

SECTION C

This document covers shelf stable dessert bar packaged in a flexible pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-D-004A, DESSERT BAR, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Flavors.

Flavor 1 -	Mocha
Flavor 2 -	Peanut butter
Flavor 3 -	Chocolate banana nut
Flavor 4	Toffee

C-2 PRODUCT REQUIREMENTS

A. Product standard. A sample shall be subjected to first article (FA) or product demonstration model (PDM) inspection as applicable, in accordance with the tests and inspections of Section E of this Product Contract Requirements (PCR) document. 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 noncomparable to the product standard, the contractor shall submit a replacement FA or PDM for approval. In any event, all product produced must meet all requirements of this document including product standard comparability.

B. Shelf life. The packaged product shall meet the minimum shelf life requirement of 36 months at 80°F.

C. Appearance.

(1) General. The bar shall be intact and free of any cracks. The surface of the bar shall be smooth. The bar matrix shall have a dense structure. The finished product shall be free from foreign materials.

(2) Flavor 1. The mocha bar shall be a medium brown color and may have dark chocolate chips distributed throughout.

(3) Flavor 2. The peanut butter bar shall be a light tan color and shall have small pieces of peanuts distributed throughout.

(4) Flavor 3. The chocolate banana nut bar shall be a medium brown color and shall have small pieces of walnuts distributed throughout. The bar may have dark chocolate chips distributed throughout.

(5) Flavor 4. The toffee bar shall be an off-white color and shall have medium to dark tan colored toffee bits distributed throughout.

D. Odor and flavor. The packaged food shall have a slight to moderate sweet cream flavor. The packaged food shall be free from foreign odors and flavors.

(1) Flavor 1. The mocha bar shall have a semi-sweet chocolate and a slight coffee odor and flavor.

(2) Flavor 2. The peanut butter bar shall have a lightly roasted peanut odor and flavor.

(3) Flavor 3. The chocolate banana nut bar shall have a slight cocoa and a moderate banana odor and flavor. The bar shall have a slight walnut flavor.

(4) Flavor 4. The toffee bar shall have a moderate sweet cream odor. The bar shall have a moderate buttery and caramelized sugar odor and flavor.

E. Texture. The bar shall have a dense matrix with a smooth, creamy mouthfeel.

(1) Flavors 2 and 3. The peanut butter and chocolate banana nut bars shall have firm nut pieces.

(2) Flavor 4. The toffee bar shall have firm, crunchy, and chewy toffee bits.

F. Dimensions. The bar dimensions shall be not greater than 3.7 inches in length and not greater than 2.0 inches in width and not greater than 0.6 inches in height.

G. Net weight. The net weight of an individual bar shall be not less than 40 grams.

H. Palatability and overall appearance. The finished product shall be equal to or better than the approved product standard in palatability and overall appearance.

I. Analytical requirements.

(1) Water activity.

- a. Flavor 1. The water activity (a_w) shall be not greater than 0.40.
- b. Flavor 2. The water activity (a_w) shall be not greater than 0.35.
- c. Flavor 3. The water activity (a_w) shall be not greater than 0.48.
- d. Flavor 4. The water activity (a_w) shall be not greater than 0.50.

(2) Aflatoxin. The aflatoxin content of Flavors 2 and 3 shall be negative. Negative aflatoxin content is 15 parts per billion (ppb) or less.

J. Microbiological requirements.

(1) Aerobic plate count. The aerobic plate count shall be not greater than 25,000 Colony Forming Units (CFU) per gram in four of five samples and not greater than 50,000 CFU per gram in any individual sample.

(2) Yeast and mold.

- a. Flavors 1, 2, and 4. The yeast and mold count (combined) shall not exceed 100 CFU per gram.
- b. Flavor 3. The yeast and mold count (combined) shall not exceed 300 CFU per gram.

(3) *Escherichia coli* (*E. coli*) count. *E. coli* shall have less than 10 CFU per gram or less than 3 Most Probable Number (MPN) per gram, where findings indicate zero colonies CFU per plate or zero tubes producing gas for MPN.

(4) *Salmonella*. The bar shall be *Salmonella* negative.

K. Ingredient requirements.

(1) Nuts. All nuts and nut products shall be from the most recent crop year. The peanuts and walnuts shall be uniformly coated with a transparent food grade material that aids in reduction of oxidative rancidity. The types and amounts of antioxidants shall be approved by the Food and Drug Administration (FDA). The nuts should be treated/pasteurized to meet product microbiological requirements.

L. Product formulation and ingredients. The following formulas have been successfully made at Combat Capabilities Development Command (DEVCOM) Soldier Center (FCDD-SCD-SCR) and a large commercial manufacturer. Ingredient suppliers and available specific ingredients may change (companies bought out, part numbers change, ingredients no longer supplied, etc.). Any changes in ingredients or formula will need to be approved by DEVCOM SC.

(1) Flavor 1, Mocha.

<u>Ingredients</u>	<u>Percent by weight</u>
Sugar, confectioners	32.00
Cream powder <u>1/</u>	25.60
Chocolate chips, semisweet <u>2/</u>	15.00
Shortening, non-hydrogenated, palm oil	12.00
Cocoa, Dutched <u>3/</u>	6.50
Milk, nonfat, dry <u>4/</u>	5.00
Lecithin, liquid	2.00
Flavoring, vanilla, artificial, powder <u>5/</u>	1.00
Coffee, instant, spray dried, Brazilian <u>6/</u>	0.50
Flavoring, vanilla, artificial, oil soluble <u>7/</u>	0.20
Flavoring, coffee, artificial <u>8/</u>	0.10
Ascorbyl palmitate	0.06
Mixed tocopherols	0.02
Butylated Hydroxyanisole (BHA) <u>9/</u>	0.02

1/ "Quali-cream 7211 cream powder (76 percent fat)" from Quality Ingredients Corp., 14300 Rosemount Dr., Burnsville, MN 55306.

2/ "10,000 count/lb. semisweet chocolate chips" from Blommer Chocolate Co., 600 W. Kinzie St., Chicago, IL 60654

3/ “Dutched Cocoa, (10 to 13 percent fat)” from The Hershey Company, 100 Crystal A Drive, Hershey, PA 17033.

4/ “Nonfat Dry Milk NTH INST-I1532” from Kerry Inc., 100 East Grand Ave. Beloit, WI 53511.

5/ “IBS artificial vanilla flavor D980” from International Bakers Services Inc. South Bend, IN 46628.

6/ “0134BB230 Brazilian spray dried instant coffee” from Autocrat Inc., 10 Blackstone Valley Place, Lincoln, RI 02865.

7/ “Artificial vanilla flavor #16518 oil soluble” from David Michael & Co. Inc., 10801 Decatur Rd., Philadelphia, PA 19154.

8/ “Artificial coffee flavor #17772” from David Michael & Co. Inc., 10801 Decatur Rd., Philadelphia, PA 19154.

9/ “Tenox BHA” from Eastman Chemicals, Box 431, Kingsport, TN 37660.

(2) Flavor 2, Peanut butter.

<u>Ingredients</u>	<u>Percent by weight</u>
Cream powder <u>1/</u>	24.84
Sugar, confectioners	19.73
Shortening, non-hydrogenated, palm oil	13.11
Peanut pieces, dry roasted, unsalted (not greater than 3/8 inch)	13.10
Peanut flour <u>2/</u>	11.40
Milk, nonfat, dry <u>3/</u>	8.73
Peanut butter, smooth	5.83
Lecithin, liquid	1.58
Flavoring, vanilla, artificial, powder <u>4/</u>	1.58
Ascorbyl palmitate	0.06
Mixed tocopherols	0.02
BHA <u>5/</u>	0.02

1/ “Quali-cream 7211 cream powder (76 percent fat)” from Quality Ingredients Corp., 14300 Rosemount Dr., Burnsville, MN 55306.

2/ “Lightly roasted peanut flour #522857, (28 percent fat)” from Golden Peanut Co., 100 North Point Center East, Suite 400, Alpharetta, GA 30022.

3/ “Nonfat Dry Milk NTH INST-I1532” from Kerry Inc., 100 East Grand Ave. Beloit, WI 53511.

4/ “IBS artificial vanilla flavor D980” from International Bakers Services Inc. South Bend, IN 46628.

5/ “Tenox BHA” from Eastman Chemicals, Box 431, Kingsport, TN 37660.

(3) Flavor 3, Chocolate banana nut.

<u>Ingredients</u>	<u>Percent by weight</u>
Cream powder <u>1/</u>	24.00
Sugar, confectioners	17.00
Chocolate chips, semisweet <u>2/</u>	15.00
Walnut pieces, (not greater than 3/8 inch)	12.00
Shortening, non-hydrogenated, palm oil	11.00
Milk, nonfat, dry <u>3/</u>	8.00
Cream cheese powder <u>3/</u>	5.00
Cocoa, Dutched <u>4/</u>	4.00
Lecithin, liquid	1.60
Flavoring, vanilla, artificial, powder <u>5/</u>	1.50
Banana extract, imitation <u>6/</u>	0.80
Ascorbyl palmitate	0.06
Mixed tocopherols	0.02
BHA <u>7/</u>	0.02

1/ “Quali-cream 7211 cream powder (76 percent fat)” from Quality Ingredients Corp., 14300 Rosemount Dr., Burnsville, MN 55306.

2/ “10,000 count/lb. semisweet chocolate chips” from Blommer Chocolate Co., 600 W. Kinzie St., Chicago, IL 60654

3/ “Nonfat Dry Milk NTH INST-I1532 and Chees-treme 3919 (cream cheese powder)” from Kerry Inc., 100 East Grand Ave. Beloit, WI 53511.

4/ “Dutched Cocoa, (10 to13 percent fat)” from The Hershey Company, 100 Crystal A Drive, Hershey, PA 17033.

5/ “IBS artificial vanilla flavor D980” from International Bakers Services Inc. South Bend, IN 46628.

6/ “Imitation banana extract F55922” from McCormick & Co. Inc., 226 Schilling Circle, Hunt Valley, MD 21031.

7/ “Tenox BHA” from Eastman Chemicals, Box 431, Kingsport, TN 37660.

(4) Flavor 4, Toffee.

<u>Ingredients</u>	<u>Percent by weight</u>
Cream powder <u>1/</u>	28.40
Sugar, confectioners	19.80
Toffee bits	19.60
Shortening, non-hydrogenated, palm oil	14.60
Milk, nonfat, dry <u>2/</u>	7.70
Cream cheese powder <u>2/</u>	5.50
Lecithin, liquid	1.60
Toffee flavor, dry <u>3/</u>	1.50
Toffee flavor, liquid <u>4/</u>	0.60
Flavoring, vanilla, artificial, powder <u>5/</u>	0.60
Ascorbyl palmitate	0.06
Mixed tocopherols	0.02
BHA <u>6/</u>	0.02

1/ “Quali-cream 7211 cream powder (76 percent fat)” from Quality Ingredients Corp., 14300 Rosemount Dr., Burnsville, MN 55306.

2/ “Nonfat Dry Milk NTH INST-I1532 and Chees-treme 3919 (cream cheese powder)” from Kerry Inc., 100 East Grand Ave. Beloit, WI 53511.

3/ “Toffee flavor Dry (28-19-0028SD1)” from Weber Flavors, 549 Palwaukee Dr., Wheeling, IL 60090.

4/ “Toffee flavor Liquid (28-15-0163)” from Weber Flavors, 549 Palwaukee Dr., Wheeling, IL 60090.

5/ “IBS artificial vanilla flavor D980” from International Bakers Services Inc. South Bend, IN 46628.

6/ “Tenox BHA” from Eastman Chemicals, Box 431, Kingsport, TN 37660.

M. Preparation and Processing (for all flavors). The following preparation and processes were used at DEVCOM SC for processing the dessert bars. Industrial preparation, processing and equipment may be used to produce product of same quality as produced at DEVCOM SC.

Liquid mix:

Equipment: Steam-jacketed kettle equipped with or without swept surface agitator.

Add shortening; heat until melted, approximately 120°F. Add lecithin, mixed tocopherols (if liquid), liquid flavors, and peanut butter, as applicable. Mix until well blended.

Paste mixing:

Equipment: Hobart mixer with standard paddle.

Add all dry ingredients to mixing bowl. Slowly add liquid mix to dry ingredients while mixer is on medium speed. Mix until paste forms (speed may be increased once dough is sticky enough to prevent product loss over the sides). Paste shall be mixed sufficiently to be warm enough to be extruded. Mixing the paste is important; if not mixed long enough the product will not extrude. After paste is formed, add nuts and/or cold chocolate chips or toffee bits, as applicable. Mix only long enough to fully incorporate particulates into paste. Overmixing the paste may result in melting of chips or bits and broken nuts. Chocolate chips or toffee bits are less likely to melt if chilled prior to preparation and processing.

Extrusion:

Equipment: Hosokawa BEPEX GmhH Model F 97 265 – 266 or Reiser Vmag, 72 Normal double screw extruder.

Product shall be extruded through the nozzle and cut to produce a bar with size and net weight in accordance with product requirements as specified above in C-2,F and G.

Cooling tunnel:

Finished product shall be cooled enough to maintain shape during handling and packaging.

SECTION D

D-1 PACKAGING

A. Packaging. One bar shall be packed in a preformed or form-fill-seal barrier pouch as described below.

(1) Preformed pouch.

a. Pouch material. 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. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for the foil layer shall be plus or minus 10 percent. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart an odor or flavor to the product. The complete exterior surface of the pouch shall be uniformly colored and shall conform to number 20219, 30219, 30227, 30279, 30313, 30324, or 30450 of SAE AMS-STD-595, Colors Used in Government Procurement.

b. Pouch construction. The pouch shall be a flat style preformed pouch having maximum inside dimensions of 3-3/4 inches wide by 5-1/4 inches long. The pouch shall be made by heat sealing three edges with 3/8 inch (-1/8 inch, +3/16 inch) wide seals. The side and bottom seals 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 of width. A tear nick, notch, or serrations shall be provided to facilitate opening. A 1/8 inch wide lip may be incorporated at the open end of the pouch.

c. Pouch filling and sealing. One bar shall be inserted into the pouch. The filled pouch shall be sealed under a vacuum of not less than 28 inches of mercury with a minimum 1/8 inch wide heat seal. The closure seal shall be free of foldover wrinkles or entrapped matter that reduces the effective closure seal width to less than 1/16 inch. Seals shall be free of impression or design on the seal surface that would conceal or impair visual detection of

seal defects. The average seal strength shall be 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 of width.

(2) Horizontal form-fill-seal pouches.

a. Pouch material. The horizontal 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, from outside to inside, 0.0009 inch thick oriented polypropylene bonded to 0.0007 inch thick aluminum foil with 10 pounds per ream pigmented polyethylene or adhesive 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 g/10 minutes in accordance with ASTM D1238, Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer and a density range of 0.918 to 0.922 g/cc in accordance with ASTM D1505, Standard Test Method for Density of Plastics by the Density-Gradient Technique. 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 of the same 3-ply laminate as specified for the tray-shaped body except the aluminum foil thickness may be 0.00035 inch. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for the foil layer shall be plus or minus 10 percent. The color requirements of the exterior (oriented polypropylene or polyester side) of the laminate shall be as specified in D-1,A(1)a. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart any odor or flavor to the product.

b. 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 bar shall be placed into the tray-shaped body of the pouch. The filled pouch body shall be sealed under a vacuum of not less than 28 inches of mercury. Pouch closure shall be effected by heat sealing together the cover and body along the entire pouch perimeter. The closure seal width shall be a minimum of 1/8 inch. 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 of width. The maximum outside dimensions of the sealed pouch shall be 4-1/2 inches wide by 5-3/4 inches long. A tear nick, notch, or serrations shall be provided to facilitate opening of the filled and sealed pouch. The sealed

pouch shall not show any evidence of material degradation, aluminum stress cracking, delamination or foreign odor. Heat seals shall be free of entrapped matter that reduces the effective closure seal width to less than 1/16 inch. Seals shall be free of impression or design on the seal surface that would conceal or impair visual detection of seal defects.

D-2 LABELING

A. Pouches. Each pouch shall be correctly and legibly labeled. Printing ink shall be permanent black ink or other dark contrasting color which is free of carcinogenic elements. The label shall contain the following information:

- (1) Name and flavor of product (letters not less than 1/8 inch high)
- (2) Ingredients
- (3) Date 1/
- (4) Net weight
- (5) Name and address of packer
- (6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations.

1/ Each pouch shall have the date of pack noted by using either a four-digit code or five-digit code. When using the four-digit code, begin with the final digit of the current year followed by the three-digit Julian code. For example, 14 February 2050 would be coded as 0045. When using the five-digit code, begin with the decade digit of the current year followed by the three-digit Julian code. For example, 14 February 2050 would be coded as 50045. The Julian code shall represent the day the product was packaged into the pouch.

D-3 PACKING

A. Packing. Not more than 40 pounds of product shall be packed in a fiberboard shipping box constructed in accordance with style RSC-L of ASTM D5118/D5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes. The fiberboard shall conform to type CF, class D, variety SW, minimum burst grade 200 or ECT 32 of ASTM D4727/D4727M, Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes. Each box shall be closed in accordance with ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-5 MARKING

A. Shipping containers. Shipping containers shall be marked in accordance with DLA Troop Support Form 3556, Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence.

SECTION E INSPECTION AND ACCEPTANCE

The following quality assurance criteria, utilizing ANSI/ASQ Z1.4, Sampling Procedures and Tables for Inspection by Attributes, are required. Unless otherwise specified, single sampling plans indicated in ANSI/ASQ Z1.4 will be utilized. When required, the manufacturer shall provide the Certificate(s) of Conformance to the appropriate inspection activity. Certificate(s) of Conformance not provided shall be cause for rejection of the lot.

A. Definitions.

(1) Critical defect. A critical defect is a defect that judgment and experience indicate would result in hazardous or unsafe conditions for individuals using, maintaining, or depending on the item; or a defect that judgment and experience indicate is likely to prevent the performance of the major end item, i.e., the consumption of the ration.

(2) Major defect. A major defect is a defect, other than critical, that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.

(3) Minor defect. A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

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

(1) Product standard inspection. The first article or product demonstration model shall be inspected in accordance with the provisions of this document and evaluated for appearance, odor, flavor, and texture. Any failure to conform to the performance requirements or any appearance or palatability failure shall be cause for rejection of the lot.

(2) Periodic review evaluation. The approved first article or product demonstration model shall be used as the product standard for periodic review evaluations. All food components that are inspected by the USDA shall be subject to periodic review sampling and

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evaluation. The USDA shall select sample units during production of contracts and submit them to the following address for evaluation:

COMBAT CAPABILITIES DEVELOPMENT COMMAND (DEVCOM) SOLDIER CENTER
FCDD-SCD-SCR
10 GENERAL GREENE AVENUE
NATICK, MA 01760-5000

One lot shall be randomly selected during each calendar month of production or as otherwise specified in the contract. Three (3) sample units shall be randomly selected from that one production lot. The three (3) sample units shall be shipped to DEVCOM Soldier Center within five (5) working days from the end of the production month from which they are randomly selected and upon completion of all USDA inspection requirements. The sample units will be evaluated for overall quality against the current first article or product demonstration model.

(3) Conformance inspection. Conformance inspection shall include the examinations/tests and methods of inspection cited in this section.

E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)

A. Product examination. The finished product shall be examined for compliance with the product requirements specified in Section C of this Product Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch. 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. Defects and defect classifications are listed in table I.

TABLE I. Product defects 1/ 2/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>General</u>
101		Product not flavor as specified.
		<u>Appearance</u>
	201	Bar not intact. <u>3/</u>
	202	Bar has one or more cracks. <u>4/</u>
	203	Surface of the bar not smooth.
	204	Bar matrix does not have a dense structure.
		<u>Flavor</u>
102		Bar does not have a slight to moderate sweet cream flavor.
		<u>Texture</u>
	205	Bar does not have a dense matrix or not with a smooth or not a creamy mouthfeel.
		<u>Dimensions</u>
	206	Bar is greater than 3.7 inches in length or is greater than 2.0 inches in width or is greater than 0.6 inches in height.
		<u>Net weight</u>
	207	Net weight of an individual bar less than 40 grams.

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Flavor 1, Mocha</u>
		<u>Appearance</u>
	208	Bar not a medium brown color.
		<u>Odor or flavor</u>
103		Bar does not have a semi-sweet chocolate or not a slight coffee odor or flavor.
		<u>Flavor 2, Peanut butter 5/ 6/ 7/</u>
		<u>Appearance</u>
	209	Bar not a light tan color or does not have small pieces of peanuts or not distributed throughout.
		<u>Odor or flavor</u>
104		Bar does not have a lightly roasted peanut odor or flavor.
		<u>Texture</u>
	210	Bar does not have firm nut pieces.
		<u>Flavor 3, Chocolate banana nut 5/ 6/ 7/</u>
		<u>Appearance</u>
	211	Bar not a medium brown color or does not have small pieces of walnuts or not distributed throughout.

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Odor or flavor</u>
105		Bar does not have a slight cocoa or not a moderate banana odor or flavor.
106		Bar does not have a slight walnut flavor.
		<u>Texture</u>
	212	Bar does not have firm nut pieces.
		<u>Flavor 4, Toffee</u>
		<u>Appearance</u>
	213	Bar not an off-white color or does not have medium to dark tan colored toffee bits or not distributed throughout.
		<u>Odor and flavor</u>
107		Bar does not have a moderate sweet cream odor or not a moderate buttery or not a caramelized sugar odor or flavor.
		<u>Texture</u>
	214	Bar does not have firm or not crunchy or not chewy toffee bits.

1/ Presence of any foreign materials such as, but not limited to dirt, insect parts, hair, glass, wood, or metal, or any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, stale, musty or moldy 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.

3/ A bar that is broken into two or more pieces shall be considered not intact.

4/ Cracks due to matrix separation from nut pieces shall not be scored as a defect.

5/ The producer shall provide a Certificate of Conformance (CoC) from the supplier for each incoming lot indicating that the peanuts and walnuts supplied and used in the formulation meet all the requirements for the most recent crop year at the time of product packaging. The CoC shall be dated, state the harvest period for the lot(s) (for example - harvested from August 1, 2024 to the following July 31, 2025 crop season), and identify the lot(s) covered by the CoC. Any product not conforming to this requirement shall be cause for rejection of any component lot(s) or any involved product.

6/ The producer shall provide a USDA Certificate verifying that the peanuts and walnuts are aflatoxin negative (15 ppb or less).

7/ The antioxidant coating on the peanuts and walnuts shall be verified by the producer's Certificate of Analysis (CoA).

B. Methods of inspection.

(1) Shelf life. The contractor shall provide a Certificate of Conformance that the product has a 36 month shelf life when stored at 80°F. Government verification may include storage for 6 months at 100°F or 36 months at 80°F. Upon completion of either storage period, the product will be subjected to a sensory evaluation panel for appearance and palatability and must receive an overall score of 5 or higher based on a 9 point quality scale to be considered acceptable.

(2) Net weight. 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. Results shall be reported to the nearest 1 gram.

(3) Analytical.

a. Water activity (a_w) testing. Eight filled and sealed pouches shall be randomly selected from one production lot and individually tested for a_w in accordance with the latest edition of the Official Methods of Analysis (OMA) of AOAC International, method 978.18, using an electronic hygrometer system self-temperature controlled at 77°F (25°C) or an equivalent instrument. Water activity shall be determined not less than 48 hours after packaging to allow moisture equilibration in the product. Test results shall be reported to the nearest 0.01. Government verification will be conducted through actual testing by a

Government laboratory. Any result not conforming to the requirement shall be cause for rejection of the lot.

b. Aflatoxin testing. 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 composited sample shall be analyzed in accordance with the OMA of AOAC International method 991.31 A-F, H, with preparation of the sample performed according to AOAC International method 977.16. Test results shall be reported to the nearest whole number. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the requirement shall be cause for rejection of the lot.

NOTE: The following conditions apply for aflatoxin testing:

a. For prepackaged dessert bar product received from a supplier and is not further processed, the contractor will furnish a Certificate of Analysis (CoA) that the aflatoxin in the peanut butter or roasted peanuts or peanut flour or walnuts in the dessert bar represented is not greater than 15 ppb. No additional testing is required. Results shall be reported to the nearest whole number.

b. For peanut butter or roasted peanuts or peanut flour or walnuts received in bulk (to be used in dessert bar end item), the contractor shall have the bulk shipment sampled and tested by USDA (Sampling shall take place at the contractor location where the finished product will be placed into the pouch). If (i) the bulk shipment is not more than 2 ppb for aflatoxin as evidenced by a USDA Certificate, (ii) the end item lots are manufactured using that bulk product, and (iii) both the bulk and end item lots' identities have been preserved, then no further aflatoxin testing is required. Results shall be reported to the nearest whole number.

c. For peanut butter, roasted peanuts, peanut flour, or walnuts received in bulk, if the conditions in (b) above are not met, each end item lot of dessert bar must be sampled and tested by USDA. End item lots determined to have not greater than 15 ppb in aflatoxin as evidenced by a USDA Certificate will be considered acceptable. Bulk nuts or nut products with aflatoxin greater than 15 ppb shall not be used as ingredients.

NOTE: A USDA CoA on roasted peanuts from the most recent crop year which have been kept in cold storage (between approximately 40°F to 50°F at low humidity) is acceptable. Contractor must attest to these storage conditions. If storage conditions for roasted peanuts are not established, a USDA CoA for aflatoxin on roasted peanuts will be considered current if not more than 30 days have elapsed since the date of the analysis.

(4) Microbiological testing. The finished product shall be tested for microbiological activity. Five filled and sealed samples shall be randomly selected from one lot regardless of lot size. The pouched product shall be individually tested for microbiological levels in accordance with the Official Methods of Analysis (OMA) of AOAC International or the FDA Bacteriological Analytical Manual (BAM). Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the requirements specified in Section C-2,J of this Product Contract Requirements document shall be cause for rejection of the lot.

<u>Test</u>	<u>Method number</u>
Aerobic plate count	966.23 or 990.12
Yeast and mold	997.02 or 2014.05
<i>E. coli</i>	966.24, 991.14, or BAM Ch. 4
<i>Salmonella</i>	967.25, 967.28, 986.35, 991.13, 2003.09, or 2013.09

NOTE: The following conditions apply for *Salmonella* and microbiological testing:

a. For prepackaged product received from a supplier that is not further processed, the contractor will furnish a CoA that the product represented is *Salmonella* negative and meets all microbiological requirements.

b. For premade dessert bars received in bulk, the contractor is responsible for providing a CoA stating that the bulk product is *Salmonella* negative and meets all microbiological requirements. USDA *Salmonella* and additional microbiological testing is required for each end item lot and shall be the basis for lot acceptance with respect to *Salmonella* and other microbiological testing requirements.

E-6 QUALITY ASSURANCE PROVISIONS (PACKAGING AND PACKING MATERIALS)

A. Packaging.

(1) Pouch material certification. The pouch material shall be tested for these characteristics. A CoC may be accepted as evidence that the characteristics conform to the specified requirements.

<u>Characteristic</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Thickness of films for laminated material	D-1,A(1)a and D-1,A(2)a	ASTM D2103 <u>1/</u>
Aluminum foil thickness	D-1,A(1)a and D-1,A(2)a	ASTM B479 <u>2/</u>
Laminated material identification and construction	D-1,A(1)a and D-1,A(2)a	Laboratory evaluation
Color of laminated material	D-1,A(1)a	SAE-AMS-STD-595 <u>3/</u>

1/ Standard Specification for Polyethylene Film and Sheeting

2/ Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil For Flexible Barrier, Food Contact, and Other Applications.

3/ Colors Used in Government Procurement.

(2) Unfilled preformed pouch certification. A CoC may be accepted as evidence that unfilled pouches conform to the requirements specified in D-1,A(1)a and b. When deemed necessary by the USDA, testing of the unfilled preformed pouches for seal strength shall be as specified in E-6,B(1)a.

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

(4) Filled and sealed pouch examination. The filled and sealed pouches shall be examined for the defects listed in table II. The lot size shall be expressed in pouches. The sample unit shall be one 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 II. Filled and sealed pouch defects 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Tear or hole or open seal.
102		Seal width less than 1/16 inch. <u>2/</u>
103		Presence of delamination. <u>3/</u>
104		Unclean pouch. <u>4/</u>
105		Pouch has foreign odor.
106		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. <u>5/</u>
107		Not packaged as specified.
108		Presence of stress cracks in the aluminum foil. <u>6/</u> <u>7/</u>
	201	Label missing or incorrect or illegible.
	202	Tear nick or notch or serrations missing or does not facilitate opening.
	203	Seal width less than 1/8 inch but greater than or equal to 1/16 inch.
	204	Presence of delamination. <u>3/</u>

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

2/ Effective seals are defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide, that produces a hermetically sealed pouch.

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 shall then be rapidly flexed 10 times by rotating both hands in alternating clockwise- counterclockwise directions. Care shall be exercised when flexing delaminated areas near the tear notches to avoid tearing the pouch material. After flexing, the separated outer ply shall be grasped between thumb and forefinger and gently lifted toward the food product edge of the seal or if the separated area is too small to be held between thumb and forefinger, a number two stylus shall be inserted into the delaminated area and a gentle lifting force applied against the outer ply. If separation of the outer ply in the body of the pouch can be made to extend to the product edge of the seal with no discernible resistance to the gentle lifting, the delamination shall be classified as a major defect. Additionally, spot delamination of the outer ply in the body of the pouch that is able to be propagated beyond its initial borders is also a major defect. To determine if the laminated 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 classified as a major defect.

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. Isolated spots of delamination in the body of the pouch that do not propagate when flexed as described above shall be classified as minor defects.

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

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

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

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

6/ Applicable to form-fill-seal pouches only.

7/ The initial examination shall be a visual examination of the closed package. Any suspected visual evidence of stress cracks in the aluminum foil (streaks, breaks, or other disruptions in the laminated film) shall be verified by the following physical examination. To examine for stress cracks, the inside surface of both tray-shaped bodies shall be placed over a light source and the outside surface observed for the passage of light. Observation of light through the pouch 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. Observation of light through the pouch material in the form of a curved or straight line 2 mm in length or smaller or of a single pinpoint shall be considered a pinhole. Observation of ten or more pinholes per pouch shall be evidence of material degradation.

B. Methods of Inspection.

(1) Seal testing. The pouch seals shall be tested for seal strength as required in a, b, or c, as applicable.

a. Unfilled preformed pouch seal testing. The seals of the unfilled preformed pouch shall be tested for seal strength in accordance with ASTM F88/F88M, Standard Test Method for Seal Strength of Flexible Barrier Materials. 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 average seal strength of any side shall be calculated by averaging the three specimens cut from that side. Any average seal strength of less than 6 pounds per inch of width or any test specimen with a seal strength of less than 5 pounds per inch of width shall be classified as a major defect and shall be cause rejection of the lot.

b. Pouch closure seal testing. The closure seals of the pouches shall be tested for seal strength in accordance with ASTM F88/F88M. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The sample size shall be the number of pouches indicated by inspection level S-1. For the closure seal on preformed pouches, three adjacent specimens shall be cut from the closure seal of each pouch in the sample. For the form-fill-seal pouches, three adjacent specimens shall be cut from each side and each end of each pouch in the sample. The average seal strength of any side, end or closure shall be calculated by averaging the three specimens cut from that side, end or closure. Any average seal strength of less than 6 pounds per inch of width or any test specimen with a seal strength

of less than 5 pounds per inch of width shall be classified as a major defect and shall be cause for rejection of the lot.

c. Internal pressure test. The internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The sample size shall be the number of pouches indicated by inspection level S-1. If a three-seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for testing the side and end of the pouch and the distance between restraining plates shall be 1/2 inch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be as close to 1/2 inch as possible while accommodating the thickness of the product, the product may be manipulated to fit within the confines of the restraining apparatus. Pressure shall be applied at the approximate uniform rate of 1-2 pounds per square inch gage (psig) per second until 14 psig pressure is reached. The 14 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for material degradation and separation or yield of the heat seals. Any rupture of the pouch or evidence of seal separation greater than 1/16 inch in the pouch manufacturer's seal shall be considered a test failure. Any seal separation that reduces the effective seal width to less than 1/16 inch (see table II, footnote 2/) shall be considered a test failure. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

C. Packing.

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table III. The lot size shall be expressed in shipping containers. The sample unit shall be one shipping container fully packed. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0 for major defects and 10.0 for total defects.

TABLE III. Shipping container and marking defects

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Marking missing or incorrect or illegible.
102		Inadequate workmanship. <u>1/</u>
	201	More than 40 pounds of product.

1/ Inadequate workmanship is defined as, but not limited to, incomplete closure of container flaps, loose strapping, inadequate stapling, improper taping, or bulged or distorted container.

SECTION J REFERENCE DOCUMENTS

Unless otherwise specified, the applicable version of these documents is that which is active on the date of the solicitation or contract

DLA Troop Support Form

Form 3556	Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence
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GOVERNMENT PUBLICATION

FOOD AND DRUG ADMINISTRATION	Bacteriological Analytical Manual (BAM) www.fda.gov/food/laboratory-methods-food/bacteriological-analytical-manual-bam
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NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ) www.asq.org

ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of the AOAC International

ASTM INTERNATIONAL www.astm.org

B479	Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications
D1238	Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
D1505	Standard Test Method for Density of Plastics by the Density-Gradient Technique
D1974/D1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D2103	Standard Specification for Polyethylene Film and Sheeting
D4727/D4727M	Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes
D5118/D5118M	Standard Practice for Fabrication of Fiberboard Shipping Boxes
F88/F88M	Standard Test Method for Seal Strength of Flexible Barrier Materials

SAE INTERNATIONAL www.sae.org

SAE AMS-STD-595	Colors Used in Government Procurement
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