

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

SECTION C

This document covers nut and fruit mix packaged in a flexible pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-N-003, NUT AND FRUIT MIX, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Types and packages.

Types.

- Type I - Nuts and raisins
- Type II - Nuts and raisins with pan coated chocolate disks
- Type III - Nuts with raw sunflower kernels and infused fruit

Packages.

- Package A - Meal, Cold Weather (MCW)
- Package B - Food Packet, Long Range Patrol (LRP)
- Package C - Meal, Ready to Eat (MRE)
- Package D - Arctic Supplement (ARC Sup)
- Package J - First Strike Ration (FSR)
- 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 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 non comparable to the Product Standard, the contractor shall arrange for a new or alternate FA or PDM approval. In any event, all product produced must meet all requirements of this document including Product Standard comparability.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

B. Shelf life. The packaged nut and fruit mix shall meet the minimum shelf life requirement of 36 months at 80° F.

C. Grade standards. The grade standards for nut and fruit components shall be as follows.

(1) Peanuts. The peanuts shall be U.S. Standards for Grades of Shelled Spanish Type Peanuts, Grade - U.S. No. 1 Spanish or U.S. Standards for Shelled Runner Type Peanuts, Grade - U.S. No. 1 Runner or U.S. Standards for Shelled Virginia Type Peanuts, Grade - U.S. No. 1 Virginia. The peanuts shall be blanched, skinless and dry roasted. The peanuts shall be aflatoxin negative. The peanuts shall be uniformly coated with a transparent food grade material that aids in reduction of oxidative rancidity.

(2) Walnuts. The walnuts shall be U.S. Standards for Shelled English Walnuts, Grade - U.S. Commercial, Size - pieces. Walnut piece color classification shall be amber or lighter. The walnuts shall be uniformly coated with a transparent food grade material that aids in reduction of oxidative rancidity.

(3) Almonds. The almonds shall be U.S. Standards for Grades of Shelled Almonds, Grade - U.S. Standard Shelled Run, Size - count range per ounce either 23 to 25 inclusive, 24 to 26 inclusive, or 26 to 28 inclusive.

(4) Filberts. The filberts shall be from U.S. Standards for Grades of Filberts in the Shell, Grade - U.S. No. 1, Classification - round type varieties, medium or small.

(5) Raisins. The raisins shall be U.S. Standards for Grades of Processed Raisins, Type I - seedless, Grade - U.S. Grade B or better except that the moisture content of the raisins shall not less than 13.0 percent and not be greater than 15.0 percent. The raisins shall be coated with ~~hydrogenated vegetable oil~~ **sunflower oil or other vegetable oil**.

(6) Sunflower kernels. The raw sunflower kernel shall be of the U.S. Confection Type. Sunflower kernels shall be aflatoxin negative.

Comment [MTF1]: Natick case ES11-067 (DSCP-SS-11-39109) change 01, 12 Apr 11. C-2,C (5), Line 4, delete "hydrogenated vegetable oil", insert "sunflower oil or other vegetable oil"

D. Ingredients. For type III, ingredients shall be as follows.

(1) Infused blueberries. The infused blueberries shall be a uniform dark blue to purple color, shall be soft in texture with no hard berries and shall have a sweet wild blueberry flavor.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(2) Infused cranberries. The infused cranberries shall be a uniform cranberry red and shall have a tart sweet cranberry flavor.

(3) Infused cherries. The infused cherries shall be a uniform bright red color and shall have a sweet cherry flavor.

E. Appearance.

(1) General. The packaged food shall be free from foreign material. The finished product shall be free flowing and clumps can be broken with light finger pressure.

(2) Type I. The finished product shall be a mixture of nuts and raisins. The final blended product shall be free of clumped nuts and raisins. The final packaged product shall contain: 62.0 to 67.0 percent peanuts, 13.0 to 17.0 percent raisins, 8.0 to 12.0 percent walnuts, 4.0 to 7.0 percent almonds and 4.0 to 7.0 percent filberts.

(3) Type II. The finished product shall be a mixture of nuts, raisins and pan coated chocolate disks. The final blended product shall be free of clumped nuts, pan coated chocolate disks and raisins. Pan coated chocolate disk candy shall have a gloss and vibrant colors with a double-convex lens shape. The final packaged product shall contain: 53.0 to 57.0 percent peanuts, 13.0 to 17.0 percent pan coated chocolate disks, 11.0 to 15.0 percent raisins, 7.0 to 11.0 percent walnuts, 3.0 to 6.0 percent almonds, and 3.0 to 6.0 percent filberts.

(4) Type III. The finished product shall be a mixture of nuts, raw sunflower seed kernels, and corn syrup infused fruits. The raw sunflower kernels shall be white to gray in color. The wild blueberries shall be a uniform dark blue to purple color. The cherries shall be a uniform bright red color. The cranberries shall be a uniform cranberry red color. The final blended product shall contain: 58.0 to 62.0 percent peanuts, 13.0 to 17.0 percent infused fruit (blueberries, cranberries, and cherries), 8.0 to 12.0 percent walnuts, 8.0 to 12.0 percent raw sunflower kernels, and 4.0 to 7.0 percent almonds.

F. Odor and flavor.

(1) Type I. The product shall possess an odor and flavor of unsalted, shelled, roasted peanuts, walnuts, almonds, filberts, and raisins.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(2) Type II. The product shall possess an odor and flavor of unsalted, shelled, roasted peanuts, walnuts, almonds, filberts, raisins and sweet milk chocolate.

(3) Type III. The product shall possess an odor and flavor of unsalted, shelled, roasted peanuts, walnuts, raw sunflower kernels, almonds, and infused fruit (blueberries, cranberries, and cherries). The blueberries shall have a sweet wild blueberry flavor, the cherries shall have a sweet cherry flavor, and the cranberries shall have a tart, sweet cranberry flavor

(4) Foreign. The packaged food shall be free from foreign or rancid odors and flavors.

G. Texture.

(1) Type I. The nuts shall be firm to crunchy. The raisins shall be moist and chewy.

(2) Type II. The nuts shall be firm to crunchy. The raisins shall be moist and chewy. The pan coated chocolate disks shall be of such hardness that they cannot be easily crushed or cracked.

(3) Type III. The nuts shall be firm to crunchy. The raw sunflower kernels shall be firm and not brittle or not soggy. The infused fruit (blueberries, cranberries, and cherries) shall be moist and chewy.

H. Net Weight.

(1) Type I. Type I net weight shall be not less than 2.0 ounces (56 grams).

(2) Type II. Type II net weight shall be not less than 2.3 ounces (66 grams).

(3) Type III. Type III net weight shall be not less than 2.0 ounces (56 grams).

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

J. Analytical requirements.

(1) Sodium content. For types I, II, and III, the sodium content shall be not greater than 50 mg per 100 grams.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(2) Moisture content. For types I, II, and III, the average moisture content shall be not greater than 4.6 percent and no individual pouch shall have a moisture content greater than 5.6 percent.

(3) Water Activity.

(a) Infused blueberries. For type III, the infused blueberries shall have a water activity (A_w) less than or equal to 0.45.

(b) Infused cranberries. For type III, the infused cranberries shall have A_w less than or equal to 0.50.

(c) Infused cherries. For type III, the infused cherries shall have A_w less than or equal to 0.50.

J. Oxygen content. For types I, II, and III, the oxygen content of the filled and sealed pouch shall not exceed 2.0 percent.

K. Other.

(1) Nuts. All nuts shall be from the latest season's crop. The peanuts and walnuts should be protected by the types and amounts of antioxidants approved by the FDA for peanuts and walnuts except that the final product mix shall not have antioxidants exceeding approved limits.

(2) Raisins. All raisins shall be from the latest season's crop.

(3) Pan coated chocolate disks. Pan coated chocolate disks shall conform to the requirements in A-A-20177D Candy and Chocolate Confections, for Type VI, Pan coated candy, Shape a, flavor 1.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

C-3 MISCELLANEOUS INFORMATION

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

A. Type I

(1) Ingredients and formulation. Ingredient and formulation percentages for Type I nut and fruit mix for two stage fill may be as follows:

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts, whole, roasted, coated	76.5
Walnuts, pieces, coated	11.8
Almonds, whole	5.9
Filberts, whole	5.9
<u>Proportions</u>	
Nut mix	85.0
Raisins, 13-15 percent moisture, coated	15.0

(2) Ingredients and formulation. Ingredients and formulation percentages for Type I nut and fruit mix for one stage fill may be as follows:

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts, whole, roasted, coated	65.0
Raisins, 13-15 percent moisture, coated	15.0
Walnuts, pieces, coated	10.0
Almonds, whole	5.0
Filberts, whole	5.0

B. Type II

(1) Ingredients and formulation. Ingredient and formulation percentages for Type II nut and fruit mix with pan coated chocolate disks for two stage fill may be as follows:

PCR-N-003 31 October 2006 SUPERSEDING PCR-N-002A 18 October 2004 Change 01 12 April 2011

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts, whole, roasted, coated	76.5
Walnuts, pieces, coated	11.8
Almonds, whole	5.9
Filberts, whole	5.9

<u>Proportions</u>	
Nut mix	72.1
Pan coated chocolate disks	15.1
Raisins, 13-15 percent moisture, coated	12.7

(2) Ingredients and formulation. Ingredients and formulation percentages for Type II nut and fruit mix with pan coated chocolate disks for one stage fill may be as follows:

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts	55.2
Pan coated chocolate disks	15.2
Raisins, 13-15 percent moisture, coated	12.7
Walnuts	8.5
Almonds	4.2
Filberts	4.2

C. Type III

(1) Ingredients and formulation. Ingredient and formulation percentages for Type III nuts with sunflower kernels and infused fruit for two stage fill may be as follows:

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts, whole, roasted, coated	70.6
Walnuts, pieces, coated	11.8
Sunflower kernels, raw	11.8
Almonds, whole	5.9

<u>Proportions</u>	
Nut mix	85.0
Infused fruit <u>1</u> /	15.0

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(2) Ingredients and formulation. Ingredients and formulation percentages for Type III nuts with sunflower kernels and infused fruit for one stage fill may be as follows:

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts, whole, roasted, coated	60.0
Infused fruit <u>1/</u>	15.0
Walnuts, pieces, coated	10.0
Sunflower kernels, raw	10.0
Almonds, whole	5.0

1/ Infused fruit shall be a mixture of blueberries, cranberries and cherries.

C. Peanut and walnut coatings. Uniformly coat peanuts and walnuts separately either by spray or dipper application while product tumbles in a revolving pan or cylinder with either the edible shellac, corn protein, or glaze coating material.

(1) Shellac, edible. Edible shellac coating should be a high grade, clear amber shellac. The liquid coating should contain pharmaceutical glaze, ethyl alcohol, and acetylated monoglyceride and should have a solids content of not less than 23 percent and a specific gravity of not less than 0.83.

(2) Coating, corn protein. Corn protein coating should be a natural edible coating consisting of the corn protein zein. The liquid coating should contain not less than 37 percent solids.

(3) Coating, glaze. Glaze coating should be an approximate 5 to 2 ratio mixture of sugar and dry egg whites. Hot water should be used as the solvent in accordance with Good Manufacturing Practices. The dry egg whites shall be certified as salmonella free.

~~D. Raisin coating. Raisins should be oil coated with a 500 hour active oxygen method (AOM) hydrogenated vegetable oil.~~

Comment [MTF2]: Natick case ES11-067 (DSCP-SS-11-39109) change 01, 12 Apr 11. C-3, D. Delete entirely.

SECTION D

D-1 PACKAGING

A. Packaging. Product shall be packaged in a preformed pouch or form-fill-seal barrier pouch as described below.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(1) Preformed pouches.

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. The pouch product shall be nitrogen flushed or provided with oxygen scavenger. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for foil layer shall be plus or minus 10 percent. For MCW, the complete exterior surface of the pouch shall be colored white overall with a color in the range of 37778 through 37886 of FED-STD-595, Colors Used in Government Procurement. For LRP, MRE and FSR, the complete exterior surface of the pouch shall be uniformly colored in the range of 20219, 30219, 30279, 30313, 30324, or 30450 of FED-STD-595. 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.

b. Pouch construction. The pouch shall be a flat style preformed pouch having maximum inside dimensions of 5-1/2 inches wide by 6-3/4 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 when tested as specified in E-6, B(1)a. 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 when tested for internal pressure resistance as specified in E-6,B(1)c. A tear notch shall be made in one or both side seals to facilitate easy opening of the filled and sealed pouch. A 1/8 inch wide lip may be incorporated at the open end of the pouch.

c. Pouch filling and sealing. The nut and fruit mix shall be filled into the pouch and shall be nitrogen flushed or provided with oxygen scavengers in order to meet the requirements of paragraph C-2, J. The filled pouch shall be 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 when tested as specified in E-6,B(1)b. Alternatively, the filled and sealed pouch shall exhibit no rupture or seal separation greater than 1/16 inch or

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

seal separation that reduces the effective closure seal width to less than 1/16 inch when tested for internal pressure resistance as specified in E-6,B(1)c.

(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 D 1238, Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer and a density range of 0.918 to 0.922 g/cc in accordance with ASTM D 1505, Standard Test Method for Density of Plastics by 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. The nut and fruit mix shall be placed into the tray-shaped body of the pouch and shall be nitrogen flushed or provided with an oxygen scavenger to meet the requirements of paragraph C-2 J. The filled pouch body shall be hermetically sealed. 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 when tested as specified in E-6,B(1)b. Alternatively, the

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

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 when tested for internal pressure resistance as specified in E-6,B(1)c. The maximum outside dimensions of the sealed pouch shall be 6 inches wide by 7 1/4 inches long. The closure seal width shall be a minimum of 1/8 inch. A tear notch or serrations shall be provided on one outside edge or two opposite outside edges of the pouch to facilitate easy 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 occluded matter. Seals shall be free of impression or design on the seal surface that would conceal or impair visual detection of seal defects.

(3) Oxygen scavenger. The oxygen scavenger shall be an intermediate moisture scavenger constructed of materials that are safe for direct and indirect food contact, and shall be suitable for use with edible products. The oxygen scavenger shall be in compliance with all applicable FDA and USDA regulations.

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) Contractor's name and address
- (6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA/USDA regulations.

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, 31 October 2006 would be coded as 6304. The Julian day code shall represent the day the product was packaged into the pouch.

D-3 PACKING

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

A. Packing for shipment to ration assembler. Not more than 40 pounds of pouched product shall be packed flat in layers in a fiberboard shipping container constructed in accordance with style RSC-L, class domestic, variety SW, grade 200 of ASTM D 5118/D 5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each container shall be securely closed in accordance with ASTM D 1974, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-4 MARKING

A. Shipping containers. Shipping containers shall be marked in accordance with DSCP 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:

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(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 overall appearance and palatability. Any failure to conform to the product requirements or any appearance or palatability failure, shall be cause for rejection of the lot. 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 Center
AMSRD-NSC-CF-F
15 Kansas Street
Natick, MA 01760-5018

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

(2) Conformance inspection. Conformance inspection shall include the product examination 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 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.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

TABLE I. Product defects 1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Product not as specified.
102		Pouch does not contain intact oxygen scavenger. <u>9/</u>
		<u>Appearance</u>
103		Product not free flowing. <u>10/</u>
104		Coating on the peanuts or walnuts or raisins is missing or not as specified.
	201	Raw sunflower kernels not off white to gray color.
	202	Cherries do not have a uniform bright red color.
	203	Cranberries do not have uniform cranberry red color.
	204	Wild blueberries do not have a uniform dark blue to purple color.
	205	Pan coated chocolate disks candy shell does not have gloss or not vibrant colors, or not a double-convex lens shape.
		<u>Odor and flavor</u>
105		Type I odor or flavor not a mix of unsalted, shelled, roasted peanuts, walnuts, almonds, filberts, or raisins.
106		Type II odor or flavor not a mix of unsalted, shelled, roasted peanuts, walnuts, almonds, filberts, raisins or sweet milk chocolate.
107		Type III odor or flavor not a mix of unsalted, shelled, roasted peanuts, walnuts, raw sunflower seed kernels, almonds, or sweet cherry flavor, or tart, sweet cranberry flavor or sweet wild blueberry flavor.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

TABLE I. Product defects 1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ cont'd

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Texture</u>
	206	Nuts not firm to crunchy.
	207	Raisins not moist or not chewy.
	208	Raw sunflower kernels not firm or brittle or soggy.
	209	Infused fruit not moist or not chewy.
	210	Pan coated chocolate disks of such hardness that they can be easily cracked or crushed.
		<u>Weight</u>
	211	Type I net weight of an individual pouch less than 2.0 ounces (56 grams).
	212	Type II net weight of an individual pouch less than 2.3 ounces (66 grams).
	213	Type III net weight of an individual pouch less than 2.0 ounces (56 grams).

1/ Presence of any foreign materials such as, but not limited to dirt, insect parts, hair, glass, wood or metal, or foreign odors and flavors such as, but not limited to burnt, scorched, rancid, sour, or stale 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/ The percentage of nut, raisin, pan coated chocolate disk, raw sunflower kernel and infused fruit (blueberries, cranberries, and cherries) components shall be determined using the following procedure: The total contents of twenty pouches shall be weighed and the individual ingredients of the composite shall be separated and weighed separately. The

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

percentages of each component shall be determined and the results reported to the nearest 0.1 percent. A Certificate of Conformance (CoC) for the mixture is an alternative method of acceptance. Any nonconformance shall be cause for rejection of the lot.

4/ The moisture content of the raisins and water activity of the infused fruits shall be verified by the producer's certificate of analysis.

5/ The producer shall provide a USDA certificate that the peanuts and tree nuts, and raw sunflower kernels are aflatoxin negative in accordance with the USDA Farm Security and Rural Investment Act of 2002.

6/ Grade standard requirements for nuts and raisins shall be verified with a USDA Grade Certificate.

7/ Level of antioxidants in nut mix shall be verified by producer's Certificate of Analysis.

8/ The producer shall provide a CoC from the supplier for each incoming lot indicating that the nuts (walnuts, almonds, peanuts, and filberts) supplied and used in the formulation meet all the requirements for the latest season's crop at the time of issue. The CoC shall be dated, state the harvest period for the lot(s) (for example – Harvested during October 2006 through January 2007 crop season), and identify the lot(s) covered by the CoC. Any nonconformance to this requirement shall be cause for rejection of any component lot(s) or any involved product.

9/ Not applicable if nitrogen flushed.

10/ Clumps can be broken with light finger pressure.

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 hedonic scale to be considered acceptable.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(2) Net weight. The net weight shall be determined by weighing each sample unit on a suitable scale tared with a representative empty pouch and oxygen scavenger, when applicable. Results shall be reported to the nearest 0.1 ounce or to the nearest 1 gram.

(3) Analytical. For the sodium test, the sample to be analyzed shall be a composite of eight filled and sealed pouches, which have been selected at random from the lot. For the aflatoxin test, the sample to be analyzed shall be a composite of another set of eight filled and sealed pouches, which have been selected at random from the lot. The composited sample shall be prepared and analyzed for sodium content in accordance with the following methods of the Official Methods of Analysis of AOAC International:

<u>Test</u>	<u>Method Number</u>
Sodium	985.35, 984.27
Aflatoxin	991.31 (HPLC)

Test results shall be reported to the nearest 1.0 mg per 100 grams. Verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the requirements specified in Section C of this Product Contract Requirements document shall be cause for rejection of the lot.

(4) Moisture content testing. The moisture content shall be determined in accordance with AOAC Method No. 925.45A except that the temperature-time cycle for moisture analysis shall be modified by using a temperature of 70°C (158°F) for 16 hours at a pressure of not more than 100 mm of mercury. The contents of each pouch shall be blended to uniformity using a blender or food processor. Results shall be reported to the nearest 0.1 percent. The lot size shall be expressed in units of pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 2.5. Any individual moisture greater than 5.6 percent shall be classified as a major defect. The lot shall be rejected if the average moisture is greater than 4.6 percent.

(5) Oxygen content testing. Eight filled and sealed pouches shall be randomly selected from one production lot and individually tested for oxygen content in accordance with the zirconia detector oxygen analyzer or any other analyzer that gives equivalent results. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 48 hours from the time of sealing. Results shall be reported to the nearest 0.1 percent. Verification will be conducted through actual

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

testing by a Government laboratory. Any result failing to conform to the requirement in C-2, J shall be cause for rejection of the lot.

(6) Aflatoxin testing. The following conditions apply for aflatoxin testing:

(a) For prepackaged nut raisin mix product received from a supplier and is not further processed, the contractor will furnish a Certificate of Analysis that the aflatoxin in the peanut ingredient in the nut raisin mix represented is not greater than 15 parts per billion (ppb). No additional testing is required. Results shall be reported to the nearest whole number.

(b) For roasted peanuts received in bulk (to be used in nut raisin mix end item), the contractor shall have the bulk shipment sampled and tested by USDA. 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) If roasted peanuts are received in bulk (to be used in nut raisin mix end item), and the conditions in (b) above are not met, each end-item lot of nut raisin mix must be sampled and tested by USDA. End item lots determined to have not greater than 15 ppb in aflatoxin in the roasted peanut ingredient (from the nut raisin mix) as evidenced by a USDA Certificate will be considered acceptable. Bulk roasted peanuts with aflatoxin greater than 15 ppb shall not be used as ingredients.

(d) Peanut and tree nut products shall meet within FDA guidelines for aflatoxin.

NOTE: A USDA certificate of analysis 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 certificate of analysis for aflatoxin on roasted peanuts will be considered current if not more than 30 days have elapsed since the date of the analysis.

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

A. Packaging.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

(1) Pouch material certification. Material listed below may be accepted on the basis of a contractor's Certification of Conformance (CoC) to the indicated requirements. In addition, compliance to the requirements for inside pouch dimensions and dimensions of manufacturer's seals may be verified by CoC.

<u>Material Requirement</u>	<u>Requirement paragraph</u>	<u>Test procedures</u>
Thickness of films	D-1,A(1)a and D-1,A(2)a	As specified in ASTM D 2103 <u>1/</u>
Aluminum foil thickness	D-1,A(1)a and D-1,A(2)a	As specified in ASTM B 479 <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 and D-1,A(2)a	Visual evaluation by FED-STD-595 <u>3/</u>

1/ ASTM D 2103 Standard Specification for Polyethylene Film and Sheeting

2/ ASTM B 479 Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications

3/ FED-STD-595 Colors Used in Government Procurement

(2) Unfilled preformed pouch certification. A certification of conformance 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) 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 acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

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/ 7/</u>
	201 Label missing or incorrect or illegible.
	202 Tear notch or serrations missing or does not facilitate easy opening.
	203 Seal width less than 1/8 inch but greater than 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/ 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

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

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 unclear:

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).

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

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/ 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 F 88, Seal Strength of Flexible Barrier Materials. The lot size shall be expressed in pouches. 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 F 88. The lot size shall be expressed in pouches. 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 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

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

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 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 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 below. 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.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

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

DSCP FORMS

DSCP FORM 3556 Marking Instructions for Boxes, Sacks and Unit Loads of Perishable and Semiperishable Subsistence

FEDERAL SPECIFICATION

A-A-20177D Candy and Chocolate Confections

FEDERAL STANDARD

FED-STD-595 Colors Used in Government Procurement

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ANSI/ASQ Z1.4-2003 Sampling Procedures and Tables for Inspection by Attributes

ASTM International

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

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|--------------------|---|
| B 479-06 | Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications |
| D 1238-04c | Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer |
| D 1505-03 | Standard Test Method for Density of Plastics by the Density-Gradient Technique |
| D 5118/D 5118M-05a | Standard Practice for Fabrication of Fiberboard Shipping Boxes |
| D 1974-98 (2003) | Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes |
| D 2103-05 | Standard Specification for Polyethylene Film and Sheeting |
| F 88-06 | Standard Test Method for Seal Strength of Flexible Barrier Materials |

AOAC INTERNATIONAL

Official Methods of Analysis(OMA) of the AOAC International

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

For DLA Troop Support – Subsistence Website Posting

RDNS-CFF

12 April 2011

SUBJECT: ES11-067 (DSCP-SS-11-39109); Request for modification to raisin coating in PCR-N-003 Nut and Fruit Mix for use in Meal, Ready-to-Eat™ 31

1. Contractor is requesting a modification to the raisin coating in PCR-N-003 Nut and Fruit Mix to reflect current manufacturing practices and standardization of product specifications. This change will impact the Meal, Ready-to-Eat™, First Strike Ration®, Meal, Cold Weather/Food Packet, Long Rang Patrol rations, and the Modular Operational Ration Enhancement supplemental ration.
2. The PCR-N-003 Nut and Fruit Mix currently requires the raisin coating to be hydrogenated vegetable oil. The CID A-A-20299B Fruits, Infused and Dried, which includes raisins, currently states the finished product may be sprayed lightly with sunflower oil or other vegetable oil to prevent clumping.
3. Natick verified current industry standards to not be limited to the use of hydrogenated oils to prevent clumping.
4. Due to the additional product requirements including, grade standards, moisture levels, and pouch oxygen content, the requested change to allow the use of sunflower or vegetable oil as a raisin coating is not expected to negatively impact shelf life.
5. Natick recommends a change to PCR-N-003 Nut and Fruit Mix, to remove the coating requirement of hydrogenated oil and replace with sunflower or other vegetable oil.
6. Natick submits the following changes to the subject document for all current, pending and future procurements until the document is formally amended or revised:
 - a. Section C-2, C. (5), line 4, delete “hydrogenated vegetable oil”, insert “sunflower oil or other vegetable oil”
 - b. Section C-3, D., Delete entirely.

PCR-N-003
31 October 2006
SUPERSEDING
PCR-N-002A
18 October 2004
Change 01 12 April 2011

Attached is Change 01 to PCR-N-003 Nut and Fruit Mix dated 12 April 2011, with changes highlighted