PCR-G-003B
25 July 2023
W/Change 01 25 Apr 25 ES24-035 (DSCP-SS-25-00571)
SUPERSEDING
PCR-G-003A
18 September 2009

SECTION C

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

C-1 ITEM DESCRIPTION

PCR-G-003B, GRANOLA, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Types.

Type I - With milk and blueberries
Type II - With milk, apples and cinnamon

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 approval. In any event, all product produced must meet all requirements of this document including product standard comparability.

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

C. Dry product.

(1) Appearance. The granola shall be a free-flowing dry mixture of rolled oat flakes and nonfat dry milk powder. The finished product shall be free from foreign materials.

a. Type I. The granola with milk and blueberries shall have freeze-dried blueberries. The blueberries shall be a dark purple to dark blue color.

b. Type II. The granola with milk, apples and cinnamon shall have freeze-dried peeled apple pieces and specks of cinnamon distributed throughout. The apple pieces shall be

an off-white to pale yellow color and shall be approximately 1/2 to 1 inch in length. The finished product shall be practically free of core, stem, seed, and peel material.

(2) Odor. The packaged food shall have a moderate toasted grain and sweet dairy odor. The packaged food shall be free from foreign odors.

a. Type I. The packaged food shall have a mild coconut odor and may have a mild blueberry odor.

b. Type II. The packaged food shall have a mild cinnamon odor and may have a mild apple odor.

(3) Net weight.

a. Type I. The average net weight shall be not less than 57 grams. The net weight of an individual pouch shall be not less than 52 grams.

b. Type II. The average net weight shall be not less than 52 grams. The net weight of an individual pouch shall be not less than 48 grams.

(4) Fruit. The granola shall contain not less than 8.0 percent by weight of the applicable freeze-dried fruit component.

D. Rehydrated product.

(1) Appearance. The rehydrated granola mixture shall have light to medium tan color distinct rolled oat flakes in a thin milky liquid.

a. Type I. The blueberries shall be a dark purple to dark blue color. The milky liquid shall have coconut pieces and may be a blue to purple color from the blueberries.

b. Type II. The apple pieces shall be an off-white to pale yellow color. The milky liquid shall have specks of cinnamon distributed throughout.

(2) Odor and flavor. The packaged food shall have a moderate sweet, toasted grain and a slight dairy odor and flavor. The packaged food shall be free from foreign odors and flavors.

a. Type I. The packaged food shall have a mild blueberry and coconut odor and flavor.

b. Type II. The packaged food shall have a moderate apple and cinnamon odor and flavor.

(3) Texture. The rehydrated granola shall have chewy and firm rolled oat flakes in a thin milky liquid with a creamy mouthfeel. When rehydrated per instructions, the product shall have some free liquid and an even distribution of moisture throughout the granola and fruit.

a. Type I. The blueberries shall be soft and moist and the coconut pieces shall be fibrous.

b. Type II. The apple pieces shall be soft to slightly firm and chewy.

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

F. Analytical requirements.

(1) Protein.

a. Type I. The protein content shall be not less than 11.0 percent.

b. Type II. The protein content shall be not less than 16.0 percent.

(2) Fat.

a. Type I. The fat content shall be not less than 12.0 percent and not greater than 20.0 percent.

b. Type II. The fat content shall be not less than 8.0 percent and not greater than 12.0 percent.

(3) Sodium.

a. Type I. The sodium content shall be not greater than 200 milligrams per 100 grams.

b. Type II. The sodium content shall be not greater than 280 milligrams per 100 grams.

(4) Moisture. The moisture content shall be not greater than 5.0 percent.

(5) Oxygen. The oxygen content of the filled and sealed pouch shall not exceed 0.30 percent.

G. Microbiological requirements.

(1) Aerobic plate count. The aerobic plate count shall not be greater than 50,000 Colony Forming Units (CFU) per gram in four of five samples and not greater than 75,000 CFU per gram in any individual sample.

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

(3) *Salmonella*. The *Salmonella* test shall be negative per 25 grams of product.

SECTION D

D-1 PACKAGING

A. Packaging. Product as specified and one oxygen scavenger shall be packaged in a preformed barrier pouch. The pouch is intended to be used as a unit pack and a rehydrating pouch for the granola.

(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 material shall be approved for addition of hot water (less than or equal to 212°F). The complete exterior surface of the pouch shall be uniformly colored and shall conform to

number 20219, 30219, 30227, 30279, 30313, 30324 or 30450 of SAE AMS-STD-595, Colors Used in Government Procurement.

b. Pouch construction. The pouch shall be a flat style preformed pouch having inside dimensions of 4-7/8 ± 1/8 by 7-1/2 ± 1/8 inches. The pouch shall be made by heat sealing three edges with 3/8 inch (-1/8, + 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 separation greater than 1/16 inch or seal separation that reduces the effective 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. Product and one oxygen scavenger shall be inserted into the pouch. The filled pouch shall be sealed. The closure seal width shall be a minimum of 1/8 inch. 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 of the closure seal 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) 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 flavor of product (letters not less than 1/8 inch high)
(2) Ingredients
(3) Date 1/
(4) Net weight

(5) Name and address of packer
(6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations

(7) Directions:
Allow water just chemically purified to stand 30 minutes before adding to granola. Open pouch and remove oxygen scavenger. Add 2 to 4 ounces (scant 1/6 canteen cup) of water to pouch. Stir and consume promptly (within 1 hour).

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

D-3 PACKING

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

D-5 MARKING

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

SECTION E INSPECTION AND ACCEPTANCE

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

A. Definitions.

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

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

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

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

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

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

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

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

units will be evaluated for overall quality against the current first article or product demonstration model.

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

E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)

A. Product examination. The finished product shall be examined for compliance with the performance requirements specified in Section C of this Performance-based Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects. Defects and defect classifications are listed in table I.

TABLE I. Product defects 1/ 2/

Category		Defect
Major	Minor	
		Dry product
		General
101		Product not a free-flowing dry mixture of rolled oat flakes or not nonfat dry milk powder or not type as specified.
102		Pouch does not contain one intact oxygen scavenger. 3/
103		Tear or hole or open seal in oxygen scavenger.
		Appearance
	201	Type I granola does not have freeze-dried blueberries.
	202	Type I blueberries not a dark purple to dark blue color.
	203	Type II granola does not have freeze-dried peeled apple pieces or does not have specks of cinnamon distributed throughout.

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
Major	Minor	
	204	Type II apple pieces not an off-white to pale yellow color or not approximately 1/2 to 1 inch in length. 4/
	205	Type II finished product not practically free of core or not stem or not seed or not peel material. 5/
		Odor
104		Packaged food does not have moderate toasted grain or not a sweet dairy odor.
105		Type I dry packaged food does not have a mild coconut odor.
106		Type II dry packaged food does not have a mild cinnamon odor.
		Net weight
	205~~5~~6	Type I net weight of an individual pouch less than 52 grams. ~~5~~ 6/
	206~~6~~7	Type II net weight of an individual pouch less than 48 grams. ~~6~~ 7/
	207~~7~~8	Granola contains less than 8.0 percent by weight of the applicable freeze-dried fruit component. ~~7~~ 8/
		Rehydrated product ~~8~~ 9/
		Appearance
	208~~8~~9	Rehydrated product not a mixture of light to medium tan color distinct rolled oat flakes or not in a thin milky liquid.
	20~~9~~10	Type I blueberries not a dark purple to dark blue color or milky liquid does not have coconut pieces.

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
Major	Minor	
	210~~0~~1	Type II apple pieces not an off-white to pale yellow color or milky liquid does not have specks of cinnamon distributed throughout.
		Odor and flavor
107		Packaged food does not have a moderate sweet or not a toasted grain or not a slight dairy odor or flavor.
108		Type I packaged food does not have a mild blueberry or not a coconut odor or flavor.
109		Type II packaged food does not have a moderate apple or not a cinnamon odor or flavor.
		Texture
	211~~2~~	Rehydrated granola not chewy or not firm rolled oat flakes.
	212~~3~~	Milky liquid not thin or not with a creamy mouthfeel.
	213~~4~~	When rehydrated per instructions product does not have some free liquid or does not have an even distribution of moisture throughout the granola or fruit.
	214~~5~~	Type I blueberries not soft or not moist or coconut pieces not fibrous.
	215~~6~~	Type II apple pieces not soft to slightly firm or not chewy.

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. Foreign flavor is not applicable to dry product.

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. Palatability is not applicable to dry product.

3/ Construction of the oxygen scavenger and compliance with FDA regulations will be verified by Certificate of Conformance (CoC).

4/ Size requirements for apples shall be verified by CoC.

5/ Evidence of core, stem, seed or peel material in the finished product shall be verified by visual exam and if present shall be less than 5.0 percent by weight of the dried apple pieces in an individual pouch. Any result not conforming to the requirement shall be cause for rejection of the lot.

~~5~~ 6/ Sample average net weight less than 57 grams shall be cause for rejection of the lot.

~~6~~ 7/ Sample average net weight less than 52 grams shall be cause for rejection of the lot.

~~7~~ 8/ The percentage of freeze-dried fruit component shall be determined using the following procedure: The total contents of twenty pouches shall be weighed and the freeze-dried fruit ingredient of the composite shall be separated and weighed separately. The percentages of the freeze-dried fruit component shall be determined and the results reported to the nearest 0.1 percent. A CoC for percentage of freeze-dried fruit component in the mixture is an alternative method of acceptance. Any nonconformance shall be cause for rejection of the lot.

~~8~~ 9/ Product shall be fully rehydrated according to package directions prior to conducting the rehydrated product examination.

B. Methods of inspection.

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

(2) Net weight examination. The net weight of the filled and sealed pouches shall be determined by weighing each sample on a suitable scale tared with a representative empty pouch and one oxygen scavenger. Results shall be reported to the nearest 0.01 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 one lot. The composite sample shall be prepared and analyzed in accordance with the following methods of the Official Methods of Analysis (OMA) of AOAC International:

Test	Method Number
Protein	992.15 or 992.23
Fat	945.38 or 2008.06
Sodium	984.27, 985.35, 2011.14, or 2011.19
Moisture 1/	925.09

1/ Moisture determination may be performed on a calibrated Brookfield Ametek Computrac Moisture Analyzer using the manufacturer's recommended instructions for test method and sample preparation. Moisture analysis on this device shall be performed at 125°C.

For protein, fat, and moisture, test results shall be reported to the nearest 0.1 percent. For sodium, test results shall be reported to the nearest milligram. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the analytical requirement shall be cause for rejection of the lot.

(4) 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 0.01 percent. 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.

(5) Microbiological testing. The finished product shall be tested for microbiological activity. Five filled and sealed samples shall be randomly selected from one lot regardless of lot size. The pouched product shall be individually tested for microbiological levels in accordance with the Official Methods of Analysis (OMA) of AOAC International or the Food and Drug Administration (FDA) Bacteriological Analytical Manual (BAM). Government verification will be conducted through actual testing by a Government laboratory. For aerobic plate count the results for each pouched product tested must comply as provided in C-2,G(1). For *E. coli* and *Salmonella*, results for each pouch must comply as provided respectively in C-2,G(2) and (3). 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.

Test	Method Number
Aerobic plate count	966.23 or 990.12 1/
E.coli	991.14, 966.24, or BAM Ch. 4, page 4.05, Section F 1/
Salmonella	967.26, 986.35, 2004.03, or 2013.09

1/ The diluent shall be added to each sample and allowed to stand for 15 minutes before blending the sample.

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

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

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

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

A. Packaging.

(1) Pouch material certification. The pouch material shall be tested for these characteristics. A Certificate of Conformance (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	ASTM D2103 1/
Aluminum foil thickness	D-1,A(1)a	ASTM B479 2/
Laminated material identification and construction	D-1,A(1)a	Laboratory evaluation
Color of laminated material	D-1,A(1)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.
	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 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 (±1/16 inch) from the delaminated area. The pouch shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be classified as a major defect.

Minor - Delamination of the outer ply in the pouch seal area is acceptable and shall not be classified as a minor defect unless it extends to within 1/16 inch of the food product edge of the seal. 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.

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

c. Internal pressure test. The internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The sample size shall be the number of pouches indicated by inspection level S-1. If a three-seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for testing the side and end of the pouch and the distance between restraining plates shall be 1/2 inch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be as close to 1/2 inch as possible while accommodating the thickness of the product, the product may be manipulated to fit within the confines of the restraining apparatus. Pressure shall be applied at the 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 PUBLICATION

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

NON-GOVERNMENTAL STANDARDS

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

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

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International

ASTM INTERNATIONAL www.astm.org

B479	Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications
D1974/D1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D2103	Standard Specification for Polyethylene Film and Sheeting

D4727/D4727M	Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes
D5118/D5118M	Standard Practice for Fabrication of Fiberboard Shipping Boxes
F88/F88M	Standard Test Method for Seal Strength of Flexible Barrier Materials

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SAE AMS-STD-595	Colors Used in Government Procurement