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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

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 document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

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

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, 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).

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DRAWINGS

U.S. ARMY NATICK RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

- 13-1-0178 - Bread, Shelf Stable, For Meal, Ready-To-Eat, Rectangular Shape, Figure 1
- 13-1-0179 - Bread, Shelf Stable, For Meal, Ready-To-Eat, Bun Shape, Figure 2

(Copies of drawings are available from the U.S. Army Natick Research, Development, and Engineering Center, ATTN: SATNC-UXD, Natick, MA 01760-5017.)

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).

AOAC INTERNATIONAL

Official Methods of Analysis of the AOAC International

(Application for copies should be addressed to the AOAC International, 1111 North 19th Street, Suite 210, Arlington, VA 22209.)

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 Knob Road, St. Paul, MN 55121.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 1238 - Flow Rates of Thermoplastics by Extrusion Plastometer
- D 1505 - Density of Plastics by Density Gradient Technique
- 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.)

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.)

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(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 which will produce a product in compliance with 3.5. Alternatively, unenriched flour may be used provided 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. The flour used for preparation of the dough shall have a protein content of not less than 12.5 percent and a maltose content of not greater than 0.2 percent. Amylolytic enzyme activity, as determined by the "falling number" method, shall not exceed 240 seconds. Flour not meeting protein requirements but otherwise in compliance may be supplemented with vital wheat gluten to the required protein level.

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

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.

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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 ester 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 Sorbic acid, encapsulated. Encapsulated sorbic acid shall comply with the Food Chemicals Codex. The encapsulated sorbic acid shall consist of  $50 \pm 2$  percent sorbic acid and  $50 \pm 2$  percent vegetable oil. The vegetable oil shall have a melting point of  $152^{\circ}\text{F}$  to  $158^{\circ}\text{F}$  (see 6.6).

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).

3.2.13 Potassium sorbate, encapsulated. Encapsulated potassium sorbate shall comply with the Food Chemicals Codex. Encapsulated potassium sorbate shall consist of  $50 \pm 2$  percent potassium sorbate and  $50 \pm 2$  percent partially hydrogenated vegetable oil. The hydrogenated vegetable oil shall have a melting point of  $152^{\circ}\text{F}$  to  $158^{\circ}\text{F}$  (see 6.7).

3.2.14 Vital wheat gluten. Vital wheat gluten shall be a cream to tan colored powder produced from wheat flour by drying freshly washed gluten under temperatures sufficiently low to preserve the vital characteristics of gluten. The rehydrated gluten shall absorb 2 times its weight in water and when rehydrated, it shall be capable of forming cohesive, elastic dough. Vital wheat gluten shall have a protein content ( $N \times 5.7$ ) of not less than 71.0 percent, total carbohydrate content not more than 15.0 percent, a moisture content of not more than 6.5 percent, fat (by hydrolysis) of not more than 6.5 percent, and ash not more than 1.0 percent.

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

3.3.1 Preparation. The bread shall be manufactured by the sponge and dough method or any other method yielding an equivalent product. 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> /	50.53
Water <u>1</u> /	28.96
Shortening	8.50
Glycerol	6.34
Yeast <u>1</u> / <u>2</u> /	2.25
Salt	1.29
Emulsifier	1.00
Gum arabic	0.50
Calcium sulfate	0.25
Xanthan gum	0.25
Encapsulated sorbic acid <u>3</u> /	0.10
Cream flavor	0.03

- 1/ The percent by weight of flour, water and yeast may be adjusted if necessary to compensate for in-plant processing 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/ Encapsulated potassium sorbate may be used in lieu of encapsulated sorbic acid. The percent by weight of encapsulated potassium sorbate shall be 0.133, the difference in percent by weight shall be adjusted by subtracting the appropriate weight from the flour.

3.3.2 Preparation of dough. Commonly used dough improvers, yeast foods and/or dough relaxers are permitted when necessary. 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.

3.3.4 Baking. The proofed dough shall be fully baked until the exterior is a uniform, typical bread crust color corresponding to the bread color labeled B in the photographic standard provided to the contractor and inspector, USDA, FGIS. The bread shall be baked in rectangular molds, which may be tapered top to bottom for ease of depanning. Alternatively, the bread shall be baked in a typical hamburger bun configuration. The finished bread shall approximate the size and shape of figures 1 or 2.

3.4 Packaging methods. An interim or continuous method may be used.

3.4.1 Interim packaging method. The bread shall be placed into heat sealable polyethylene or other FDA approved food packaging material for an interim period not to exceed 48 hours prior to repackaging in accordance with

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5.1.1.1. The temperature of the bread at the time of interim package filling shall be not less than 80° nor greater than 120°F. The interim packaged bread shall be stored at a temperature not less than 50° nor greater than 90°F. Bread that was prepared, baked, and packaged using a completely automated system shall be handled in such a manner that will ensure product integrity during shipment and holding. Only FDA approved food packaging materials shall be used.

3.4.2 Continuous method. One unit of bread and one package of an FDA approved oxygen scavenger shall be placed into a pouch in accordance with 5.1.1.1. The temperature of the bread at the time of pouch filling shall be not less than 80° nor greater than 120°F.

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. No individual pouch shall contain less than 1.8 ounces of product.
- e. The oxygen content in an individual pouch shall be not greater than 0.3 percent after 48 hours from time of sealing.
- f. Each pouch shall contain one intact unit of bread and one intact packet of oxygen scavenger.
- g. The water activity for an individual pouch shall be not greater than 0.90 when measured at 25°C.
- h. The units of bread shall meet shape, dimension and appearance requirements as specified in figure 1 for the rectangular shaped bread and figure 2 for the hamburger bun shaped bread.
- i. The bread crust shall have a uniform brown baked bread color without being excessively light or dark.
- j. The bread crumb shall be white to off white.
- k. The texture of the bread shall not be excessively dry, crumbly, or excessively moist and gummy.
- l. The bread shall show no evidence of dense crumb compression streaks.



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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 Food", 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 ensure product compliance prior to submitting the product to the USDA for any inspection.

4.2 Inspection and certification. Product acceptability shall be determined by the USDA. The USDA will determine the degree of inspection and supervision necessary to ensure compliance with the requirements of this specification.

4.3 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.4).
- b. Quality conformance inspection (see 4.5).

4.4 First article inspection. When a first article is required (see 6.1), it shall be inspected in accordance with the quality assurance provisions of this specification and evaluated for overall appearance and palatability. Any failure to conform to the quality assurance provisions of this specification or any appearance or palatability failure shall be cause for rejection of the first article.

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.



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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 AOAC International 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 Pouch material certification. A certificate of compliance may be accepted as evidence that the characteristics listed below conform to the specified requirements.

<u>Material requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Thickness of films	5.1.1.1.2 and 5.1.1.1.3	As specified L-P-378 except that a machinist's micrometer may be used provided that its gradua- tions and accuracy con- form to the requirements of L-P-378
Aluminum foil thickness	5.1.1.1.2 and 5.1.1.1.3	As specified in QQ-A-1876
Laminated material identi- fication and construction	5.1.1.1.2 and 5.1.1.1.3	Laboratory evaluation
Color of laminated material	5.1.1.1.2	Visual evaluation

4.5.1.3 Unfilled preformed pouch certification. A certificate of compliance may be accepted as evidence that unfilled pouches conform to the requirements specified in 5.1.1.1.2. When deemed necessary by the USDA, testing of the unfilled preformed pouches for seal strength shall be as specified in 4.5.1.3.1.

4.5.1.3.1 Unfilled preformed pouch seal strength testing. The unfilled pouches shall be tested for seal strength in accordance with ASTM F 88, except that 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

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and to a length suitable for proper mounting. The lot size shall be expressed in pouches. The sample unit shall be one unfilled pouch. The sample size shall be the number of pouches indicated by inspection level S-1. 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 per inch of width. 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 5.1.1.1.2.1 shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.2 In-process examination. In-process examination shall be performed to determine conformance to the formulation, processing, pouch filling, pouch sealing, and packaging 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 leakage examination. The filled and sealed bread pouch shall be examined for leakage by submerging in water contained in a desiccator or other suitable container under a vacuum of 15 inches of mercury (atmospheric pressure 29.9 inches) for at least 30 seconds. A leak is indicated by a steady progression of bubbles. Isolated bubbles caused by entrapped air are not considered as signs of leakage. Any pouch with one or more leaks 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.

4.5.4 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/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Not clean 2/
102		Tear, hole, or open seal
103		Evidence of delamination 3/
104		Seal width less than 1/16 inch 4/

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

Category		Defect
<u>Major</u>	<u>Minor</u>	
105		Bag has foreign odor
	201	Evidence of delamination 3/
	202	Required labeling missing, incorrect, illegible, or that smudges
	203	Closure or top seal extends into or below tear notch 5/
	204	Tear notch or serrations missing or does not facilitate easy opening
	205	Seal width less than 1/8 inch, but greater than 1/16 inch

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

2/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause pouch damage (for example, glass, metal filings, 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 total surface area of one pouch face (localized and aggregate).

c. Water spots.

3/ 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

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shall then be rapidly flexed 10 times by rotating both hands in alternating clockwise-counter clockwise 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 the 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 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 scored 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 ( $\pm 1/16$  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 a minor defect.

- 4/ 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.
- 5/ Applicable to preformed pouches only.

4.5.5 Net weight examination. 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 classified as a minor defect. Results shall be reported to the nearest 0.1 ounce. 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.

4.5.6 Product examination. The filled and sealed pouches shall be conditioned to 70° to 80°F and examined for the defects listed 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.

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TABLE II. Product defects 1/ 2/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Oxygen content in pouch exceeding 0.3 percent <u>3/</u>
102		Pouch does not contain one intact unit of bread and one intact 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		Tear, hole, or open seal in oxygen scavenger packet
107		Presence of stress cracks in the aluminum foil <u>5/</u> <u>6/</u>
	201	Pouch contains a unit of bread that does not have the required shape, appearance, or dimensions (see 3.3.4) <u>7/</u>
	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.
- 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 3.5.1).
- 3/ Filled and sealed pouches shall be tested for oxygen content not less than 48 hours after sealing. Oxygen content testing shall be 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.

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- 5/ To test for stress cracks the inside surface of the tray-shaped body shall be placed over a light source and the outside surface observed for the passage of light. Observation of light through the bag material in the form of a curved or straight line greater than 2 mm in length shall be evidence of the presence of stress cracks in the aluminum foil.
- 6/ Applicable to form-fill-seal pouches only.
- 7/ Bread shall be considered in compliance with the specification if not more than any two corner radii of the baked bread do not fill the dimensions specified to within 3/4 inches of the right angle corners (see figure 1). Slightly concave, convex or irregular bread surfaces shall not be cause for rejection provided all other end item requirements are met (see figures 1 and 2).

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 5.1.1.1.2.2 or 5.1.1.1.3.1 shall be classified as a major defect and shall be cause for rejection of the lot.

4.5.8 Water activity testing. Eight filled and sealed pouches shall be selected at random from the lot regardless of lot size. Water activity shall be determined not less than 4 days but not more than 14 days after baking to allow moisture equilibration in the product. The pouched product shall be individually tested for water activity in accordance with the Official Methods of Analysis of the AOAC method 978.18, using an electric hygrometer system self temperature controlled (at 25°C) 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 3.5 shall be cause for rejection of the lot.

4.5.9 Shipping container examination. Shipping containers shall be examined for defects in assembly, closure, and reinforcement (when applicable) in accordance with the appendix of PPP-B-636. In addition, the following defects shall be classified as follows:



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Major: National stock number, item description, contract number, or date of pack, markings missing, incorrect, or illegible.  
Cushioning material missing or not as specified.

Minor: Number of pouches not as specified.  
Pouches not packed flat in layers.  
Other required markings missing, incorrect, or illegible.

## 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 5.1.1.1.1 and 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 or form-fill-seal pouch as specified in 5.1.1.1.2 or 5.1.1.1.3, as applicable. Bread that has been interim packaged (see 3.4.1) shall be not less than 50° nor greater than 90°F when unit packaged into pouches.

5.1.1.1.1 Oxygen scavenger packet. The oxygen scavenger shall be FDA approved as suitable for use with food. The oxygen scavenger packet shall be resistant to the migration of oil, moisture and scavenger components (see 6.5).

5.1.1.1.2 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.

5.1.1.1.2.1 Preformed 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 4.5.1.3.1. 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



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or bottom 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 ( $\pm$  1/16 inch) to facilitate opening and filling. Tear notch location shall be measured from the top or bottom of the pouch, excluding the extended or foldover lip.

5.1.1.1.2.2 Preformed 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 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.

5.1.1.1.3 Form-fill-seal pouches. The form-fill-seal pouch shall consist of a formed tray-shaped body with a flat-sheet, heat sealable cover or a tray-shaped body with a tray-shaped heat sealable cover. The tray-shaped body and the tray-shaped cover shall be fabricated from a 3-ply flexible laminate barrier material consisting of 0.0009 inch thick oriented polypropylene bonded to 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 or a blend of not less than 50 percent linear, low density polyethylene and polyethylene. 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 6/10 minutes in accordance with ASTM D 1238 and a density range of 0.918 to 0.922 G/CC in accordance with ASTM D 1505. Alternatively, 0.0005 inch thick polyester may be used in place of the oriented polypropylene as the outer ply of the laminate. The flat sheet cover shall be made from the same 3-ply laminate as specified for the tray-shaped body or tray-shaped cover, except that the aluminum foil thickness shall be 0.00035 inch. The color requirements of the exterior (oriented polypropylene or polyester side) of the laminates shall be as specified in 5.1.1.1.2. The laminates shall be suitably formulated for food packaging and shall not impart any odor or flavor to the product being unit packed.

5.1.1.1.3.1 Form-fill-seal pouch construction. The tray-shaped body and the tray-shaped cover shall be formed by drawing the flexible laminate material into an appropriately shaped cavity. The flat cover shall be in the form of a flat sheet of the barrier material taken from roll stock. One unit of baked bread and one unit of FDA approved oxygen scavenger substance (see 5.1.1.1.1) shall be placed into the tray-shaped body of the pouch. Pouch closure shall be effected by heat sealing the flat cover or the tray-shaped

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cover to the tray-shaped body along the entire pouch perimeter. The outside dimensions of the pouch shall be 5-3/8 by 5-3/4 inches ( $\pm 1/4$  inch). The closure seal shall be not less than 3/16 inch wide. The closure seal shall be free of entrapped matter (bread crumbs, moisture, etc.) that reduces the effective closure seal to less than 1/16 inch wide. The closure seal shall have an average seal strength of not less than 6 pounds per inch of width and no individual specimen shall have a seal strength of less than 5 pounds per inch (see 4.5.7). (Each seal made on the form-fill-seal machine is considered to be a closure seal.) A V-shaped or C-shaped (half-round) tear notch at least 1/32 inch deep, located not more than 1-1/4 inches or less than 1/4 inch from the outside corner of the pouch, shall be made in one or both side seals. Alternatively, if the pouch has serrated edges, the serrations may be used as tear notches provided that the serrations are located to effect easy opening in the machine direction of the bag laminates, the serrations are sharp (no plastic tailing exists), and the serration depth and the minimum seal width at the serrations are in accordance with the notch requirements. The sealed pouch shall not show any evidence of material degradation, aluminum stress cracking, delamination or foreign odor when heat sealed into pouches. The filled and sealed pouch shall not leak when tested in accordance with 4.5.3.

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. A conforming grocer's bag may be shortened lengthwise to facilitate assembly provided adequate closure is maintained and the bag meets the requirements of 5.3.2.

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. Each shipping container shall be closed in accordance with Method V of PPP-B-636.

5.2.2 Level C packing. 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.

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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 Intermediate packs. Each intermediate pack (see 5.1.1.2) shall be clearly printed with permanent ink in large letters (minimum 1/2 inch tall) of black, purple or similar dark, contrasting color with the following information:

BREAD, SHELF STABLE  
12 Ea.  
(Name and address of producer)

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

## 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 required (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 52.209-4. 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 Sucrose fatty acid. Sucrose fatty acid ester S-1670, supplied by Mitsubishi International Corporation, 520 Madison Avenue, New York, New York, was found to be satisfactory for the production of the bread units.

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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 Multiform Desiccants, Inc., Buffalo, New York. Other approved oxygen scavengers may be used.

6.6 Sorbic acid, encapsulated. Encapsulated sorbic acid manufactured by Van Den Bergh Foods, Inc., Lisle, Illinois, meets the requirements of 3.2.11 and performs satisfactorily in this product.

6.7 Potassium sorbate, encapsulated. Encapsulated potassium sorbate manufactured by Balchem Corporation, Slate Hill, New York, meets the requirements of 3.2.13 and performs satisfactorily in this product.

6.8 Subject term (key word) listing.

Combat field feeding  
Operational rations

6.9 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - GL  
Navy - SA  
Air Force - 50

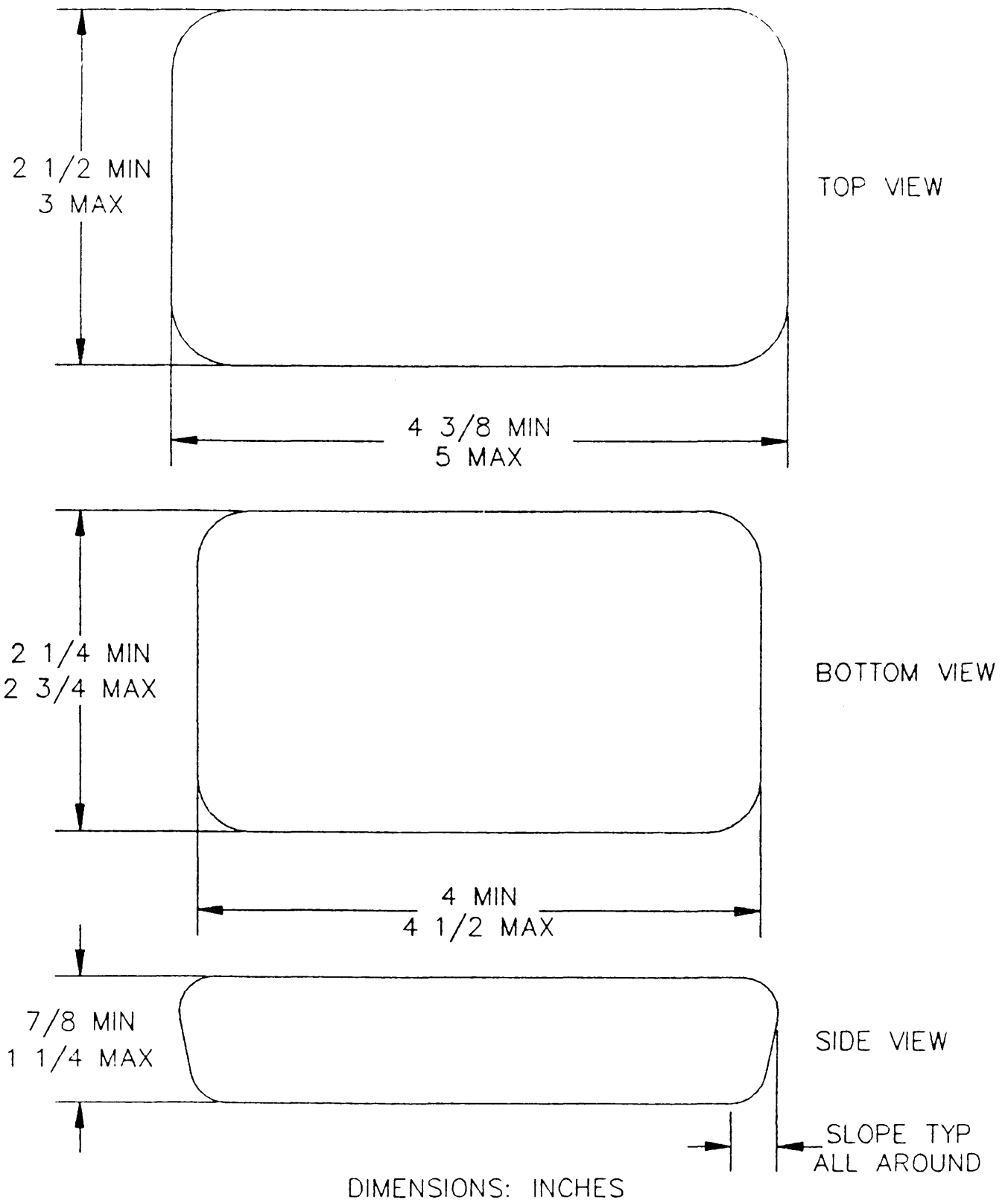
Preparing activity:

Army - GL  
(Project 8920-0545)

Review activities:

Army - MD, QM  
Navy - MC  
DLA - SS

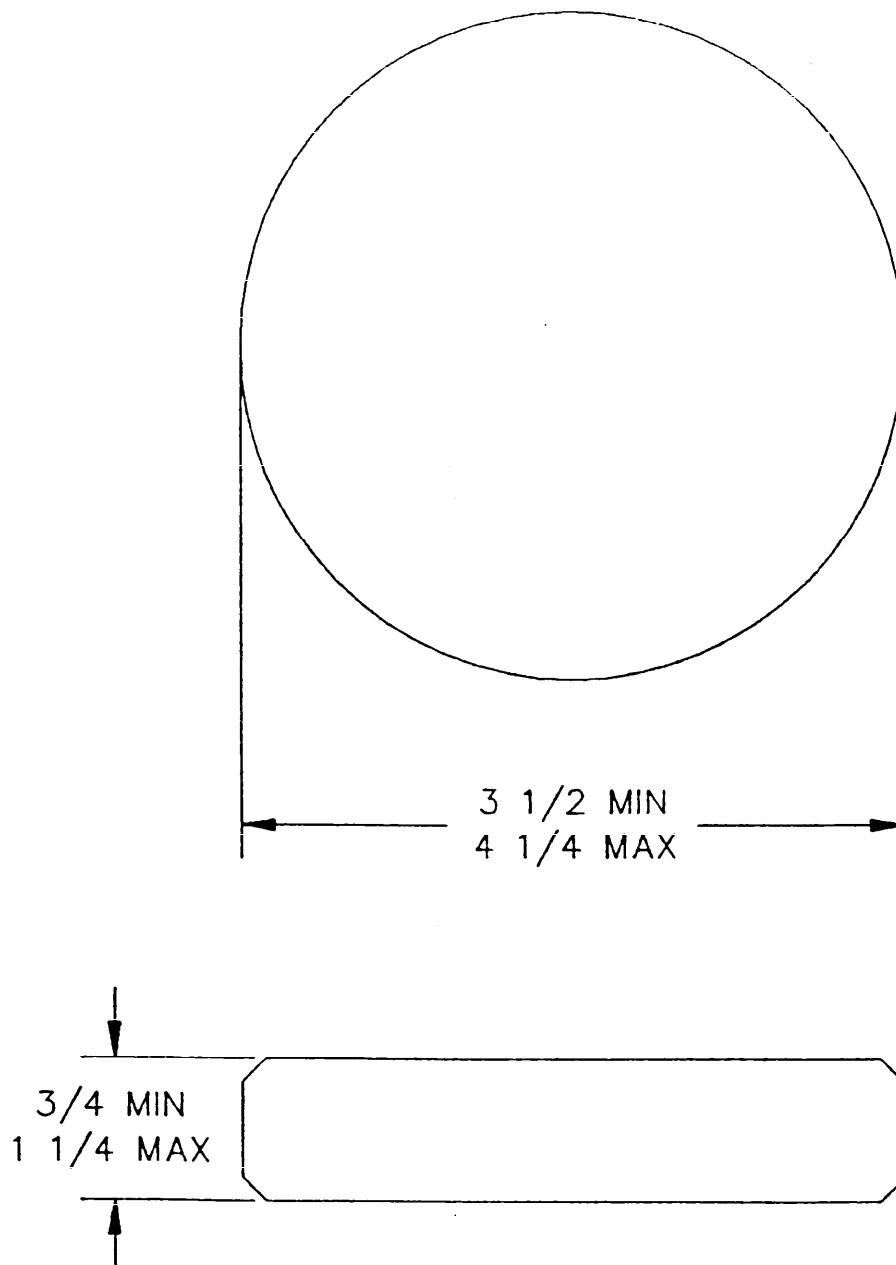
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BREAD, SHELF STABLE, FOR MEAL, READY-TO-EAT,  
RECTANGULAR SHAPE

FIGURE 1

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DIMENSIONS: INCHES

BREAD, SHELF STABLE, FOR MEAL, READY-TO-EAT,  
BUN SHAPE  
FIGURE 2

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

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

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

<b>1. RECOMMEND A CHANGE:</b>		<b>1. DOCUMENT NUMBER</b> MIL-B-44360A	<b>2. DOCUMENT DATE (YYMMDD)</b> 1993 March 11
<b>3. DOCUMENT TITLE</b> BREAD, SHELF STABLE, FOR MEAL, READY-TO-EAT			
<b>4. NATURE OF CHANGE</b> (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
<b>5. REASON FOR RECOMMENDATION</b>			
<b>6. SUBMITTER</b>			
<b>a. NAME (Last, First, Middle Initial)</b>		<b>b. ORGANIZATION</b>	
<b>c. ADDRESS (Include Zip Code)</b>		<b>d. TELEPHONE (Include Area Code)</b> (1) Commercial (2) AUTOVON (if applicable)	<b>7. DATE SUBMITTED (YYMMDD)</b>
<b>8. PREPARING ACTIVITY</b>			
<b>a. NAME</b> U.S. Army Natick RD&E Center		<b>b. TELEPHONE (Include Area Code)</b> (1) Commercial 508-651-4501 (2) AUTOVON/DSN 256-4501	
<b>c. ADDRESS (Include Zip Code)</b> Commander, U.S. Army Natick RD&E Center ATTN: SATNC-WTP Natick, MA 01760-5018		<b>IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:</b> Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	