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SUPERSEDING
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MILITARY SPECIFICATION

CORNEB BEEF HASH, 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 corned beef hash 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 Semipерishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For
- MIL-C-44340 - Can, Tray Pack

STANDARDS

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- 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 Inspection Regulations

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

Institutional Meat Purchase Specifications for Fresh Beef, Series 100

(Copies may be obtained from the Director, Livestock and Seed Division, Agricultural Marketing Service, U.S. Department of Agriculture, Room 2092, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

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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 0608, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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

(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.)

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.)

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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 specification 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 Beef. The beef shall be from steers, heifers, or cows and shall be derived from any combination of primal or subprimal cuts of the round, shank-off (round, top round, bottom round, outside round, and knuckles. Recognizable cuts are those which, when compared to Institutional Meat Purchase Specifications (IMPS) cuts, have no more than a minor amount of lean, fat, or bone removed or included from an adjacent cut. The beef shall be in the fresh-chilled state and shall be in excellent condition, i.e., exposed lean and fat surfaces shall be of a color and bloom normally associated with the class and cut of meat, and typical of meat which has been properly stored and handled. Cut surfaces and naturally exposed lean surfaces shall show no more than slight darkening or discoloration due to dehydration, aging, or microbial activity. The fat shall show no more than a slight discoloration due to oxidation or microbial activity. No odors foreign to fresh meat shall be

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present. Changes in color and odor characteristically associated with vacuum-packaged meat in excellent condition shall be acceptable. The beef shall show no evidence of freezing, defrosting, or mishandling.

3.2.1.1 Boning and trimming. The beef shall be boned and trimmed to remove objectionable material such as bone, cartilage, heavy connective tissue, etc. The boneless trimmed beef shall meet the limitations specified in tables I and II.

3.2.1.2 Handling and storage. Handling and storage of the boned and trimmed beef, prior to processing into the finished product, shall be in accordance with the following requirements:

- a. Beef processed on the day of initial certification shall be maintained in the temperature range of 28° to 50°F, inclusive.
- b. Holding in the fresh-chilled state for not more than 4 days after initial certification is permitted, provided that the beef is maintained in the temperature range of 28° to 40°F, inclusive.
- c. Holding in the frozen state for not more than 120 days after initial certification is permitted, provided that the beef is:
 - frozen to 0°F or lower within 72 hours after initial certification
 - stored at 0°F or lower
 - protected from freezer deterioration and damage
 - stored in containers that are adequate to maintain product excellence
 - held after storage at an internal temperature not to exceed 40°F when further processing is resumed.

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

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

3.2.4 Clove, ground. Ground cloves shall be prepared from the dried, unopened flower buds of Caryophyllus aromaticus L. The powder shall be dark reddish-brown in color and shall possess a strong aromatic odor with a hot pungent taste. The ground cloves shall contain not less than 15.0 mL of volatile oil per 100 grams of a ground clove and be of such size that not less than 95 percent shall pass through a U.S. Standard No. 30 sieve.

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3.2.5 Garlic powder. Garlic powder shall be Fancy Grade of the Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products.

3.2.6 Onions, dehydrated, chopped. Dehydrated chopped onions shall be Fancy Grade of the Official Standards and Methods of the American Dehydrated Onion and Garlic Association for Dehydrated Onion and Garlic Products.

3.2.7 Pepper, black, ground. Ground black pepper shall have been ground from the deep brown to black, deep-set, wrinkled, immature berries of Piper nigrum L. The ground pepper shall have a characteristic, penetrating odor, a hot, biting, pungent flavor and a light grey to speckled black-grey color. The ground pepper shall contain not less than 2.0 mL of volatile oil per 100 grams of ground black pepper and be of such size that 95 percent shall pass through a U.S. Standard No. 16 sieve.

3.2.8 Pepper, green, sweet, dehydrated. The peppers shall be 1/4 inch dices of sweet bell peppers which have been air-dried, freeze-dried or a combination of each. The pepper dices shall be practically free of seeds, seed cells, and diseased or rotted areas. The pepper dices shall possess a fresh, clean, typical sweet green pepper flavor and odor and a green, with minimal brownish, color. The moisture content shall be not greater than 5 percent.

3.2.9 Potatoes, crushed, dehydrated. The dehydrated, crushed potatoes shall be processed from sound, well peeled and trimmed potatoes. The dehydrated potatoes shall possess a bright, uniform white potato color which may vary from light cream to a pale yellow. The potatoes shall not have more than 25 dark brown or black specs per 5 grams. The moisture content shall not exceed 8.0 percent. The potatoes may be treated with FDA approved antioxidants to prevent discoloration. The granulation size shall comply with the following:

- 5 \pm 5 percent shall be retained on a U.S. Standard No. 8 sieve
- 35 \pm 5 percent shall be retained on a U.S. Standard No. 20 sieve
- 30 \pm 5 percent shall be retained on a U.S. Standard No. 40 sieve
- 30 \pm 5 Percent shall pass through a U.S. Standard No. 40 sieve

3.2.10 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 so that the dimensions of the dices will be approximately 3/8 by 3/8 by 3/8 inch.

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3.2.11 Potatoes, fresh. Potatoes shall be fresh, clean, sound, 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.

3.2.12 Sugar, white, granulated. Sugar shall be white refined, granulated cane or beet sugar, or a combination thereof, and shall comply with MIL-STD-900.

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

3.2.14 Sodium erythorbate. Sodium erythorbate shall comply with the Food Chemicals Codex.

3.2.15 Sodium nitrite. Sodium nitrite shall comply with the Food Chemicals Codex.

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 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.

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

3.3.1 Preparation of the cured beef. The beef shall be prepared as follows:

- a. Boned and trimmed beef which meets the requirements of 3.2.1.1 shall be further trimmed, if necessary, to assure compliance with finished product requirements (see 3.6).
- b. The boned and trimmed beef shall be mechanically ground once through a grinder plate, having holes measuring 1/2 inch in diameter, and then then uniformly blended with the following cure ingredients. 2/

<u>Ingredient</u>	<u>Pounds per 100 pounds of beef</u>
Water	2.500
Sodium erythorbate	0.050
Sodium nitrite <u>1/</u>	0.015

1/ Sodium nitrite shall be of sufficient strength to assure a complete cure without exceeding 150 parts per million of nitrite in the cured beef.

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2/ Alternate processing using mixer-grinder. The boned and trimmed beef shall be coarse ground through a grinder plate, having holes measuring 1 inch or more in diameter, and then uniformly mixed with the cure ingredients in a mixer-grinder. The cured meat mixture shall then be ground once through a grinder plate having holes measuring 1/2 inch in diameter.

c. The mixture shall be held for sufficient time at an internal temperature of 28° to 40°F to assure a uniform grey color prior to its being blanched.

d. The cured ground meat shall be blanched in a minimum amount of water in a steam-jacketed kettle to obtain a yield of approximately 65 to 70 percent.

3.3.2 Preparation of potatoes.

3.3.2.1 Preparation of fresh potatoes. The fresh potatoes shall be thoroughly cleaned to remove dark and extraneous material, peeled, trimmed, and thoroughly washed. The washed potatoes shall be mechanically diced with dicer settings at approximately 3/8 by 3/8 by 3/8 inch. The potato dices shall be blanched sufficiently to prevent discoloration and to remove excess air. The blanched potatoes shall be immediately cooled with cooling water 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 prior to preparation, and filled into the tray pack can within 4 hours after blanching.

3.3.2.2 Preparation of dehydrofrozen potatoes. Dehydrofrozen potatoes shall be used without further preparation and shall be handled in a manner to prevent discoloration prior to product preparation.

3.3.3 Product formulation and preparation. The corned beef hash shall be formulated and prepared as follows:

<u>Ingredient</u>	<u>Percent by weight</u>
Beef, cured, blanched <u>1/</u>	43.500
Potatoes, fresh <u>2/</u>	45.000
Water <u>1/</u>	6.867
Potatoes, crushed, dehydrated	1.650
Salt <u>3/</u>	1.240
Onions, dehydrated, chopped	0.720
Sugar, white, granulated	0.600
Garlic powder	0.170
Pepper, green, sweet, dehydrated	0.150
Pepper, black, ground	0.070
Bay leaves, ground	0.025
Clove, ground	0.008

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- 1/ The beef amount is based on a blanching yield of approximately 70 percent. The beef and water percentages shall be adjusted, as necessary, to compensate for blanching yields from 65 to 69 percent.
- 2/ When dehydrofrozen potatoes are used, the formulation shall consist of 20.489 percent by weight of potatoes and 26.878 percent by weight of water.
- 3/ The total amount of salt in the formula shall be adjusted, as necessary, to produce a product that complies with the finished product salt requirements (see 3.6).

- a. The ingredients shall be mixed sufficiently to assure a uniform blend, without deforming the potato dices.
- b. The mixture shall be heated, only to the extent necessary, to allow the potatoes to absorb all of the free water.

3.4 Tray pack filling and sealing. Each tray pack can (see 5.1.1) shall be filled with product 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 (see 3.6o).
- b. The filled and sealed tray pack cans shall be in the retort process within 2 hours after preparation.

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 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 odor or flavor such as, but not limited to, burnt, scorched, stale, sour, rancid, or moldy.
- c. There shall be no color foreign to the product.
- d. Free liquid weight in any individual tray pack can shall be not more than 3.0 ounces.
- e. The average net weight shall be not less than 98 ounces.
- f. No individual can shall contain less than 96 ounces of product.

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- g. There shall be a uniform distribution of corned beef and potato dices.
- h. Potato dice texture shall be firm but not mushy, hard, fibrous, or tough.
- i. At least 75 percent of the potatoes shall be discernible dices.
- j. The salt content of the finished product shall be not less than 0.7 percent nor greater than 1.5 percent.
- k. The average fat content of the finished product shall not be greater than 5.5 percent and no individual tray pack shall have a fat content greater than 7.5 percent.
- l. Total weight of cartilage, coarse connective tissue, section of tendons or ligaments, and glandular material, collectively, in any individual can shall be not more than 2.0 ounces.
- m. No individual can shall contain a bone piece measuring 0.3 inch or more in any dimension.
- n. The product shall show no evidence of excessive heating (materially darkened or scorched).
- o. 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 finished 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 beef component and the finished product shall originate and be produced, processed, and stored in plants regularly operating under the Meat and Poultry 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.

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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.

4.5.1.1 Beef examination for condition and cut. All beef shall be examined in either the bone-in or boneless state for conformance to the condition and cut requirements in 3.2.1. Cuts initially examined in the boneless state shall be in the form of whole boneless recognizable cuts. Any nonconforming beef shall be rejected.

4.5.1.2 Boned and trimmed beef examination. After boning and trimming and prior to any further processing or to any freezing, the beef shall be examined for the defects listed in table II. The lot size expressed in terms of pounds shall be declared to the Agricultural Marketing Service (AMS) agent by the contractor. However, the AMS agent reserves the right to declare as a lot a portion of a declared lot, if, in his or her opinion, that portion may be out of compliance with any requirement. The sample unit shall be a minimum of 12 pounds of adjacent boneless beef. The sample size shall be as specified in table I. If all or a portion of the sample unit falls within a larger cut, the entire cut shall be examined. Failure of the beef to meet the acceptance criteria as indicated in table I shall be cause for rejection of the lot. Except for beef rejected because of freezing, defrosting, or not being in excellent condition, the beef may be reworked by the contractor and reoffered for examination. For reexamination, the sampling plan used shall be the one in table I designed for the next larger lot size than the one under which the lot was initially rejected. Beef shall not be reexamined more than one time.

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TABLE I. Sampling plan for boned and trimmed beef

<u>Lot size</u> (pounds)	<u>Sample size</u> (No. of sample units)	<u>Defect categories</u>			
		<u>Major</u>		<u>Minor</u>	
		AC	RE	AC	RE
500 or less	20	2	3	5	6
501 to 1,200	32	3	4	7	8
1,201 to 3,200	50	5	6	10	11
3,201 to 10,000	80	7	8	14	15
10,001 to 38,000	125	10	11	21	22
Reinspection lots of 10,001 - 38,000	200	14	15	21	22

TABLE II. Boned and trimmed beef defects 1/ 2/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
101		Presence of popliteal, prescapular, prefemoral or any exposed lymph gland measuring 0.5 inch or more in any dimension.
102		Presence of blood clot measuring 1.0 inch or more in any dimension.
	201	Presence of blood clot measuring 0.5 inch or more but less than 1.0 inch in any dimension.
103		Presence of bruise measuring 1.0 inch or more in any dimension.
	202	Presence of bruise measuring 0.5 inch or more but less than 1.0 inch in any dimension.
104		Presence of a bone piece measuring 0.3 inch or more in any dimension.
105		Presence of cartilage measuring 0.5 inch or more in any dimension.

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TABLE II. Boned and trimmed beef defects 1/ 2/ (cont'd)

Category		Defect
<u>Major</u>	<u>Minor</u>	
106		Presence of backstrap measuring 1.0 inch or more in one dimension and 0.2 inch or more in a second dimension (when measured at right angles to each other).
	203	Presence of backstrap measuring 0.5 inch or more but less than 1.0 inch in one dimension and 0.2 inch or more in a second dimension (when measured at right angles to each other).
107		Presence of heavy connective tissue (for example, on the surface of the outside round adjacent to the knuckle, along the skin surface of the strip loin, or the gracilis membrane) measuring 2.0 square inches or more.
	204	Presence of heavy connective tissue (for example, on the surface of the outside round adjacent to the knuckle, along the skin surface of the strip loin, or gracilis membrane) measuring 0.5 square inches or more but less than 2.0 square inches.
	205	Presence of heavy connective tissues on lower edge of short plate or flank.
	206	Presence of heavy connective (abdominal tunic) tissue on the flank measuring 1.0 inch or more in any dimension.
	207	Presence of membranous portion of diaphragm or membranous covering from skirt, flank, or abdominal section of short plate measuring 3.0 square inches or more.
108		Presence of knuckle cover.
109		Presence of kidney, pizzle eye, prepubic tendon, thymus gland, or hanging tender measuring 1.0 inch or more in one dimension and 0.2 inch or more in a second dimension (when measured at right angles to each other).
	208	Presence of kidney, pizzle eye, prepubic tendon, thymus gland, or hanging tender measuring less than 1.0 inch in one dimension and 0.2 inch or more in a second dimension (when measured at right angles to each other).

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TABLE II. Boned and trimmed beef defects 1/ 2/ (cont'd)

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
	209	Presence of calcified (scratchy) periosteum measuring 2.0 square inches or more.
	210	Presence of shank, clod, knuckle, or bottom (outside) round with tendinous end showing less than 75 percent lean tissue on a cross-sectional cut surface.
	211	Presence of dehydrated surface measuring 1.0 square inch or more.
	212	Presence of discolored meat (including blood discolored neck meat) measuring 1.0 square inch or more.
	213	Presence of exposed blood vessel measuring 1.0 inch or more in any dimension.
	214	Presence of cod, udder, kidney, or pelvic fat.

1/ Determination of wholesomeness and acceptability of product with respect to the presence of foreign material (e.g. glass, dirt, insect parts, hair, wood, metal) shall be made by a Meat and Poultry Inspection Operations employee.

2/ Evidence of freezing or defrosting or product not in excellent condition shall cause rejection of the involved lot.

4.5.1.3 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, and 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.

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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 98 ounces or if the net weight of any individual can is less than 96 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 III. The tray pack cans shall be selected at random from the lot. The tray pack cans shall be heated for 40 to 45 minutes in boiling water, opened, and inspected for defects listed in table IV.

TABLE III. Double sampling plan for product inspection 1/

Lot size (cans)	Sample size (cans)	Cumulative sample	Acceptance number	Rejection number
0 to 3,200	8	--	0	2
	8	16	1	2
3,201 to 35,000	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.

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TABLE IV. Product defects 1/ 2/

Category	Defect
<u>Major</u>	
101	Free liquid weight in any individual tray pack can is more than 3.0 ounces. <u>3/</u>
102	Less than 75 percent of the potatoes are discernible dices.
103	Total weight of cartilage, coarse connective tissue, section of tendons or ligaments, and glandular material, collectively, in any individual can is more than 2.0 ounces.
104	Corned beef and potato dices not uniformly distributed throughout the product.
105	Presence of a bone piece measuring 0.3 inch or more in any dimension.
106	Texture of potato dices is hard, fibrous, mushy, or tough, not firm. <u>4/</u>
107	Product shows evidence of excessive heating (materially darkened or scorched).

- 1/ The presence of foreign material (e.g. dirt, insect parts, hair, wood, glass, 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 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 the weight of free liquid, the following procedure shall be used. The can shall be opened and the lid shall be held in place. The can shall be elevated on end, so that any liquid will flow out of the opened corner, and drained for 1 minute, collecting the free liquid. The free liquid shall be reported to nearest 0.1 ounce.
- 4/ Examination for appearance and texture conformance of the potato dice shall be made following the determination of free liquid.

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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 analyses.
- Three for submission to the contractor.
- Three for retention by an AMS agent as reserve samples.

The three tray packs for laboratory analyses shall be individually 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 tray packs 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:

- a. The average fat content of the three tray packs is greater than 5.5 percent.
- b. The fat content of any individual tray pack is greater than 7.5 percent.
- c. The salt content of any individual tray pack is less than 0.7 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.

4.5.4 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 the 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:

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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 on 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 $75^{\circ} \pm 5^{\circ}\text{F}$, held for at least 24 hours after sealing, and then examined for vacuum retention. To examine, lay a straight edge 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 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, only lay the straight edge 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.

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5. PACKAGING

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

5.1.1 Level A. Ninety-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 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 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.

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5.3 Unit loading. When specified (see 6.1), the product, packed as specified in 5.2.2 or 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, 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/

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 the 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 18 portions of 2/3 cup each.

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As an alternate labeling method, a preprinted 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 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 marking 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.

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. When a first article sample 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.

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6.4 Subject term (key word) listing.

Beef
Canned food
Food processing
Potato
Ration
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. 8940-0653

Review activities:

Army - MD, TS
Navy - MC
DP - SS

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