

SECTION C

This document covers candy and chocolate confections packaged in flexible pouches for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

**PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR
CID A-A-20177C CANDY AND CHOCOLATE CONFECTIONS**

Types, styles, shapes, and flavors.

- Type II - Toffee rolls, chocolate flavored
- Type III - Toffee
 - Flavor 2 - With walnuts
- Type IV - Hard candy fruit tablets
 - Style A - Square or rectangular 1 ounce bar
 - Style B - Square 1.6 ounce bar
- Type VI - Pan coated candy
 - Shape A - Disks
 - Flavor 1 - Chocolate, plain
 - Flavor 2 - Fruit flavored
 - Flavor 3 - Chocolate with crisped rice
 - Flavor 4 - Chocolate with peanut butter
 - Flavor 6 - Cinnamon
 - Shape B - Oval/Round
 - Flavor 1 - Chocolate with peanuts
- Type VIII - Starch jelly candy, assorted flavors
- Type IX - Peanut bar

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 the Packaging Requirements and Quality Assurance Provisions. 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 product shall meet the minimum shelf life requirement of 36 months at 80°F.

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

SECTION D

D-1 PACKAGING

A. Packaging. When specified, the candy(s) or chocolate confection(s) without commercial wrapping shall be packed in a preformed or form-fill-seal barrier pouch as described below. When specified, the commercially wrapped and labeled package of candy(s) or chocolate confection(s) shall be overpacked in a preformed or form-fill-seal barrier pouch as described below. For package A (MCW) and package B (LRP), four rolls of type II candy or individual units of type VI, or VIII, as applicable, shall be assembled. For package C (MRE), two rolls of type II candy or individual units of type III, IV, or VI as applicable, shall be assembled. For package D (ARC Sup), individual units of type VI or IX, as applicable, shall be assembled.

(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

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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), package C (MRE), and package D (ARC Sup), 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 inches wide by 7-1/4 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 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 provided on one outside edge or two opposite outside edges of the pouch 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. As specified in D-1,A, product shall be inserted into the pouch. 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.

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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 Melt 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 the Density-Gradient Technique. Alternatively, 0.0005 inch thick polyester may be used in place of the oriented polypropylene as the outer ply of the laminate. The flat sheet cover shall be made of the same 3-ply laminate as specified for the tray-shaped body except the aluminum foil thickness may be 0.00035 inch. 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. As specified in D-1,A., product shall be placed into the tray-shaped body of the pouch. 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 5-1/4 inches wide by 7-1/4 inches long. The closure seal width shall be a minimum of 1/8 inch. A tear notch, or serrations shall be provided on one outside edge or two opposite outside edges of the pouch to facilitate easy opening of the filled and sealed pouch. The sealed pouches shall not show

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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.

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 2/
- (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 2/

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, 23 September 2004 would be coded as 4267. The Julian day code shall represent the day the product was packaged into the pouch.

2/ Shall appear on the commercial package or the barrier pouch, as applicable.

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

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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:

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US Army Research, Development and Engineering Command
Natick Soldier Center
AMSRD-NSC-CF-F
15 Kansas Street
Natick, MA 01760-5018

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

(2) Conformance inspection. Conformance inspection shall include the product examination and the methods of inspection cited in this section.

E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)

A. Product examination. The finished product shall be examined for compliance with the performance requirements specified in A-A-20177C and Section C of the Packaging Requirements and Quality Assurance Provisions 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/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>General</u>
101		Product not type, style, shape, or flavor as specified.
	201	Candy or chocolate confection adheres to wrapper.
		<u>Type II</u>
102		Candy not a semi-sweet chocolate and caramel odor or flavor.
	202	Candy not individually wrapped as 0.5 ounce (14 gram) roll.
	203	For MCW or LRP or MRE packages, number of rolls overwrapped not as specified.
	204	Candy not chewy.
	205	Candy does not have a smooth outside surface or a grainy inside portion.
		<u>Type III, Flavor 2</u>
103		Candy not a medium to dark brown cube (1 inch by 1 inch by 1/2 inch) with walnut bits distributed throughout.
104		Candy not a slight maple caramel odor or not a sweet, slight caramel, maple, walnut and vanilla flavor.
	206	Candy not individually wrapped and overwrapped in a bag with a minimum net weight of 1.4 ounces (40.0 grams).
	207	Candy not soft and chewy with semi-firm walnut bits.
	208	Candy does not have a smooth exterior or a slightly grainy inside portion.

TABLE I. Product defects 1/ 2/ continued

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
		<u>Type IV</u>
105		Candy not a variety of fruit flavored tablets.
106		Candy not a slightly sweet, slightly fruity odor or flavor.
	209	Style A candy not individually wrapped in cellophane and overwrapped in units of ten to form a 1.0 ounce (28.4 grams) bar.
	210	Style B candy not individually wrapped in a foil/paper laminate and overwrapped in foil/paper laminate in units of ten to form a 1.6 ounce (45.4 grams) bar.
	211	Candy not hard.
107		<u>Type VI, Shape A, General</u> Pan coated disks easily crushed or broken.
	212	Pan coated disks do not resemble a double convex lens shape.
	213	Candy shell does not have a high gloss.
	214	Pan coated candy colors are not vibrant or are mottled.
	215	Pan coated disks exhibit excessive seepage of material through the coating.
	216	Pan coated disks coating exhibits pits, holes, or cracks.
	217	Pan coated disks coating not of sufficient hardness to prevent crushing or cracking.

TABLE I. Product defects 1/ 2/ continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
108		<u>Type VI, Shape A, Flavor 1</u> Candy not a sweet coating with a slightly sweet, milk chocolate center odor or flavor.
	218	Candy not 1.5 ounce (42.5 grams) of at least five different colors, of loose disks packed in a bag.
109		<u>Type VI, Shape A, Flavor 2</u> Candy not a sweet, fruity odor or flavor.
	219	Candy center not firm or not chewy.
	220	Candy center hard or brittle.
	221	Candy not 2.1-2.2 ounces (59.5-62.4 grams) of at least five various flavors and colors, of loose disks packed in an individual bag.
110		<u>Type VI, Shape A, Flavor 3</u> Candy does not have a sweet coating or does not have a chocolate with crisped rice odor or flavor.
111		Candy not a crisp rice center coated with chocolate or not covered with a thin candy shell.
	222	Candy center hard or brittle or not slightly crisp.
	223	Candy not 1.5 ounces (42.5 grams) of at least five different colors, of loose disks packed in an individual bag.
112		<u>Type VI, Shape A, Flavor 4</u> Candy not a peanut butter center coated with chocolate or not covered with a thin candy shell.

TABLE I. Product defects 1/ 2/ continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
113		Candy does not have a sweet coating or does not have a peanut butter with chocolate odor or flavor.
	224	Candy not 1.6 ounces (46.2 grams) of at least five different colors, of uniformly shaped loose disks packed in an individual bag.
114		<u>Type VI, Shape A, Flavor 6</u> Candy not a hot cinnamon/cinnamic, sweet flavor.
115		Candy not a hard center or not covered with a hard candy shell.
116		Candy not a red color or not uniformly shaped.
	225	Candy not 2.3 ounces (65.2 grams) of uniformly shaped loose disks packed in an individual bag.
117		<u>Type VI, Shape B, Flavor 1</u> Candy does not have a roasted peanut center coated with chocolate or not covered with a thin candy shell.
118		Candy not a slightly sweet, milk chocolate, peanut odor or flavor.
	226	Candy not 1.7 ounces (49.3 grams) of at least five different colors packed in an individual bag.
119		<u>Type VIII</u> Candy not a variety of fruit flavored starch jelly candies.
	227	Candy not sanded.

TABLE I. Product defects 1/ 2/ continued

Category		Defect
<u>Major</u>	<u>Minor</u>	
	228	Candy not individually wrapped in cellophane or five pieces laid end to end and overwrapped in cellophane to form a 2.0 ounce (56.7 grams) bar.
120		<u>Type IX</u> Candy bar not whole and half pieces of peanuts in a cooked sugar matrix.
	229	Candy bar not hard, not glossy, or not a golden color.
121		Candy bar not a fresh peanut flavor or odor.
122		Candy bar less than 40 percent by weight of peanuts.
	230	Candy bar not overwrapped in laminated barrier material to form a 1.4 - 1.7 ounce (39.7 - 48.2 grams) bar.

1/ Presence of any foreign materials such as, but not limited to, dirt, insect parts, hair, wood, glass, metal or mold, or any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, or stale shall be cause for rejection of the lot.

2/ Finished product not equal to or better than the approved product standard in palatability and overall appearance shall be cause for rejection of the lot.

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 examination.

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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 as specified in A-A-20177C shall be cause for rejection of the lot.

b. Non commercially wrapped 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. Product not conforming to the net weight requirement as specified in A-A-20177C shall be cause for rejection of the lot.

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 D2103-03 <u>1/</u>
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 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>

TABLE II. Filled and sealed pouch defects 1/ continued

Category		Defect
<u>Major</u>	<u>Minor</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:

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

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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

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

c. Internal pressure test. The internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates. The sample size shall be the number of pouches indicated by inspection level S-1. If a three seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for

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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

<u>Category</u>		<u>Defect</u>
<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

PKG & QAP
A-A-20177C
23 September 2004
SUPERSEDING
A-A-20177B
27 November 2002

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 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
D5118/D5118M-95 (2001)	Standard Practice for Fabrication of Fiberboard Shipping Boxes
F88-00	Standard Test Method for Seal Strength of Flexible Barrier Materials

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