

INCH-POUND

MIL-DTL-32221

31 October 2006

DETAIL SPECIFICATION

FILLED BAKERY ITEM, SHELF STABLE, FOR OPERATIONAL RATIONS

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

1. SCOPE

1.1 Scope. This specification covers a shelf stable filled bakery breakfast item in a flexible pouch intended for use by the Department of Defense as a component of operational rations.

1.2 Classification. The product will be of the following types as specified (see 6.1):

1.2.1 Types. The types are as follows:

Type I - Filled French toast

Type II - Other

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

Comments, suggestions, or questions on this document should be addressed to: US Army Research, Development & Engineering Command, Natick Soldier Center, AMSRD-NSC-CF-F, 15 Kansas Street, Natick, MA 01760-5018 or emailed to Raymond.Valvano@natick.army.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil>.

AMSC N/A

FSC 8920

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2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. None.

2.2.2 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 of these documents are those cited in the solicitation or contract.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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

(Copies of this document are available online at www.gpoaccess.gov/nara or from the Superintendent of Documents, ATTN: New Orders, P.O. Box 371954, Pittsburgh, PA 15250-7954.)

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

National Primary Drinking Water Regulations

(Copies of this document are available online at www.epa.gov or from the Office of Drinking Water, Environmental Protection Agency, WH550D, 401 M Street, SW, Washington, DC 20460.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AOAC INTERNATIONAL

Official Methods of Analysis (OMA) of the AOAC International

(Copies of this document are available from www.aoac.org or AOAC International, 481 North Frederick Avenue, Suite 500, Gaithersburg, MD 20877)

AMERICAN ASSOCIATION OF CEREAL CHEMISTS (AACC)

Approved Methods of the American Association of Cereal Chemists

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(Copies of this document are available from www.aaccnet.org or American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.)

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/ASQ Z1.4 Sampling Procedures and Tables for Inspection by Attributes

(Copies of this document are available from www.asq.org or ASQ, 600 North Plankinton Ave., Milwaukee, WI 53203.)

NATIONAL ACADEMY OF SCIENCES

Food Chemicals Codex

(Copies of this document are available from www.nap.edu or National Academy Press, 2101 Constitution Avenue, N.W. Washington, DC 20418.)

2.4 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 Product standard. When specified (see 6.1), a sample shall be subjected to first article (FA) or product demonstration model (PDM) inspection as applicable, in accordance with 4.2. The approved sample shall serve as the product standard. Should the contractor at any time plan to, or actually produce the product using different raw material or process methodologies from the approved product standard, which result in a product non comparable to the product standard, the contractor shall arrange for a new or alternate FA or PDM approval. In any event, all product produced must meet all requirements of this document including product standard comparability.

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. All ingredients shall meet and be in accordance with good commercial manufacturing practices.

3.2.1 Ingredients for bread.

3.2.1.1 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

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the equivalent enrichments required in the Code of Federal Regulations (CFR) for 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.

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

3.2.1.3 Shortening. The shortening shall be refined, hydrogenated vegetable oil or a combination of refined, hydrogenated vegetable oils which are commonly used by the baking industry 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. The average salt content shall be not more than 1.75 percent.

3.2.1.4 Maple flakes. The maple flakes shall have a flake size of 10.0 by 4.0 by 1.9mm. Flakes shall have a medium brown color and an aroma and flavor characteristic of maple (see 6.2.1).

3.2.1.5 Cinnamon flakes. The cinnamon flakes shall have a flake size of 10.0 by 4.0 by 1.9mm. Flakes shall have a medium to dark brown color and an aroma and flavor characteristic of cinnamon (see 6.2.2).

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

3.2.1.7 Yeast, instant dry. Yeast shall be active dry baker's yeast instant dry. Compressed yeast shall not be used.

3.2.1.8 Salt. Salt shall be iodized, white, refined sodium chloride with or without anti-caking agents.

3.2.1.9 Emulsifier. The emulsifier shall be sucrose fatty acid esters complying with the 21 CFR, Part 172.859 and shall be limited to sucrose ester stearate having an Hydrophilic-Lipophilic Balance (HLB) number of approximately sixteen.

3.2.1.10 French toast flavor. The flavor shall be #1466 French toast flavor or equal, which is an off white colored powder with the characteristic aroma and flavor of caramel and French toast (see 6.2.3).

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3.2.1.11 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.

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

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

3.2.1.14 Sorbic acid, encapsulated. Encapsulated sorbic acid shall comply with the Food Chemicals Codex. The encapsulated sorbic acid shall consist of 70 ± 2 percent sorbic acid and 30 ± 2 percent vegetable oil. The vegetable oil shall have a melting point of 141°F to 147°F (61°C to 64°C) (see 6.2.4).

3.2.1.15 FD&C Yellow #5 Alum Lake. The lake shall be a yellow, water insoluble pigment made by absorbing FD&C Yellow #5 dye on a substrate of Alumina. The pure dye range shall be 35 to 42 percent (see 6.2.5).

3.2.2 Ingredients for fillings.

3.2.2.1 Ingredients for type I, filled French toast filling.

3.2.2.1.1 High fructose corn syrup. The syrup shall be a high conversion corn syrup that is enzymatically derived and isomerized to produce a saccharide composition which consists primarily of dextrose (50 percent) and fructose (42 percent). The syrup shall have a pH of 3.3-4.3, shall be 71 percent total solids and 29 percent moisture (see 6.2.6).

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

3.2.2.1.3 Crystalline dextrose. The dextrose shall be of regular granulation and comply with the requirements of Standards of Identity for Dextrose Monohydrate (21, CFR, Part 168.111). The dextrose shall be 91.5 percent total solids, with a dextrose equivalent (DE) score of 99.5+ (see 6.2.7).

3.2.2.1.4 Imitation maple syrup. The imitation maple syrup shall possess a flavor and color characteristic of real maple syrup. The syrup shall be manufactured in accordance with the Standard of Identity for Table Syrup, (21 CFR Part 168.180). The syrup shall have a minimum 65 percent Brix solids.

3.2.2.1.5 Corn syrup. The corn syrup shall comply with 21 CFR Part 184.1865 as corn syrup Generally Recognized as Safe (GRAS). The corn syrup shall be 80 percent total solids, have a pH of 4.5 – 5.2 and a DE score of 41-45 (see 6.2.8).

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

3.2.2.1.7 Tapioca starch. The starch shall be a pregelatinized, modified starch derived from tapioca. The starch shall be a white to off-white powder with 10 percent maximum moisture (see 6.2.9).

3.2.2.1.8 Waxy maize starch. The starch shall be a cold water swelling modified food starch derived from waxy maize. The starch shall be white to off-white with 10 percent maximum moisture (see 6.2.10).

3.2.2.1.9 Imitation maple flavor. The flavor shall have the aroma and flavor of maple (see 6.2.11).

3.2.2.1.10 Gum blend. The gum blend (acting as a moisture migration inhibitor) shall be Kelgum, or equal, which is a proprietary blend of xanthan gum and locust bean gum, suitable for use in food preparations. The ingredients of the gum blend shall comply with the Food Chemicals Codex. The gum shall exhibit stability over a pH range of 3.5-7.0 (see 6.2.12).

3.3 Preparation and processing.

3.3.1 Preparation of bread.

3.3.1.1 Preparation of type I, filled French toast dough. The bread shall be formulated from the following ingredients in the proportions specified:

<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1</u> /	46.49
Water <u>1</u> /	25.19
Shortening	7.81
Maple flakes	5.98
Cinnamon flakes	4.65
Glycerol	4.63
Yeast (instant dry only) <u>1</u> /	1.84
Salt	1.16
Emulsifier	0.74
French toast flavor	0.48
Gum arabic	0.47
Calcium sulfate	0.23
Xanthan gum	0.23
Sorbic acid, encapsulated	0.09
FD&C Yellow #5 Alum Lake	0.01

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

The bread shall be manufactured by the straight dough method as follows:

- a. Begin with lowest mixing speed.
- b. Mix all dry ingredients except flavor flakes.
- c. Add shortening and mix to crumble consistency.
- d. Add water and mix until incorporated.
- e. Add glycerol and mix until dough forms ball.
- f. Add the maple and cinnamon flakes.
- g. Increase speed and continue mixing until dough develops.
- h. Chill dough sufficiently that it will sheet into pieces that will meet end item requirements.

3.3.2 Preparation of fillings.

3.3.2.1 Preparation of type I filling. The maple filling shall be formulated and prepared from the following ingredients in the proportions specified:

<u>Ingredient</u>	<u>Percent by weight</u>
High fructose corn syrup	32.70
Water	23.40
Crystalline dextrose	14.00
Imitation maple syrup	9.50
Corn syrup	9.30
Glycerol	4.70
Tapioca starch	2.80
Waxy maize starch	2.80
Imitation maple flavor	0.77
Moisture migration inhibitor	0.03

- a. Mix starches, gum and dextrose.
- b. Mix syrups in separate container.
- c. Add dry ingredients to syrup mixture slowly, stirring constantly.
- d. Mix in flavor and water.
- e. Heat mixture. Add glycerol when mixture reaches about 100°F (38°C).
- f. Continue to cook mixture, not allowing temperature to go above 190°F (87°C), to a recommended water activity range of 0.80 to 0.84.
- g. Cool at room temperature. Do not refrigerate.

3.3.3 Preparation of filled bakery item.

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3.3.3.1 Sheeting and filling. The chilled dough shall be sheeted into pieces of sufficient weight and filled to ensure compliance with finished product net weight requirements.

3.3.3.2 Forming. For type I, the formed product shall have a dough weight of 3.0 ounces (85.0 grams) and filling weight of 1.1 ounces (31.2 grams) to give a product weight of 4.1 ounces (116.2 grams) prior to proofing and baking.

3.3.3.3 Proofing. The formed product shall be proofed at 90°F to 100°F (32°C to 38°C) and 90 to 100 percent relative humidity (RH) for 1 hour.

3.3.3.4 Baking. The proofed filled bakery item dough pieces shall be fully baked to an internal temperature of 180°F (82°C) and 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, United States Department of Agriculture (USDA), Federal Grain Inspection Service (FGIS).

3.4 Packaging methods. A continuous method shall be used. One unit of a filled bakery item and one oxygen scavenger shall be placed into the pouch. The internal temperature of the product shall be not less than 80°F (27°C) or greater than 120°F (49°C).

3.4.1 Oxygen scavenger. The oxygen scavenger shall be FDA approved as suitable for use with food. The oxygen scavenger shall be resistant to the migration of oil, moisture and scavenger components (see 6.3).

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, insect parts, hair, wood, glass, metal or mold.
- b. There shall be no foreign odors or flavors 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 3.5 ounces (99 grams).
- e. Each pouch shall contain one intact unit of filled bakery item and one oxygen scavenger.
- f. The water activity for any individual pouch shall not be greater than 0.86 when measured at 77°F (25°C).

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- g. The oxygen content of the filled and sealed pouches shall not exceed 0.30 percent after 48 hours from time of sealing.
- h. The pH shall not exceed 5.3.
- i. The texture of the bread shall not be excessively dry and crumbly or excessively moist and gummy.
- j. The bread shall be slightly dense and have a uniform cell structure.
- k. The bread shall show no evidence of compression streaks.
- l. The crust color shall be golden brown without being excessively light or dark.
- m. There shall be no evidence of excessive flour dusting.
- n. For type I, the filling shall not be excessively thin or runny.
- o. For type I, filled French toast shall not have any filling leakage through the bread portion of the product.
- p. The type I product shall have a sweet maple and French toast odor and flavor.
- q. For type I, the crust shall contain visible dark brown flavor flakes.

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

3.6 Plant qualifications. The product shall be prepared, processed and packaged in establishments meeting the requirements of 21 CFR, 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. VERIFICATION

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

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- a. Product standard inspection (see 4.2).
- b. Conformance inspection (see 4.3).

4.2 Product standard inspection. The first article or product demonstration model shall be inspected in accordance with the provisions of this specification and evaluated for overall appearance and palatability. Any failure to conform to the requirements or any appearance or palatability failure shall be cause for rejection of the lot. The approved product standard shall be used for periodic review evaluations. All food components that are inspected by the USDA shall be subject to periodic review sampling and evaluation. The USDA shall select sample units during production of contracts and submit them to the following address for evaluation:

US Army Research, Development and Engineering Command
Natick Soldier Center
AMSRD-NSC-CF-F
15 Kansas Street
Natick, MA 01760-5018

One lot shall be randomly selected during each calendar month of production. Six (6) sample units of each item produced shall be randomly selected from that one production lot. The six (6) sample units shall be shipped to Natick within five working days from the end of the production month and upon completion of all USDA inspection requirements. The sample units will be evaluated for the characteristics of appearance, odor, flavor, texture and overall quality.

4.2.1 Product examination. The filled and sealed pouches shall be conditioned to 70°F to 80°F (21°C to 27°C) and examined for the defects listed in table I. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch. Utilizing the double sampling plans indicated in ANSI/ASQ Z1.4, the inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects.

TABLE I. Product defects. 1/ 2/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Product not type as specified.
102		Pouch does not contain one intact filled bakery item or does not contain one intact oxygen scavenger.
103		Tear or hole or open seal in oxygen scavenger.
104		Leakage of filling from the bread portion of the product. 3/

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TABLE I. Product defects. 1/ 2/ cont'd

Category	Defect
<u>Major</u>	<u>Minor</u>
105	Bread texture excessively dry or crumbly or excessively moist or gummy.
	201 Bread shows evidence of compression streaks.
	202 Crust color not golden brown or is excessively light or dark.
	203 Crust shows excessive dusting of flour.
	204 Bread texture not slightly dense or not a uniform cell structure.
106	<u>Type I</u> Product does not have a sweet maple or French toast odor or flavor.
	205 Crust contains no visible dark brown flavor flakes.
	206 Filling excessively thin or runny.
	<u>Weight</u> 207 Net weight of an individual pouch less than 3.5 ounces (99 grams). 4/

1/ Presence of any foreign materials for example, dirt, insect parts, hair, wood, glass, metal or mold, or any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, or stale or foreign color shall be cause for rejection of the lot.

2/ Product not equal to or better than the approved product standard in palatability or overall appearance shall be cause for rejection of the lot (see 3.5.1).

3/ Some slight leakage from the bread portion of the product is acceptable.

4/ The net weight of the filled and sealed pouches shall be determined by weighing each sample on a suitable scale tared with a representative empty pouch and one oxygen scavenger. Results shall be reported to the nearest 0.1 ounce or to the nearest 1 gram.

4.3 Conformance inspection. Conformance inspection shall include the examinations of 4.2.1, 4.3.1, 4.3.2, and the tests of 4.4.1 through 4.4.3.

4.3.1 Component and material inspection. 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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4.3.2 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, US 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 (OMA) 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.

4.4 Tests.

4.4.1 Water activity (Aw) 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 Aw in accordance with the Official Methods of Analysis of the AOAC method 978.18, using an electric hygrometer system self temperature controlled at 77°F (25°C) or an equivalent instrument. Each individual sample unit shall be ground prior to Aw analysis. The results of each Aw determination shall be reported to the nearest 0.01. Any test result not conforming to the Aw requirement in 3.5 shall be classified as a critical defect and the lot shall be rejected.

4.4.2 Oxygen content testing. Eight filled and sealed pouches shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 48 hours from the time of sealing. Test results shall be reported to the nearest 0.01 percent. Any test result not conforming to the oxygen content requirement in 3.5 shall be classified as a major defect and shall be cause for rejection of the lot.

4.4.3 Analytical. The sample to be analyzed shall be a composite of eight filled and sealed pouches which have been selected at random from the lot. The composite sample shall be prepared and analyzed in accordance with the following Official Methods of Analysis (OMA) of AOAC International.

<u>Test</u>	<u>Method Number</u>
pH	981.12

Test results of pH value shall be reported to the nearest 0.1. Verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the pH requirement in 3.5 shall be cause for rejection of the lot.

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5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.1). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

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 should specify the following:

- a. Title, number, and date of this specification.
- b. Type of product required (see 1.2).
- c. When other than first article or product demonstration model is required (see 3.1).
- d. Provisions for approved product standard samples (see 3.5.1).
- e. Packaging requirements (see 5.1).

6.2 Ingredient information.

6.2.1 Maple flakes. SensoryEffects Maple NT – 2471 mini flakes manufactured by Loders Croklaan, 24708 West Durkee Rd, Channahon, IL 60410 meets the requirements of 3.2.1.4 and performs satisfactorily in this product.

6.2.2 Cinnamon flakes. SensoryEffects Cinnamon NT – 20259 mini flakes manufactured by Loders Croklaan, 24708 West Durkee Rd, Channahon, IL 60410 meets the requirements of 3.2.1.5 and performs satisfactorily in this product.

6.2.3 French toast flavor. Michaelok Artificial French Toast Flavor # 1466, manufactured by David Michael & Co, 10801 Decatur Road, Philadelphia, PA 19154 meets the requirements of 3.2.1.10 and performs satisfactorily in this product.

6.2.4 Sorbic acid, encapsulated. Encapsulated sorbic acid manufactured by Balchem Corporation, Slate Hill, NY 10973 meets the requirements of 3.2.1.14 and performs satisfactorily in this product.

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6.2.5 FD&C Yellow #5 Alum Lake. No. 09609 FD&C Yellow #5 Alum Lake 35-42%, manufactured by Sensient Colors, 2526 Baldwin Street, St. Louis, MO 63106 meets the requirements of 3.2.1.15 and performs satisfactorily in this product.

6.2.6 High fructose corn syrup. Staley IsoSweet 100 High Fructose Corn Syrup manufactured by A. E. Staley MFG. Co, 2200 East Eldorado, Decatur, IL 62521 meets the requirements of 3.2.2.1.1 and performs satisfactorily in this product.

6.2.7 Crystalline dextrose. Staleydex 333 dextrose, manufactured by A. E. Staley MFG. Co., 2200 East Eldorado Decatur, IL 62525 meets the requirements of 3.2.2.1.3 and performs satisfactorily in this product.

6.2.8 Corn syrup. Staley 1300 Corn syrup manufactured by A. E. Staley MFG. Co, 2200 East Eldorado Decatur, IL 62521 meets the requirements of 3.2.2.1.5 and performs satisfactorily in this product.

6.2.9 Tapioca starch. National 104, manufactured by National Starch and Chemical Company, 10 Finderne Avenue, Bridgewater, NJ 08807 meets the requirements of 3.2.2.1.7 and performs satisfactorily in this product.

6.2.10 Waxy maize starch. Ultra Tex 4, manufactured by National Starch and Chemical Company, 10 Finderne Avenue, Bridgewater, NJ 08807 meets the requirements of 3.2.2.1.8 and performs satisfactorily in this product.

6.2.11 Imitation maple flavor. Imitation Maple Flavor (industrial product code # FB2072), manufactured by McCormick and Company, 226 Schilling Circle, Hunt Valley, MD 21031 meets the requirements of 3.2.2.1.9 and performs satisfactorily in this product.

6.2.12 Gum blend. Kelgum Xanthan Gum Blend is a proprietary blend, manufactured by CP Kelco, 311 S. Wacker Drive, Suite 3700, Chicago, IL 60606. This ingredient meets the requirements of 3.2.2.1.10 and performs satisfactorily in this product.

6.3 Oxygen scavenger. Oxygen scavenger suitable for the purpose may be obtained from the Multifirm Desiccants, Inc., Buffalo, NY 14224. Other approved oxygen scavengers may be used.

6.4 Shelf life. This specification covers items where shelf life is a consideration. Specific shelf-life requirements should be specified in the contract or purchase order. The shelf-life codes are contained in the Federal Logistics Information System Total Item Record. Additive information for shelf-life management may be obtained from DoD 4140.27-M; Shelf-life Management Manual, or the designated shelf-life Points of Contact (POC). The POC should be contacted in the following order: (1) the Inventory Control Points (ICPs), and (2) the DoD

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Service and Agency administrators for the DoD Shelf-Life Program. Appropriate POCs for the DoD Shelf-Life Program can be contacted through the DoD Shelf-Life Management website: <http://www.shelflife.hq.dla.mil/>.

6.5 Subject term (key word) listing.

Combat field feeding
pouch bread
breakfast

Custodians:

Army - GL
Navy - SA
Air Force - 35

Preparing activity:

Army - GL
(Project 8920-2005-002)

Review activities:

Army - MD, QM
Navy - MC
DLA - SS

Civil agency:

USDA - FV

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil>.