozen. Frozen rendered chicken fat shall have a clear, yellow color and a characteristic mild chicken-fat odor and flavor. The 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 (expressed as oleic acid), and a moisture content not to exceed 0.25 percent. The chicken fat shall be produced in accordance with USDA regulations and shall have been held at an internal temperature of 0°F or lower for a period not to exceed 75 days prior to sauce formulation.

3.2.7 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 or burnt particles. Fresh cream cheese shall comply with U.S. Standards of Identity for Cream Cheese. The fresh cream cheese shall be maintained at an internal temperature of 39° to 45°F for not more than 90 days from date of pack to product preparation (see 3.3.3).

3.2.8 Onions, dehydrated, chopped. The dehydrated chopped onions 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.

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3.2.9 Peas, green. Peas shall be either fresh or frozen and shall meet the requirements of 3.2.9.1 or 3.2.9.2.

3.2.9.1 Peas, green, fresh. The green peas shall be fresh, sweet, and of a variety suitable for canning. The shelled peas shall be well-formed, bright, young, tender, and of such size as to not pass through a 9/32 inch sieve.

3.2.9.2 Peas, green, frozen. Frozen green peas shall comply with the U.S. Grade A requirements of the U.S. Standards for Grades of Frozen Peas and shall be of the latest season's crop.

3.2.10 Shortening, vegetable, powdered. 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 the powdered shortening follows:

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

3.2.11 Celery, dehydrated, sliced. The dehydrated celery slices shall be obtained from clean, sound Pascal type celery. The celery shall be approximately 3/8 inch cross-cut stalk slices with no leaf cuts. The slices shall be free flowing and have bright uniform color. The dehydrated celery shall have a moisture content not in excess of 5.5 percent.

3.2.12 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.

3.2.13 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 ground white 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 a pungent, mildly bitter flavor and 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.

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3.2.16 Sage, ground. Ground sage shall be derived from the dried leaves of Salvia officinalis L. The sage shall be green to grayish-green in color and have a strong fragrant and aromatic odor and a slightly bitter taste. The sage shall contain not less than 1.5 mL of volatile oil per 100 grams of ground sage and be of such size that not less than 95 percent shall pass through a U.S. Standard No. 20 sieve.

3.2.17 Thyme, ground. Ground thyme shall be derived from the dried leaves and flavoring tops of Thymus vulgaris L. and shall have a fragrant, aromatic odor and minty flavor. The thyme shall contain not less than 0.8 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.

3.2.18 Allspice, ground. Ground allspice shall be derived from the dried, nearly ripe fruit of Pimenta officinalis L. and shall have a fragrant clove-like aroma, strongly aromatic, pungent, clove-like flavor, and a dark reddish-brown color. Allspice shall contain not less than 3.0 mL of volatile oil per 100 grams of ground allspice with 80.0 percent eugenol as a principal constituent. A minimum of 95 percent, by weight, shall pass through a U.S. Standard No. 25 sieve.

3.2.19 Sodium tripolyphosphate. Sodium tripolyphosphate shall comply with the Food Chemicals Codex.

3.2.20 Preblended spice and seasoning mixture. Preblended spices and seasonings may be used. The spices and seasonings in the mixture shall comply with the requirements of 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.

3.2.21 Water. Water used for ice-making, formulation, rehydration, and washing shall conform to the National Interim 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 made boneless and skinless. The wing tips, giblets, neck, feet, and viscera shall be excluded. The boned meat shall be free of pin feathers, skin, blood clots, bruises, blemishes, ligaments, tendons, coarse connective tissue, cartilage, and bone greater than 0.3 inch in any dimension. The boneless chicken meat shall be comprised of at least 50 percent white meat. Cooked chicken dices shall be prepared in accordance with 3.3.1.1 and 3.3.1.2.

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3.3.1.1 Preparation of individually quick frozen (IQF) chicken dices. The IQF chicken dices shall be prepared as follows:

a. The chicken shall be cooked either before or after deboning by any commercially acceptable cook method in accordance with USDA Poultry Products Inspection Regulations.

b. The cooked chicken meat shall be cooled to an internal temperature of 28° to 40°F within 4 hours following the cooking process and shall be held not more than 48 hours at this temperature prior to dicing.

c. The cooked chicken meat shall be mechanically diced with dicer settings at 3/4 by 3/4 inch dimensions. The diced meat shall be held not longer than 4 hours at an internal temperature of 28° to 40°F from time of dicing to the beginning of the IQF process.

d. Immediately after the IQF process, the frozen chicken dices shall be screened to eliminate fines. The frozen and screened chicken dices shall be packaged and vacuum sealed in water-impermeable material having an oxygen permeability rate of not more than 10 cc of O₂ per square meter per 24 hours at 73 degrees F and 0 percent relative humidity (see 3.2.1.3).

3.3.1.2 Chicken log preparation and processing. The chicken logs shall be prepared and processed as follows:

<u>Ingredient</u>	<u>Percent by weight</u>
Chicken meat	95.75
Ice or ice water	3.00
Salt	1.00
Sodium tripolyphosphate	0.25

a. Fresh chilled chicken meat processed on the day of boning shall be course ground within 24 hours following boning. If fresh-chilled (not previously frozen) chicken meat is transported between plants, it shall be maintained at an internal temperature of 28° to 40°F and coarse ground within 6 days following initial chilling. Frozen chicken meat shall be maintained at 0°F or lower until further processing and be coarse ground within 120 days after boning. The meat shall be mechanically coarse ground through a grinder plate having kidney-shaped openings measuring not less than 2 inches in the shortest dimension. The grinder shall be equipped with a 2-blade knife.

b. The coarse ground (chunked) chicken meat shall be mechanically mixed with the salt and sodium tripolyphosphate. The mixing shall continue until the mixture exhibits a sticky (tacky) consistency. Time from grinding to mixing shall not exceed 4 hours. The ground chicken meat shall be maintained at an internal temperature of 28° to 40°F during this time period.

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c. The mixed meat shall immediately be mechanically stuffed tightly into prestuck, regenerated cellulose casings of a size to accommodate the finished product meat dimension requirement. The stuffed meat logs shall be in the cooking process within 4 hours after being stuffed. (This period of time may be extended up to 24 hours, provided the meat logs are maintained at an internal temperature of 28° to 40°F.

d. The chicken logs shall be cooked in a cook house (smoke house without smoke) or by other commercially acceptable cook methods to provide a product meeting the finished product drained weight and other requirements.

e. Immediately after completion of the cooking process, the cooked meat logs shall be placed in an ice water bath, or cooled by other commercially acceptable cooling methods, and rapidly cooled to an internal temperature of 130°F or below. The chicken logs shall be further cooled from 130° to 80°F or below within 2 hours and further cooled from 80° to 40°F or below within 4 hours. The cooled logs shall be held for not more than 48 hours at an internal temperature of 28° to 40°F prior to dicing or packaging for frozen storage (see 3.2.1.3).

f. The cooked chicken logs shall be mechanically diced with dicer settings at 3/4 by 3/4 by 3/4 inch dimensions. After dicing, the meat shall be screened to eliminate fines. The diced meat shall be held not longer than 4 hours in the temperature range of 28° to 40°F until preparation of the finished product or, if stored in frozen form, until packaged and vacuum-sealed (see 3.2.1.3).

3.3.2 Vegetable preparation.

3.3.2.1 Potato preparation.

3.3.2.1.1 Fresh potato preparation. The clean, fresh potatoes shall be peeled, trimmed, and mechanically diced with dicer settings at 1/2 by 1/2 by 1/2 inch dimensions. The diced potatoes shall be blanched sufficiently to prevent discoloration and to remove excess air. The blanched potatoes shall be immediately cooled to the initial temperature of the cooling water and thoroughly drained. The cooled, drained potato dices shall be handled in a manner to prevent discoloration and filled into the tray pack can within 4 hours after blanching.

3.3.2.1.2 Dehydrofrozen potato preparation. Diced dehydrofrozen potatoes shall be prepared in a manner to assure compliance with finished product requirements and shall be handled in a manner to prevent discoloration.

3.3.2.2 Carrot preparation. The carrots shall be washed, sorted, peeled, and trimmed. The carrots shall be mechanically diced with dicer settings at 3/8 by 3/8 by 3/8 inch dimensions, and then blanched sufficiently to prevent discoloration and to remove excess air. The blanched carrots shall be

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immediately cooled to the initial temperature of the cooling water and thoroughly drained. The cooled, drained carrot dices shall be handled in a manner to prevent discoloration and filled into the tray pack can within 4 hours after blanching.

3.3.2.2.1 Preparation of frozen carrot dices. Frozen carrots shall be thawed only to the extent necessary to accommodate the filling operation. The thawed carrots shall be handled in a manner to prevent discoloration.

3.3.2.3 Onion and celery preparation. The dehydrated onions and celery shall be fully rehydrated in an excess of water, then thoroughly drained before incorporation into the sauce (see 3.3.3).

3.3.3 Sauce formulation and preparation. The sauce shall be formulated as follows:

<u>Ingredient</u>	<u>Percent by weight</u>
Chicken broth <u>1/</u>	75.85
Starch, modified, high opacity	5.50
Chicken fat	4.00
Cream cheese	4.00
Onions, chopped, rehydrated	3.75
Peas, green	3.00
Shortening, vegetable, powdered	2.00
Celery, sliced, rehydrated	1.00
Salt <u>2/</u>	0.50
Lecithin	0.25
Pepper, white, ground	0.08
Bay leaves, ground	0.02
Sage, ground	0.02
Thyme, ground	0.02
Allspice, ground	0.01

1/ The 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 the sauce formula shall be adjusted as necessary to produce a product that complies with the finished product salt requirements (see 3.6).

NOTE: The following sauce preparation procedures were used in the development of this product. Alternative procedures may be used provided finished product requirements are met. (When alternative procedures are used, the time and temperature requirements specified for the prepared sauce are still applicable.)

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

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b. An emulsion shall be made by mixing the remainder of the chicken broth, the chicken fat, cream cheese, and the lecithin. The emulsion shall be heated to a boil in a steam jacketed kettle with continuous and vigorous agitation to attain maximum emulsification of the fat.

c. The emulsion shall be cooled to 180°F or lower and the remaining ingredients added. The emulsion shall be stirred to assure that the salt is dissolved, the dehydrated vegetables are rehydrated, and the spices are uniformly dispersed.

d. The slurry shall be added to the emulsion and the final mixture heated to 180° to 190°F and held in this temperature range for 5 minutes.

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

f. If the sauce 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.

3.3.4 Product preparation. The diced chicken, potatoes, carrots, and sauce shall be combined in the following proportions:

<u>Ingredient</u>	<u>Percent by weight</u>
Sauce	52.83
Chicken, diced	28.30
Potatoes, diced	11.32
Carrots, diced	7.55

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. 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 the finished product requirement paragraph 3.6.r.

b. Each filled and sealed tray pack can shall be in the retort process within 2 hours 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.

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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. Total weight of skin, cartilage, coarse connective tissue, section of tendons or ligaments, and discolored meat in a can, shall be not greater than 1 ounce.
- g. The average net weight shall be not less than 108 ounces.
- h. No individual can shall contain less than 106 ounces of product.
- i. The average drained weight of whole intact chicken pieces and vegetable pieces combined shall be not less than 49.0 ounces.
- j. No individual can shall contain less than 45.0 ounces of drained whole intact chicken pieces and vegetable pieces combined.
- k. Texture of chicken pieces shall not be dry, rubbery, or mushy.
- l. Of the 45.0 ounces drained weight of product, not less than 18.0 ounces shall be whole intact chicken pieces.
- m. Texture of potatoes, carrots and other vegetables may be soft, but shall not be hard, fibrous, tough or mushy.
- n. Sauce consistency shall be smooth, without lumps, and shall not be excessively thick or thin.
- o. The average fat content shall be not greater than 7.0 percent and no individual tray pack shall have a fat content greater than 9.0 percent.
- p. The salt content of the product in any individual can shall be not greater than 1.0 percent nor less than 0.5 percent.

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- q. The product shall show no evidence of excessive heating (materially darkened or scorched).
- r. Filled, sealed and retorted cans shall 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 Meat and 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.

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 inspection 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.

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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 verified 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 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.

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. Results shall be reported to the nearest 1 ounce. If the average net weight is less than 108 ounces or if the net weight of any individual can is less than 106 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 40 to 45 minutes in boiling water, opened, and inspected for the defects listed in table II.

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

Lot size (cans)	Sample size (cans)	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

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- 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 sample shall be combined and if the number of defects in the cumulative sample equals or exceeds the rejection number, the lot shall be rejected.

TABLE II. Product defects 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, section of tendons or ligaments, and discolored meat, collectively, is greater than 1 ounce.
104	Drained weight of whole intact chicken pieces and vegetable pieces in a can is less than 45.0 ounces. <u>3/</u> <u>4/</u>
105	Of the 45.0 ounces drained weight of product, less than 18.0 ounces are whole intact chicken pieces. <u>5/</u>
106	Texture of chicken pieces is dry, rubbery, or mushy. <u>6/</u>
107	Texture of potatoes, carrots, and other vegetables mushy, hard, fibrous, tough. <u>6/</u>
108	Sauce consistency is lumpy or is excessively thick or thin.
109	Product shows evidence of excess heating (materially darkened or scorched). <u>7/</u>

- 1/ Presence of foreign material (e.g. glass, dirt, insect parts, hair, wood, metal), foreign odor or flavor (e.g. burnt, scorched, stale, sour, rancid, moldy), or foreign color shall be cause for rejection of the lot.

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- 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 and 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 gently agitated such as to liquify rendered fat and to remove the sauce without breaking the chicken pieces or vegetables. 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 pieces or vegetables. Sieve area shall be such that the 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 average drained weight of whole intact chicken dices and vegetable pieces is less than 49.0 ounces.
- 5/ For the purpose of this examination, the definition of a whole intact chicken piece is one that measures not less than 3/8 inch in each of two separate dimensions.
- 6/ Examination for appearance and texture conformance of the chicken and vegetable pieces shall be made of representative pieces immediately following the determination of drained weight.
- 7/ 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 an 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. Any test failure is a major defect. The lot shall be rejected if any of the following major defects occur:

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- 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 0.5 percent or greater than 1.0 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.

4.5.4 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 4.5.4.1. In addition, the following defect shall be classified as a critical defect and shall be cause for rejection of the lot:

Evidence of buffing causing damage (i.e. scratches or scuffing) to exterior can coating.

4.5.4.1 Can label examination. Labels shall be examined for defects in accordance with MIL-L-1497 (see 5.4), except, that for self-adhering labels, the following additional defects shall apply:

Major: Label torn or scratched so as to obliterate any of the markings.

Minor: Air bubbles under label.

Label not properly adhered to can, i.e., label raised or peeled back from edges or corners.

4.5.4.2 Label adhesive examination. When self-adhering labels are used, the adhesive shall be tested in accordance with ASTM D-3330.

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. Any nonconformance based on observation of can seam teardowns or of record of can seam teardowns is a major defect and shall be cause for rejection of any involved product.

4.5.6 Vacuum examination. Cans shall be allowed to cool to $75 \pm 5^{\circ}\text{F}$, held for at least 24 hours after sealing, and then examined for vacuum retention. To examine, lay a straight edge in the center of the lid along the length of the tray pack. Both ends of the straight edge shall touch the lid at the inside edge of the double seam. There shall be a visible gap between the straight edge and the lid for the entire distance of the label panel. Using a

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shorter straight edge, the same procedure shall be used across the width, in the center of the tray pack can. When examining a ribbed lid, lay the straight edge only between the two center ribs along the length of the can. The inspection lot shall include only tray packs produced in a single shift on a single sealing machine. The sample size shall be 50 cans. Any nonconformance is a major defect and shall be cause for rejection of the lot.

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.

5. PACKAGING

5.1 Preservation. The product shall be preserved in accordance with Level A.

5.1.1 Level A. One hundred and eight ounces of food product shall be filled into a tray pack can conforming to MIL-C-44340 and sealed and thermoprocessed as specified in 3.4 and 3.5. Buffing of the can causing damage to the exterior can coating is not permitted (see 4.5.4).

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 snug-fitting fiberboard box, constructed and closed in accordance with style RSC-L or HSC-L with a HSC full depth cover, grade V2s 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 fabricated of grade V3c fiberboard. The height of the box liner shall be equal to the full inside depth of the box (+0 inch, -1/8 inch). Flute direction of the box liner shall be vertical. 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. Each box shall be reinforced with nonmetallic strapping

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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). Flute direction of the box liner shall be vertical. 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 tray pack can shall be labeled in accordance with MIL-L-1497 and with the following:

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

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- 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 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 as specified in 4.5.4 after preparation of product in accordance with heating instructions. Paper labels are not permitted. Cans shall show the following statements:

TO HEAT IN WATER: Submerge unopened can in boiling water. Simmer gently 40 - 45 minutes. Avoid overheating (can shows evidence of bulging).

CAUTION: Use care when opening as pressure may have been generated within the can.

TO HEAT IN OVEN: Either punch several holes in lid of can or open can in usual manner leaving the loose lid in place. Place in a 350°F oven 35 - 40 minutes.

WARNING: Do not place unopened can in oven. This may cause the can to burst.

YIELD: Serves 12 portions of 1 cup each.

As an alternative labeling method, a pre-printed self-adhering, 0.002-inch thick clear polyester label printed with indelible black ink may be used. Self-adhering labels shall be applied after retorting. Pressure-sensitive adhesive shall require no preparation prior to application. Labels shall tack quickly and adhere without curling or breaking. The adhesive shall have a minimum adhesion of 60 ounces per inch width when examined as specified in 4.5.4.2. When a self-adhering label is used, the tray pack can shall be labeled with the Julian code and a product code prior to retorting.

5.5 Marking.

5.5.1 Shipping containers. In addition to any special marking required by the contract or purchase order, 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, 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,
UNLESS PALLET RACKS ARE USED.

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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 packing required (see 5.2).
- e. 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 procuring activity should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.28/AFR 71-6/MCO 4030.33A/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 specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in all acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.4 Subject term (key word) listing.

Canned foods
 Chicken
 Combat field feeding
 Thermostabilized
 Tray Pack

6.5 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL
 Navy - SA
 Air Force - 50

Preparing activity:

Army - GL
 Project No. 8940-0632

Review activities:

Army - MD, TS
 Navy - MC
 DP - SS

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-C-44288A		2. DOCUMENT TITLE Chicken Stew, Thermostabilized, Tray Pack	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
		<input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____	
b. ADDRESS (Street, City, State, ZIP Code)			
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	

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NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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