

INCH-POUND

MIL-B-44360(GL)
17 February 1989

MILITARY SPECIFICATION

BREAD, SHELF STABLE, FOR MEAL, READY-TO-EAT

This specification is approved for use by the U.S. Army Natick Research, Development, and Engineering Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers shelf stable bread in flexible pouches for use by the Department of Defense as a component in Meal, Ready-To-Eat, Individual.

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

L-P-378	- Plastic Sheet and Strip, Thin Gauge, Polyolefin
QQ-A-1876	- Aluminum Foil
UU-B-36	- Bag, Paper (Grocers)
PPP-B-636	- Boxes, Shipping, Fiberboard

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8920

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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STANDARDS

FEDERAL

FED-STD-595 - Colors

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 Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

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.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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).

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.)

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).

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS (AOAC)

Official Methods of Analysis of the Association of Official Analytical Chemists

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

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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, Inc., 3340 Pilot Road, St. Paul, MN 55121.)

NATIONAL ACADEMY OF SCIENCE

Food Chemicals Codex

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

F 88 - Seal Strength of Flexible Barrier Material

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

(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-flavors, off-odors, and off-colors.

3.2.1 Flour. The flour shall be matured, bleached, enriched, hard wheat flour having a protein content of approximately 12.5 percent which will produce a product in compliance with 3.5. Alternatively, unenriched flour may be used providing the equivalent enrichments required in the Standard of Identity for Enriched Flour (21 CFR, Part 137. 165) are added at the time of production of the finished product.

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

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3.2.3 Shortening. Shortening shall be refined hydrogenated cottonseed or peanut oil or a combination of both and shall have a stability of not less than 100 hours as determined by the active oxygen method (AOM). Shortening used for greasing dough trough, dough pieces, or baking molds shall conform to the above requirements.

3.2.4 Glycerol. The glycerol shall comply with the Food Chemicals Codex.

3.2.5 Yeast. Yeast shall be good quality commercial active dry baker's yeast. Compressed or crumbled yeast may be used.

3.2.6 Salt. Salt shall be noniodized, white, refined sodium chloride, with or without anticaking agents.

3.2.7 Emulsifier. The emulsifier shall be sucrose fatty acid esters complying with the Code of Federal Regulations (21 CFR, Part 172.859) and shall be limited to sucrose stearate having an HLB number of approximately 16 (see 6.3).

3.2.8 Gum arabic. Gum arabic shall comply with the Food Chemicals Codex and shall have been produced from a solution of gum arabic which has been spray dried.

3.2.9 Calcium sulfate. The calcium sulfate shall comply with the Food Chemicals Codex.

3.2.10 Xanthan gum. Xanthan gum shall comply with the Food Chemicals Codex.

3.2.11 Potassium sorbate. Potassium sorbate shall comply with the Food Chemicals Codex.

3.2.12 Cream flavor, artificial. The cream flavor shall be a white to off-white powder or liquid having a characteristic odor and flavor (see 6.4).

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

3.3.1 Preparation. The bread shall be manufactured by the straight dough method. Any other method yielding an equivalent product will be permissible. The dough shall be formulated from the following ingredients in the proportions specified:

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<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	50.28
Water <u>1/</u>	28.96
Shortening	8.55
Glycerol	6.34
Yeast <u>2/</u>	2.25
Salt	1.29
Emulsifier	1.00
Gum arabic	0.50
Calcium sulfate	0.25
Xanthan gum	0.50
Potassium sorbate	0.05
Cream flavor	0.03

1/ The percent by weight of flour and water may be adjusted if necessary to compensate for in plant humidity and temperature conditions.

2/ When compressed or crumbled yeast is used, the percent by weight shall be adjusted to assure compliance with finished product requirements.

3.3.2 Preparation of dough. The straight dough method shall be used. The sucrose ester emulsifier shall be dry blended with the flour. All ingredients shall then be combined and sufficiently mixed to develop the dough.

3.3.3 Proofing and dividing. The mixed dough shall be sufficiently proofed. The proofed dough shall be divided into pieces of sufficient weight to assure compliance with finished product net weight requirements. The dough pieces shall be formed and sufficiently fermented to yield rectangular units of bread which will measure 4.25 to 4.5 inches long by 2.5 to 2.75 inches wide by 1.0 to 1.25 inches thick after baking.

3.3.4 Baking. The proofed dough shall be fully baked until the exterior is a uniform, typical bread crust color.

3.4 Pouch filling methods. One unit of bread and one package of an FDA approved oxygen scavenger shall be filled into a pouch using one of the following pouch filling methods.

3.4.1 Hot fill method. When a hot fill method is used, the bread shall be cooled to not less than 140°F prior to pouch filling.

3.4.2 Cold fill method. When a cold fill method is used, the following requirements shall apply:

a. The bread may be cooled to not less than ambient room temperature prior to filling.

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b. The air around the bread shall be continuously treated with germicidal ultraviolet rays and/or shall be filtered through High Efficiency Particulate Airborne (HEPA) Filters rated for removal of airborne contaminants of 0.5 microns or larger. The air around the bread shall be continuously treated from time of removal from the oven to time of pouch filling and sealing.

3.5 Finished product requirements. The finished product shall comply with the following requirements:

- a. There shall be no foreign materials such as, but not limited to, dirt, insects, insect parts, hair, wood, glass, or metal.
- b. There shall be no foreign odor or flavor such as, but not limited to, burnt, scorched, moldy, rancid, sour, or stale.
- c. There shall be no color foreign to the product.
- d. The average net weight shall be not less than 2.0 ounces.
- e. No individual pouch shall contain less than 1.8 ounces of product.
- f. The oxygen content in an individual pouch shall be not greater than 1.6 percent.
- g. Each pouch shall contain one intact unit of bread and one packet of oxygen scavenger.
- h. The water activity for an individual pouch shall be not greater than 0.89 when measured at 25°C.
- i. The average water activity shall be not greater than 0.88 when measured at 25°C.
- j. The units of bread shall have a rectangular shape, proper dimensions (see 3.3.3), and appearance.
- k. The bread crust shall have a uniform brown baked bread color without being excessively light or dark.
- l. The bread crumb shall be white to off white.
- m. The texture of the bread shall not be excessively dry, crumbly, or or excessively moist and gummy.
- n. The bread shall show no evidence of dense crumb compression streaks.
- o. There shall be only minor evidence of vacuum compression on the bread unit when a mechanical vacuum is applied.

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

3.6 Plant qualification. The product shall be prepared, processed, and packaged in establishments meeting the requirements of Title 21, code of Federal Regulations, Part 110, "Current Good Manufacturing Practice in Manufacturing, Processing, Packaging, or Holding of Human Foods", and the plant sanitation requirements of the appropriate Government inspection agency.

3.7 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 assure product compliance prior to submitting the product to the USDA for any inspection.

4.2 Inspection and certification. Product acceptability shall be determined by the USDA. The USDA will determine the degree of inspection necessary to assure compliance with the requirements of this 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 document or any appearance or palatability failure shall be cause for rejection of the first article.

4.5 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

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

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4.5.1.1 Ingredient and component examination. Conformance of ingredients and components to identity, condition, and other requirements specified in 3.2 shall be certified by the ingredient supplier or ingredient manufacturer, and compliance be verified by examination of pertinent labels, markings, U.S. Grade Certificates, certificates of analyses, or other such valid documents acceptable to the inspection agency. If necessary, each ingredient shall be examined organoleptically or inspected according to generally recognized test methods such as the standard methods described in the Official Methods of Analysis of the Association of Official Analytical Chemists and in the Approved Methods of the American Association of Cereal Chemists, to determine conformance to the requirements. Any nonconformance to an identity, condition, or other requirement shall be cause for rejection of the ingredient or component lot or of any involved product.

4.5.1.2 Laminated pouch material certification. Material listed below shall be accepted on the basis of a contractor's certification of conformance to the indicated requirements. Thickness tolerances as specified in L-P-378 and QQ-A-1876, as applicable, shall apply.

<u>Material requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Ionomer or polyethylene film thickness	5.1.1.1.1	As specified L-P-378 except that a machinist's micrometer may be used provided that its graduations and accuracy conform to the requirement of L-P-378.
Polyester film thickness	5.1.1.1.1	As above.
Aluminum foil thickness	5.1.1.1.1	As specified in QQ-A-1876.
Laminated material construction	5.1.1.1.1	Laboratory evaluation
Color of laminated material	5.1.1.1.1	Visual evaluation

4.5.1.3 Unfilled preformed pouch seal strength testing. The unfilled pouches shall be tested for seal strength in accordance with ASTM F 88, except that the specimen holding clamps shall be spaced 2 inches apart prior to testing and the testing speed shall be 10 or 12 inches per minute. Machines that apply the tensile load to the test specimen by movement of the upper or lower clamp may be used. Test specimens shall be cut 1/2 or 1 inch in width and to a length suitable for proper mounting. The lot size shall be expressed in pouches. The sample size shall be the number of pouches indicated by inspection level S-1.

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Three adjacent specimens shall be cut from each of the three sealed sides of each pouch in the sample. The results shall be reported to the nearest 0.1 pound. The average seal strength of each seal shall be calculated by averaging the strengths of the three test specimens cut from that seal. Any test specimen failing to meet the individual test specimen seal strength requirement or any seal failing to meet the average seal strength requirement specified in 5.1.1.1.2 shall be classified as a major defect and be cause for rejection of the lot.

4.5.2 In-process examination. In-process examination shall be performed to determine conformance to formulation, processing, pouch filling, pouch sealing, and packing requirements. Any nonconformance revealed by actual examination or by review of records of formulation or of other valid documents shall be cause for rejection of the involved product.

4.5.3 Pouch vacuum examination. The filled and sealed pouches shall be visually examined for a proper vacuum level not less than 96 hours after filling and sealing. The sealed pouches shall be conditioned in a room or holding area at a constant temperature of 70°F and a constant relative humidity of 50 percent. The sealed pouches shall exhibit a slight to moderate cling to the large face surface of the bread. Lack of vacuum is evidenced by a loose baggy appearance on the large surface of the bread. Lack 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 acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 0.65.

4.5.4 Filled and sealed pouch examination. The filled and sealed pouches shall be examined for the defects listed in table I. 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 2.5 for minor defects.

TABLE I. Filled and sealed pouch defects 1/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
101		Tear, hole, or open seal
102		Not material specified
103		Pouch dimensions not as specified
104		Bottom and side seams not heat sealed
105		Width of side seals and bottom seal not as specified
106		Distance between inside edge of tear notch and inside edge of seal is less than 3/16 inch
107		Exterior color of pouch is not as specified
108		Pouch has odor not associated with material
109		Not clean <u>2/</u>

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TABLE I. Filled and sealed pouch defects 1/ (cont'd)

Category		Defect
Major	Minor	
110		Closure of top seal extends into or below tear notch locations
111		Closure seal not produced by means of heat
112		Closure seal less than specified width
113		Closure seal not located as specified
114		Presence of delamination <u>3/</u>
115		Required labeling missing, incorrect, illegible, or smudged
	201	Tear notch missing
	202	Tear notch not located as specified
	203	Depth of tear notch not as specified

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

2/ Packaging shall be free from foreign matter which is unwholesome, has the potential to cause pouch damage (for example, glass, metal fillings, etc.) or generally detracts from the clean appearance of the package. 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 package with a clean, dry cloth.
- b. Dried product which affects less than 1/8 of the surface total area of one pouch face (localized and aggregate).
- c. Water spots.
- d. Very thin film or grease, oil, or product residue which is discernible to touch, but is not readily discernible by visual examination.

3/ Delamination shall be scored as a defect except delamination of outer ply when located in the seal area 1/16 inch or further from food product edge of seal. Pouches exhibiting this type of delamination shall be tested by manually flexing the delaminated area 10 times. The area of delamination shall be held between thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delaminated area shall then be rapidly flexed by rotating both hands in alternating clockwise-counterclockwise directions. Care shall be exercised when flexing delaminated area near the tear notches to avoid tearing the pouch material. After flexing, the

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separated outer ply shall be grasped between the thumb and forefinger and gently lifted toward the food product edge of the seal. 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 gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to less than 1/16 inch from the product edge of the seal with no discernible resistance to the gentle lifting, the pouch shall be classified as a major defect and be cause for rejection of the lot.

4.5.5 Net weight inspection. 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 pouch. Any individual net weight of less than 1.8 ounces shall be scored as a minor defect. 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. Results shall be reported to the nearest 0.1 ounce. In addition, the lot shall be rejected if the sample average net weight is less than 2.0 ounces.

4.5.6 Product inspection. The filled and sealed sample pouches shall be brought to room temperature (65° to 75°F) and inspected for defects indicated in table II. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch. The inspection level shall be S-2 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 II. Product defects 1/ 2/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Oxygen content in pouch exceeding 1.6 percent <u>3/</u>
102		Pouch does not contain one intact unit of bread and one packet of oxygen scavenger
103		Bread crumb color not white to off white <u>4/</u>
104		Texture of bread is excessively dry, crumbly, or excessively moist and gummy
105		Bread shows evidence of dense crumb compression streaks <u>4/</u>
106		More than minor evidence of vacuum compression on the bread unit
	201	Pouch contains a unit of bread that does not have the required shape, appearance, or dimensions (see 3.3.3)
	202	Pouch contains unit of bread that does not have crust color as specified

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

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- 2/ Product not equal to or better than the approved preproduction sample in palatability or overall appearance shall be cause for rejection of the lot. (This comparison shall be performed only when deemed necessary by a USDA inspector.)
- 3/ Filled and sealed pouches shall be tested for oxygen content in accordance with any USDA approved test method.
- 4/ To inspect for this defect, cut bread units in half along the length from top to bottom.

4.5.7 Pouch closure seal testing. The filled and sealed pouches shall be tested in accordance with ASTM F 88, except that the specimen holding clamps shall be spaced 2 inches apart prior to testing and the testing speed shall be 10 or 12 inches per minute. Machines that apply tensile load to the specimen by movement of the upper or lower clamp may be used. The test specimens shall be cut to a length suitable for proper mounting. Three adjacent specimens, 1/2 or 1 inch wide shall be cut from the closure seal of each pouch in the sample. The average seal strength of the closure seal shall be calculated by averaging the test results of the three test specimens cut from that seal. The results shall be reported to the nearest 0.1 pound per inch of width. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The sample size shall be the number of pouches indicated by inspection level S-1. Any individual test specimen or average closure seal strength failing to meet the requirements of 5.1.1.1.3 shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.8 Water activity testing. Eight filled pouches shall be randomly selected from each production lot and individually tested for water activity. Water activity shall be determined 7 days after baking to allow moisture equilibration in the product. The water activity shall be determined in a USDA AMS laboratory in accordance with the Official Methods of Analysis of the Association of Official Analytical Chemists; Chapter: Vegetable Products, Processed; Method: Water Activity Official First Action, using an electric hygrometer system or an equivalent instrument. The sample unit shall be a specimen from the center of the bread. The results of each Aw (water activity) determination shall be reported to the nearest 0.01. Any test result failing to conform to the requirements in 3.5h. and i. shall be cause for rejection of the lot.

4.5.9 Shipping container examination. Shipping containers shall be examined in accordance with the appendix of PPP-B-636. In addition, the following defects shall be included in the table of examination:

Major: Marking missing, incorrect, or illegible

Minor: Count not as specified in 5.2.1 or 5.2.2 as applicable.
Pad partitions or liner missing or not material specified

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5. PACKAGING

5.1 Preservation. Preservation shall be level A.5.1.1 Level A.

5.1.1.1 Unit packs. One unit of baked bread and one unit of an FDA approved oxygen scavenger substance (see 6.5) packed in a spun bonded high density polyethylene pouch measuring 1 inch by 2 inches or less when laid flat, shall be unit packed in a preformed pouch as specified in 5.1.1.1.1.

5.1.1.1.1 Preformed pouch. The preformed pouch shall be fabricated from 0.002 inch thick ionomer or polyethylene film laminated or extrusion coated to 0.00035 inch thick aluminum foil which is then laminated to 0.0005 inch thick polyester. The three plies shall be laminated with the polyester on the exterior of the pouch. The complete exterior surface of the pouch shall be uniformly colored in the range of 34079 through 34087 or 24052 through 24087 or 30045 through 30118 (excluding 30109) or 10045 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 packed. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches.

5.1.1.1.2 Pouch construction. The preformed pouch shall be a flat style pouch having inside dimensions of 5 inches wide by 6-5/8 inches long (+ 1/8 inch). The first dimension is measured at the opening of the pouch between the heat sealed sides. The pouch shall be made by heat sealing three edges with 3/8 inch (+ 1/8 inch) wide seals. The heat seals shall be made in a manner that will assure hermetic seals. The side and bottom seals shall have an average seal strength of not less than 6 pounds per inch and no individual specimen shall have a seal strength of less than 5 pounds per inch when tested as specified in 4.5.1.3. A V-shaped or C-shaped (half round) 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 shall be provided with an extended or foldover lip, extended not more than 1/8 inch (+ 1/16 inch) to facilitate opening and filling. Tear notch location shall be measured from the top of the pouch, excluding the extended or foldover lip.

5.1.1.1.3 Pouch filling and sealing. One baked bread unit and one package of oxygen scavenger shall be placed into the pouch in a manner so as to avoid contamination of the closure seal area. The bread shall be filled into the pouch using one of the methods specified in 3.4. The presence of vacuum shall be evident in the filled and sealed pouch when tested as specified in 4.5.3. When the cold fill method is used, the pouch shall be sealed within a vacuum chamber under a vacuum sufficient to assure compliance with requirements of 3.5.

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The filled pouch shall be closed with a continuous heat seal not less than 1/4 inch wide. If thermal impulse or combination (heated curved bar with thermal impulse) sealing is used, any seal width from 1/8 to 7/16 inch will be acceptable. The closure seal shall not extend below the tear notch on either side of the pouch. The average seal strength shall be not less than 6 pounds per linear inch, and no individual test specimen shall be less than 5 pounds when tested as specified in 4.5.7. The oxygen content of the pouch shall not exceed 1.6 percent.

5.1.1.2 Intermediate pack. When specified (see 6.1), 12 unit packs of bread shall be packed in an intermediate paper grocer's bag conforming to type I, grade A of UU-B-36. Each bag shall be closed by folding the open end securing it with pressure sensitive tape.

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

5.2.1 Level B packing. Eight bags (96 pouches) of bread, intermediate packed as specified in 5.1.1.2, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, grade V3c of PPP-B-636. The inside of each shipping container shall be fitted with two fiberboard partitions, each scored to form four individual cells. The layers shall be separated by a full length and width fiberboard pad. Partitions and pads shall be fabricated of the same material as the box. One bag shall be placed within each cell. The inside dimensions of each shipping container shall be 23-1/16 inches in length, 13-13/16 inches in width, and 12-1/2 inches in depth.

5.2.2 Level C packing, for shipment to ration assembler. Forty-four pouches of bread, unit packed as specified in 5.1.1.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC-L, type CF, variety SW, grade 175, class domestic of PPP-B-636. Each shipping container shall be closed in accordance with PPP-B-636.

5.3 Labeling and marking.

5.3.1 Unit packs. Each unit pack (see 5.1.1.1) shall be clearly printed with permanent ink in large letters of black, purple, or similar dark contrasting color with the following information:

BREAD, SHELF STABLE
(Name and address of producer)

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

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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 3.5.1 and 6.2).
- e. When intermediate packing is required (See 5.1.1.2).
- f. Level of packing (see 5.2).

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

6.3 Sucrose fatty acid. Sucrose fatty acid ester S-1670, produced by Mitsubishi International Corporation, 510 Madison Avenue, New York, New York was found to be satisfactory for the production of the bread units.

6.4 Artificial cream flavor. Artificial cream flavor R-7752, produced by the Haaramann and Reimer Corporation, Springfield, New Jersey, or product no. 330225, produced by Felton International, Brooklyn, New York, were found to provide satisfactory flavor notes.

6.5 Oxygen scavenger. Oxygen scavenger suitable for the purpose may be obtained from the Multi-Form Company, Buffalo, New York. Other approved oxygen scavenger may be used.

6.6 Subject term (key word) listing.

Combat field feeding
Operational rations

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL

(Project 8920-A526)

Review activities:

Army MD, TS
Navy - MC
DLA - SS

