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MILITARY SPECIFICATION

CHILI CON CARNE WITH BEANS, COOKED, DEHYDRATED

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

1. SCOPE

1.1 Scope. This specification covers freeze-dehydrated cooked chili con carne with beans 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 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

A-A-1898	- Cushioning Material, Cellulosic, Packaging
L-P-378	- Plastic Sheet and Strip, Thin Gauge, Polyolefin
QQ-A-1876	- Aluminum Foil

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, U.S. Army Soldier Systems Command, Natick Research, Development, and Engineering Center, ATTN: SSCNC-WRE, Natick, MA 01760-5018 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

unlimited.

- TT-C-495 - Coatings, Exterior, for Tinned Food Cans
- PPP-B-26 - Bag, Plastic, (General Purpose)
- PPP-B-636 - Boxes, Shipping, Fiberboard
- PPP-C-29 - Canned Subsistence Items, Packaging and Packing of
- PPP-C-1752 - Cushioning Material, Packaging, Unicellular Polyethylene Foam, Flexible
- PPP-C-1797 - Cushioning Material, Resilient, Low Density, Unicellular, Polypropylene Foam
- PPP-T-60 - Tape: Packaging, Waterproof

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- MIL-L-1497 - Labeling of Metal Cans for Subsistence Items
- MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For

STANDARDS

FEDERAL

- FED-STD-595 - Colors Used in Government Procurement

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage

(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 specification 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)

Meat and Poultry Inspection Regulations (9 CFR Parts 300-399)
Institutional Meat Purchase Specifications for Fresh Beef, Series 100

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

U.S. Standards for Grades of Tomato Paste (7 CFR Part 52)
U.S. Standards for Grades of Canned Tomato Puree (7 CFR Part 52)

(Copies are available from the Chief, Processed Products Branch, Fruit and Vegetable Division, Agricultural Marketing Service, U.S. Department of Agriculture, Room 0709, South Building, P.O. Box 96456, Washington, DC 20090-6456.)

U.S. Standards for Dry Beans (7 CFR Part 68)
U.S. Standards for Grades of Canned Dried Beans (7 CFR Part 52)

(Copies are available from the Federal Grain Inspection Service, AHPIS, Printing and Distribution Section, G-100 Federal Building, Hyattsville, MD 20782.)

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. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS), U.S. FOOD AND DRUG ADMINISTRATION (FDA)

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 specification 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 SOCIETY FOR TESTING MATERIALS (ASTM)

D 1238 - Flow Rates of Thermoplastic by Extrusion Plastometer
D 1505 - Density of Plastics by Density Gradient Technique

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

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.)

AOAC INTERNATIONAL

Official Methods of Analysis of the AOAC

(Application for copies should be addressed to the AOAC International, 2200 Wilson Boulevard, Suite 400, 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.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 2200 Mill Road, Alexandria, VA 22314.)

THE UNITED STATES PHARMACOPEIAL CONVENTION, INC.

The United States Pharmacopeia (USP) and the National Formulary (NF)

(Application for copies should be addressed to the United States Pharmaceutical Convention, Inc., 12601 Twinbrook Parkway, Rockville, MD 20852.)

UNITED CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Suite 1120, 222 South Riverside Plaza, Chicago, IL 60606.)

(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, ground. The beef shall be from steers, heifers, or cows and shall meet the requirements of the USDA Certified Institutional Meat Purchase Specifications (IMPs) for Item No. 137 (Ground Beef, Special. Final grinding shall be through a plate having holes 3/8 inch in diameter. The fat content shall be not less than 12.0 percent or more than 23.0 percent (see 4.5.2.1). All beef shipped between plants shall be accompanied by a USDA Agricultural Marketing Service (AMS) Certificate to certify condition of the product and compliance with the Institutional Meat Purchase Specifications Quality Assurance Provisions. Handling and Storage of the beef shall comply with 3.2.1.1 or 3.2.1.2.

3.2.1.1 Beef, ground, chilled. Ground beef received in the chilled state shall have been held at an internal temperature of 28⁰F to 40⁰F for a period not to exceed 72 hours following initial chilling and prior to product preparation.

3.2.1.2 Beef, ground, frozen. Ground beef received in the frozen state shall have been held at an internal temperature of 0⁰F or below for a period not to exceed 120 days following initial freezing and prior to product preparation.

3.2.2 Beans, kidney, red.

3.2.2.1 Beans, kidney, dry. Beans shall be dry, mature light or dark red kidney beans. The dry beans shall be U.S. No. 1 of the U.S. Standards for Dry Beans, shall have a moisture content of not less than 10 percent and not more than 18 percent and shall be of the latest season's crop.

3.2.2.2 Beans, kidney, canned. Canned kidney beans shall be packed in brine and shall be U.S. Grade A of the U.S. Standards for Grades of Canned Dried Beans.

3.2.3 Beans, kidney, individually quick frozen (IQF). IQF beans shall be produced from mature dry light or dark red kidney beans. The dry beans shall be U.S. No. 1 of the U. S. Standards for Dry Beans. Alternately the IQF product shall meet the standards for U.S. Grade A of the U.S. Standards for Grades of Canned Dried Beans. The IQF product shall be free of additives, preservatives and incidental ingredients other than salt and ingredients to aid processing (dextrose, sugar, Disodium EDTA, Calcium Chloride, Calcium Sulfate). If the IQF product contains sodium in excess of that found in dried or canned kidney beans the final formula will be modified to equal the end item sodium content of the Chili Con Carne with Beans made with dried or canned kidney beans.

3.2.3 Tomatoes, crushed, concentrated, canned. Tomatoes shall be peeled, cored, mature, crushed tomatoes packed in tomato puree. The use of safe and suitable firming and acidification ingredients and salt is permitted. The canned tomatoes shall have not less than 10 percent tomato soluble solids, shall possess a red flesh color, normal character and a good distinct acid sweet tomato flavor and odor. The crushed tomatoes shall be free of extraneous vegetable material and objectionable core material and skins (peel).

3.2.4 Tomatoes, pureed. Tomato puree shall be medium to heavy concentration (10.2 - 15.0 percent solids), coarse textured, U.S. Grade A of the U.S. Standards for Grades of Canned Tomato Puree.

3.2.5 Tomato paste. The tomato paste shall be light concentration (24 - 28 percent natural tomato solids), U.S. Grade A in accordance with the U.S. Standards for Grades of Tomato Paste.

3.2.6 Chili powder. Chili powder shall be a blend of 77 to 82 percent chili pepper; not less than 8 percent cumin; not less than 4 percent oregano; not less than 1 percent garlic powder; and not more than 8 percent salt. Anticaking agents may be included at a level not to exceed 2 percent. The chili powder shall have a Scoville Pungency Value of not less than 900 and the moisture content shall not exceed 13 percent. The chili powder shall be of such size that not less than 95 percent, by weight, shall pass through a U.S. Standard No. 20 sieve.

3.2.7 Soup stock, dehydrated. Dehydrated soup stock shall be a light brown to tan colored free-flowing powder derived from soup stock produced from USDA inspected beef bones with adhering meat. The dehydrated soup stock shall have a minimum of 93 percent total solids and a maximum of 2 percent fat. There shall be no added salt in the product. The dehydrated soup stock shall conform to the specifications stated in 9 CFR 317.8 (b) (7) (11).

3.2.8 Onion, chopped, dehydrated. 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.

3.2.9 Salt. Salt shall be 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 Garlic powder. Garlic powder shall be Fancy grade of the Official Standards and Methods of the American Dehydrated Onion and Garlic Association (ADOGA) for Dehydrated Onion and Garlic Products.

3.2.11 Paprika, ground. The ground paprika shall be Spanish paprika (*Capsicum annum L.*) and shall possess a bright orange to red color with an extractable color value not less than 110 American Spice and Trade Association (ASTA) 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.

3.2.12 Pepper, red, ground. Ground red pepper shall be derived from red, ripe fruit of *Capsicum frutescens L.* and shall possess a 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.

3.2.13 Water. Water used for washing, blanching, formulation and processing shall conform to the National Primary Drinking Water Regulations.

3.2.14 Nitrogen. Nitrogen shall meet the requirements of the United States Pharmacopeia and shall be water or liquid nitrogen pumped.

3.2.15 Preblended spice and seasoning mix. Preblended spices and seasonings may be used. The spices and seasonings in the mix shall comply with the individual requirements specified in this specification. The containers used for the spice and seasoning mix shall be labeled with each ingredient and the percentage of each ingredient in the mix. The ingredients shall be in the same proportions as specified in the spice and seasoning mix formula (see 3.3.3).

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

3.3.1 Dry bean preparation. The beans shall be thoroughly cleaned to remove dirt, stones, loose skins, and any other extraneous material, and sorted to remove those beans which are spotted, discolored, or affected by pathological or insect injury. The dry beans shall be blanched in steam to result in not less than 95 percent lipoxidase inactivation (see 4.5.2.2). The beans shall be thoroughly washed and soaked to a moisture content of 54 to 57 percent (approximately 8 to 12 hours in cold water). The water shall be changed every 4 to 6 hours during bean soaking. The soaked beans shall be thoroughly drained. The beans shall be cooked sufficiently to assure compliance with finished product requirements. When cooked directly from the dry state, blanching and soaking shall not be applicable except that the requirement for 95 percent lipoxidase inactivation shall apply. The test for lipoxidase inactivation may be waived if the beans are cooked at a minimum pressure of 15 psi for a minimum time of 12 minutes. The cooked beans shall be immediately cooled to the initial temperature of the cooling water and thoroughly drained. The cooled, drained beans shall be handled in a manner to prevent discoloration and used in product preparation within 4 hours after cooking.

3.3.2 Canned bean preparation. Canned beans shall be drained and rinsed.

3.3.3 Spice and seasoning mix preparation. The spice and seasoning mix shall be a uniform blend of the following ingredients:

<u>Ingredient</u>	<u>Percent by weight</u>
Chili powder	39.20
Soup stock, dehydrated	20.00
Onions, chopped, dehydrated	16.70
Salt	16.70
Garlic powder	3.30
Paprika, ground	2.80
Pepper, red, ground	1.30

3.3.4 Product preparation. The chili con carne with beans shall be formulated and prepared as follows:

<u>Ingredient</u>	<u>Percent by weight</u>
Beef, ground (raw)	40.00
Beans, kidney, red (dry weight, 10 - 18 percent moisture)	24.00
Water	17.00
Tomatoes, crushed or pureed	10.00
Spice and seasoning mix	6.00
Tomato paste (24 - 28 percent solids)	3.00

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

a. The ground beef shall be heated in a small portion of the formula water in a steam jacketed kettle unit with continuous stirring until the meat is fully cooked (browned with no pink color visible).

b. The remaining ingredients shall be added and the mixture heated with constant stirring until the mixture reaches 160⁰F to 180⁰F.

c. The product shall be spread on the dehydrator trays immediately after completion of the cooking process.

3.4 Freezing. The prepared product shall be spread on dehydrator trays and cooled immediately, placed in the freezer within four hours after cooking, and frozen to 0⁰F or below within six hours after placing in the freezer. The frozen product shall be maintained at 0⁰F or lower at all times prior to freeze dehydration and shall be freeze dehydrated not less than five days after freezing.

3.5 Dehydration. The product shall be freeze dehydrated at an absolute pressure not to exceed 1.5 mm of mercury for more than 5 minutes during the first three quarters or 10 minutes during the last quarter of the drying cycle. At no time shall there be evidence of thawing in the product. The temperature of the product shall not exceed 150⁰F. If the platen temperature is maintained at 155⁰F or below with radiant heating, the product temperature may be disregarded. After dehydration is completed, the pressure shall be equalized to atmospheric level with nitrogen. In no case shall more than 16 hours elapse between the time the chamber is opened to the time the product is completely packaged. During the interim period, the product shall be adequately protected from oxygen and moisture by holding under a nitrogen atmosphere with 2.0 percent or less oxygen, or under a vacuum of at least 27 inches of mercury for the entire period. If a vacuum is used, it shall be broken with nitrogen. Alternate product holding procedures may be used (see 6.5).

3.6 Can or pouch with mixing bag filling and sealing. Each can or pouch with mixing bag shall be filled and sealed with product such as to conform to the finished product requirements and to the requirements specified in 5.1.1.

3.7 Finished product requirements.

3.7.1 Dehydrated product. The dehydrated 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, musty, or moldy.

c. There shall be no color foreign to the product.

d. The individual net weight shall be not less than 120 grams for the Ration Cold Weather (RCW) pouch and not less than 140 grams for the Long Range Patrol (LRP) pouch.

e. The individual net weight of the canned product shall be not less than 39.2 ounces.

f. The lot average net weight of the canned product shall be not less than 40.0 ounces.

g. There shall be no evidence of incomplete dehydration such as wet or soft spots.

h. There shall be no evidence of faulty dehydration such as glazed surface areas or burnt areas measuring more than 0.5 inch in any dimension or dark colored cores of any dimension.

i. At least 30 percent (by weight) of the product shall be retained on a U.S. Standard No. 4 sieve.

j. Moisture content of the dehydrated product shall not exceed 2.0 percent.

k. The aerobic plate count shall be not greater than 75,000 per gram in four of five samples, and not greater than 150,000 per gram in any sample.

l. The E. coli count shall be less than 3 per gram (no positives in the standard 3 tube MPN technique) in four of five samples and not greater than 10 per gram in any sample.

3.7.2 Rehydrated product. Rehydration shall be in accordance with the specified instructions in 4.5.6. The rehydrated product shall comply with the following requirements:

a. The rehydrated product shall show complete water penetration through all particles. However, gristle and similar materials in the meat do not necessarily rehydrate properly and such materials shall not be considered as evidence of incomplete rehydration.

b. The rehydrated product shall possess the flavor, odor, and texture considered normal for cooked, frozen and reheated chili.

c. Total weight of cartilage, coarse connective tissue, section of tendons or ligaments, and glandular material, collectively, from a 120 gram aliquot of dehydrated product, shall not be more than 9 grams after product has been rehydrated.

d. There shall be no bone piece measuring 0.3 inch or more in any dimension per 120 gram aliquot of dehydrated product after rehydration.

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

3.8 Plant qualifications. The beef component and the finished product shall originate and be produced, processed, and stored in plants regularly operated under the Meat and Poultry Inspection Regulations of the U.S. Department of Agriculture.

3.9 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 service 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.

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 identity, 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 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 Mixing bag, baseboard, and pouch material certification. The material listed below may be accepted on the basis of a contractor's certificate of conformance to the indicated requirements. In addition, compliance to the requirements for inside pouch dimensions and dimensions of manufacturer's seals may be verified by a certificate of conformance.

<u>Requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Mixing bag material identification	5.1.1.2	Laboratory evaluation
Baseboard (when used)	5.1.1.2.2	Laboratory evaluation
Thickness of films for laminated material	5.1.1.3	As specified in L-P-378, except that a machinists' micrometer may be used provided that its graduations and accuracy conform to the requirements of L-P-378
Aluminum foil thickness	5.1.1.3	As specified in QQ-A-1876

<u>Requirement cont'd</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Laminated material identification and construction	5.1.1.3	Laboratory evaluation
Color of laminated material	5.1.1.3	Visual evaluation

4.5.1.3 Unfilled mixing bag examination. The unfilled mixing bags shall be examined for the defects listed in table I. The lot size shall be expressed in bags. The sample unit shall be one mixing bag. The inspection level shall be S-4 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 0.65 for major defects.

TABLE I. Unfilled mixing bag defects

<u>Category</u>	<u>Defect</u>
<u>Major</u>	
101	Not formed as specified.
102	Inside dimensions not as specified.
103	Tear, hole, or open seal.
104	Bags stick together.
105	Not clean.
106	Foreign odor.

4.5.1.4 Unfilled mixing bag leakage testing. Eight unfilled mixing bags shall be selected at random from the lot regardless of lot size and shall be tested for leakage as follows: Each sample bag shall be filled with eight ounces of boiling water (being careful not to spill any water on the outside) and suspended eight to twelve inches above a sheet of clean paper for 10 minutes. Any moisture on the paper attributable to bag leakage shall be classified as a major defect. The lot size shall be expressed in bags. The sample unit shall be one bag. The finding of any defect shall be cause for rejection of the lot.

4.5.1.5 Unfilled can examination. Conformance of unfilled cans to the requirements specified in 5.1.1.1 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 any involved product.

4.5.2 In-process examination. In-process examination shall be performed to determine conformance to the preparation, processing, 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.

4.5.2.1 In-process testing for fat content. Four one pound samples shall be selected at random from the day's production of raw ground beef. Each of the four samples shall be tested for fat content in accordance with

the Official Methods of Analysis of the AOAC, methods 960.39, 976.21 or 985.15. Results shall be reported to the nearest 0.1 percent. If the fat content of one or more samples is greater than or less than the limits specified in 3.2.1, it shall be classified as a major defect and shall be cause for rejection of the lot of raw ground beef or any product made therefrom.

4.5.2.2 In-process lipoxidase inactivation test. The kidney beans shall be tested for lipoxidase inactivation, when applicable (see 3.3.1). The sample size shall be one two pound sample from each batch of beans after cooking. The results shall be reported to the nearest one percent. If the lipoxidase inactivation is less than the limit specified in 3.3.1, it shall be classified as a major defect and shall be cause for rejection of the batch of beans or any product made therefrom.

4.5.2.2.1 Materials.

Substrate: Commercial cottonseed oil (0.02 to 0.04 percent free-fatty acid content, with a zero peroxide value and a bland odor and flavor) shall be used as the lipoxidase substrate. One gram of cottonseed oil is dissolved in 100 mL of a 50:50 mixture of acetone and 95 percent ethyl alcohol. This substrate should be made fresh or stored below 32^oF.

Buffers: Mix 8.8 mL of 0.2M acetic acid with 41.2 mL of 0.2M sodium acetate and dilute to a final volume of 100 mL with distilled water. Final pH should be 5.5.

Calcium chloride solution: A solution of 64 milligrams (mg) calcium chloride per mL distilled water is used to precipitate inactive proteins.

Ferrous ammonium sulfate solution: 0.125 grams of ferrous ammonium sulfate (reagent grade) is dissolved in 100 mL of 3 percent HCl.

Ammonium thiocyanate: Twenty grams of fresh ammonium thiocyanate (reagent grade) is dissolved in 100 mL of distilled water.

Acidified ethyl alcohol: Four mL of concentrated HCl is added to 500 mL of 95 percent ethyl alcohol.

NOTE: All water used in test must be distilled and free from ferric ion.

4.5.2.2.2 Preparation of sample. Material to be tested should be finely ground to pass through a U.S. Standard No. 20 mesh sieve. The sample should not be allowed to become warm to the touch during grinding.

4.5.2.2.3 Procedure.

a. Add five grams of ground sample to 50 mL of distilled water and extract for 10 minutes with constant stirring at sufficient speed to just keep the solids in suspension. The mixture is centrifuged at approximately 900 times gravity. Five mL of the calcium chloride solution is added to the suspended supernatant (enzyme extract), thoroughly mixed and recentrifuged.

b. Five mL of acetate buffer (pH 5.5) and 1 mL of cottonseed oil substrate is added to 100 mL of distilled water. One mL of enzyme extract is added at zero time. The reaction mixture shall be held at room temperature (70^oF + 5^oF). Two mL aliquots are removed from the reaction mixture at 8, 16, and 32 minutes to test for peroxide formation. These aliquots are pipetted into test tubes containing 25 mL of the acidified ethyl alcohol. One mL of the ferrous ammonium sulfate and then 1 mL of the ammonium thiocyanate is added. The tube is swirled to mix the reagents and observed for color

formation within a 3 minutes period thereafter.

c. The blank is prepared by adding 2 mL each of the buffered water and substrate mixture to 25 mL of acidified ethyl alcohol. The color is developed as before and should be a pale pink. Comparing the color of the blank with the color of the sample being assayed will indicate the amount of lipoxidase activity present in the sample. The color of the 8, 16, or 32 minute aliquots should not be darker than the blank to indicate 95 percent or better lipoxidase inactivation. A 90 percent inactivation, a definite darker pinkish-red color, can be observed in the 32 minute aliquot.

4.5.3 Net weight examination.

4.5.3.1 Net weight examination of pouches. The net weight of the filled and sealed pouches shall be determined by weighing each sample unit on a suitable scale tared with a representative empty mixing bag and pouch. Any individual net weight of less than 120 grams for the RCW pouch or less than 140 grams for the LRP pouch shall be classified as a minor defect. Results shall be reported to the nearest gram. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

4.5.3.2 Net weight examination of cans. The net weight of the filled and sealed cans shall be determined by weighing each sample unit on a suitable scale tared with a representative empty can and lid. Any individual net weight less than 39.2 ounces shall be classified as a minor defect. Results shall be reported to the nearest 0.1 ounce. The lot size shall be expressed in cans. The sample unit shall be one filled and sealed can. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 2.5. In addition, the lot shall be rejected if the sample average net weight is less than 40.0 ounces.

4.5.4 Filled and sealed pouch examination. The filled and sealed pouches shall be examined for the defects listed in table II. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 4.0 for minor defects.

TABLE II. Filled and sealed pouch defects. 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Tear, cut, hole, or abrasion through one or more layers in the pouch material or leakage through any heat seal. <u>2/</u>
102		Foldover wrinkle extending into the seal such that the effective closure seal is reduced to less than 1/16 inch. <u>3/</u>
103		Presence of entrapped product that reduces the effective closure seal to less than 1/16 inch. <u>3/</u>
104		Presence of delamination. <u>4/</u>
105		Unclean pouch. <u>5/</u>

106 Labeling is missing, incorrect, or illegible.

TABLE II. Filled and sealed pouch defects. 1/ cont'd

Category		Defect
<u>Major</u>	<u>Minor</u>	
107		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. <u>6/</u>
108		Less than 3/16 inch between inside edge of tear notch and inside edge of seal.
109		Closure seal width not as specified.
110		Closure seal not located as specified.
	201	Tear notch or serrations missing or not located as specified.
	202	Depth of tear notch or serrations not as specified.
	203	Presence of delamination. <u>4/</u>

1/ Any evidence of rodent or insect infestation shall be cause for rejection of the lot.

2/ Pinholes or breaks inherent to the manufacturing process of the aluminum foil shall not be scored as a defect.

3/ The effective closure seal is defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide, from side seal to side seal that produces a hermetically sealed pouch.

4/ Delamination defect classification:

Major - Delamination of the outer ply in the pouch seal area that can be propagated to expose aluminum foil at the food product edge of the pouch after manual flexing of the delaminated area. To flex, the delaminated area shall be held between the thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delaminated area shall then be rapidly flexed 10 times by rotating both hands in alternating clockwise-counterclockwise directions. Care shall be exercised when flexing delaminated areas near the tear notches to avoid tearing the pouch material. After flexing, the separated outer ply shall be grasped between thumb and forefinger and gently lifted toward the food product edge of the seal or if the separated area is too small to be held between thumb and forefinger, a number two stylus shall be inserted into the delaminated area and a gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to the product edge of the seal with no discernible resistance to the gentle lifting, the delamination shall be classified as a major defect. Additionally, spot delamination of the outer ply in the body of the pouch that is able to be propagated beyond its initial borders is also a major defect. To determine if the delaminated area is a defect, use the following procedure: Mark the outside edges of the delaminated area using a bold permanent marking pen. Open the pouch and remove the

contents. Cut the pouch transversely not closer than 1/4 inch (+ 1/16 inch) from the delaminated area. The pouch shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be scored as a major defect.

Minor - Minor delamination of the outer ply in the pouch seal area is acceptable and shall not be classified as a minor defect unless it extends to within 1/16 inch of the food product edge of the seal. All other minor outer ply delamination in the pouch seal area or isolated spots of delamination in the body of the pouch that do not propagate when flexed as described above shall be classified as minor defects.

5/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause pouch damage (for example, glass, metal filings) or generally detracts from the clean appearance of the pouch. The following examples shall not be scored as defects for unclean:

a. Foreign matter which presents no health hazard or potential pouch damage and which can be readily removed by gently shaking the package or by gently brushing the pouch with a clean dry cloth.

b. Dried product which affects less than 1/8 of the total surface area of one pouch face (localized and aggregate).

c. Water spots.

6/ If doubt exists as to whether or not the sealing equipment leaves an impression or design on the closure seal surface that could conceal or impair visual detection of seal defects, samples shall be furnished to the contracting officer for a determination as to acceptability.

4.5.5 Pouch vacuum examination. The filled and vacuum sealed pouches shall be visually examined for conformance to the vacuum requirement in 5.1.1.4 not less than 96 hours after filling and sealing. The sealed pouch shall continue to exhibit tight adherence to the surface contours of the contents when a pulling force is applied at the center of each side seal. This force shall be applied by holding each side seal between thumb and forefinger of each hand, while simultaneously exerting a slight pull with both hands. Any evidence of loss of vacuum shall be classified as a major defect. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65.

4.5.6 Product examination. The finished product shall be examined for the defects listed in table III. The lot size shall be expressed in pouches or cans. The sample unit shall be the contents of one filled and sealed pouch or can. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 1.5 for major defects and 6.5 for minor defects.

TABLE III. Product defects 1/ 2/

Category		Defect
<u>Major</u>	<u>Minor</u>	<u>Applicable to dehydrated product</u>
101		Evidence of incomplete dehydration such as wet or soft spots.
102		Presence of glazed surface areas measuring more than 0.5 inch in any dimension.
103		Presence of burned areas as indicated by a black spot greater than 0.5 inch in any dimension.
104		Presence of dark colored cores in any dimension.
	201	Less than 30 percent of (by weight) retained on a U.S. Standard No. 4 sieve. <u>3/</u>
		<u>Applicable to rehydrated product</u> <u>4/</u>
105		Incomplete water penetration through all particles. <u>5/</u>
106		Flavor, odor, and texture not normal for cooked, frozen and reheated chili con carne with beans.
107		Total weight of cartilage, coarse connective tissue, section of tendons or ligaments, and glandular material, collectively, from a 120 gram aliquot of dehydrated product, is more than 9 grams after the product has been rehydrated.
108		Presence of a bone piece measuring 0.3 inch or more in any dimension per 120 gram aliquot of dehydrated product after rehydration.

1/ The presence of any foreign material (for example, dirt, insect parts, hair, wood, glass, metal), foreign odor or flavor (for example, burnt, scorched, stale, sour, rancid, musty, moldy), 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 or overall appearance shall be cause for rejection of the lot (see 3.7.3).

3/ For canned product, four 10 ounce increments from one primary container shall be mechanically shaken for 2 minutes on an 8 inch sieve, or optionally, the entire contents of one whole can (40 ounces) shall be mechanically shaken for 2 minutes on a 12 inch diameter sieve. For pouched product, two randomly selected 120 to 140 gram pouches, as applicable, shall be mechanically shaken for 2 minutes on an 8 inch diameter sieve for sieve testing.

4/ Multiply product weight in grams by 2.2 to get milliliters of hot water for rehydration, then continue with label directions for use.

5/ Water penetration of the beans may be impeded by the skin. The beans shall

be soft and easily crushed between the thumb and forefinger. Beans that are unrehydrated and hard indicate improper processing and shall be cause for rejection. Dry areas attributable to gristle and similar material shall not be considered as defects.

4.5.7 Internal pressure test. Eight filled and sealed pouches shall be selected at random from the lot regardless of lot size and individually tested for internal pressure resistance. The internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates spaced $1/2 \pm 1/16$ inch apart. If a three-seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for testing the side and bottom seals of the pouch; for testing of the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be equal to the thickness of the product plus $1/16$ inch. Pressure shall be applied at the approximate uniform rate of 1 pound per square inch gage (psig) per second until 14 psig pressure is reached. The 14 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for separation or yield of the heat seals. Any rupture of the pouch or evidence of seal separation greater than $1/16$ inch in the pouch manufacturers seal shall be considered a test failure. Any seal separation that reduces the effective closure seal width to less than $1/16$ inch (see table II) shall be considered a test failure. The lot size shall be expressed in pouches. The sample unit shall be one pouch. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.8 Leakage testing of cans. Examination shall be in accordance with the criteria of PPP-C-29.

4.5.9 Oxygen in headspace testing. Eight filled and sealed cans shall be selected at random from the lot regardless of lot size and tested for oxygen content in the headspace. The oxygen content in the headspace gas shall be determined by using an electronic oxygen analyzer which operates on the principle of the difference in partial pressure of oxygen between the oxygen reference and the oxygen content of the sample as detected by a porous ceramic zirconia sensor, such as the Illinois Instruments analyzer or its equivalent; or on the principle of paramagnetic resonance such as the Servomex analyzer, or its equivalent. The oxygen analyzer shall be calibrated to a known standard prior to testing the headspace gas of the product. Product shall be tested within 24 hours of packing. Results shall be reported to the nearest 0.1 percent. The lot size shall be expressed in cans. The sample unit shall be one filled and sealed can. Any nonconformance to the requirement in 5.1.1.1 shall be classified as a major defect and shall be cause for rejection of the lot. The contents of these cans may be used for the product examination in 4.5.6.

4.5.10 Moisture content testing. Eight filled and sealed pouches or cans shall be selected at random from the lot regardless of lot size. The contents of the pouch or can shall be individually blended to uniformity using a blender or a food processor. The blending must be rapid and conducted in such a way that minimum heat is transferred to the product and that the product has minimum exposure to atmospheric moisture. The blended samples shall be tested for moisture content in accordance with the Official Methods of Analysis of the AOAC, method 925.45A, except that the temperature-time cycle shall be modified by using a temperature of 70°C for 16 hours at a pressure of not more than 100 mm of mercury. The results shall be reported to the nearest 0.1 percent. Any result not conforming to the requirement in 3.7 shall be classified as a major defect and shall be cause for rejection of the

lot.

4.5.11 Microbiological testing. Five filled and sealed pouches or cans of finished product shall be selected at random from the lot regardless of lot size. The contents of each sample pouch or can shall be tested for aerobic plate count and for E. Coli in accordance with the Official Methods of Analysis of the AOAC, methods 966.23 and 966.24. The diluent shall be added to each sample of dry product and allowed to stand for 15 minutes before the blending of that sample. Continue as directed by the AOAC. Any result not conforming to the microbiological requirements in 3.7 shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.12 Examination of can labeling. Examination shall be in accordance with the criteria of MIL-L-1497.

4.5.13 External examination of cans. External examination of cans shall be performed in accordance with the applicable requirements of the United States Standards for Condition of Food Containers.

4.5.14 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: Marking missing, incorrect, or illegible.
Cushioning material missing or not as specified.

Minor: More than 40 pounds packed in shipping container (applicable to pouches)
Bags not packed flat in layers (applicable to pouches).

4.5.15 Unit load examination. Examination of unit loads shall be in accordance with the quality assurance provisions of MIL-L-35078.

5. PACKAGING

5.1 Preservation. Preservation shall be level A.

5.1.1 Level A. The product shall be unit packed in cans or barrier pouches as specified (see 6.1).

5.1.1.1 Cans. A net weight of 40.0 ounces of product shall be filled into a size 603 by 700 open top style, round metal can with a soldered or welded side seam and compound lined double seamed ends. A maximum 0.8 ounce tolerance will be allowed in any can provided the average net weight of the cans inspected in accordance with 4.5.3 is not less than 40.0 ounces. The can shall be made throughout from not less than commercial 0.20 pound per base box electrolytic tin plate and shall be coated overall on the outside with a coating conforming to type I of TT-C-495. The product shall be preserved under an atmosphere of nitrogen equivalent to the holding requirements of 3.5.

The filled and sealed can shall not leak when tested in accordance with 4.5.8. The oxygen content of the gases in the filled and sealed cans shall not exceed 2.0 percent when tested in accordance with 4.5.9.

5.1.1.2 Mixing bags. A net weight of 120 grams of product for the RCW or 140 grams of product for the LRP shall be filled into mixing bags fabricated from 0.003 inch thick polyethylene made in accordance with type I bags of PPP-B-26, except that the bag shall be made from food grade polyethylene. The bags shall not impart any undesirable odor or flavor to the product and shall be FDA approved for food use. The inside dimensions of the bag shall be 5-1/2 by 3-1/2 by 8 inches (+ 1/8 inch in each dimension) with

the open end of the bag having the 5-1/2 by 3-1/2 inch dimensions. After filling, the side panels of the bag (corresponding to the 3-1/2 inch dimension) shall be folded in to form gussets, and the bag shall be closed by folding over its open end. Where required by the bulkiness of the product, the bulk of the contents within the bag shall be compressed by applying a constant uniform pressure over the entire top surface of the product so that the product thickness is not less than 2-1/4 inches. The open top of the filled bag shall be folded over to prevent spillage of the product. Alternatively, polyethylene bags conforming to type II of PPP-B-26, with inside dimensions of 9 inches by 8 inches (+ 1/8 inch in each dimension) with the open end of the bag having the 9 inch dimension, may be used. The material shall be as specified for type I bags. When type II bags are used, they shall be formed over a baseboard on a mandrel as specified in 5.1.1.2.1 before filling. While the bag is positioned on the mandrel, the two bag ears shall be taped down over a 5-1/2 by 3-1/2 inch baseboard constructed in accordance with 5.1.1.2.2. An 8 inch long strip of 1 inch wide tape complying with type III, class 2 of PPP-T-60, shall be applied across both ears to fasten them securely to the baseboard. Alternatively, both type I and type II mixing bags may be fabricated from unpigmented 0.003 (+0.0006 inch) thick high density 0.941 to 0.965 g/cm³ food grade, flat polyethylene tubing. The bottom seal of type I and type II mixing bags fabricated from clear polyethylene or the alternate polyethylene shall be of adequate strength and integrity to withstand the addition of boiling water when tested in accordance with 4.5.1.4.

5.1.1.2.1 Mandrel. The mandrel face shall be 5-3/8 by 3-3/8 inches and the height shall be not less than 12 inches. All corners and edges of the mandrel shall be rounded and all surfaces finished to prevent damage to the bag material.

5.1.1.2.2 Baseboard. The baseboard shall be constructed from unbleached and uncoated solid sulfate or sulfite paperboard not less than 0.022 inch thick. Alternatively, the baseboard may be constructed from 0.022 inch thick food grade paperboard made from recycled fibers. If paperboard made from recycled fibers is used, it shall be natural color ranging from brown to grey. The baseboard shall be 5-1/2 by 3-1/2 inches (+ 1/8 inch in each dimension) and shall have all corners rounded to form a smooth contour.

5.1.1.3 Barrier pouches. The pouch shall be constructed from a multiple ply flexible laminate barrier material consisting of an outer ply of 0.0005 inch thick polyester bonded to an intermediate ply of 0.0007 inch thick aluminum foil with 10 pounds per ream pigmented polyethylene, and bonding the opposite side of the aluminum foil to 0.003 inch thick ionomer (inner ply) or a blend of not less than 50 percent linear low density polyethylene and polyethylene. All tolerances for thickness of pouch materials shall be plus or minus 20 percent. The linear low density polyethylene portion of the blend shall be the copolymer of ethylene and octene-1, having a melt index range of 0.8 to 1.2 g/10 minutes in accordance with ASTM D 1238 and a density range of 0.918 to 0.922 g/cm³ in accordance with ASTM D 1505. For LRP applications, the complete exterior surface of the bag shall be uniformly colored in the range of green 34079 through 34087 or 24052 through 24087 or brown 30045 through 30118 (excluding 30109) or 10045 of FED-STD-595. For RCW applications, the complete exterior surface of the bag shall be colored white overall with a color in the range of 37778 through 37886 of FED-STD-595. The material shall be suitably formulated for food packaging and shall not impart an odor or flavor to the product being packaged. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches.

5.1.1.3.1 Pouch construction. The pouch shall be a flat style preformed pouch having inside dimensions of 6 inches by 9 inches (+ 1/8 inch in each

dimension). The first dimension specified shall be the opening of the pouch between the heat sealed sides. The empty pouch shall be made by heat sealing three edges with 3/8 inch (+ 1/8 inch) wide seals. A "V", "C", or block "U" tear notch at least 1/32 inch deep located 1 to 1-1/4 inches from the top edge of the pouch, shall be made in one or both side seals. The distance between the inside edge of the tear notch and the inside edge of the seal shall be at least 3/16 inch. One side of the open end of the pouch may be provided with an extended or foldover lip, extended not more than 5/16 inch to facilitate opening and filling. Tear notch location shall be measured from the top of the pouch, excluding the extended or foldover lip. Alternatively, if the pouch has serrated edges, the serrations may be used as tear notches provided that the serrations are sharp (no plastic tailings exist) and the serrations depth and the minimum seal width at the serrated edges are in accordance with the above requirements. The pouch shall be constructed with square or rounded corners at all four corners (radius approximately 3/8 inch).

5.1.1.4 Pouch filling and sealing. The filled mixing bag specified in 5.1.1.2 shall be inserted in a pouch, as specified in 5.1.1.3 in such a manner as to avoid puncturing the pouch material or contaminating the heat seal area.

The filled pouches shall be sealed under a vacuum level of 23 inches of mercury. The sealed pouch shall show no loss of vacuum when examined as specified in 4.5.5. The filled pouches shall have 3/8 inch (+ 1/8 inch) heat seal. If thermal impulse closure seals are used, a seal width of 1/8 to 7/16 inch will be acceptable. When tested as specified in 4.5.7, the filled and sealed pouches shall withstand an internal pressure of 14 psig for 30 seconds without rupture or seal separation greater than 1/16 inch or seal separation that reduces the effective closure seal width to less than 1/16 inch. The closure seal shall not extend below the tear notch on either side of the pouch. The closure seal shall be free of fold over wrinkles that reduce the effective closure seal to less than 1/16 inch.

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 three in length and two in width in a snug-fitting fiberboard box constructed and closed in accordance with style RSC, V2s of PPP-B-636. Each fiberboard 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). 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 three in length and two in width in a snug-fitting fiberboard box constructed and closed in accordance with style RSC, V3c, V3s, or V4s of PPP-B-636. Each fiberboard box 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.

5.2.3.1 Cans. Six cans of product, preserved as specified in 5.1, shall be packed three in length and two in width in shipping containers conforming to National Motor Freight Classification and Uniform Freight Classification, as applicable, except that the closure of fiberboard boxes shall be in accordance with method II as specified in appendix of PPP-B-636.

5.2.3.2 Pouches. Not more than 40 pounds of pouched product shall be packed flat in a fiberboard box constructed and closed in accordance with style RSC-L, class domestic, variety SW, grade 200 of PPP-B-636. Cushioning

material not less than 1/8 inch thick, conforming to grade II, class B or C of A-A-1898 or cushioning material not less than 1/16 inch thick, conforming to type I of PPP-C-1797 or cushioning material conforming to type VII, class 1 of PPP-C-1752 shall be placed between each of the layers and in the bottom and top of the box to minimize movement of the individual packages.

5.3 Unit loads. 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. When unit loads are strapped, the strapping shall be limited to nonmetallic strapping.

5.4 Labeling and marking.

5.4.1 Pouches. Each pouch shall be clearly printed or stamped, in a manner that does not damage the pouch, with permanent black ink which is free of carcinogenic elements or ingredients. The information shall be located on the body of the pouch not closer than 1/16 inch to any seal. If a non-contact type printer is used, the information may be located anywhere on the pouch (in one complete print), except the closure seal area. The label shall contain the following information:

CHILI CON CARNE WITH BEANS, COOKED, DEHYDRATED
 (letters not less than 7/32 inch high)
 ADD 10-12 OUNCES OF HOT WATER (APPROXIMATELY 1/2 CANTEEN CUP) TO MIXING BAG. STIR, WAIT APPROXIMATELY 5 MINUTES.
 (HOT WATER MAY BE ADDED IN STAGES TO KEEP FOOD HOT.)
 (letters not less than 1/8 inch high)
 Ingredients
 (letters not less than 3/32 inch high)
 Date 1/
 (letters not less than 1/8 inch high)
 Net weight
 (letters not less than 1/8 inch high)
 Official establishment number (for example, EST-38/USDA stamp)
 (letters not less than 1/8 inch high)
 Contractor's name and address
 (letters not less than 1/8 inch high)

1/ Each pouch shall have the date of pack noted by using a four digit code beginning with the final digit of the current year followed by the three digit Julian day code. For example, March 19, 1991 would read 1079. The Julian day code shall represent the date the product is unit packed into the pouch.

5.4.2 Cans. Cans shall be labeled in accordance with MIL-L-1497 and in addition shall contain the following information:

CHILI CON CARNE WITH BEANS, COOKED, DEHYDRATED

DIRECTIONS FOR USE:

BRING 3 QUARTS OF WATER TO A BOIL; REMOVE FROM SOURCE OF HEAT. IMMEDIATELY ADD CONTENTS OF CAN; STIR THOROUGHLY TO DISTRIBUTE WATER. COVER; LET STAND 10 MINUTES OR UNTIL THOROUGHLY REHYDRATED. STIR AND SERVE
 YIELD: 15 PORTIONS (1 CUP)
 FOR 100 PORTIONS: USE 6 1/2 CANS AND 4-7/8 GALLONS OF WATER
 Ingredients
 Date
 Net weight
 Official establishment number (for example, EST-38/USDA stamp)
 Contractor's name and address

5.4.3 Shipping containers. Shipping containers shall be marked in accordance with MIL-STD-129.

5.4.4 Unit load marking. 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. Type of unit pack (see 5.1.1)
- f. Level of packing required (see 5.2)
- g. Type and class of unit load when unit loading is required (see 5.2.1 and 5.3).
- h. Ration, Cold Weather or Long Range Patrol component.

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 Subject term (key word) listing.

Canned food
Dehydrated foods
Freeze dried
Long Range Patrol
Pouched food
Ration Cold Weather
Shelf stable foods

6.4 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.

6.5 Alternate product holding procedures. The contracting officer may authorize alternate contractor-recommended product holding procedures if the alternate procedures are approved by the U.S. Army Research, Development and Engineering Center.

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL
(Project 8940-0738)

Review activities:

Army - MD, QM
Navy - MC
DLA - SS

AMSSB-RCF—F (N) (Richards/5037)

30 April 2003

TO: DSCP-HRUT (Charya/3832)

SUBJECT: (ES03-107), (DSCP-SS-03-03586), Request for specification change, MIL-C-43287H, Chili Con Carne with Beans, Cooked, Dehydrated.

1. Date received: 21 April 2003
Date due: 28 April 2003
Date replied: 30 April 2003

2. The Natick Soldier Center (NSC) Concur with request to add an IQF cooked kidney bean to ingredients for subject document provided that all finished product requirements are met.

3. The following change to the subject document is for all current, pending, and future procurements:

Page 5, 3.2.2, Add “3.2.2.3 Beans, kidney, individually quick frozen (IQF). IQF beans shall be processed from mature dry light or dark red kidney beans. The dry beans shall be U.S. No. 1 of the U. S. Standards for Dry Beans. Alternately the IQF product shall meet the standards for U.S. Grade A of the U.S. Standards for Grades of Canned Dried Beans. The IQF product shall be free of additives, preservatives and incidental ingredients other than salt and ingredients to aid processing (dextrose, sugar, Disodium EDTA, Calcium Chloride, Calcium Sulfate). If the IQF product contains sodium in excess of that found in dried or canned kidney beans the final formula will be modified to equal the end item sodium content of the Chili Con Carne with Beans made with dried or canned kidney beans.”

4. No processing changes are required; the Note in 3.3.4 for alternate preparation will cover any processing differences.

DONALD A. HAMLIN
Team Leader
DoD Food Engineering
Services Team

(ARichards)

CF: NSC:
Friel
Hamlin

Swantak
Trottier

CF: DSCP & SVCs:
Beward Henry
Brown Malason

Harrington
Loveridge
Richards

Valvano

Byrd
Dyduck
Ferrante

Salerno
Spencer