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SUPERSEDING
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MILITARY SPECIFICATION

PORK SLICES, WITH GRAVY, THERMOSTABILIZED, TRAY PACK

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

1. SCOPE

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

2. APPLICABLE DOCUMENTS

2.1 Government documents.

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

SPECIFICATIONS

FEDERAL

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

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.

FSC 8940

AMSC N/A

MILITARY

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

STANDARDS

MILITARY

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

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

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

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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

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

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Meat and Poultry Inspection Regulations

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

Institutional Meat Purchase Specifications for Fresh Pork, Series 400

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

U.S. Standards for Condition of Food Containers

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

ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

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

2.2 Other publications. The following documents form a part of this document 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 DEHYDRATED ONION AND GARLIC ASSOCIATION (ADOGA)

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

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

AMERICAN SPICE AND TRADE ASSOCIATION (ASTA)

Official Analytical Methods of the American Spice and Trade Association

(Application for copies should be addressed to the American Spice and Trade Association, Inc., 580 Sylvan Avenue, Englewood Cliffs, NJ 07632.)

AMERICAN ASSOCIATION OF CEREAL CHEMISTS (AACC)

Approved Methods of the American Association of Cereal Chemists

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

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS (AOAC)

Official Methods of Analysis of the Association of Official Analytical Chemists

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

NATIONAL ACADEMY OF SCIENCES

Food Chemicals Codex

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

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

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

3. REQUIREMENTS

3.1 First article. When specified 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 Pork. Pork shall be derived from any one or any combination of the following recognizable wholesale cuts: shoulders, shoulder picnics, Boston butts, hams, and loins. 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 pork 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 present. Changes in color and odor characteristically associated with vacuum-packaged meat in excellent condition shall be acceptable. The pork shall show no evidence of freezing, defrosting, or mishandling. Coarse-textured, dark pork, or pale, soft and exudative (PSE) pork is not acceptable. Cuts which have had a slight amount of lean fully removed will be acceptable. Cuts which have had more than a slight amount of lean removed, for any reason, shall not be included. All suitable lean meat shall be used in proportions as existing in the involved cut, except that the tenderloins may be excluded at the option of the contractor.

3.2.1.1 Boning and trimming. Pork shall be made boneless and trimmed to comply with the limitations listed in tables I and II. Pork shall be trimmed of fat to a degree necessary to assure compliance with finished product fat requirements (see 3.6). All pork shipped between plants shall be accompanied by a USDA, Agricultural Marketing Service (AMS) certificate to certify condition of the product and compliance with boning and trimming requirements.

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

a. Pork 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 pork 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 pork 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, ice making, and washing shall conform to the National Primary Drinking Water Regulations.

3.2.3 Starch, food, modified, high opacity. High opacity starch shall be white, odorless, finely pulverized modified maize food starch for use in thermostabilized foods. The modified starch shall demonstrate initial viscosity development in the temperature range of 140° to 170°F and a typical viscosity (be fully hydrated) at common retort temperatures. The modified starch shall resist breakdown at low pH and under shear stress. A cooked slurry prepared from the starch shall be bland with essentially no cereal or starch taste. The starch shall comply with MIL-STD-900.

3.2.4 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.

3.2.5 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.

3.2.6 Sauce Worcestershire. Worcestershire sauce shall be brown to dark brown liquid and shall possess a pleasant, tart, peppery, fruit-spice flavor with a typical heavy viscosity. The titratable acidity (as acetic acid) of the sauce shall be not less than 2.8 percent nor more than 3.3 percent.

3.2.7 Monosodium glutamate. Monosodium glutamate (MSG) shall comply with the Food Chemicals Codex.

3.2.8 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.

3.2.9 Paprika, ground. Ground paprika shall be Spanish paprika (Capsicum annuum L.) and shall possess a bright orange to red color with an extractable color value of not less than 110 American Spice and Trade Association (ASTA) color units. The ground paprika shall be of such size that not less than 95 percent shall pass through a U.S. Standard No. 30 sieve.

3.2.10 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 ground 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.

3.2.11 Color, caramel. Caramel color shall comply with the Food Chemicals Codex.

3.2.12 Sugar, brown, light. Brown sugar shall be partially refined cane or beet sugar. The sugar shall be light brown in color and shall have a sweet, molasses-like flavor.

3.2.13 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 Pork preparation. Boned and trimmed pork 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). The boned and trimmed pork shall be mechanically ground once through a kidney-shaped plate, having openings measuring 2-1/2 inches or more in the least dimension, and a two-bladed knife that yields pieces weighing at least 2 ounces.

3.3.1.1 Mixing. The pork pieces shall be mechanically mixed with the following ingredients for approximately 15 minutes or until the product becomes moderately tacky.

Ingredient	Percent by weight
Pork	96.25
Water or ice	3.00
Salt	0.75

3.3.1.2 Stuffing and forming. The pork mixture shall be mechanically stuffed tightly into number 7 regenerated cellulose prestuck casings. The resultant meat logs (rolls) shall be mechanically formed to comply with a cross-sectioned shape and dimension approximating figure 1. The open ends shall be sealed to exert minimum pressure on the meat.

3.3.1.3 Cooking. The formed pork logs shall be cooked by one of the following methods to provide a product meeting the finished product requirements.

a. Cook house method. The meat logs shall be cooked in a cook house (smokehouse without smoke) at a temperature range of 160° to 162°F and 100 percent relative humidity until the internal product temperature reaches 150° to 152°F.

b. Water cooking method. The meat logs shall be cooked in water until the internal product temperature reaches 150° to 152°F.

3.3.1.4 Cooling and freezing. The cooked meat logs shall be cooled to 40°F or below within 24 hours following the cooking process. The cooled, cooked meat logs shall be held not longer than 48 hours at a temperature not to exceed 40°F after removal from the cooking process and prior to slicing. Alternatively, if the cooked meat logs are to be held longer than 48 hours after cooking, they shall be placed in a freezer within 4 hours after cooking, and frozen to 0°F or lower within 10 hours after being placed in the freezer. If the pork logs are to be frozen, the meat shall not have been previously frozen and the meat shall be placed into separate oxygen impermeable casing material approved by the USDA and FDA, and securely closed. The frozen, cooked logs shall be held at 0°F for a period of not more than 14 days prior to slicing. The frozen meat logs shall be tempered to a range of 28° to 40°F prior to slicing.

3.3.1.5 Slicing. The pork logs shall be sliced to a uniform size, shape, and thickness. The time from slicing to filling shall be continuous. End slices shall not be used.

3.3.2 Gravy preparation. The gravy shall be formulated with the following ingredients:

Ingredient	Percent by weight
Water	91.69
Starch, modified, high opacity	5.50
Onions, dehydrated, chopped	0.93
Salt 1/	0.65
Worcestershire sauce	0.44
Sugar, brown, light	0.40
Monosodium glutamate	0.30
Garlic powder	0.04
Pepper, white, ground	0.02
Paprika, ground	0.02
Color, caramel	0.01

1/ The total amount of salt in the gravy formula shall be adjusted, as necessary, to produce a product that complies with the finished product salt requirements (see 3.6).

The gravy shall be prepared as follows:

a. A thin slurry shall be made with the starch and part of the water.

b. The balance of the water and remaining ingredients shall be mixed together and heated to 140° to 180°F.

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

d. The volume of the gravy shall be adjusted with water to compensate for evaporation loss during heating and holding.

e. The gravy shall be maintained in the temperature range of 150° to 180°F and filled into tray pack cans within 4 hours after preparation.

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. Not less than 54 intact pork slices shall be packed shingled in two rows, lengthwise, in the tray pack can, and then the gravy shall be added.

b. The gravy at the time of filling shall be in the temperature range of 150° to 180°F.

c. The pork at the time of filling shall be in the temperature range of 28° to 40°F.

d. Each can shall be hermetically sealed under a vacuum established by a processing authority and specified in the scheduled process so as to assure compliance with the finished product requirement (see 3.6s).

e. The filled and sealed tray pack cans 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_o) 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. The texture of the slices shall not be dry, rubbery, or mushy.

e. Gravy shall not be lumpy.

f. Drained weight of 54 intact pork slices in any individual tray pack can shall be not less than 58.0 ounces.

g. 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.

h. The average net weight shall be not less than 106 ounces.

i. No individual can shall contain less than 104 ounces of product.

j. The average fat content of the finished product shall not be greater than 12.0 percent and no individual tray pack shall have a fat content greater than 14.0 percent.

k. The salt content of the finished product shall be not less than 0.50 percent nor greater than 1.25 percent.

l. No individual can shall contain less than 54 intact pork slices.

m. No individual can shall have a pork slice with adherent fat or a fat pocket measuring 1/2 inch or more in any dimension.

n. Pork slices shall approximate the size and shape shown in figure 1.

o. No individual can shall contain a bone piece measuring 0.3 inch or more in any dimension.

p. The viscosity of the gravy shall be not less than 7.0 cm per 10 seconds nor greater than 23.0 cm per 10 seconds when determined by a Bostwick Consistometer, or not less than 4,000 centipoise nor greater than 12,800 centipoise when determined by a Brookfield Viscosimeter equipped with a No. 4 spindle stirring at a speed of 5 rpm.

q. The product shall show no evidence of excessive heating (materially darkened or scorched).

r. The average drained weight of the pork slices shall be not less than 60.0 ounces.

s. 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 pork 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.

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 Pork examination for condition and cut. All pork 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 pork shall be rejected.

4.5.1.2 Boned and trimmed pork examination. After boning and trimming and prior to any further processing or to any freezing, the pork shall be examined for the defects listed in table II. The lot size expressed in terms of pounds shall be declared to the 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 pork. 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 pork to meet the acceptance criteria as indicated in table I shall be cause for rejection of the lot. Except for pork rejected because of freezing, defrosting, or not being in excellent condition, the pork 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. Pork shall not be reexamined more than one time.

TABLE I. Sampling plan for boned and trimmed pork

Lot size (pounds)	Sample size (No. of sample units)	Defect Categories			
		Major		Minor	
		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 to 38,000	200	14	15	21	22

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

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

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

Category		Defect
Major	Minor	
106		Presence of skin measuring 0.3 inch or more in any dimension.
107		Exposed (protruding) ligaments and tendons measuring more than 0.3 inch.
108		Presence of kidney measuring more than 1.0 inch in any dimension.
	204	Presence of shank with tendinous end showing less than 75 percent lean tissue on a cross-sectional cut surface.
	205	Presence of exposed blood vessel measuring 1.0 inch or more in any dimension.
	206	Presence of skirt (diaphragm) or abdominal tissue.
	207	Presence of leaf, lumbar, or pelvic fat.
	208	Presence of mediastinal tissue in the first rib or sternal region.
	209	Presence of dehydrated surface measuring 1.0 inch or more in any dimension.
109		Presence of coarse-textured, dark pork, or pale, soft, and exudative (PSE) pork.

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 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, 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. The results shall be reported to the nearest 1 ounce. If the average net weight is less than 106 ounces or if the net weight of any individual can is less than 104 ounces, the lot shall be rejected.

4.5.3.2 Product inspection. The sample size shall be as indicated by the double sampling plan specified in table III. The tray pack cans shall be selected at random from the lot. The tray pack cans shall be heated for 35 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.

TABLE IV. Product defects 1/ 2/

Category	Defect
Major	
101	Drained weight of 54 intact pork slices in any individual tray pack can is less than 58.0 ounces. 3/ 4/
102	Total weight of cartilage, coarse connective tissue, section of tendons or ligaments, and glandular material, collectively, in a can is more than 2.0 ounces.
103	Product shows evidence of excessive heating (materially darkened or scorched).
104	Texture of pork slices are dry, rubbery, or mushy.
105	Gravy is lumpy.
106	Slices not arranged in a shingled manner.
107	Less than 54 intact pork slices in any individual can.
108	Slices not approximating the size and shape shown in figure 1.
109	Pork slice has adherent fat or a fat pocket measuring 1/2 inch or more in any dimension.
110	Presence of a bone piece measuring 0.3 inch or more in any dimension.

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 AMS agent.)

3/ To determine drained weight, the free liquid in the can shall be poured off, strained through a U.S. Standard No. 8 sieve, and reserved for viscosity determinations. The remaining contents of the can shall be poured into a flat-bottom container. A minimum of three times the tray pack can's volume of 190° to 212°F water shall be added to the container so as to cover the contents. The contents and water shall be agitated so as to liquify rendered fat and remove the gravy without breaking the pork slices. The contents shall then be poured into a U.S. Standard 1/2 inch sieve in a manner that will distribute the product over the sieve without breaking the pork slices. 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 approximately a 45° angle and allowed to drain for 2 minutes before determining the drained weight by subtracting the sieve tare weight from the gross weight. The drained weight shall be reported to the nearest 0.1 ounce.

4/ The lot shall be rejected if the sample average drained weight is less than 60.0 ounces.

4.5.3.3 Fat and salt content testing. Nine tray pack cans 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 pack 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 for fat content shall be reported to the nearest 0.1 percent. The test results for salt content shall be reported to the nearest 0.01 percent. The lot shall be rejected if:

a. The average fat content of the three tray packs is greater than 12.0 percent.
b. The fat content of any individual tray pack is greater than 14.0 percent.
c. The salt content of any individual tray pack is less than 0.50 percent or greater than 1.25 percent.

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

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

4.5.3.4.1 Bostwick Consistometer method.

Instrument: Bostwick Consistometer

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

Method:

a. Level the instrument.
b. Bring gravy to 100°F ± 1°F in a water bath in a covered container.
c. Stir gravy thoroughly before filling the Bostwick cavity.
d. Scrape gravy evenly across upper edge of cavity.
e. Release gravy and time gravy flow to the nearest 1 second and measure distance traveled to the nearest 0.1 cm.

The lot shall be rejected if the Bostwick viscosity value of the gravy from any can in the sample is less than 7.0 cm per 10 seconds or greater than 23.0 cm per 10 seconds.

4.5.3.4.2 Brookfield Viscosimeter method

Instrument: Brookfield Viscosimeter (variable speed) equipped with a No. 4 spindle.
Brookfield Engineering Lab, Inc.
Stoughton, MA 02072

Method:

a. Bring gravy to 80°F ± 1°F in a water bath in a covered container.
b. Stir gravy thoroughly and pour 500 mL of the gravy into a 600 mL beaker.
c. Using a No. 4 spindle, stir at a speed of 5 rpm and record dial reading.
d. Convert dial reading to centipoise. Record result to nearest 100 centipoise.

The lot shall be rejected if the Brookfield viscosity value of the gravy from any can in the sample is less than 4,000 centipoise or greater than 12,800 centipoise.

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 MIL-L-1497 (see 5.4).

4.5.5 Can closure examination. Can closures 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 shall be cause for rejection of any involved product.

4.5.6 Vacuum examination. Cans shall be allowed to cool to 75° ± 5°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 nonconforming tray pack can 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 or C as specified (see 6.1).

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

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

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

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

5.2.1 Level A packing. Four cans of product, preserved as specified in 5.1, shall be packed in 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).

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 the next two cans with the lids together. The inside of each box shall be provided with a box liner and five fiberboard pads. The height of the box liner shall be equal to the full inside depth of the box (+0 inch, -1/8 inch). The pads shall be placed between the cans and on the top and bottom of the stacked cans. The pad dimensions shall be not less than 1/8 inch of the full length and width dimensions of the box and shall be fabricated of the same material as the box.

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

5.4 Labeling. Each 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/
- Product 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 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: Submerge unopended can in boiling water. Simmer gently for 40 to 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 for approximately 35 to 40 minutes.

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

YIELD: Serves 18 portions of 3 slices each.

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, when tray pack cans are fabricated from 90 pounds per base box, 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

6. NOTES

6.1 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this document.
b. When a first article is required (see 3.1, 4.4, and 6.3).
c. Provisions for approved preproduction samples (see 3.6.1 and 6.3).
d. Level of preservation and packing required (see 5.1 and 5.2).
e. When tray pack cans are to be fabricated from 98 pounds per base box (see 5.1.1.1).
f. Type and class of unit load when unit loading is required (see 5..2.1 and 5.3).

6.2 Appropriate level of pack. Based on the conditions known or expected to be encountered during shipment, handling, and storage of the specific item being procured, the 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.

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

6.5 Subject term (key word) listing.

Canned food
Food Processing
Pork
Ration
Thermostabilized
Tray pack

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL

Project No. 8940-0589

Review activities:

Army - MD, TS
Navy - MC
DP - SS

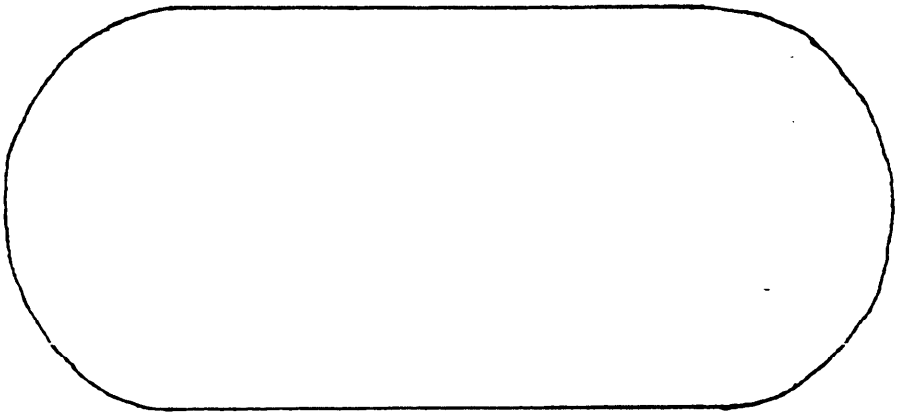

Figure 1

PORK SLICE SHAPE

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge *(DO NOT STAPLE)*, and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

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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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-P-44233A	Pork Slices, with Gravy, Thermostabilized, Tray Pack

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
	☐ USER
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ MANUFACTURER
	☐ OTHER *(Specify)*: _____

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)*

DD FORM 82 MAR 1426 PREVIOUS EDITION IS OBSOLETE.

NATICK OP, 20 Nov 84