PCR-N-003B
31 July 2019
SUPERSEDING
PCR-N-003A
16 August 2013

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

Types.

Type I - Nuts and raisins
Type II - Nuts and raisins with pan coated chocolate disks

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 80ºF.

C. Appearance.

(1) General. The finished product shall be a free-flowing mixture of the specified components. The product shall be free of clumped ingredients that cannot be broken with light pressure. The finished product shall be free from foreign materials.

(2) Type I. The nuts and raisins shall be a mixture of peanuts, walnuts, almonds, filberts and raisins.

(3) Type II. The nuts and raisins with pan coated chocolate disks shall be a mixture of peanuts, walnuts, almonds, filberts, raisins, and pan coated chocolate disks.

(4) Composition. The percentage of components in the packaged product shall be as follows:

Composition of Nut and Fruit Mix

Component	Type I Percent (Minimum by weight)	Type II Percent (Minimum by weight)
Peanuts 1/ 2/ 3/	61.0	53.0
Walnuts 1/ 2/ 3/	8.0	7.0
Almonds 1/ 3/	4.0	3.0
Filberts 1/ 3/	4.0	3.0
Raisins 1/ 2/	13.0	11.0
Pan coated chocolate disks	---	13.0

1/ All nuts and raisins shall be from the most recent crop year.

2/ The peanuts and walnuts shall be uniformly coated with a transparent food grade material that aids in reduction of oxidative rancidity. The types and amounts of antioxidant shall be approved by the FDA and the final product mix shall not have antioxidants exceeding approved limits. The raisins shall be coated with sunflower oil or other vegetable oil.

3/ The raw/blanched peanuts, used to produce the roasted peanut ingredient, shall meet the minimum quality standards for peanuts for human consumption as provided by 7 CFR 996. Peanuts and each of the tree nuts shall have a negative aflatoxin content. Negative aflatoxin content means 15 parts per billion (ppb) or less.

(5) Components.

a. Peanuts. The peanuts shall be U.S. No. 1 Spanish of the U.S. Standards for Grades of Shelled Spanish Type Peanuts or U.S. No. 1 Runner of the U.S. Standards for Grades of Shelled Runner Type Peanuts or U.S. No. 1 Virginia of the U.S. Standards for Grades of Shelled Virginia Type Peanuts. The peanuts shall be blanched, skinless and dry roasted.

b. Walnuts. The walnuts shall be U.S. Commercial Grade, pieces size as specified in the U.S. Standards for Shelled English Walnuts. Walnut piece color classification shall be amber or lighter.

c. Almonds. The almonds shall be U.S. Standard Sheller Run, count range per ounce either 23 to 25 inclusive, 24 to 26 inclusive, or 26 to 28 inclusive as specified in the U.S. Standards for Grades of Shelled Almonds.

d. Filberts. The filbert kernels, if of domestic origin, shall meet the requirements of the Federal Marketing Order 982 (7 CFR 982.101). Imported filbert kernels shall meet the Import Requirements for Shelled Filberts as provided in 7 CFR 999.400 "Regulations governing the importation of filberts". In addition, filbert kernels shall be of the round type varieties, and shall be whole, not greater than 14 mm in diameter (with tolerances of up to 5 percent by weight for broken kernels {that is, kernels missing 1/4 or more of original kernel} and up to 15 percent by weight greater than 14 mm in diameter).

e. Raisins. The raisins shall be U.S. Grade B or better, type I - seedless as specified in the U.S. Standards for Grades of Processed Raisins, except that the moisture content of the raisins shall be not less than 13.0 percent and not be greater than 15.0 percent.

f. Pan coated chocolate disks. The pan coated chocolate disks shall have a glossy candy shell coating. The pan coated chocolate disks shall show minimal seepage of material through the coating. The coating shall be free from pits, holes, and cracks. The pan coated chocolate disks shall resemble a double-convex lens in shape. The mixture of pan coated chocolate disks shall consist of at least five different vibrant colors.

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

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

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

E. Texture. The nuts shall be firm to crunchy. The raisins shall be moist and chewy.

(1) Type II. The pan coated chocolate disks shall not be easily crushed or cracked.

F. Net weight.

(1) Type I. The net weight shall be not less than 2.0 ounces (57 grams).

(2) Type II. The net weight shall be not less than 2.3 ounces (65 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) Sodium. The sodium content shall be not greater than 50 mg per 100 grams.

(2) Moisture. 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) Oxygen. The oxygen content of the filled and sealed pouch shall not exceed 2.0 percent.

I. Microbiological requirement.

(1) *Salmonella*. The product shall be *Salmonella* negative.

J. Aflatoxin. The aflatoxin content shall be negative (15 ppb or less).

SECTION D

D-1 PACKAGING

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

(1) Preformed pouch.

a. Pouch material. The preformed pouch shall be fabricated from 0.002 inch thick ionomer or polyethylene film laminated or extrusion coated to 0.00035 inch thick aluminum foil which is then laminated to 0.0005 inch thick polyester. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for the foil layer shall be plus or minus 10 percent. The material shall show no evidence of delamination, degradation, or

foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart an odor or flavor to the product. The complete exterior surface of the pouch shall be uniformly colored and shall conform to number 20219, 30219, 30227, 30279, 30313, 30324, or 30450 of FED-STD-595, Colors Used in Government Procurement.

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. 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. A tear nick, notch or serrations shall be provided to facilitate 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 product shall be filled into the pouch and shall be nitrogen flushed or provided with oxygen scavenger in order to meet the requirements of paragraph C-2,H(4). 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. 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.

(2) Horizontal form-fill-seal pouch.

a. Pouch material. The horizontal form-fill-seal pouch shall consist of a formed tray-shaped body with a flat sheet, heat sealable cover or a tray-shaped body with a tray-shaped heat sealable cover. The tray-shaped body and the tray-shaped cover shall be fabricated from a 3-ply flexible laminate barrier material consisting of, from outside to inside, 0.0009 inch thick oriented polypropylene bonded to 0.0007 inch thick aluminum foil with 10 pounds per ream pigmented polyethylene or adhesive and bonding the opposite side of the aluminum foil to 0.003 inch thick ionomer or a blend of not less than 50 percent linear low density polyethylene and polyethylene. The linear low density polyethylene portion of the blend shall be the copolymer of ethylene and octene-1 having a melt index range of 0.8 to

1.2 g/10 minutes in accordance with ASTM D1238, Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer and a density range of 0.918 to 0.922 g/cc in accordance with ASTM D1505, Standard Test Method for Density of Plastics by the Density-Gradient Technique. Alternatively, 0.0005 inch thick polyester may be used in place of the oriented polypropylene as the outer ply of the laminate. The flat sheet cover shall be made of the same 3-ply laminate as specified for the tray-shaped body except the aluminum foil thickness may be 0.00035 inch. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for the foil layer shall be plus or minus 10 percent. The color requirements of the exterior (oriented polypropylene or polyester side) of the laminate shall be as specified in D-1,A(1)a. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart any odor or flavor to the product.

b. Pouch construction. The tray-shaped body and the tray-shaped cover shall be formed by drawing the flexible laminate material into an appropriately shaped cavity. The flat cover shall be in the form of a flat sheet of the barrier material taken from roll stock. The product shall be placed into the tray-shaped body of the pouch and shall be nitrogen flushed or provided with oxygen scavenger to meet the requirements of paragraph C-2,H(4). 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. 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. The maximum outside dimensions of the sealed pouch shall be 6 inches wide by 7 1/4 inches long. A tear nick, notch or serrations shall be provided to facilitate opening of the filled and sealed pouch. The sealed pouch shall not show any evidence of material degradation, aluminum stress cracking, delamination or foreign odor. Heat seals shall be free of entrapped matter that reduces the effective closure seal width to less than 1/16 inch. Seals shall be free of impression or design on the seal surface that would conceal or impair visual detection of seal defects.

(3) Oxygen scavenger. The oxygen scavenger shall be constructed of materials that are safe for direct food contact. The oxygen scavenger shall be in compliance with all applicable Food and Drug Administration (FDA) 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 type of product (letters not less than 1/8 inch high)
(2) Ingredients
(3) Date 1/
(4) Net weight
(5) Name and address of packer
(6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations

1/ Each pouch shall have the date of pack noted by using 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 2020 would be coded as 0045. The Julian day code shall represent the day the product was packaged into the pouch.

D-3 PACKING

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

D-5 MARKING

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

SECTION E INSPECTION AND ACCEPTANCE

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

A. Definitions.

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

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

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

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

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

(2) Periodic review evaluation. The approved first article or product demonstration model shall be used as the product standard for periodic review evaluations. All food components that are inspected by the USDA shall be subject to periodic review sampling and evaluation. The USDA shall select sample units during production of contracts and submit them to the following address for evaluation:

DEPARTMENT OF THE ARMY
FCDD-SCC-EMR

COMBAT CAPABILITIES DEVELOPMENT COMMAND-SOLDIER CENTER
10 GENERAL GREENE AVENUE
NATICK, MA 01760-5056

One lot shall be randomly selected during each calendar month of production or as otherwise specified in the contract. Three (3) sample units shall be randomly selected from that one production lot. The 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 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 pouches. The sample unit shall be the contents of one pouch. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects. Defects and defect classifications are listed in table I.

TABLE I. Product defects 1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ 9/

Category		Defect
Major	Minor	
		General
101		Product not type specified.
102		Pouch does not contain intact oxygen scavenger. 10/ 11/
103		Product not a free-flowing mixture or has clumped ingredients that cannot be broken with light pressure.

TABLE I. Product defects 1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ 9/- Continued

Category	Defect

Major	Minor	
		Appearance
	201	Type II pan coated chocolate disks do not have a glossy candy shell coating.
	202	Type II pan coated chocolate disks exhibit more than minimal seepage of material through the coating or coating not free from pits or holes or cracks. 12/
	203	Type II pan coated chocolate disks do not resemble a double-convex lens in shape.
	204	Type II mixture of pan coated chocolate disks do not consist of at least five different vibrant colors.
		Odor and flavor
104		Type I packaged food does not have an odor or flavor of unsalted shelled roasted peanuts or not walnuts or not almonds or not filberts or not raisins.
105		Type II packaged food does not have an odor or flavor of unsalted shelled roasted peanuts or not walnuts or not almonds or not filberts or not raisins or not sweet milk chocolate.
		Texture
	205	Nuts not firm to crunchy.
	206	Raisins not moist or not chewy.
	207	Pan coated chocolate disks can be easily crushed or cracked.

TABLE I. Product defects 1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ 9/- Continued

Category	Defect

Major	Minor	
		Net weight
	208	Type I net weight of an individual pouch less than 2.0 ounces (57 grams).
	209	Type II net weight of an individual pouch less than 2.3 ounces (65 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/ The percentage of 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 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 product not conforming to this requirement shall be cause for rejection of the lot.

4/ The producer shall provide a CoC from the supplier for each incoming lot indicating that the nuts and raisins supplied and used in the formulation meet all the requirements for the most recent crop year at the time of issue. The CoC shall be dated, state the harvest period for the lot(s) (for example – Harvested during October 2020 through January 2021 crop season), and identify the lot(s) covered by the CoC. Any product not conforming to this requirement shall be cause for rejection of any component lot(s) or any involved product.

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

6/ Type, size, and regulatory requirements (7 CFR 982.101 or 7 CFR 999.400) for the filberts shall be verified by a CoC.

7/ The producer shall provide a USDA certificate that the raw/blanched peanuts used to produce the roasted peanut ingredient have a negative Aflatoxin content in accordance with 7 CFR 996. Negative Aflatoxin content means 15 parts per billion (ppb) or less for peanuts that

have been certified as meeting edible quality grade standards. In addition, the producer shall provide a USDA certificate for each of the tree nut and the raw sunflower kernel ingredients verifying the negative Aflatoxin content of 15 ppb or less.

8/ The moisture content of the raisins shall be verified by the producer's Certificate of Analysis (CoA).

9/ The antioxidant coating on the peanuts and walnuts shall be verified by the producer's CoA. The oil coating on the raisins shall be verified by a CoC.

10/ Not applicable if nitrogen flushed.

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

12/ A pit shall be defined as a hole or air bubble that is as great or greater than the head of a common pin.

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 80ºF. Government verification may include storage for 6 months at 100ºF or 36 months at 80ºF. Upon completion of either storage period, the product will be subjected to a sensory evaluation panel for appearance and palatability and must receive an overall score of 5 or higher based on a 9 point quality scale to be considered acceptable.

(2) Net weight. The net weight 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.

a. Sodium testing. The sample to be analyzed shall be a composite of eight filled and sealed pouches which have been selected at random from the lot. The composited sample shall be prepared and analyzed in accordance with the Official Methods of Analysis (OMA) of AOAC International method 985.35, 984.27, or 2011.14. Test results shall be reported to the nearest 1.0 mg per 100 grams. 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.

b. Moisture testing. The moisture content shall be determined in accordance with the OMA of AOAC International method 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 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 result not conforming to the moisture requirement shall be cause for rejection of the lot.

c. Oxygen testing. Eight filled and sealed pouches shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 48 hours from the time of sealing. Test results shall be reported to the nearest 0.1 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.

(4) Microbiological testing.

a. *Salmonella* testing. The finished product shall be tested for *Salmonella*. Five filled and sealed pouches shall be randomly selected from the lot regardless of lot size. The pouched product shall be individually tested for *Salmonella* in accordance with the OMA of AOAC International method 967.26, 967.28, 986.35, 996.08, 2000.06, 2003.09, 2004.03, or 2011.03. Government verification will be conducted through actual testing by a Government laboratory. The test result shall be reported as positive or negative. Any positive result shall be cause for rejection of the lot.

b. Aflatoxin testing. The sample to be analyzed shall be a composite of eight filled and sealed pouches which have been selected at random from the lot. The composited sample shall be prepared and analyzed in accordance with the OMA of AOAC International method 991.31 A-F, H, with preparation of the sample performed according to AOAC International method 977.16. Test results shall be reported to the nearest whole number. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the requirement shall be cause for rejection of the lot.

NOTE: The following conditions apply for aflatoxin testing:

a. For prepackaged nut raisin mix product received from a supplier and is not further processed, the contractor will furnish a CoA 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 can accept a USDA certificate that the aflatoxin in the bulk lot is below 15 ppb. If a USDA certificate does not accompany the bulk lot, the following alternate method of inspection may be used. The contractor shall have the bulk shipment sampled and tested by USDA. (Sampling shall take place at the contractor location where the finished product will be placed into the pouch.)

(i) Three sets of representative, independently-drawn samples shall be submitted to the laboratory for testing – the number of sampling points and quantity of roasted peanuts, almonds, filberts, walnuts, per sampling point to be determined using USDA procedures. Each of the three sets of samples shall be composited and respectively designated as test sample 1, test sample 2, and test sample 3.

(ii) Lots will be reported as negative for aflatoxin if test sample 1 has an aflatoxin level at or below 5 ppb. If test sample 1 is at or above 25 ppb the lot fails.

(iii) If the aflatoxin level for test sample 1 is above 5 ppb and less than 25 ppb, test sample 2 may be analyzed. Test results for test sample 1 and 2 will be averaged. If the average aflatoxin level for test samples 1 and 2 is 10 ppb or less the lot will be reported as negative for aflatoxin, but fails if the aflatoxin level is at or above 20 ppb.

(iv) If the average value for test samples 1 and 2 is above 10 ppb but less than 20 ppb, test sample 3 may be analyzed. The results of test samples 1, 2 and 3 will be averaged. If the average aflatoxin level for test samples 1, 2, and 3 is 15 ppb or less the lot will be reported as negative for aflatoxin. If the average aflatoxin level for test samples 1, 2, and 3 is above 15 ppb the lot fails.

(v) Bulk lots determined to be conforming for aflatoxin as evidenced by a USDA certificate, in accordance with the above procedures will be considered acceptable for use as ingredients. Results shall be reported to the nearest whole

number. No additional finished product aflatoxin testing is required if the end item lots are manufactured using that bulk product and both the bulk and end item lots' identities have been preserved. Bulk roasted peanuts with aflatoxin greater than 15 ppb shall not be used as ingredients.

c. If nuts are received in bulk (to be used in nut fruit mix end item), and the conditions in (b) above are not met, each end-item lot of nut fruit 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 fruit mix) as evidenced by a USDA Certificate will be considered acceptable.

NOTE: A USDA CoA on nuts 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 the nuts are not established, a USDA CoA for aflatoxin on the nuts 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.

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

Characteristic	Requirement paragraph	Test procedure
Thickness of films for laminated material	D-1,A(1)a and D-1,A(2)a	ASTM D2103 1/
Aluminum foil thickness	D-1,A(1)a and D-1,A(2)a	ASTM B479 2/
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	SAE-AMS-STD-595 3/

1/ Standard Specification for Polyethylene Film and Sheeting

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

3/ Colors Used in Government Procurement

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

(3) Filled and sealed pouch examination. The filled and sealed pouches shall be examined for the defects listed in table II. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

TABLE II. Filled and sealed pouch defects 1/

Category		Defect
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/
107		Not packaged as specified.
108		Presence of stress cracks in the aluminum foil. 6/ 7/
	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.

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

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

B. Methods of inspection.

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

a. Unfilled preformed pouch seal testing. The seals of the unfilled preformed pouch shall be tested for seal strength in accordance with ASTM F88/F88M, Standard Test Method for Seal Strength of Flexible Barrier Materials. The lot size shall be expressed in pouches. The sample unit shall be one unfilled pouch. The sample size shall be the number of pouches indicated by inspection level S-1. Three adjacent specimens shall be cut from each of the

three sealed sides of each pouch in the sample. The average seal strength of any side shall be calculated by averaging the three specimens cut from that side. Any average seal strength of less than 6 pounds per inch of width or any test specimen with a seal strength of less than 5 pounds per inch of width shall be classified as a major defect and shall be cause rejection of the lot.

b. Pouch closure seal testing. The closure seals of the pouches shall be tested for seal strength in accordance with ASTM F88/F88M. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The sample size shall be the number of pouches indicated by inspection level S-1. For the closure seal on preformed pouches, three adjacent specimens shall be cut from the closure seal of each pouch in the sample. For the form-fill-seal pouches, three adjacent specimens shall be cut from each side and each end of each pouch in the sample. The average seal strength of any side, end or closure shall be calculated by averaging the three specimens cut from that side, end or closure. Any average seal strength of less than 6 pounds per inch of width or any test specimen with a seal strength of less than 5 pounds per inch of width shall be classified as a major defect and shall be cause for rejection of the lot.

c. Internal pressure test. The internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates. The sample size shall be the number of pouches indicated by inspection level S-1. If a three-seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for testing the side and end of the pouch and the distance between restraining plates shall be 1/2 inch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be as close to 1/2 inch as possible while accommodating the thickness of the product, the product may be manipulated to fit within the confines of the restraining apparatus. Pressure shall be applied at the rate of 1-2 pounds per square inch gage (psig) per second until 14 psig pressure is reached. The 14 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for 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. The lot size shall be expressed in shipping containers. The sample unit shall be one shipping container fully packed. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0 for major defects and 10.0 for total defects.

TABLE III. Shipping container and marking defects

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

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

SECTION J REFERENCE DOCUMENTS

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

DLA Troop Support Form

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

GOVERNMENT PUBLICATIONS

7 CFR 982.101	Federal Marketing Order 982
7 CFR 996	Minimum Quality and Handling Standards for Domestic and Imported Peanuts Marketed in the United States
7 CFR 999.400	Regulations governing the importation of filberts

U.S. Standards for Grades of Shelled Spanish Type Peanuts

U.S. Standards for Shelled Runner Type Peanuts

U.S. Standards for Shelled Virginia Type Peanuts

U.S. Standards for Shelled English Walnuts

U.S. Standards for Grades of Shelled Almonds

U.S. Standards for Grades of Processed Raisins

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC) www.asq.org

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

ASTM INTERNATIONAL www.astm.org

B479	Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications
D1238	Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
D1505	Standard Test Method for Density of Plastics by the Density-Gradient Technique
D1974/1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D2103	Standard Specification for Polyethylene Film and Sheeting
D4727/D4727M	Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shape

D5118/D511M	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

SAE INTERNATIONAL www.sae.org

SAE AMS-STD-595 Colors Used in Government Procurement