

INCH-POUND

MIL-C-44468  
29 March 1993  
SUPERSEDING  
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## MILITARY SPECIFICATION

## CHILI CON CARNE, WITHOUT BEANS, CANNED

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

## 1. SCOPE

1.1 Scope. This specification covers chili con carne, without beans, canned, 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 document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.1).

## 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 used in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5018 by using the 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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MILITARY

- MIL-L-1497 - Labeling of Metal Cans for Subsistence Items
- MIL-L-35078 - Loads, Unit: Preparation of Semipерishable Subsistence Items; Clothing, Personnel Equipment and Equipage; General Specifications 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

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

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

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Institutional Meat Purchase Specifications for Fresh Beef, Series 100

(Copies are available from Director, Livestock and Seed Division, Agricultural Marketing Service, U.S. Department of Agriculture, Room 2603, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

Meat and Poultry Inspection Regulations (9 CFR Parts 301-399)

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

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U.S. Standards for Condition of Food Containers

(Copies are available from the Chairperson, Condition of Container Committee, Agricultural Marketing Service, U.S. Department of Agriculture, Room 2506, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

U.S. Standards for Grades of Tomato Paste (7 CFR Part 52.5041)

(Copies are available from the Director, Fruit and Vegetable Division, Agricultural Marketing Service, U.S. Department of Agriculture, Room 2077, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)

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

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

2.2 Non-Government 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 are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.1).

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.)

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, One Maritime Plaza, 23rd Floor, San Francisco, CA 94111.)

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, Incorporated, 580 Sylvan Avenue, Englewood Cliffs, NJ 07632.)

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AOAC INTERNATIONAL

Official Methods of Analysis of the AOAC

(Application for copies should be addressed to the AOAC International, 2200 Wilson Boulevard, Suite 400-CD, Arlington, VA 22201-3301.)

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.)

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

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

3. REQUIREMENTS

3.1 First article. When specified (see 6.1), a sample shall be subjected to first article inspection (see 6.2) in accordance with 4.4.

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. Beef shall be from steers, heifers, or cows and shall be derived from any one or any combination of the following USDA Certified Institutional Meat Purchase Specifications (IMPS) cuts: Item Number 114 (chuck, shoulder clod), 115 (chuck, square-cut, boneless), 128 (chuck, cross-cut, boneless), 133 (triangle, boneless), 161 (round, shank-off, boneless), 163 (round, shank-off, 3-way, boneless), 165 (round, rump and shank off, boneless), 167A (round, knuckle, peeled), 169 (top round), 170A (bottom round, heel-out), and 171B (outside round). All beef shall be certified by a USDA, Agricultural Marketing Service (AMS) agent for condition of the product and compliance with the IMPS Quality Assurance Provisions.

NOTE: Certified IMPS Cuts may be further trimmed (see 3.3.1) and broken down into smaller cuts after certification, as requested by the purchaser. Boxes used for shipment of the further trimmed and broken down cuts shall be labeled as "Beef for further processing as specified in MIL-C-44468". The certificate shall be noted as such and shall accompany the shipment.

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3.2.1.1 Handling and storage. Handling and storage of the 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°F 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°F to 40°F (inclusive).

c. Holding in the frozen state for not more than 180 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

d. Tempering/thawing of frozen beef shall comply with the following:

- microwave tempering/thawing of frozen beef is permitted provided excellent condition of the beef, as determined by the USDA, is maintained
- the microwave tempering/thawing process shall not exceed 48 hours from time of removal of the beef from the freezer to further preparation
- regardless of the process used, frozen beef shall be tempered/thawed to a temperature not to exceed 40°F
- when a tempering/thawing process other than microwave is used, the time from the start of the tempering/thawing process (removal from freezer) to further preparation shall not exceed 96 hours
- beef which has been tempered/thawed shall not be refrozen

3.2.1.2 Ground beef, chilled. The chilled ground beef shall be prepared from boneless beef meeting the requirements of 3.2.1. The boneless beef cuts shall be ground once through a 1/2 inch plate using a four-bladed knife. The fat to lean of the ground beef shall be of such a ratio so as to ensure compliance with the finished product fat content requirements (see 3.6). Chilled ground beef shall not be prepared from previously frozen beef. Chilled ground beef shall be held at an internal temperature of 28°F to 40°F for a period not to exceed 72 hours following grinding and prior to cooking (see 3.3.1b). The chilled ground beef shall be certified by a USDA AMS agent for condition of the product, the chill (in-storage) date, and the above stated requirements.

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3.2.1.3 Ground beef, frozen. Frozen ground beef shall comply with the requirements of 3.2.1.2 and shall have been frozen to 0°F or below within 72 hours after grinding. Frozen ground beef shall be held at 0°F or below for not more than 120 days from grinding to cooking (see 3.3.1b).

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

3.2.3 Tomato paste. Tomato paste shall be U.S. Grade A of the U.S. Standards for Grades of Tomato Paste.

3.2.4 Starch, waxy maize, modified. The starch shall be white, finely pulverized, modified waxy maize starch. The starch shall be non-gelling and shall demonstrate a low hot viscosity (190°F). The starch shall be non-pH sensitive, shear resistant, and shall be stable to varying storage conditions. The cooked starch shall be bland with essentially no cereal or starch taste (see 6.4).

3.2.5 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, by weight, shall pass through a U.S. Standard No. 30 sieve.

3.2.6 Pepper, chili, ground. Ground chili pepper shall be derived from red, ripe fruit of Capsicum frutescens L. and shall possess the characteristic red to dark brown color. The Scoville Pungency Value shall be 500 to 900 units. The chili pepper shall be uniformly ground to allow a minimum of 95 percent, by weight, to pass through a U.S. Standard No. 40 sieve (see 6.7).

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

3.2.8 Onions, dehydrated, diced. Diced dehydrated 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.

3.2.9 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.

3.2.10 Cumin, ground. Ground cumin shall be the true aromatic substance derived from Cuminum cyminum L. from which no volatile or other flavoring constituents have been removed and shall be free from artificial coloring and impurities. Volatile oil content shall be not less than 2.2 mL/100g and the cumin shall be of such size that not less than 95 percent, by weight, shall pass through a U.S. Standard No. 30 sieve.

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3.2.11 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.

3.2.12 Oregano, ground. Ground oregano shall be derived from the dried leaves of Origanum vulgare L. and shall possess a strong camphoraceous aroma and a pungent, slightly bitter flavor. The ground oregano shall contain not less than 2.0 mL of volatile oil per 100 grams of ground oregano and shall be of such size that 95 percent, by weight, shall pass through a U.S. Standard No. 30 sieve.

3.2.13 Pepper, red, ground. Ground red pepper shall be derived from red, ripe fruit of Capsicum frutescens L. and shall possess the characteristic yellowish-red to red color. The Scoville Pungency Value shall be not less than 30,000 units. The red pepper shall be uniformly ground to allow a minimum of 95 percent, by weight, to pass through a U.S. Standard No. 40 sieve and not less than 95 percent, by weight, to be retained on a U.S. Standard No. 60 sieve.

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

3.2.15 Starch, waxy maize (filling and processing aid). Starch shall be a white to off-white, odorless, finely pulverized powder suitable for use as a filling and processing aid in thermostabilized foods. When hydrated, at temperatures of 165°F to 200°F, the starch shall develop a paste. The initial viscosity of the paste shall be retained under conditions of moderate shear and prolonged holding times. During retorting at temperatures in excess of 200°F, the starch shall undergo extensive to complete breakdown of the initial viscosity. The starch shall be bland and shall demonstrate easy disbursement.

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

3.3.1 Beef preparation. The beef shall be prepared as follows:

a. Boned and trimmed beef which meets the requirements of 3.2.1 shall be further trimmed, if necessary, to ensure compliance with finished product requirements (see 3.6).

b. The boneless beef shall be ground once through a 1/2 inch plate, using a four-bladed knife. The ground beef shall be heated in a steam-jacketed kettle with sufficient water to facilitate heat transfer to the beef (prevent scorching). The beef shall be blanched (see 6.5). The resulting



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broth and rendered fat shall be reserved for inclusion in the chili con carne. If the ground beef, broth, and rendered fat are not immediately incorporated into the chili con carne, they shall be cooled to an internal temperature of 28°F to 40°F and held at this temperature for not more than 48 hours prior to chili con carne preparation.

3.3.2 Chili con carne preparation. The chili con carne shall be formulated and prepared as follows:

<u>Ingredients</u> 1/	<u>Percent by weight</u>
Water, broth, and rendered fat 2/	45.03
Beef, ground, blanched 2/	42.00
Tomato paste (24 percent solids) 3/	4.75
Starch, waxy maize, modified	2.00
Paprika, ground	1.40
Pepper, chili, ground	1.20
Sugar, white, granulated	1.00
Onions, dehydrated, diced	1.00
Salt 4/	1.00
Cumin, ground	0.35
Garlic powder	0.20
Oregano, ground	0.05
Pepper, red, ground	0.02

- 1/ Not more than 1.0 percent filling and processing aid starch may be used (see 3.2.15 and 6.6).
- 2/ The percent by weight of blanched ground beef and the percent by weight of water may be adjusted if necessary to ensure compliance with finished product requirements.
- 3/ If the specified tomato solids are not available, the tomato solids that are used must be adjusted to bring the solid level to that specified.
- 4/ 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 3.6m).

a. A thin slurry shall be prepared with the starch and portion of the water-broth-fat mixture.

b. The balance of the ingredients, except the beef, shall be combined and heated to 190°F.

c. A starch slurry shall be added to the above mixture and the entire mixture shall be heated to 185°F to 190°F and held in this temperature range for 5 minutes.



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d. The blanched ground beef shall be added to the mixture and mixed only to the extent necessary to ensure a uniform distribution of the beef throughout the product.

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

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

a. Immediately after filling, each can shall be hermetically sealed under a vacuum of not less than 5 inches of mercury.

b. The filled and sealed cans shall be in the retort process within 2 hours after product preparation.

3.5 Can thermoprocessing. The filled and sealed 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. The average drained weight of beef pieces shall be not less than 36.0 ounces.

e. No individual can shall contain less than 34.0 ounces drained weight of beef pieces.

f. Total weight of cartilage, coarse connective tissue, section of tendons or ligaments, and glandular material, collectively, in a can shall be not greater than 1.0 ounce.

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

h. The texture of the beef shall not be dry, tough, rubbery, or mushy.

i. The average net weight shall be not less than 108 ounces.

j. No individual can shall contain less than 106 ounces of product.

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k. The average fat content of the finished product shall be not greater than 9.0 percent.

l. No individual can shall have a fat content greater than 11.0 percent.

m. No individual can shall have a salt content greater than 1.2 percent or less than 0.5 percent.

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

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 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 specification. The contractor shall ensure 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 and supervision necessary to ensure compliance with the requirements of this specification.

4.3 Classification of inspections. 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 specification and evaluated for overall appearance and palatability. Any failure to conform to the quality assurance provisions of this specification or any appearance or palatability failure shall be cause for rejection of the first article.

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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 examination. In accordance with 4.1, components and materials shall be examined in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.5.1.1 Ingredient and component examination. Conformance of ingredients and components to identify, condition, and other requirements specified in 3.2 shall be certified by the ingredient supplier or ingredient manufacturer, and compliance shall 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 AOAC 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.

4.5.1.2 Unfilled can inspection. Conformance of unfilled cans to the requirements specified in 5.1.1 shall be determined by examination of certificates of conformance or of other valid documents. Any nonconformance shall be cause for rejection of the can 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 packaging 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 Net weight inspection. Randomly select 30 filled and sealed cans from the inspection lot and weigh separately. Subtract the average tare weight (determined by randomly selecting and weighing 30 of the empty cans and lids used in preparing the product and dividing the total weight by 30) from the weight of each filled can in the sample. The results shall be reported to the nearest ounce. If the average net weight is less than 108 ounces or if the net weight of any individual can is less than 106 ounces, the lot shall be rejected.

4.5.4 Product examination. The finished product shall be examined for the defects listed in table I. The sample cans shall be heated for 45 minutes in 140° to 150°F water, opened, and inspected. The lot size shall be expressed in cans. The sample unit shall be one filled and sealed can. The inspection level shall be S-2, and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5.

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TABLE I. Product defects 1/ 2/

Category	Defect
<u>Major</u>	
101	Drained weight of beef pieces in a can is less than 34.0 ounces 3/ 4/
102	Total weight of cartilage, coarse connective tissue, section of tendons or ligaments, and glandular material, collectively, in a can is greater than 1.0 ounce
103	Presence of bone piece measuring 0.3 inch or more in any dimension
104	Texture of beef dry, tough, rubbery, or mushy
105	Product shows evidence of excessive heating (materially darkened or scorched)

- 1/ The presence of foreign material (for example glass, dirt, insect parts, hair, wood, metal), foreign odor or flavor (for example burnt, scorched, moldy, rancid, sour, stale), or foreign color shall be cause for rejection of the lot.
- 2/ Product not equal to or better than the approved preproduction sample (see 6.1) in palatability and overall appearance shall be cause for rejection of the lot (see 3.6.1).
- 3/ To determine drained weight, the free liquid in the can shall be poured off and the remaining contents shall be poured into a flat-bottom container. A minimum of three times the can's volume of 130°F to 150°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 without breaking the beef pieces. The contents shall then be poured into a U.S. Standard 1/4 inch sieve in a manner that will distribute the product over the sieve without breaking the beef pieces. Sieve area shall be such that the distributed product does not completely cover all the openings of the sieve. The sieve shall be tilted at an approximate 45° angle and allowed to drain for 2 minutes before determining the drained weight by subtracting the sieve tare weight from the gross weight. The drained weight shall be reported to the nearest 0.1 ounce.
- 4/ The lot shall be rejected if the sample average drained weight is less than 36.0 ounces.

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**4.5.5 Fat and salt content testing.** Three filled and sealed cans shall be selected at random from the lot. The cans shall be individually tested for fat content in accordance with the Official Methods of Analysis of the AOAC, method 976.21, 985.15, or 960.39, and for salt content in accordance with the Official Methods of Analysis of the AOAC, method 935.47, except that preparation of the samples shall be as follows: The unopened cans shall be gently warmed in a water bath to melt fat adhering to the inside of the cans. The cans shall be opened and the entire contents of each can shall be separately blended in a Waring Blendor or equivalent. The test results shall be reported to the nearest 0.1 percent. Any result failing to conform to the fat and salt requirements in 3.6 shall be classified as a major defect and shall be cause for rejection of the lot.

**4.5.6 Can vacuum examination.** The filled and sealed cans shall be examined for vacuum. The cans and contents shall be allowed to reach 70°F to 80°F. The vacuum reading shall be taken with a puncture-type vacuum gauge making the puncture as near as possible to the double seam to minimize error due to distortion of the end. A correction of 1 inch of vacuum shall be added to the gauge reading for each 1000 feet above sea level at which the determination is made. The lot size shall be expressed in cans. The sample unit shall be one filled and sealed can. The inspection level shall be S-2. Any result failing to conform to the vacuum requirement specified in 3.4 shall be classified as a major defect and shall be cause for rejection of the lot.

**4.5.7 Can condition examination.** Examination of filled and sealed cans shall be in accordance with the U.S. Standards for Condition of Food Containers, except that inspection for labeling shall be in accordance with MIL-L-1497 (see 5.4).

**4.5.8 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.
- Minor: Other required markings missing, incorrect, or illegible.  
Arrangement or number of cans not as specified.

Level C shipping containers shall be examined only for the marking, arrangement, and number of can defects specified above and for the closure method specified in 5.2.3.

**4.5.9 Unit load inspection.** Inspection of unit loads shall be in accordance with 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 or C as specified (see 6.1).

5.1.1 Level A. A net weight of 108 ounces (6 lbs, 12 ounces) of chili con carne shall be filled into an open-top style, round metal can, size 603 x 700, with a welded side seam and compound-lined, double-seamed ends. The can shall be made throughout from not less than 0.25 pound per base box electrolytic tin plate. The base plate of the can shall be of sufficient temper to protect the product during shipment and storage. 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 being canned. The interior can coating shall neither affect nor be affected by the packaged product. The can shall be coated overall on the outside with a coating conforming to type I or when specified (see 6.1) type III of TT-C-495.

5.1.2 Level C. The product shall be preserved as specified in 5.1.1, except that cans with or without commercial exterior coating will be acceptable. Alternatively, cans may be made from 0.20 pound per base box electrolytic tinplate provided the can is coated with a commercial exterior coating.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.1).

5.2.1 Level A packing. Six cans of product, preserved as specified in 5.1, shall be packed on end 3 in length and 2 in width in a snug-fitting fiberboard shipping container conforming to style RSC, grade V2s of PPP-B-636. Each shipping container 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). 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. Six cans of product, preserved as specified in 5.1, shall be packed on end 3 in length and 2 in width in a snug-fitting fiberboard shipping container conforming to style RSC, grade V3c, V3s or V4s of PPP-B-636. Each shipping container shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive filament reinforced tape in accordance with the appendix of PPP-B-636.

5.2.3 Level C packing. Six cans of product, preserved as specified in 5.1, shall be packed on end 3 in length and 2 in width in a snug-fitting fiberboard shipping container complying with National Motor Freight Classification or Uniform Freight Classification, as applicable, except the closure of the fiberboard boxes shall be in accordance with method II as specified in the appendix of PPP-B-636.

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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. When unit loads are strapped, the strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.4 Labeling and marking.

5.4.1 Cans. Cans shall be labeled in accordance with MIL-L-1497.

5.4.2 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.

5.4.3 Unit loads. Unit loads shall be marked in accordance with MIL-L-35078.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. When a first article is required (see 3.1, 4.4, and 6.2).
- d. Provisions for approved preproduction samples (see 3.6.1 and 6.2).
- e. Level of preservation and packing required (see 5.1 and 5.2).
- f. When type III exterior coating of cans is required (see 5.1.1).
- g. Type and class of unit load when unit loading is required (see 5.2.1 and 5.3).

6.2 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209-4. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for selection, inspection, and approval of the first article.

6.3 Appropriate level of pack. Based on 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.



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6.4 Starch, waxy maize, modified. It has been found that Therm Tex Starch manufactured by National Starch and Chemical Corporation, Bridgewater, NJ, meets the requirements of 3.2.4 and performs satisfactorily in this product.

6.5 Blanching process. Blanching of the ground beef (see 3.3.1) to 75  $\pm$  5 percent yield has been found adequate in complying with finished product requirements.

6.6 Starch, filling and processing aid. It has been found that product 812-100 AMIOCA unmodified waxy maize starch produced by American Maize Starch Company, Hammond, IN and CAN-FIL National 150 produced by National Starch and Chemical Company, Bridgewater, NJ meet the requirements of 3.2.15 and perform satisfactorily in this product.

6.7 Pepper, chili, ground. It has been found that product #801704 supplied by Griffith Laboratories, 1 Griffith Center, Alsip, IL 60658, meets the requirements of 3.2.6 and performs satisfactorily in this product.

6.8 Subject term (key word) listing.

Canned food  
Meat  
Thermostabilized

6.9 Changes from previous issue. Marginal notations 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 8940-0704)

Review activities:

Army - MD, QM  
Navy - MC  
DP - SS

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

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### I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER  
MIL-C-44468

2. DOCUMENT DATE (YYMMDD)  
1993 March 29

### 3. DOCUMENT TITLE

CHILI CON CARNE, WITHOUT BEANS, CANNED

### 4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

### 5. REASON FOR RECOMMENDATION

### 6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)  
(1) Commercial  
(2) AUTOVON  
(If applicable)

7. DATE SUBMITTED  
(YYMMDD)

### 8. PREPARING ACTIVITY

a. NAME

U.S. Army Natick RD&E Center

b. TELEPHONE (Include Area Code)  
(1) Commercial  
508-651-4501  
(2) AUTOVON/DSN  
256-4501

c. ADDRESS (Include Zip Code)

Commander, U.S. Army Natick RD&E Center  
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