

INCH-POUND

MIL-DTL-32219

3 October 2006

W/CHANGE 02 25 Feb 10

Comment [NSR1]: Natick case ES10-010, w/change 02, 25 Feb 10; Document changes for Plain, Blueberry, and Spicy Asiago cheese Bagels. Various highlighted and strike through changes are located throughout this document. Careful review is strongly recommended. See memo at the end of document for a summary of change

DETAIL SPECIFICATION

BAGEL, 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 bagel 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 - Plain
- Type II - Blueberry
- Type III - Spicy Asiago cheese

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 and Engineering Command, Natick Soldier **Research, Development and Engineering** Center, ~~AMSRD NSC CFF~~ **RDNS-CFF**, 15 Kansas St., Natick, MA 01760-504856 or emailed to ~~Raymond.Valvano@natick.army.mil~~ **Ray.Valvano@us.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

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

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 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 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

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activity, as determined by the “falling number” method, shall not exceed 240 seconds, be less than 225 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 Glycerol. The glycerol shall comply with the Food Chemicals Codex.

3.2.4 Sugar, white, granulated. Sugar shall be white, refined, granulated cane or beet sugar, or a combination thereof.

3.2.5 Sugar, nonreducing. Nonreducing sugar shall be Trehalose or equal, a white, non reducing sugar with molecular weight 342.31 grams, and melting point 207-203°F (97-95°C) (see 6.2.1).

3.2.6 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 two times its weight in water and when re-hydrated, it shall be capable of forming cohesive, elastic dough. Vital wheat gluten shall have a protein content (N x 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.

3.2.7 Oil, vegetable canola. Vegetable Canola oil shall possess a clean, bland, flavor, and shall have a minimum stability of 25 hours Active Oxygen Method (AOM). The oil shall have a free fatty acid value not to exceed 0.05 percent, a moisture/volatile matter content not to exceed 0.06 percent and pass a cold test of 5.5 hours (minimum), and shall have a peroxide value not to exceed 1.0 meq/kg.

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

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

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

3.2.11 Crumb softener. Crumb softener shall be Dimodan 300PH or equal, distilled monoglycerides made from edible, refined, partially hydrogenated vegetable oil (see 6.2.2).

~~3.2.12 Oxidizer/conditioner/mix reducer. Oxidizer/conditioner/mix reducer shall be Control S or equal and comply with the 21 CFR, Part 172.859 (see 6.2.31).~~

3.2.13 Nonfat dry milk. Nonfat dry milk shall be 53 percent carbohydrate, 33.5 percent protein, and shall not exceed 1 percent fat (see 6.2.4).

3.2.14 Enzyme/softener. Enzyme/softener shall be ~~Vital Soft #113382~~ **Talento Actiplus** or equal (see 6.2.5).

3.2.15 Enzyme complex. Amylolytic enzyme complex shall be ~~Grindamyl Max Life 210~~ **Powerfresh 3001** or equal produced by fermented bacterial strains (see 6.2.6).

3.2.16 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 6.2.7).

3.2.17 Blueberry flavored chips. Blueberry chips shall be Blueberry Flavorettes #22502 or equal (see 6.2.8).

3.2.18 Pepper, red, crushed. Crushed red pepper shall be derived from dry, cut, red, ripe fruit of *Capsicum annuum L.* and shall possess the characteristic yellowish-red to red color. The Scoville Pungency Value shall be not less than 30,000 units. The red pepper shall be flaked to allow a maximum of 5 percent, by weight, to pass through a U.S. Standard No. 20 sieve.

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

3.2.20 Pepper, cayenne, ground. Cayenne pepper shall be derived from the dried, red, ripe fruit of *Capsicum frutescens L.* and shall be red-brown to red in color with a perceptible sensation of pungency. The Scoville Pungency Value shall be not less than 40,000 units and the pepper shall be of such size that not less than 95 percent shall pass through a U.S. Standard No. 20 sieve.

3.2.21 Asiago cheese. Asiago cheese shall be Asiago cheese shredded with anti-caking agent (see 6.2.9).

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

3.3.1 Preparation of bagel. The bagel shall be manufactured by the dough method or any other method yielding an equivalent product.

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3.3.1.1 Preparation of bagel (type I). The bagel shall be formulated from the following ingredients in the proportions specified:

<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	53.94
Water <u>1/</u>	30.00
Glycerol	-4.61
Sugar, white granulated	-2.02
Sugar, nonreducing	-2.00
Vital wheat gluten	-1.34
Oil, vegetable	-1.29
Salt	-1.18
Yeast (instant dry) <u>1/ 2/</u>	-0.96
Xanthan gum	-0.80
Crumb softener	-0.54
Oxidizer/conditioner/mix reducer	-0.48
Nonfat dry milk	-0.40
Enzyme/softener	-0.26
Enzyme complex	-0.13
Sorbic acid, encapsulated	-0.05
<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	54.2
Water <u>1/</u>	30.0
Glycerol	4.6
Sugar, white granulated	2.0
Sugar, nonreducing	2.0
Vital wheat gluten	1.3
Oil, canola	1.3
Salt	1.2
Yeast (instant dry) <u>1/ 2/</u>	1.0
Xanthan gum	0.80
Crumb softener	0.55
Enzyme/softener	0.55
Nonfat dry milk	0.40
Enzyme complex	0.05
Sorbic acid, encapsulated	0.05

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.

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

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3.3.1.2 Preparation of bagel (type II). The bagel shall be formulated from the following ingredients in the proportions specified:

<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	51.25
Water <u>1/</u>	28.60
Blueberry flavored chips	-4.60
Glycerol	-4.39
Sugar, white granulated	-2.00
Sugar, nonreducing	-2.00
Oil, vegetable	-1.29
Vital wheat gluten	-1.28
Salt	-1.12
Yeast (instant dry) <u>1/ 2/</u>	-0.92
Xanthan gum	-0.77
Crumb softener	-0.51
Oxidizer/conditioner/mix reducer	-0.46
Nonfat dry milk	-0.40
Enzyme/softener	-0.24
Enzyme complex	-0.12
Sorbic acid, encapsulated	-0.05
<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	51.4
Water <u>1/</u>	28.6
Blueberry flavored chips	4.6
Glycerol	4.4
Sugar, white granulated	2.0
Sugar, nonreducing	2.0
Oil, canola	1.3
Vital wheat gluten	1.3
Salt	1.1
Yeast (instant dry) <u>1/ 2/</u>	0.90
Xanthan gum	0.80
Crumb softener	0.55
Enzyme/softener	0.55
Nonfat dry milk	0.40
Enzyme complex	0.05
Sorbic acid, encapsulated	0.05

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.

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

3.3.1.3 Preparation of bagel (type III). The bagel shall be formulated from the following ingredients in the proportions specified:

<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	53.57
Water <u>1/</u>	30.00
Glycerol	-4.61
Sugar, white granulated	-2.02
Sugar, nonreducing	-2.02
Vital wheat gluten	-1.34
Oil, vegetable	-1.29
Salt	-1.18
Yeast (instant dry) <u>1/ 2/</u>	-0.96
Xanthan gum	-0.80
Crumb softener	-0.54
Oxidizer/conditioner/mix reducer	-0.48
Nonfat dry milk	-0.43
Enzyme/softener	-0.32
Enzyme complex	-0.16
Pepper, red, crushed	-0.10
Oregano, ground	-0.08
Sorbic acid, encapsulated	-0.05
Pepper, cayenne, ground	-0.05
Ingredient	Percent by weight
Flour <u>1/</u>	54.0
Water <u>1/</u>	30.0
Glycerol	4.6
Sugar, white granulated	2.0
Sugar, nonreducing	2.0
Vital wheat gluten	1.3
Oil, canola	1.3
Salt	1.2
Yeast (instant dry) <u>1/ 2/</u>	1.0
Xanthan gum	0.80
Crumb softener	0.55
Enzyme/softener	0.55
Nonfat dry milk	0.40
Oregano, ground	0.08
Pepper, red, crushed	0.07

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Enzyme complex	0.05
Sorbic acid, encapsulated	0.05
Pepper, cayenne, ground	0.05

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.

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. All dry ingredients shall be dry blended. The liquid ingredients shall be added to the dry ingredients while mixing in the following order: water, oil, and glycerol. All combined ingredients shall then be sufficiently mixed to develop the dough. The bulk dough should be allowed a brief period of rest in accordance with American Baking Committee guidelines before dividing and shaping.

3.3.3 Dividing, shaping, and depositing. The bulk dough, following a brief rest, shall be divided into pieces of sufficient weight to ensure compliance with finished product net weight requirements. The dough pieces shall be shaped and molded into round bagel form with a hole in the center, as specified, prior to being deposited in the baking pan.

3.3.4 Holding and proofing. The pans containing the molded dough pieces shall be placed on portable racks and may be placed in a retarder at 50°F (10°C) and 50 percent relative humidity (RH) for a minimum of 15 hours. ~~The product shall then undergo a final proofing for 1 hour 15 minutes at 90°F (32°C) and 90 percent RH.~~ The product shall then undergo a final proofing for 90 to 110 minutes at 90°F (32°C) to 100°F (37°C) and 85 to 100 percent RH. Fluctuations due to opening and closing of proof box doors are acceptable as long as end item requirements are met.

3.3.5 Boiling or steaming. The bagel shall be boiled ~~prior to baking~~ or steamed ~~prior to baking~~ in the oven to produce shine on outer crust of bagel.

3.3.6 Cheese application (type III only). Shredded Asiago cheese with anti-caking agent shall be applied to the top of the bagel through a depositor. It shall be applied at a rate which equals not less than 4 grams of Asiago cheese per bagel (before baking). If boiling method is being used, the cheese shall be applied after boiling. If steaming method is being used, the cheese shall be applied prior to steaming.

3.3.7 Baking. The proofed bagel dough pieces shall be fully baked to an internal temperature of 185°F (85°C) and until the exterior is a uniform medium golden brown bread crust color.

3.4 Packaging methods. A continuous method shall be used. One bagel and one oxygen scavenger shall be placed into the pouch. The internal temperature of the bagel at the time of pouch filling shall be not less than 80°F (27°C) or greater than 120°F (49°C).

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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 constructed of materials that are safe for direct and indirect food contact, and shall be suitable for use with edible products. The oxygen scavenger shall be in compliance with all applicable FDA regulations. (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. The bagel shall be round and have an open center.
- e. No individual pouch shall contain less than 2.0 ounces (56.7 grams) of product.
- f. The oxygen content of the filled and sealed pouches shall not exceed 0.30 percent after 48 hours from time of sealing.
- g. Each pouch shall contain one intact bagel and one intact oxygen scavenger.
- h. The bagel shall show no evidence of dense crumb compression streaks.
- i. The water activity for any individual pouch shall be not greater than ~~0.87~~ 0.89 when measured at 77°F (25°C).
- j. The pH shall not exceed ~~5.2~~ 5.6.
- k. For types I and II, the crust shall have a uniform medium golden brown baked bread color.
- l. For type III, the crust shall have brown strips of cheese covering the surface.
- m. For types I and III, the crumb shall be white to off white.
- n. For type II, the crumb shall be blue-purple.
- o. The texture of the bagel crust shall be slightly leathery and the crumb shall be tender and moderately moist.

p. For type I, the bagel shall have an odor and flavor of fermented baked bread and shall have a slightly sweet flavor.

q. For type II, the bagel shall have a wild blueberry and fermented baked bread odor and flavor.

r. For type III, the bagel shall have an Asiago cheese and fermented baked bread odor and flavor. The bagel shall have a mild to spicy hot flavor.

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, Packing, or Holding 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:

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 **Research, Development and Engineering** Center
~~AMSRD-NSC-CF-FRDNS-CFF~~
15 Kansas Street
Natick, MA 01760-5018 **5056**

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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.

4.3 Conformance inspection. Conformance inspection shall include the examinations of ~~4.2.1~~, 4.3.1, 4.3.2, 4.3.3, and the tests of 4.4.1 through 4.4.3.

4.3.1 Component and material inspection examination. 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.

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.

~~4.2.14.3.3~~ 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 pouches. The sample unit shall be the contents of one pouch. Utilizing the double sampling plans indicated in ANSI/ASQC 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.

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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 bagel or does not contain one intact oxygen scavenger. 3/
103		Bagel texture is not slightly leathery for the crust or not tender and moderately moist for the crumb. 3/4/
104		Bagel shows evidence of dense crumb compression streaks. 3/4/
105		Tear or hole or open seal in oxygen scavenger.
	201	Bagel not round or does not have an open center.
	202	For types I or II, crust does not have a uniform medium golden brown baked bread.
	203	For type III, crust does not have brown strips of cheese covering the surface.
	204	For types I or III, crumb color not white to off white.
	205	For type II, crumb color not blue-purple.
106		For type I, bagel does not have an odor or flavor of fermented baked or bagel does not have a slightly sweet flavor.
107		For type II, bagel does not have a wild blueberry or fermented baked bread odor or flavor.
108		For type III, bagel does not have an Asiago cheese or fermented baked bread odor or flavor.
109		For type III, bagel does not have a mild to spicy hot flavor.
	206	Net weight of an individual bagel less than 2.0 ounces (56.7 grams). 4/5/

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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, moldy, rancid, sour, stale, or foreign color shall be cause for rejection of the lot.

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

3/ Construction of the oxygen scavenger and compliance with FDA regulations will be verified by Certificate of Conformance.

4/ To inspect for this defect, ~~cut bagel in half~~ make a vertical cut across the bagel diameter and inspect the right hand cut surface.

5/ 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 pouch. Results shall be reported to the nearest 0.1 ounce or to the nearest 1.0 gram.

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, 943.02

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Test results of pH value shall be reported to the nearest 0.1. Government 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.

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 Sugar, nonreducing. Trehalose manufactured by Cargill Health & Food Technologies, Wayzata, MN 55391 meets the requirements of 3.2.5 and performs satisfactorily in this product.

6.2.2 Crumb softener. Dimodan 300 PH manufactured by Danisco USA, Inc. 201 New Century Pkwy, New Century KS 66031 meets the requirements of 3.2.11 and performs satisfactorily in this product.

~~6.2.3 Oxidizer/conditioner/mix reducer. Control S manufactured by ADM Arkady, Olathe, KS 66060 meets the requirements of 3.2.12 and performs satisfactorily in this product.~~

6.2.4 Nonfat dry milk. Nonfat dry milk manufactured by Kerry Inc., Beloit, WI 53511 meets the requirements of 3.2.13 and performs satisfactorily in this product.

6.2.5 Enzyme/softener. ~~Vital Soft #113382~~ Talento Actiplus manufactured by ADM Arkady, Olathe, KS 66060 Puratos Corporation East Coast, 1941 Old Cuthbert Road, Cherry Hill, NJ 08034 meets the requirements of 3.2.14 and performs satisfactorily in this product.

6.2.6 Enzyme complex. Grindamyl Max Life 210 Powerfresh 3001 manufactured by Danisco USA, Inc. 201 New Century Pkwy Parkway, New Century KS 66031 meets the requirements of 3.2.15 and performs satisfactorily in this product.

6.2.7 Sorbic acid, encapsulated. Encapsulated sorbic acid manufactured by Balchem Corporation, Slate Hill, NY 10973 Watson Inc., West Haven, CT 06516 meets the requirements of 3.2.16 and performs satisfactorily in this product.

6.2.8 Blueberry chips. Blueberry Flavorettes manufactured by Quali Tech, Inc. Chaska, MN 55318 meet the requirements of section 3.2.17, performs satisfactorily in this product, and are very important because other blueberry flavored chips will turn green during military shelf life requirements.

6.2.9 Asiago cheese. Asiago cheese shredded with anticaking agent manufactured by Sargento Foods Inc., Plymouth, WI 53073 meets the requirements of 3.2.21 and performs satisfactorily in this product.

~~6.3 Oxygen scavenger. Oxygen scavenger suitable for the purpose may be obtained from the Multiform 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 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

Custodians:
Army - GL
Navy - SA

Preparing activity:
Army - GL
(Project 8920-2005-001)

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Air Force - 35

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>.

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FOR DSCP WEBSITE POSTING

RDNS-CFF

February 25, 2010

TO: DSCP- FTRC

Subject: ES10-010; Document Changes, MIL-DTL-32219 Bagel, Shelf Stable, For Operational Rations; Formulation changes for Plain, Blueberry, and Spicy Asiago cheese Bagels

1. Changes to subject document were coordinated following a "Bagel Enzyme Study" that was conducted by Natick that looked at use of Danisco Powerfresh 3001 to replace discontinued enzymes of Grindamyl 210 and Vital Soft. Danisco cancelled Grindamyl 210 and ADM sold off their baking division so Vital Soft is no longer available. Both were very important baking enzymes responsible for extended shelf life softness of bagels. Danisco's Powerfresh 3001 (usage @ 0.05% by weight) was successfully identified as new enzyme complex to replace the discontinued enzymes. Essential address/email updates, correction to the placement of product examination, and other changes in response to coordination comments were also made.
2. Natick recommends that DSCP implement the changes as outlined below for the second procurement of the First Strike Ration® (FSR®) and future procurements until the subject document is formally amended or revised.
 - a. Paragraph 2 comment block: after "Natick Soldier" insert "Research, Development and Engineering". Delete "AMSRD NSC CF F" and replace with "RDNS-CFF". Delete "18" and replace with "56". Delete "Raymond.Valvano@natick.army.mil" and replace with "Ray.Valavano@us.army.mil".
 - b. Paragraph 3.2.1: Line 6, delete "and a maltose content of not greater than 0.2 percent". Line 7, delete "exceed 240 seconds." and insert "be less than 225 seconds."
 - c. Paragraph 3.2.5: delete "207" and replace with "203". Delete "97" and replace with "95".
 - d. Paragraph 3.2.7: delete "vegetable" and insert "canola", delete "vegetable" and insert "Canola", and after "flavor" insert a period ".". Delete "and shall have a minimum stability of 25 hours Active Oxygen Method (AOM)." and " , a moisture/volatile matter content not to exceed 0.06 percent and pass a cold test of 5.5 hours (minimum)." and insert " and shall have a peroxide value not to exceed 1.0 meq/kg."
 - e. Paragraph 3.2.12: delete entirely.

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f. Paragraph 3.2.14: delete “Vital Soft #113382” and insert “Talento Actiplus”.

g. Paragraph 3.2.15: delete “Grindamyl Max-Life 210” and insert “Powerfresh 3001”.

h. Paragraph 3.3.1.1: delete table and insert new table:

<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	54.2
Water <u>1/</u>	30.0
Glycerol	4.6
Sugar, white granulated	2.0
Sugar, nonreducing	2.0
Vital wheat gluten	1.3
Oil, canola	1.3
Salt	1.2
Yeast (instant dry) <u>1/ 2/</u>	1.0
Xanthan gum	0.80
Crumb softener	0.55
Enzyme/softener	0.55
Nonfat dry milk	0.40
Enzyme complex	0.05
Sorbic acid, encapsulated	0.05

i. Paragraph 3.3.1.2: delete table and insert new table:

<u>Ingredient</u>	<u>Percent by weight</u>
Flour <u>1/</u>	51.4
Water <u>1/</u>	28.6
Blueberry flavored chips	4.6
Glycerol	4.4
Sugar, white granulated	2.0
Sugar, nonreducing	2.0
Oil, canola	1.3
Vital wheat gluten	1.3
Salt	1.1
Yeast (instant dry) <u>1/ 2/</u>	0.90
Xanthan gum	0.80
Crumb softener	0.55
Enzyme/softener	0.55
Nonfat dry milk	0.40
Enzyme complex	0.05
Sorbic acid, encapsulated	0.05

j. Paragraph 3.3.1.3: delete table and insert new table:

Ingredient	Percent by weight
Flour <u>1</u> /	54.0
Water <u>1</u> /	30.0
Glycerol	4.6
Sugar, white granulated	2.0
Sugar, nonreducing	2.0
Vital wheat gluten	1.3
Oil, canola	1.3
Salt	1.2
Yeast (instant dry) <u>1</u> / <u>2</u> /	1.0
Xanthan gum	0.80
Crumb softener	0.55
Enzyme/softener	0.55
Nonfat dry milk	0.40
Oregano, ground	0.08
Pepper, red, crushed	0.07
Enzyme complex	0.05
Sorbic acid, encapsulated	0.05
Pepper, cayenne, ground	0.05

k. Paragraph 3.3.3: delete “, as specified,”.

l. Paragraph 3.3.4: delete second sentence “The product ...” and replace with “The product shall then undergo a final proofing for 90 to 110 minutes at 90°F (32°C) to 100°F (37°C) and 85 to 100 percent RH. Fluctuations due to opening and closing of proof box doors are acceptable as long as end item requirements are met.”

m. Paragraph 3.3.5: delete “prior to baking” and insert “prior to baking” after “or steamed”.

n. Paragraph 3.4.1: delete “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).” and insert “constructed of materials that are safe for direct and indirect food contact, and shall be suitable for use with edible products. The oxygen scavenger shall be in compliance with all applicable FDA regulations.”

o. Paragraph 3.5 i: delete “0.87” and insert “0.89”.

p. Paragraph 3.5 j: delete “5.2” and insert “5.6”.

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q. Paragraph 4.2: insert “Research, Development and Engineering” after “Natick Soldier”. Delete “AMSRD NSC CF F” and replace with “RDNS-CFF”. Delete “5018” and replace with “5056”.

r. Paragraph 4.2.1: delete the paragraph number “4.2.1”, and replace with paragraph number “4.3.3” and move entire paragraph to its proper location. Table I, major defect 102, insert “3” after “oxygen scavenger.” Renumber Table I footnotes accordingly. Insert new footnote “3/ Construction of the oxygen scavenger and compliance with FDA regulations will be verified by Certificate of Conformance.” Change footnote “3” to “4” and delete “cut bagel in half” and replace with “make a vertical cut across the bagel diameter”. Renumber footnote “4” to “5”.

s. Paragraph 4.3.1: delete “inspection” and replace with “examination”.

t. Paragraph 4.4.3: Insert “Government” before “Verification” and change the “V” to a lowercase “v”.

u. Paragraph 6.2.3: delete entirely.

v. Paragraph 6.2.5: delete “Vital Soft #113382” and insert “Talento Actiplus” and delete “ADM Arkady, Olathe, KS 66060” and insert “Puratos Corporation East Coast, 1941 Old Cuthbert Road, Cherry Hill, NJ 08034”.

w. Paragraph 6.2.6: delete “Grindamyl Max-Life 210” and insert “Powerfresh 3001” and delete “Pkwy” and insert “Parkway”.

x. Paragraph 6.2.7: delete “Balchem Corporation, Slate Hill, NY 10973” and insert “Watson Inc., West Haven, CT 06515”

y. Paragraph 6.3: delete paragraph entirely.

3. Attached is MIL-DTL-32219 Bagel, Shelf Stable, For Operational Rations with Change 02 dated 25 February 10 with changes highlighted.