PCR-C-024D
19 February 2014
W/Change 02 5 Jan 17 ES17-012 (DSCP-SS-17-00231)

SECTION C

This document covers cakes and brownies packaged in a polymeric tray for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-C-024D, CAKES AND BROWNIES, PACKAGED IN A POLYMERIC TRAY, SHELF STABLE

Types and flavors.

Type I – Cakes

Flavor 1 – Devil's fudge cake with white icing
Flavor 2 – Walnut tea cake
Flavor 3 – Dulce de Leche cake with white icing
Flavor 4 – Breakfast cake with maple flavored syrup
Flavor 5 – Yellow cake with chocolate icing
Flavor 6 – Yellow cake with white icing
Flavor 7 – Devil's fudge cake with chocolate icing
Flavor 8 – Spice cake with white icing
Flavor 9 – Lemon cake with white icing
Flavor 10 – Apple spice breakfast cake with apple fruit topping
Flavor 11 – Blueberry breakfast cake with maple flavored syrup
Flavor 12 – Red velvet cake with white icing
Flavor 13 – Banana nut cake with white icing
Flavor 14 – Cranberry orange cake with white icing
Flavor 15 – Golden harvest cake with white icing
Flavor 16 – Vanilla cake with strawberry fruit topping
Flavor 17 – Chocolate cherry cake with cherry fruit topping
Flavor 18 – Sweet potato walnut cake with white icing
Flavor 19 – Gingerbread cake with white icing
Flavor 20 – Carrot cake with white icing

Type II – Brownies

Flavor 1 – Fudge brownie with chocolate icing

Packages.

Package E – Unitized Group Ration™ (UGR™)-Heat & Serve™ (UGR-H&S™)
Package K – Unitized Group Ration™-Express™ (UGR-E™)

C-2 PERFORMANCE 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 Performance-based 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 finished product shall be intact. The product shall show no signs of excessive heating (materially darkened or scorched). The product surface may have slightly browned edges. The product shall have a uniform cell (crumb) structure and shall show no evidence of compression streaks. The finished product shall be free from foreign materials.

a. Type I. For all flavors, the cake height measured at its lowest point, excluding the icing or syrup or fruit topping, shall be not less than 14/16 inch. The cake height shall be reported to the nearest 1/16 inch. For flavors 1, 3, 5 to 9, 12 to 15, and 18 to 20, the icing is packaged separately. For flavors 4 and 11, the maple flavored syrup is packaged separately. For flavors 10, 16 and 17, the fruit topping is packaged separately.

b. Type II. For flavor 1, the chocolate icing is packaged separately.

(2) Type I.

a. Flavor 1. The devil's fudge cake shall have a deep, chocolate brown surface and crumb. The white icing shall be shiny, white.

b. Flavor 2. The walnut tea cake shall have a golden to tan surface and a very light tan crumb with small pieces of walnuts distributed throughout.

c. Flavor 3. The Dulce de Leche cake shall have a medium golden brown surface and a pale, off-white crumb with small caramel drops distributed throughout. The white icing shall be shiny, white.

d. Flavor 4. The breakfast cake shall have a light golden brown surface and a pale, off-white crumb. The maple flavored syrup shall be light to medium golden brown.

e. Flavor 5. The yellow cake shall have a pale, tan surface and a pale, off-white crumb. The chocolate icing shall be shiny, dark brown.

f. Flavor 6. The yellow cake shall have a pale, tan surface and a pale, off-white crumb. The white icing shall be shiny, white.

g. Flavor 7. The devil's fudge cake shall have a deep, chocolate brown surface and crumb. The chocolate icing shall be shiny, dark brown.

h. Flavor 8. The spice cake shall have a medium beige surface and crumb with flecks of spices throughout. The white icing shall be shiny, white.

i. Flavor 9. The lemon cake shall have a yellow surface and crumb. The white icing shall be shiny, white.

j. Flavor 10. The apple spice breakfast cake shall have a tan to golden brown surface and off-white to light tan crumb with apple pieces and cinnamon drops distributed throughout. The apple fruit topping shall be shiny, golden brown with diced apple pieces.

k. Flavor 11. The blueberry breakfast cake shall have a light golden brown surface and a pale, off-white crumb with blueberry pieces distributed throughout. The maple flavored syrup shall be light to medium golden brown.

l. Flavor 12. The Red Velvet cake shall have a red brown surface and crumb. The white icing shall be shiny, white.

m. Flavor 13. The banana nut cake shall have a tan to golden brown surface and off-white to light tan crumb with small pieces of walnuts distributed throughout. The white icing shall be shiny, white.

n. Flavor 14. The cranberry orange cake shall have a tan to golden brown surface and off-white to light tan crumb with small cranberry pieces distributed throughout. The white icing shall be shiny, white.

o. Flavor 15. The golden harvest cake shall have a medium brown surface and crumb. The white icing shall be shiny, white.

p. Flavor 16. The vanilla cake shall have a golden brown surface with a pale, off-white crumb. The strawberry fruit topping shall be shiny, red with whole or broken strawberry pieces.

q. Flavor 17. The chocolate cherry cake shall have a deep, chocolate brown surface and crumb. The cherry fruit topping shall be shiny, dark red with whole or broken cherry pieces. The fruit topping shall be free from pit(s) or portions thereof.

r. Flavor 18. The sweet potato walnut cake shall have a medium golden brown surface and a light to medium tan crumb with small pieces of walnuts distributed throughout and may have flecks of spices. The white icing shall be shiny, white.

s. Flavor 19. The gingerbread cake shall have a medium to dark brown surface and a medium brown crumb. The white icing shall be shiny, white.

t. Flavor 20. The carrot cake shall have a medium brown surface and a medium golden brown crumb with small pieces of carrots and walnuts distributed throughout. The white icing shall be shiny, white.

(3) Type II.

a. Flavor 1. The fudge brownie shall have a very dark brown surface and crumb. The chocolate icing shall be shiny, dark brown.

D. Odor and flavor. The packaged food shall be free from foreign odors and flavors.

(1) Type I.

a. Flavor 1. The devil's fudge cake shall have a sweet chocolate odor and flavor. The white icing shall have a sweet odor and flavor.

b. Flavor 2. The walnut tea cake shall have a sweet, mild vanilla-walnut odor and flavor.

c. Flavor 3. The Dulce de Leche cake shall have a sweet, mild caramel odor and flavor. The white icing shall have a sweet odor and flavor.

d. Flavor 4. The breakfast cake shall have a sweet, mild maple odor and flavor. The maple flavored syrup shall have a sweet, maple odor and flavor.

e. Flavor 5. The yellow cake shall have a sweet, mild vanilla odor and flavor. The chocolate icing shall have a sweet chocolate odor and flavor.

f. Flavor 6. The yellow cake shall have a sweet, mild vanilla odor and flavor. The white icing shall have a sweet odor and flavor.

g. Flavor 7. The devil's fudge cake shall have a sweet chocolate odor and flavor. The chocolate icing shall have a sweet chocolate odor and flavor.

h. Flavor 8. The spice cake shall have a cinnamon and allspice odor and flavor. The white icing shall have a sweet odor and flavor.

i. Flavor 9. The lemon cake shall have a sweet lemon odor and flavor. The white icing shall have a sweet odor and flavor.

j. Flavor 10. The apple spice breakfast cake shall have a sweet, cinnamon and mild apple odor and flavor. The apple fruit topping shall have a sweet, cooked spiced apple odor and flavor.

k. Flavor 11. The blueberry breakfast cake shall have a sweet, blueberry and mild vanilla odor and flavor. The maple flavored syrup shall have a sweet, maple odor and flavor.

l. Flavor 12. The red velvet cake shall have a sweet, chocolate odor and flavor. The white icing shall have a sweet odor and flavor.

m. Flavor 13. The banana nut cake shall have a sweet, banana odor and sweet, banana walnut flavor. The white icing shall have a sweet odor and flavor.

n. Flavor 14. The cranberry orange cake shall have a sweet, cranberry and orange odor and flavor. The white icing shall have a sweet odor and flavor.

o. Flavor 15. The golden harvest cake shall have a sweet honey, mild wheat bran odor and flavor. The white icing shall have a sweet odor and flavor.

p. Flavor 16. The vanilla cake shall have a sweet, mild vanilla odor and flavor. The strawberry fruit topping shall have a strawberry odor and a slightly sweet, strawberry flavor.

q. Flavor 17. The chocolate cherry cake shall have a sweet chocolate and cherry odor and flavor. The cherry fruit topping shall have a cherry odor and a slightly sweet, slightly sour, cherry flavor.

r. Flavor 18. The sweet potato walnut cake shall have a slight spice odor. The cake shall have a slight sweet potato and slight spice flavor. The white icing shall have a sweet odor and flavor.

s. Flavor 19. The gingerbread cake shall have a sweet ginger and molasses odor and flavor with a slight brown spice odor and flavor. The white icing shall have a sweet odor and flavor.

t. Flavor 20. The carrot cake shall have a sweet spice odor and flavor. The white icing shall have a sweet odor and flavor.

(2) Type II.

a. Flavor 1. The fudge brownie shall have a sweet, chocolate odor and a sweet chocolate, slightly bitter flavor. The chocolate icing shall have a sweet chocolate odor and flavor.

E. Texture.

(1) Type I.

a. Cake. For flavors 1, 3 to 9, 12, 16 and 17, the cake shall have a dense, tender, moist, fine grain texture. For flavors 2, 13, and 18, the cake shall have a dense, tender, moist, fine grain texture with walnut pieces. For flavor 10, the cake shall have a dense, tender, moist, fine grain texture with apple pieces and cinnamon drops. For flavor 11, the cake shall have a dense, tender, moist, fine grain texture with blueberry pieces. For flavor 14, the cake shall have a dense, tender, moist, fine grain texture with cranberry pieces. For flavor 15 and 19, the cake shall have a dense, tender, moist, slightly open grain texture. For flavor 20, the cake shall have a dense, tender, moist, slightly open grain texture with pieces of carrots and walnuts.

b. Icing. For flavors 1, 3, 5 to 9, 12 to 15, and 18 to 20, the white or chocolate icing shall be smooth and easily spreadable.

c. Syrup. For flavors 4 and 11, the maple flavored syrup shall be free flowing, moderately thick, and easily poured.

d. Fruit topping. For flavor 10, the fruit topping shall be slightly firm to slightly soft apple dices in a thick, smooth sauce. For flavor 16, the fruit topping shall be slightly firm to slightly soft strawberries and slightly chewy in a thick, smooth sauce. For Flavor 17, the fruit topping shall be slightly firm to slightly soft cherries and slightly chewy in a thick, smooth sauce.

(2) Type II.

a. Flavor 1. The fudge brownie shall have a dense, firm, moist texture. The chocolate icing shall be smooth and easily spreadable.

F. Net weight.

(1) Type I.

a. Flavors 1, 3 to 9, 11 to 15, and 18 to 20. The average net weight for all flavors without the icing or syrup shall be not less than 30.0 ounces (850.0 grams). The net weight of an individual polymeric tray shall be not less than 29.0 ounces (822.0 grams). The average net weight of the icing or syrup shall be not less than 6.0 ounces (170.0 grams).

b. Flavor 2. The average net weight shall be not less than 36.0 ounces (1020.0 grams). The net weight of an individual polymeric tray shall be not less than 35.0 ounces (992.0 grams).

c. Flavors 10, 16 and 17. The average net weight for all flavors without the fruit topping shall be not less than 30.0 ounces (850.0 grams). The net weight of an individual polymeric tray shall be not less than 29.0 ounces (822.0 grams). The average net weight of the fruit topping shall be not less than 10.0 ounces (283.0 grams).

(2) Type II.

a. Flavor 1. The average net weight of the fudge brownie without the icing shall be not less than 42.0 ounces (1191.0 grams). The net weight of an individual polymeric tray shall be not less than 40.0 ounces (1134.0 grams). The average net weight of the chocolate icing shall be not less than 6.0 ounces (170.0 grams).

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

H. Analytical requirements.

(1) Type I fat. The fat content for flavors 1, 5 to 18, and 20 shall be not less than 14.0 percent. The fat content for flavors 2, 3, and 4 shall be not less than 16.0 percent. The fat content for flavor 19 shall be not less than 8.0 percent. The *trans* fat content shall be not greater than 0 grams per serving.

(2) Type II fat. The fat content for flavor 1 shall be not less than 12.0 percent. The *trans* fat content shall be not greater than 0 grams per serving.

(3) Type I moisture. The moisture content for flavors 1, 2, 3, 5 to 9, and 12 to 18 shall be not less than 18.0 percent. The moisture content for flavors 4, 10, 11, 19 and 20 shall be not less than 16.0 percent.

(4) Type II moisture. The moisture content for flavor 1 shall be not less than 14.0 percent.

(5) Type I and Type II water activity. The water activity (a_w) of type I (without icing or syrup or fruit topping) and type II (without icing) packaged product shall be not greater than 0.890.

(6) Oxygen. The oxygen content of the filled and sealed polymeric tray shall not exceed 0.30 percent.

SECTION D

D-1 PACKAGING

A. Preservation. Product as specified plus the appropriate number of oxygen scavengers and ovenable tray insert, if applicable, shall be filled and sealed into polymeric trays within 4 hours of baking and the trays shall conform to the requirements of section 3 of MIL-PRF-32004, Packaging of Food in Polymeric Trays, Type II Oven-baked products. Government verification testing and inspection of trays and lids shall be in accordance with Section 4 of MIL-PRF-32004 and the Quality Assurance Provisions of Section E of this document. The requirement for protective sleeves shall not apply to Type II Oven-baked products.

B. Polymeric tray closure. The filled and sealed tray shall be securely closed.

C. Component. For type I, flavors 4 and 11, one pouch containing maple flavored syrup shall be provided. For type I, flavors 1, 3, 6, 8, 9, 12 to 15, and 18 to 20, one pouch containing white icing shall be provided. For type I, flavors 5 and 7, and for type II, flavor 1, one pouch containing chocolate icing shall be provided. For type I, flavor 10, one pouch containing apple fruit topping shall be provided. For type I, flavor 16, one pouch containing strawberry fruit topping shall be provided. For type I, flavor 17, one pouch containing cherry fruit topping shall be provided. The following materials and processing requirements are for the products in a pouch:

(1) Icing, syrup, and fruit topping pouch.

a. Material and construction. The preformed pouch shall be fabricated from material suitably formulated for food packaging and shall be in compliance with all applicable FDA and USDA regulations. The material shall show no evidence of delamination, degradation, or foreign odor when heat-sealed or fabricated into pouches. The material shall not impart an odor or flavor to the product after filling and sealing. 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. Alternatively, the filled and sealed pouch shall exhibit no rupture or seal separation greater than 1/16 inch or seal separation that reduces the manufacturer's seals to

less than 1/16 inch. A tear nick, notch or serrations shall be provided to facilitate opening of the filled and sealed pouch.

b. Filling and sealing. Icing, syrup, and fruit topping shall be heat processed (pasteurized or hot filled). For type I, flavors 1, 3, 6, 8, 9, 12 to 15, and 18 to 20, 6.0 ounces (170.0 grams) of white icing shall be filled into the pouch and the filled pouch shall be heat sealed. For type I, flavors 4 and 11, 6.0 ounces (170.0 grams) of maple flavored syrup shall be filled into the pouch and the filled pouch shall be heat sealed. For type I, flavors 5 and 7 and for type II, flavor 1, 6.0 ounces (170.0 grams) of chocolate icing shall be filled into the pouch and the filled pouch shall be heat sealed. For type I, flavor 10, 10.0 ounces (283.0 grams) of apple fruit topping shall be filled into the pouch and the filled pouch shall be heat sealed. For type I, flavor 16, 10.0 ounces (283.0 grams) of strawberry fruit topping shall be filled into the pouch and the filled pouch shall be heat sealed. For type I, flavor 17, 10.0 ounces (283.0 grams) of cherry fruit topping shall be filled into the pouch and the filled pouch shall be heat sealed. 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. Alternatively, the filled and sealed pouch shall exhibit no rupture or seal separation greater than 1/16 inch or seal separation that reduces the effective closure seal width to less than 1/16 inch. Residual headspace in the filled and sealed pouch shall be minimized to facilitate packing.

c. Pouch size. The filled and sealed pouch shall be a size that fits within the void created between the tray lid material and fiberboard pad added during packing.

D. Oxygen scavenger. The oxygen scavenger shall be constructed of materials that are safe for direct or indirect food contact and shall be suitable for use with edible products. The oxygen scavenger shall be in compliance with all applicable FDA regulations.

E. Ovenable tray insert. The ovenable tray insert (if utilized) shall be constructed of materials that are safe for direct or indirect food contact and shall be suitable for use with edible products. The ovenable tray insert shall be in compliance with all applicable FDA and USDA regulations.

D-2 LABELING

A. Polymeric tray body. The polymeric tray body shall be clearly printed or stamped, in a manner that does not damage the tray, with permanent ink of any contrasting color, which is free of carcinogenic elements. One end of the polymeric tray (see figure 1 of MIL-PRF-32004) shall be marked with the product name and number of portions. If the tray body end markings are not readily legible in low light conditions, a small, easily legible label shall be

applied, but not over any existing tray markings. All other markings may be applied along the tray body side. The product name, lot number and filling equipment number shall be applied at the time of tray sealing. 1/

Tray body markings shall include:

(1) Product name. Commonly used abbreviations may be used.

(2) Tray code includes: 2/
Lot Number

1/ As an alternate method, tray body markings may be clearly printed or stamped onto the polymeric tray lid at the time of tray sealing, in a manner that does not damage the lid, with permanent ink of any contrasting color, which is free of carcinogenic elements, provided that the required markings are applied onto the tray body prior to packing for shipment to ration assembler.

2/ The lot number shall be expressed as a four digit Julian code. The first digit shall indicate the year of production and the next three digits shall indicate the day of the year (Example, 14 February 2015 would be coded as 5045). The Julian code shall represent the day the product was packaged into the tray and the tray sealed. Sublotting (when used) shall be represented by an alpha character immediately following the four digit Julian code. Following the four digit Julian code and the alpha character (when used), the other required code information shall be printed in the sequence as listed above.

B. Polymeric tray lid. The lid shall be clearly printed or stamped, in a manner that does not cause damage. Permanent ink of any contrasting color, which is free of carcinogenic elements, shall be used. As an alternate labeling method, a pre-printed self-adhering 0.002 inch thick clear polyester label printed with indelible contrasting color ink may be used.

Note: The font tested by Natick was Microsoft Helvetica. The font used shall be similarly clear/easy to read as Helvetica. The recommended font sizes are as follows: 22 for the product name, 14 for “yield” and “to heat in water.” If an additional note is required on the label, such as “fluff before serving,” it should also be in font size 14. All other information should be in font size 9.

(1) Lid labeling shall include:
Product name and flavor
Ingredients
Net weight
Name and address of packer
“Nutrition Facts” label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations

(2) Lid labeling shall also show the following statements:

a. For type I, flavor 2:

Yield: Serves 18 portions; cut 3 rows by 6 rows.

b. For type I, flavors 1, 3, 6, 8, 9, 12 to 15, and 18 to 20:

WHITE ICING: White icing is packaged in a separate pouch. Spread icing evenly on the cake surface using a spatula or knife, prior to cutting the cake. **Yield:** Serves 18 portions; cut 3 rows by 6 rows.

c. For type I, flavors 4 and 11:

MAPLE FLAVORED SYRUP: Maple flavored syrup is packaged in a separate pouch. Prior to serving, cut cake into 18 portions and pour syrup evenly on the breakfast cake surface. **Yield:** Serves 18 portions; cut 3 rows by 6 rows. **TO HEAT IN WATER**: Submerge unopened tray and syrup pouch in water. Bring to a boil. Simmer gently 15 minutes. Avoid overheating (pouch or tray shows evidence of bulging). **WARNING:** Do not heat pouch or tray in oven. **TO TRANSPORT AFTER HEATING:** Stack trays with lids oriented upright and fiberboard pads in between. **CAUTION:** Use care when opening as pressure may have been generated within pouch or tray. **TO OPEN:** Open pouch at tear notch and cut tray lid with a clean knife.

d. For type I, flavors 5 and 7:

CHOCOLATE ICING: Chocolate icing is packaged in a separate pouch. Spread icing evenly on the cake surface using a spatula or knife, prior to cutting the cake. **Yield:** Serves 18 portions; cut 3 rows by 6 rows.

e. For type II, flavor 1:

CHOCOLATE ICING: Chocolate icing is packaged in a separate pouch. Spread icing evenly on the brownie surface using a spatula or knife, prior to cutting the brownie. **Yield:** Serves 18 portions; cut 3 rows by 6 rows.

f. For type I, flavors 10, 16 and 17:

FRUIT TOPPING: Fruit topping is packaged in a separate pouch. Spread fruit topping evenly on the cake surface using a spatula or knife, prior to cutting the cake. **Yield:** Serves 18 portions; cut 3 rows by 6 rows.

C. Icing, syrup, and fruit topping pouch. 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.
(7) The pouch labeling shall also show the following statements:

a. For type I, flavors 4 and 11 Maple flavored syrup:

CAREFULLY PEEL POUCH AWAY FROM TRAY LID PRIOR TO SERVING Squeeze syrup evenly onto surface of breakfast cake.

b. For type I, flavors 1, 3, 6, 8, 9, 12 to 15, and 18 to 20 white icing and type I, flavors 5 and 7 chocolate icing and type II, flavor 1 chocolate icing:

CAREFULLY PEEL POUCH AWAY FROM TRAY LID PRIOR TO SERVING
Knead pouch to soften icing. Squeeze icing onto surface of product and spread evenly using a spatula or knife.

c. For type I, flavor 10 apple fruit topping, flavor 16 strawberry fruit topping, and flavor 17 cherry fruit topping:

CAREFULLY PEEL POUCH AWAY FROM TRAY LID PRIOR TO SERVING
Squeeze fruit topping onto surface of cake and spread evenly using a spatula or knife.

1/ Each pouch shall have the date of pack noted by using a four digit code beginning with the final digit of the current year followed by the three digit Julian day code. For example, 14 February 2015 would be coded as 5045. The Julian day code shall represent the day the product was packaged into the pouch.

D-3 PACKING

A. Packing. Four filled, sealed and processed polymeric trays shall be packed in a fiberboard box conforming to 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, burst grade 275 of ASTM D4727/D4727M, Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes. The trays shall be stacked with lids oriented upright. Fiberboard pads shall be placed between the trays and on the top and bottom of the stacked trays. The pad dimensions shall be not less than 1/8 inch of the full length and width inside dimensions of the box and shall be fabricated of class D, burst grade 275 fiberboard. Each box shall be closed in accordance with ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

B. Packing of icing or syrup or fruit topping pouches. In addition to the packing requirements in D-3,A, the following shall apply for all flavors that require an additional pouch of icing or syrup or fruit topping. One filled and sealed icing or syrup or fruit topping pouch shall be provided for each polymeric tray of specified product. The filled and sealed icing or syrup or fruit topping pouch shall be placed between the polymeric tray lid and fiberboard pad and secured to the tray lid using a food grade, peelable adhesive or alternate

method of attachment. The icing or syrup or fruit topping pouch shall peel away easily from the tray lid.

D-4 UNITIZATION

A. Unit loads. Boxes shall be arranged in unit loads in accordance with DLA Troop Support Form 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items.

D-5 MARKING

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

D-6 MISCELLANEOUS INFORMATION

THE FOLLOWING IS INFORMATION ONLY TO PROVIDE THE BENEFIT OF PAST GOVERNMENT EXPERIENCE. THIS IS NOT A MANDATORY CONTRACT REQUIREMENT.

A. Icing, syrup and fruit topping pouch material. It has been found that a pouch with minimum inside dimensions of 8-3/4 inches in length by 6-5/8 inches in width and fabricated from a 3-ply laminate constructed of, from inside to outside, 0.002 inch thick linear low density polyethylene, extrusion coated or laminated to 0.00035 inch thick aluminum foil, and extrusion coated or laminated to 0.0006 inch thick biaxially oriented nylon, meets the performance requirements of this document.

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 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
RDNS-CFF
15 Kansas Street
Natick, MA 01760-5056

One lot shall be randomly selected during each calendar month of production or as otherwise specified in the contract. Two (2) sample units shall be randomly selected from that one production lot. The two (2) sample units shall be shipped to Natick 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 the 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 performance requirements specified in Section C of this Performance-based Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. The lot size shall be expressed in trays. The sample unit shall be the contents of one tray, and

the contents of the associated icing, syrup, or fruit topping pouch, as applicable. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 4.0 for major defects and 6.5 for minor defects. Defects and defect classifications are listed in table I. The filled and sealed polymeric trays shall be brought to room temperature (65°F to 75°F).

TABLE I. Product defects 1/ 2/ 3/ 4/

Category		Defect
Major	Minor	
		General
101		Product not type or not flavor as specified.
102		Evidence of excessive heating (materially darkened or scorched).
103		Polymeric tray does not contain intact oxygen scavenger(s). ~~4/~~ 5/
104		Icing or syrup or fruit topping pouch leaking, as applicable.
	201	Product not intact.
	202	Product does not have a uniform cell (crumb) structure.
	203	Evidence of compression streaks.
	204	Product size not as specified. ~~5/~~ 6/
	205	Evidence of delamination by ovenable tray insert (if utilized).
	206	Icing or syrup or fruit topping pouch missing, as applicable.
	207	Icing or syrup or fruit topping pouch not secured to tray lid.
	208	Icing or syrup or fruit topping pouch does not peel away easily from tray lid.
		Type I – Cakes
		Type I, Flavor 1 – Devil's fudge cake with white icing
105		Cake odor or flavor not sweet chocolate.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
	209	Cake surface or crumb not deep, chocolate brown.
	210	White icing not shiny, white.
	211	White icing odor or flavor not sweet.
	212	Cake texture not dense or not tender or not moist or not fine grain.
	213	White icing not smooth or not easily spreadable.
		Type I, Flavor 2 – Walnut tea cake
106		Cake odor or flavor not sweet, mild vanilla-walnut.
	214	Cake surface not golden to tan.
	215	Cake crumb not very light tan with small pieces of walnuts distributed throughout.
	216	Cake texture not dense or not tender or not moist or not fine grain or without walnut pieces.
		Type I, Flavor 3 – Dulce de Leche cake with white icing
107		Cake odor or flavor not sweet, mild caramel.
	217	Cake surface not medium golden brown.
	218	Cake crumb not pale, off-white with small caramel drops distributed throughout.
	219	White icing not shiny, white.
	220	White icing odor or flavor not sweet.
	221	Cake texture not dense or not tender or not moist or not fine grain.
	222	White icing not smooth or not easily spreadable.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
		Type I, Flavor 4 – Breakfast cake with maple flavored syrup
108		Cake odor or flavor not sweet, mild maple.
	223	Cake surface not light golden brown.
	224	Cake crumb not pale, off-white.
	225	Maple flavored syrup not light to medium golden brown.
	226	Maple flavored syrup odor or flavor not sweet, maple.
	227	Cake texture not dense or not tender or not moist or not fine grain.
	228	Maple flavored syrup not free flowing or not moderately thick or not easily poured.
		Type I, Flavor 5 – Yellow cake with chocolate icing
109		Cake odor or flavor not sweet, mild vanilla.
	229	Cake surface not pale, tan.
	230	Cake crumb not pale, off-white.
	231	Chocolate icing not shiny, dark brown.
	232	Chocolate icing odor or flavor not sweet chocolate.
	233	Cake texture not dense or not tender or not moist or not fine grain.
	234	Chocolate icing not smooth or not easily spreadable.
		Type I, Flavor 6 – Yellow cake with white icing
110		Cake odor or flavor not sweet, mild vanilla.
	235	Cake surface not pale, tan.
	236	Cake crumb not pale, off-white.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
	237	White icing not shiny, white.
	238	White icing odor or flavor not sweet.
	239	Cake texture not dense or not tender or not moist or not fine grain.
	240	White icing not smooth or not easily spreadable.
		Type I, Flavor 7 – Devil's fudge cake with chocolate icing
111		Cake odor or flavor not sweet chocolate.
	241	Cake surface or crumb not deep, chocolate brown.
	242	Chocolate icing not shiny, dark brown.
	243	Chocolate icing odor or flavor not sweet chocolate.
	244	Cake texture not dense or not tender or not moist or not fine grain.
	245	Chocolate icing not smooth or not easily spreadable.
		Type I, Flavor 8 – Spice cake with white icing
112		Cake odor or flavor not cinnamon or not allspice.
	246	Cake surface or crumb not medium beige or not with flecks of spices throughout.
	247	White icing not shiny, white.
	248	White icing odor or flavor not sweet.
	249	Cake texture not dense or not tender or not moist or not fine grain.
	250	White icing not smooth or not easily spreadable.
		Type I, Flavor 9 – Lemon cake with white icing
113		Cake odor or flavor not sweet lemon.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
	251	Cake surface or crumb not yellow.
	252	White icing not shiny, white.
	253	White icing odor or flavor not sweet.
	254	Cake texture not dense or not tender or not moist or not fine grain.
	255	White icing not smooth or not easily spreadable.
		Type I, Flavor 10 – Apple spice breakfast cake with apple fruit topping
114		Cake odor or flavor not sweet, cinnamon or not mild apple.
	256	Cake surface not tan to golden brown.
	257	Cake crumb not off-white to light tan.
	258	Cake does not have apple pieces or cinnamon drops distributed throughout.
	259	Apple fruit topping not shiny, golden brown with diced apple pieces.
	260	Apple fruit topping odor or flavor not sweet, cooked spiced apple.
	261	Apple fruit topping texture not slightly firm to slightly soft apple dices or not a thick, smooth sauce.
	262	Cake texture not dense or not tender or not moist or not fine grain or without apple pieces and cinnamon drops.
		Type I, Flavor 11 – Blueberry breakfast cake with maple flavored syrup
115		Cake odor or flavor not sweet, blueberry or not mild vanilla.
	263	Cake surface not light golden brown.
	264	Cake crumb not pale, off-white.
	265	Cake does not have blueberry pieces distributed throughout.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
	266	Maple flavored syrup not light to medium golden brown.
	267	Maple flavored syrup odor or flavor not sweet, maple.
	268	Cake texture not dense or not tender or not moist or not fine grain or without blueberry pieces.
	269	Maple flavored syrup not free flowing or not moderately thick or not easily poured.
		Type I, Flavor 12 – Red velvet cake with white icing
116		Cake odor or flavor not sweet, chocolate.
	270	Cake surface or crumb not red brown.
	271	White icing not shiny, white.
	272	White icing odor or flavor not sweet.
	273	Cake texture not dense or not tender or not moist or not fine grain.
	274	White icing not smooth or not easily spreadable.
		Type I, Flavor 13 – Banana nut cake with white icing
117		Cake odor not sweet, banana or cake flavor not sweet, banana walnut.
	275	Cake surface not tan to golden brown.
	276	Cake crumb not off-white to light tan with small pieces of walnuts distributed throughout.
	277	White icing not shiny, white.
	278	White icing odor or flavor not sweet.
	279	Cake texture not dense or not tender or not moist or not fine grain or without walnut pieces.
	280	White icing not smooth or not easily spreadable.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
		Type I, Flavor 14 – Cranberry orange cake with white icing
118		Cake odor or flavor not sweet, cranberry or orange.
	281	Cake surface not tan to golden brown.
	282	Cake crumb not off-white to light tan.
	283	Cake does not have small cranberry pieces distributed throughout.
	284	White icing not shiny, white.
	285	White icing odor or flavor not sweet.
	286	Cake texture not dense or not tender or not moist or not fine grain or without cranberry pieces.
	287	White icing not smooth or not easily spreadable.
		Type I, Flavor 15 – Golden harvest cake with white icing
119		Cake odor or flavor not sweet honey, or not mild wheat bran.
	288	Cake surface or crumb not medium brown.
	289	White icing not shiny, white.
	290	White icing odor or flavor not sweet.
	291	Cake texture not dense or not tender or not moist or not a slightly open grain texture.
	292	White icing not smooth or not easily spreadable.
		Type I, Flavor 16 – Vanilla cake with strawberry fruit topping.
120		Cake odor or flavor not sweet, mild vanilla.
	293	Cake surface not golden brown.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
	294	Cake crumb not pale, off-white.
	295	Strawberry fruit topping not shiny, red with whole or broken strawberry pieces.
	296	Strawberry fruit topping odor not strawberry.
	297	Strawberry fruit topping flavor not slightly sweet, strawberry.
	298	Cake texture not dense or not tender or not moist or not fine grain.
	299	Strawberry fruit topping texture not slightly firm to slightly soft or not slightly chewy strawberries or not a thick, smooth sauce.
		Type I, Flavor 17 – Chocolate cherry cake with cherry fruit topping
121		Cake odor or flavor not sweet chocolate or not cherry.
	300	Cake surface or crumb not deep, chocolate brown.
	301	Cherry fruit topping not shiny dark red with whole or broken cherry pieces.
	302	Cherry fruit topping not free from pit(s) or portions thereof. ~~6/~~ 7/
	303	Cherry fruit topping odor not cherry.
	304	Cherry fruit topping not a slightly sweet, slightly sour, cherry flavor.
	305	Cake texture not dense or not tender or not moist or not fine grain.
	306	Cherry fruit topping texture not slightly firm to slightly soft or not slightly chewy cherries or not a thick, smooth sauce.
		Type I, Flavor 18 – Sweet potato walnut cake with white icing
122		Cake odor not slight spice. Cake flavor not slight sweet potato or slight spice.
	307	Cake surface not medium golden brown.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
	308	Cake crumb not light to medium tan with small pieces of walnuts distributed throughout.
	309	White icing not shiny, white.
	310	White icing odor or flavor not sweet.
	311	Cake texture not dense or not tender or not moist or not fine grain or without walnut pieces.
	312	White icing not smooth or not easily spreadable.
		Type I, Flavor 19 – Gingerbread cake with white icing
123		Cake odor or flavor not sweet ginger or not molasses with a slight brown spice.
	313	Cake surface not medium to dark brown.
	314	Cake crumb not medium brown.
	315	Cake texture not dense or not tender or not moist or not a slightly open grain texture.
	316	White icing not shiny, white.
	317	White icing odor or flavor not sweet.
	318	White icing not smooth or not easily spreadable.
		Type I, Flavor 20 – Carrot cake with white icing
124		Cake odor or flavor not sweet spice.
	319	Cake surface not medium brown.
	320	Cake crumb not medium golden brown with small pieces of carrots or walnuts distributed throughout.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
	321	Cake texture not dense or not tender or not moist or not a slightly open grain texture or without carrots or walnut pieces.
	322	White icing not shiny, white.
	323	White icing odor or flavor not sweet.
	324	White icing not smooth or not easily spreadable.
		Type II – Brownies
		Type II, Flavor 1 – Fudge brownie with chocolate icing
125		Brownie odor not sweet chocolate or not sweet chocolate, slightly bitter flavor.
	325	Brownie surface or crumb not very dark brown.
	326	Chocolate icing not shiny, dark brown.
	327	Chocolate icing odor or flavor not sweet chocolate.
	328	Brownie texture not dense or not firm or not moist.
	329	Chocolate icing not smooth or not easily spreadable.
		Net weight
	330	Type I, flavor 2, net weight of an individual polymeric tray less than 35.0 ounces (992.0 grams). ~~7/~~ 8/
	331	Type I, flavors 1 and 3 to 20, net weight of an individual polymeric tray less than 29.0 ounces (822.0 grams). ~~8/~~ 9/
	332	Type II, flavor 1, net weight of an individual polymeric tray less than 40.0 ounces (1134.0 grams). ~~9/~~ 10/
	333	Net weight of icing or syrup pouch less than 6.0 ounces (170.0 grams).
	334	Net weight of fruit topping pouch less than 10.0 ounces (283.0 grams).

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/ As applicable, bisect cake or brownie vertically in the center with a sharp knife to inspect for defects.

4/ The *trans* fat content shall be verified by the NLEA "Nutrition Facts" label. Product not conforming to the *trans* fat content as specified in Section C of this document shall be cause for rejection of the lot.

~~4/~~ 5/ Construction of the oxygen scavenger and compliance with FDA regulations will be verified by CoC.

~~5/~~ 6/ As applicable, cake or brownies heights, excluding icings or syrup or fruit toppings shall be measured at the lowest point along the vertical cut, excluding areas within 1/2 inch of the cake edge.

~~6/~~ 7/ Presence of sharp pit material, whole pit or pieces of pit material measuring more than 3/8 inch in any dimension shall be cause for rejection of the lot.

~~7/~~ 8/ Cake flavor 2, sample average net weight less than 36.0 ounces (1020.0 grams) shall be cause for rejection of the lot.

~~8/~~ 9/ Cake flavors 1 and 3 to 20, sample average net weight less than 30.0 ounces (850.0 grams) shall be cause for rejection of the lot.

~~9/~~ 10/ Brownie flavor 1, sample average net weight less than 42.0 ounces (1191.0 grams) shall be cause for rejection of the lot.

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.

a. Types I and II. The net weight of the filled and sealed polymeric tray shall be determined by weighing each sample unit on a suitable scale tared with a representative empty tray, ovenable tray insert (if utilized), appropriate number of oxygen scavengers, and lid. Results shall be reported to the nearest 1 ounce or to the nearest 1 gram.

b. White icing or chocolate icing or maple flavored syrup or apple fruit topping or strawberry fruit topping or cherry fruit topping. The net weight of the filled and sealed pouch 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 0.1 ounce or to the nearest 1 gram.

(3) Analytical. The sample to be analyzed shall be a composite of three filled and sealed polymeric trays which have been selected at random from the lot. For type I, flavors 1 and 3 to 20 cakes and for type II, flavor 1 brownies, the sample to be analyzed shall not include the icing or syrup or fruit topping. The composite sample shall be prepared and analyzed in accordance with the following methods of the Official Methods of Analysis (OMA) of AOAC International or approved methods of the American Association of Cereal Chemists (AACC):

Test	Method Number
Fat	922.06, 991.36, 2008.06 or AACC 30-10
Moisture	925.45A or 2008.06

Test results shall be reported to the nearest 0.1 percent. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the analytical requirement shall be cause for rejection of the lot.

(4) Water activity (a_w) testing. Eight filled and sealed polymeric trays shall be selected at random from one production lot and 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 electric hygrometer system self temperature controlled (at 25°C) or an equivalent instrument.. 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 sample unit shall be a specimen from the center of the product. The results shall be reported to the nearest 0.001 a_w. Government verification will be conducted through actual testing by a Government laboratory. Any nonconforming a_w result shall be cause for rejection of the lot. For type I, flavors 1, and 3 to 20 cakes and for type II, flavor 1 brownies, the sample to be analyzed shall not include the icing or syrup or fruit topping.

(5) Oxygen content testing. Eight filled and sealed polymeric trays shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed polymeric trays have been allowed to equilibrate at room temperature for not less than 72 hours from the time of sealing. Test results shall be reported to the nearest 0.01 percent. Government verification will be conducted through actual testing by a Government laboratory. Any individual result not conforming to the oxygen content requirement shall be classified as a major defect and shall be cause for rejection of the lot.

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

A. Packaging and labeling.

(1) Polymeric tray testing. For purposes of clarification, the polymeric tray without the lid shall be referred to as the "tray" and the polymeric tray with the lid shall be referred to as the "container". The container and container materials shall be examined for the characteristics listed in table I of MIL-PRF-32004, Packaging of Food in Polymeric Trays. The lot size, sample unit, and inspection level criteria are provided in table II for each of the test characteristics. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot. For rough handling survivability at frozen temperature, polymeric tray survival rate shall be at least 85 percent.

TABLE II. Polymeric tray quality assurance criteria

Prior to processing

Characteristic	Lot size expressed in	Sample unit	Inspection level
Tray configurations and dimensions	Trays	1 tray	S-1
Oxygen gas transmission rate of tray	Trays	1 tray	S-1
Oxygen gas transmission rate of lid	Yards	1/2 yard	S-1
Water vapor transmission rate of tray	Trays	1 tray	S-1
Water vapor transmission rate of lid	Yards	1/2 yard	S-1
Camouflage	Containers	1 container	S-1

After processing

Characteristic	Lot size expressed in	Sample unit	Inspection level
Processing	Trays	1 tray	S-2
Rough handling survivability	Test containers	1 container	S-2
Headspace (vacuum) 1/	Containers	1 container	S-1
Closure seal	Containers	1 container	S-1
Internal pressure	Containers	1 container	S-1
Lid opening	Containers	1 container	S-1

1/ Lack of visible gap between straight edge and lidding material along entire length of lidding and/or lack of tautness by the lidding shall not be scored as defects.

(2) Examination of container. The container shall be examined for the defects listed in table II of MIL-PRF-32004 and the labeling defects listed in table III. The lot size shall be expressed in containers. The sample unit shall be one processed and labeled container. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major A defects, 2.5 for major B defects and 4.0 for minor defects. Fifty sample units shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot.

TABLE III. Container labeling defects

Category		Defect
Major A	Minor	
101		Polymeric tray lid or body labeling missing or incorrect or illegible.
	201	When a pre-printed self-adhering label is used, the label not adhering to tray lid (for example, label raised or peeled back from edge to corner) or presence of any areas of gaps along the perimeter of the label where the label is not properly adhered.

(3) Label adhesive examination. When self-adhering labels are used, the adhesive shall be tested in accordance with ASTM D3330/D3330M, Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape. In lieu of testing, a Certificate of Conformance (CoC) shall be provided.

B. Component. Inspection for icing, syrup and fruit topping pouch shall be as follows:

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

(2) Filled and sealed icing, syrup and fruit topping pouch examination. The filled and sealed pouches shall be examined for the defects listed in table IV. The lot size shall be expressed in pouches. The sample unit shall be one pouch. 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 6.5 for minor defects.

TABLE IV. Filled and sealed icing, syrup and fruit topping pouch defects 1/

Category		Defect
Major	Minor	
101		Tear or hole or open seal.
102		Seal width less than 1/16 inch. 2/
103		Presence of delamination. 3/
104		Unclean pouch. 4/
105		Pouch has foreign odor.
106		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. 5/
	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. 2/
	204	Presence of delamination. 3/

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

2/ The effective closure seal is defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide, from side seal to side seal that produces a hermetically sealed pouch.

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 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 - Minor delamination of the outer ply in the pouch seal area is acceptable and shall not be classified as a minor defect unless it extends to within 1/16 inch of the food product edge of the seal. All other minor outer ply delamination in the pouch seal area or isolated spots of delamination in the body of the pouch that do not propagate when flexed as described above shall be classified as 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.

C. Methods of inspection.

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

a. Unfilled preformed icing, syrup and fruit topping 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 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 for rejection of the lot.

b. Icing, syrup and fruit topping 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. The average seal strength shall be calculated by averaging the three specimens cut from the 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 bottom seals of the pouch. 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 equal to the thickness of the product +1/16 inch. Pressure shall be

applied at the approximate uniform rate of 1 pound 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 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 closure seal width to less than 1/16 inch (see table IV, 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.

D. Packing.

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table V. 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 V. Shipping container and marking defects

Category		Defect
Major	Minor	
101		Marking missing or incorrect or illegible.
102		Inadequate workmanship. 1/
	201	Arrangement or number of polymeric trays not as specified.

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.

E. Unitization.

(1) Unit load examination. The unit load shall be examined in accordance with the requirements of DLA Troop Support Form 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items. Any nonconformance shall be classified as a major defect.

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 Forms

Form 3507	Loads, Unit: Preparation of Semiperishable Subsistence Items
Form 3556	Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence

MILITARY SPECIFICATIONS

MIL-PRF-32004	Packaging of Food in Polymeric Trays

GOVERNMENT PUBLICATIONS

Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder (21 CFR Parts 1 - 199) and (9 CFR Parts 1 - 391)

NON-GOVERNMENTAL STANDARDS

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

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

ASTM INTERNATIONAL www.astm.org

D1974/D1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D3330/D3330M	Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape
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

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International

AMERICAN ASSOCIATION OF CEREAL CHEMISTS (AACC)

Approved Methods of the American Association of Cereal Chemists

(Application for copies should be addressed to: American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.)

For DLA Troop Support Website Posting

RDNS-SEC-EM 5 January 2017

TO: Defense Logistics Agency (DLA) - Troop Support – Subsistence DSCP-FTRE

SUBJECT: ES17-012 (DSCP-SS-17-00231); Document change request; change the fat content requirement by adding a *Trans* Fat Free requirement to PKG&QAP A-A-20295D Cookies Packaged in a Polymeric Tray, Shelf Stable and PCR-C-024D, Cakes and Brownies, Packaged in a Polymeric Tray, Shelf Stable.

1. Natick has initiated an Engineering Support change to incorporate a new requirement for *Trans* Fat Free in PKG&QAP A-A-20295D Cookies Packaged in a Polymeric Tray, Shelf Stable and PCR-C-024D, Cakes and Brownies, Packaged in a Polymeric Tray, Shelf Stable.

2. Research indicates that there may be a correlation between dietary intake of Trans Fatty Acid (TFA) and coronary heart disease (CHD), weight control, inflammatory response and immune dysfunction.

3. TFAs are formed when liquid oils are made into solid fats like shortening and hard margarine. However, a small amount of TFAs are found naturally, primarily in animal-based foods, including beef, butter and milk, although most TFAs in the diet come from partially hydrogenated oils.

4. TFAs have many functional benefits in food processing, particularly for baked products, including: increased oxidative stability; improved texture; and extended shelf life; all of which are extremely important to combat ration components.

5. CFD initiated research to assess the occurrence and reduction of TFAs in combat ration components. Newly formulated TFA free products were produced and subjected to accelerated storage studies (6 months at 100°F) to determine the effect of the new formulation on quality, acceptability, and shelf life.

6. Samples for bakery items that had been stored for 6 months at 100°F were evaluated by trained sensory panelists and results indicated the TFA free samples met shelf life performance requirements.

7. Based on these findings, Natick recommends the addition of a requirement for Cakes/Brownies and Cookies to have a *trans* fat content not greater than 0 grams per serving.

8. The Service Representatives were contacted and their replies were:

Army: Concurs with Natick
Marines: Concurs with Natick

9. Natick submits the following changes to the subject documents for all current, pending and future procurements until the document is formally amended or revised.

Changes to PKG&QAP A-A-20295D Cookies Packaged in a Polymeric Tray, Shelf Stable:

a. page 2, Paragraph C-2, F, change (1) to (2) and insert "(1) Fat. The *trans* fat content shall be not greater than 0 grams per serving."

b. page 7, Paragraph E-5, TABLE I, Header, insert a new footnote "3/".

c. page 7, Paragraph E-5, TABLE I, major defect 103, delete footnote "3/" insert footnote "4/".

d. page 8, Paragraph E-5, TABLE I, major defect 104, delete footnote "4/" insert footnote "5/".

e. page 8, Paragraph E-5, TABLE I, minor defect 201, delete footnote "5/" insert footnote "6/".

f. page 8 through page 12 Paragraph E-5, TABLE I, Header (in all Continued Headers), insert a new footnote "3/".

g. page 12, Paragraph E-5, TABLE I, Net weight, delete footnote "6/" insert footnote "7/".

h. page 13, Paragraph E-5, TABLE I, Footnotes, after footnote 2/, insert the following new footnote "3/ The *trans* fat content shall be verified by the NLEA "Nutrition Facts" label. Product not conforming to the *trans* fat content as specified in Section C of this document shall be cause for rejection of the lot." Renumber footnotes 3/ through 6/ accordingly.

Changes to PCR-C-024D, Cakes and Brownies, Packaged in a Polymeric Tray, Shelf Stable:

a. page 7, Paragraph C-2, H, (1) Type I fat, after last sentence, insert "The *trans* fat content shall be not greater than 0 grams per serving."

b. page 7, Paragraph C-2, H, (2) Type II fat, insert "The *trans* fat content shall be not greater than 0 grams per serving."

c. page 16, Paragraph E-5, TABLE I, Header, insert a new footnote "4/".

d. page 16, Paragraph E-5, TABLE I, major defect 103, delete footnote "4/" insert footnote "5/".

e. page 16, Paragraph E-5, TABLE I, minor defect 204, delete footnote "5/" insert footnote "6/".

f. page 17 through page 23 Paragraph E-5, TABLE I, Header (in all Continued Headers), insert a new footnote "4/".

g. page 23, Paragraph E-5, TABLE I, minor defect 302, delete footnote "6/" insert footnote "7/".

h. pages 24 and 25, Paragraph E-5, TABLE I, Header, insert a new footnote "4/".

i. page 25, Paragraph E-5, TABLE I, minor defect 330, delete footnote "7/" insert footnote "8/".

j. page 25, Paragraph E-5, TABLE I, minor defect 331, delete footnote "8/" insert footnote "9/".

k. page 25, Paragraph E-5, TABLE I, minor defect 332, delete footnote "9/" insert footnote "10/".

l. page 26, Paragraph E-5, TABLE I, Footnotes, after footnote 3/, insert the following new footnote "4/ The *trans* fat content shall be verified by the NLEA "Nutrition Facts" label. Product not conforming to the *trans* fat content as specified in Section C of this document shall be cause for rejection of the lot." Renumber footnotes 4/ through 9/ accordingly.