

SECTION C

This document covers nut raisin 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-002A, NUT RAISIN MIX, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Types and packages.

Types.

- Type I - Regular
- Type II - Regular with pan coated chocolate disks

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)

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 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.

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

C. Grade standards. The grade standards for nut and raisin 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 Sheller 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 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.

D. 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.

E. Odor and flavor.

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

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

F. 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.

G. Net Weight.

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

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

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

I. Analytical requirements.

(1) Sodium content. The sodium content shall be not greater than 50 mg per 100 grams.

(2) Moisture content. The average moisture content shall be not greater than 4.6 percent and no individual pouch shall be not greater than 5.6 percent.

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J. Oxygen content. 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.

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.

(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-20177C Candy and Chocolate Confections, for Type VI, Pan coated candy, Shape a, flavor 1.

C-3 MISCELLANEOUS INFORMATION

THE FOLLOWING INGREDIENTS AND FORMULATION ARE FOR INFORMATION ONLY. THIS IS NOT A MANDATORY CONTRACT REQUIREMENT.

A. Type I

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

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts, whole, roasted, coated	76.48
Walnuts, pieces, coated	11.76

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Almonds, whole	5.88
Filberts, whole	5.88

Proportions

Nut mix	85.00
Raisins, 13-15 percent moisture, coated	15.00

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

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts, whole, roasted, coated	76.48
Walnuts, pieces, coated	11.76
Almonds, whole	5.88
Filberts, whole	5.88

Proportions

Nut mix	72.12
Pan coated chocolate disks	15.15
Raisins, 13-15 percent moisture, coated	12.73

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

<u>Ingredients</u>	<u>Percent by weight</u>
Peanuts	55.15
Pan coated chocolate disks	15.15

Raisins, 13-15 percent moisture, coated	12.73
Walnuts	8.48
Almonds	4.24
Filberts	4.24

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.

SECTION D

D-1 PACKAGING

A. Packaging. Type I or type II product shall be packaged in a preformed pouch or form-fill-seal barrier pouch as described below.

(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 packet. Tolerances for thickness of plastic films shall be

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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 and MRE, 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 heat seals shall be made in a manner that will assure hermetic 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, A.,(4),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,A.,(4),c. A tear nick or 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 to facilitate opening and filling of the pouch.

c. Pouch filling and sealing. The nut raisin mix shall be filled into the pouch and shall be nitrogen flushed or provided with oxygen scavenger packets 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,A.,(4),b. 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,A.,4,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

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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 1238-04, 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 1505-03, 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 raisin mix shall be placed into the tray-shaped body of the pouch and shall be nitrogen flushed or provided with an oxygen scavenger packet 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,A,(4),b. 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,A,(4),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 nick, 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 (absorber) 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 (absorber) 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, 18 October 2004 would be coded as 4292. The Julian day code shall represent the day the product was packaged into the pouch.

D-3 PACKING

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 5118-95(2001), Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each container shall be securely closed in accordance with ASTM D 1974-98(2003), 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/ASQC Z1.4-1993, Sampling Procedures and Tables for Inspection by Attributes, are required. Unless otherwise specified, Single Sampling Plans indicated in ANSI/ASQC Z1.4-1993 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 overall appearance and palatability. Any failure to conform to the performance 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

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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 Performance-based Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQC Z1.4 - 1993. 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/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Product not as specified.
102		Pouch does not contain intact oxygen scavenger. <u>8/</u>
		<u>Appearance</u>
103		Product not free flowing. <u>9/</u>
104		Coating on the peanuts or walnuts or raisins is missing or not as specified.
	201	Nuts do not have characteristic color.
	202	Raisins do not have characteristic color.
	203	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, peanuts, walnuts, almonds, filberts, and raisins.
106		Type II odor or flavor not a mix of unsalted, shelled, peanuts, walnuts, almonds, filberts, raisins and sweet milk chocolate.
		<u>Texture</u>
	204	Nuts not firm to crunchy.
	205	Raisins not moist or not chewy.
	206	Pan coated chocolate disks of such hardness that they can be easily cracked or crushed.

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

Category		Defect
<u>Major</u>	<u>Minor</u>	<u>Weight</u>
	207	Type I net weight of an individual pouch less than 56 grams.
	208	Type II net weight of an individual pouch less than 2.3 ounces (66 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, 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 nut, raisin and pan coated chocolate disk 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 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 shall be verified by the producer's certificate of analysis.

5/ The producer shall provide a USDA certificate that the peanuts are aflatoxin negative in accordance with the USDA Marketing Agreement.

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/ Not applicable if nitrogen flushed.

9/ 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 3 year 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.

(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 packet, when applicable. Results shall be reported to the nearest 0.1 ounce or to the nearest 1 gram.

(3) Analytical. The sample to be analyzed shall be a composite of 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

Test results shall be reported to the nearest 1.0 mg per 100 grams. Any result not conforming to the requirements specified in Section C of this Performance-based Contract Requirements document shall be cause for rejection of the lot.

NOTE: The USDA will use AOAC Method 935.52 for preparation of sample.

(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 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 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 product received from a supplier and is not further processed, the contractor will furnish a Certificate of Analysis that the aflatoxin in the roasted peanuts (in the case of roasted peanuts end item) represented is not greater than 15 parts per billion (ppb). No additional testing is required.

(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 (a) the bulk shipment is not more than 2 ppb for aflatoxin as evidenced by a USDA Certificate, (b) the end item lots are manufactured using that bulk product, and (c) both the bulk and end item lots' identities have been preserved, then no further aflatoxin testing is required.

(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, the bulk roasted peanut product may not be used as an ingredient. Rework or segregation of portions of the bulk lot, and further testing may be considered on a case by case basis.

E-6 PACKAGING AND PACKING MATERIALS

A. Packaging.

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

<u>Requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Thickness of films for	D-1,A,(1),a and D-	As specified in ASTM D2103-03 <u>1/</u>

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laminated material	1,A,(2),a	
Aluminum foil thickness	D-1,A,(1),a and D-1,A,(2),a	As specified in ASTM B479-00 <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 D2103-03 Standard Specification for Polyethylene Film and Sheeting

2/ ASTM B479-00 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,A.,(4),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.

TABLE II. Filled and sealed pouch defects 1/

Category	Defect	
<u>Major</u>	<u>Minor</u>	
101		Tear, 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 is missing, incorrect, or illegible.
	202	Tear nick, 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:

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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).

c. Water spots.

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.

(4) 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. 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

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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.

B. 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.

TABLE III. Shipping container and marking defects

Category	Defect
<u>Major</u>	<u>Minor</u>
101	Marking omitted, incorrect, illegible, or improper size, location sequence or method of application.
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-20177C Candy and Chocolate Confections

FEDERAL STANDARD

FED-STD-595 Colors Used in Government Procurement

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ANSI/ASQCZ1.4-1993 Sampling Procedures and Tables for Inspection by Attributes

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B479-00	Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications
D1238-04	Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
D1505-03	Standard Test Method for Density of Plastics by the Density-Gradient Technique
D1974-98 (2003)	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D2103-03	Standard Specification for Polyethylene Film and Sheeting
F88-00	Standard Test Method for Seal Strength of Flexible Barrier Materials

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