

SECTION C

This document covers chocolate sports bar packaged in a flexible pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-C-0004A, CHOCOLATE SPORTS BAR, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Flavors.

Flavor I – Chocolate

Flavor II – Chocolate with chocolate coating

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 food shall meet the minimum shelf life requirement of 36 months at 80°F.

C. Appearance.

(1) General. The product shall be intact. The product shall show no signs of excessive heating (materially darkened or scorched). The product shall be free from foreign materials.

(2) Flavor I. The chocolate sports bar shall have a medium chocolate brown color with an exterior finish that is glossy, plastic-like, and smooth to slightly rough. The matrix shall have a medium chocolate brown color with a dense and slightly, porous structure with small pieces of pale, crisped rice.

(3) Flavor II. The chocolate sports bar shall have a medium chocolate brown interior color with an exterior coating that is glossy with a waxy sheen. The dark brown chocolate coating shall completely cover the cookie and shall not adhere to the pouch.

D. Odor and flavor.

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

(2) Flavor I. The sports bar shall have a sweet, chocolate, mild grain flavor. The odor shall be characteristic of cocoa powder/baking chocolate.

(3) Flavor II. The sports bar shall have a sweet, chocolate, mild grain flavor. The odor shall be characteristic of cocoa powder/baking chocolate. The chocolate coating shall have a sweet chocolate odor and flavor.

E. Texture.

(1) Flavor I. The sports bar shall be firm, chewy, and slightly coarse with pieces of crispy rice.

(2) Flavor II. The sports bar shall be firm, chewy, and slightly coarse with pieces of crispy rice. The chocolate coating shall have a smooth mouth feel without grittiness and a waxy texture characteristic of high melt chocolate.

F. Size.

(1) Flavor I. The sports bar dimensions shall be not greater than 4-3/4 inches long, 2-1/4 inches wide, and 3/4 inch thick.

(2) Flavor II. The sports bar dimensions shall be not greater than 4-1/4 inches long, 1-3/4 inches wide, and 3/4 inch thick.

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) Flavor I. The sports bar shall have the following analytical requirements:

- (a) Moisture content. The moisture content shall be not greater than 10 percent.
 - (b) Protein content. The protein content shall be not less than 9 grams.
 - (c) Sodium content. The sodium content shall be not greater than 135mg.
 - (d) Dietary Fiber. The dietary fiber content shall be not less than 2.7 grams.
 - (e) Calories. The sports bar shall have not less than 200 calories.
- (2) Flavor II. The sports bar shall have the following analytical requirements:
- (a) Moisture content. The moisture content shall be not greater than 10 percent.
 - (b) Zinc. The zinc content shall be not less than 2.25 mg.
 - (c) Vitamin D. The vitamin D content shall be not less than 1.0 ug.
 - (d) Calories. The sports bar shall have not less than 240 calories.

I. Weight.

- (1) Flavor I. The net weight of the sports bar shall be not greater than 2.1 ounces (60 grams).
- (2) Flavor II. The net weight of the sports bar shall be not less than 1.9 ounces (55 grams).

C-3 MISCELLANEOUS INFORMATION

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

A. Ingredients.

- (1) Flavor I. Ingredients may be as follows: toasted oats (rolled oats, honey), high fructose corn syrup, calcium sodium caseinate, crisped rice, cocoa, fructose, partially hydrogenated oils, non-fat dry milk, oat fiber, glycerine, maltodextrin, natural fiber, lecithin.

<p>PCR-C-0004A 16 September 2004 SUPERSEDING PCR-C-0004 5 November 1997</p>
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(2) Flavor II. Ingredients may be as follows: crisp rice (rice flour, malt extract, rice bran, calcium carbonate, raisin juice concentrate, honey, salt), fruit base [high fructose corn syrup, dried fruit (plums, dates), glycerol], chocolate coating [sugar, partially hydrogenated vegetable oils (palm kernel, coconut, palm), nonfat dry milk, cocoa, sorbitan monostearate, polysorbate 60, lecithin, salt, vanilla], corn syrup, maltodextrin, fructose, partially hydrogenated soybean oil, chocolate liquor, dextrose, cocoa (processed with alkali), contains 2 percent or less of the following; glycerol, whey protein concentrate, mixed tocopherols, ascorbyl palmitate (preservative), lecithin, artificial flavor, zinc oxide, Vitamin D.

(3) Flavor II Chocolate coating formulation. Formula for chocolate coating may be as follows:

<u>Ingredients</u>	<u>Percent by weight</u>
Cocoa powder, medium fat	Not less than 8.0
Nonfat dry milk, low heat	Not less than 12.0
Vegetable fat <u>1/</u>	Not less than 30.0
Lecithin	Not more than 0.2
Sorbitan monostearate	Not more than 0.5
Polyoxyethylene (20) sorbitan monostearate	Not more than 0.5
Sugar, white, refined, granulated	Not more than 48.5
Salt (per 100 pounds of coating)	2 ounces
Vanillin (per 100 pounds of coating)	1 ounce
Vitamin Mix	To meet requirements

1/ The vegetable fat shall have a minimum stability of 100 hours when measured by the active oxygen method (AOM) and the Wiley Melting point of 117°F to 119°F and Solid Fat index as follows: 50°F-68 percent solid; 70°F-58 percent solid; 80°F-52 percent solid; 92°F-30 percent solid; 110°F-12 percent maximum solid.

SECTION D

D-1 PACKAGING

A. Packaging. One bar shall be packed in a preformed or form-fill seal barrier pouch as described below. The bar may be commercially packaged.

(1) Preformed pouches.

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

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. All tolerances for thickness of pouch material shall be plus or minus 20 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. For package A (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 package B (LRP) and package C (MRE) the complete exterior surface of the pouch shall be uniformly colored in the range of 20219, 30219, 30227, 30279, 30313, 30324, or 30450 of FED-STD-595.

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 notch shall be made in one or both side seals 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 to facilitate opening and filling of the pouch.

c. Pouch filling and sealing. One commercially packaged or unpackaged chocolate sports bar shall be inserted into the pouch. The filled pouch shall be sealed under a vacuum level of 8 to 12 inches of mercury. 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.

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

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 D1238-04, 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 D1505-03, 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. All tolerances for thickness of pouch materials shall be plus or minus 20 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. One unit of product shall be placed into the tray-shaped body of the pouch. The filled pouch body shall be hermetically sealed under a vacuum level of 12 to 14 inches of mercury. 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 5-1/2 inches wide by 8-5/8 inches long. A tear notch, or serrations shall be provided on one or more edges of the pouch 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

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

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.

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, 16 September 2004 would be coded as 4260. 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 in a fiberboard shipping container constructed in accordance with style RSC-L, class domestic, variety SW, grade 200 of ASTM D5118/D5118M-95 (2001), Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each container shall be securely closed in accordance with ASTM D1974-98 (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

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

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
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

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

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/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Chocolate sports bar not flavor specified.
102		Product not intact.
103		Evidence of excessive heating (materially darkened or scorched).
		<u>Appearance</u>
	201	Flavor I exterior color not a medium, chocolate brown.
	202	Flavor I exterior finish not glossy or not plastic-like or not smooth to slightly rough.
	203	Flavor II does not have dark brown chocolate coating.
	204	Flavor II coating not completely covering bar.
	205	Flavor II coating adheres to pouch interior. <u>4/</u>
	206	Flavor II exterior coating not glossy with a waxy sheen.
	207	Interior matrix color of bar not a medium, chocolate brown.
	208	Matrix not dense or not slightly porous with small pieces of pale, crisped rice.
		<u>Odor and flavor</u>
104		Product not sweet, chocolate, mild grain flavor.
105		Product not cocoa powder/baking chocolate odor.
106		Flavor II chocolate coating not sweet chocolate odor or flavor.
TABLE I. Product defects <u>1/ 2/ 3/ cont'd</u>		

Category	Defect
<u>Major</u>	<u>Minor</u>
	<u>Texture</u>
107	Product not firm or not chewy.
	209 Product not slightly coarse with pieces of crispy rice.
	210 Flavor II chocolate coating not a smooth mouth feel with grittiness.
	211 Flavor II chocolate coating not a waxy texture characteristic of high melt chocolate.
	<u>Size</u>
	212 Dimensions not as specified.
	<u>Weight</u>
	213 Flavor I net weight of individual pouch greater than 2.1 ounces (60 grams).
	214 Flavor II net weight of individual pouch less than 1.9 ounces (55 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/ Vegetable fat requirements shall be verified by certificate of conformance.

4/ To evaluate coating: At least 72 hours after vacuum packaging test product by holding at 100°F for two hours, cool at 40°F to 70°F for approximately one hour. The product shall be easily removed from the pouch without loss of coating after cooling.

B. Methods of inspection.

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

(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) 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. Flavor II samples shall be selected prior to the product being coated. The composite sample shall be prepared and analyzed in accordance with the following Official Methods of Analysis of AOAC International (OMA).

<u>Test</u>	<u>Method Number</u>
Moisture	925.45 or 935.36b (16 hour, 70°C, ≤50 mm Hg)

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

(3) Other Analytical contents. Protein, sodium, dietary fiber, and calorie content shall be verified by the NLEA “Nutrition Facts” label. Product not conforming to the requirements as specified in Section C of this document shall be cause for rejection of the lot.

(4) Flavor II fortification of Zinc and Vitamin D. Tests will be conducted on the first production lot and USDA will certify the formula. A certificate of analysis will be provided on all future lots, if the formula is changed or percent of application of the chocolate coating is changed another set of tests shall be conducted.

(5) Net weight examination.

a. Commercially wrapped product in pouch. The net weight shall be verified with the label on the commercial package. Product not conforming to the net weight requirement shall be cause for rejection of the lot.

b. Without commercial wrap product in pouch. The net weight of the filled and sealed pouches shall be determined by weighing each sample unit on a suitable scale tared

with a representative empty pouch. Results shall be reported to the nearest 0.1 ounce or to the nearest 1 gram.

E-6 QUALITY ASSURANCE PROVISIONS (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 laminated material	D-1,A,(1),a and D-1,A,(2),a	As specified in ASTM D 2103-03 <u>1/</u>
Aluminum foil thickness	D-1,A,(1),a and D-1,A,(2),a	As specified in ASTM B 479-00 <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.

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

(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 4.0 for minor defects.

PCR-C-0004A 16 September 2004 SUPERSEDING PCR-C-0004 5 November 1997

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 missing, incorrect, or illegible.
	202	Tear notch or serrations missing or does not facilitate 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:

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

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/ 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.

(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 F88-00, Standard Test Method for 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 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 F88-00. The lot size shall be expressed in pouches. The sample size shall be the number of pouches indicated by inspection level S-1. For the closure seal on preformed pouches, three adjacent specimens shall be cut from the closure seal of each pouch in the sample. For form-fill-seal pouches, three adjacent specimens shall be cut from each side and each end of each pouch in the sample. The average seal strength of

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

c. Internal pressure test. The internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates. The sample size shall be the number of pouches indicated by inspection level S-1. If a three seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for testing the side and bottom seals of the pouch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be equal to the thickness of the product +1/16 inch. Pressure shall be applied at the approximate uniform rate of 1 pound per square inch gage (psig) per second until 14 psig pressure is reached. The 14 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for separation or yield of the heat seals. Any rupture of the pouch or evidence of seal separation greater than 1/16 inch in the pouch manufacturer's seal shall be considered a test failure. Any seal separation that reduces the effective closure seal width to less than 1/16 inch (see table II, footnote 2/) shall be considered a test failure and 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.

PCR-C-0004A 16 September 2004 SUPERSEDING PCR-C-0004 5 November 1997

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 STANDARD

FED-STD-595 Colors Used in Government Procurement

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ)

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

ASTM INTERNATIONAL

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

PCR-C-0004A
16 September 2004
SUPERSEDING
PCR-C-0004
5 November 1997

D1974-98 (2003)	Density-Gradient Technique Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D2103-03	Standard Specification for Polyethylene Film and Sheeting
D5118/D5118M-95 (2001)	Standard Practice for Fabrication of Fiberboard Shipping Boxes
F88-00	Standard Test Method for Seal Strength of Flexible Barrier Materials

AOAC INTERNATIONAL

Official Methods of Analysis of the AOAC International (OMA)