

SECTION C

This document covers cured meat and poultry snacks packaged in a flexible pouch 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-20298C MEAT AND POULTRY SNACKS, CURED

Variety, types, style, classes and flavors.

Variety A - Beef

 Type II - Moist cured/kippered

 Style a - Chopped and formed

 Class 5 - Bites

 Flavor (a) - Smoked

 Type IV - Fermented

 Style a - Chopped and formed

 Class 2 - Sticks

 Flavor (b) - Teriyaki

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 Packaging Requirements and Quality Assurance Provisions document. The approved sample shall serve as the product standard. Should the contractor at any time plan to or actually produce the product using different raw material or process methodologies from the approved product standard, which result in a product noncomparable to the product standard, the contractor shall submit a replacement FA or PDM for approval. In any event, all product produced must meet all requirements of this document including product standard comparability.

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

C. Appearance.

(1) Variety A, type II, style a, class 5, flavor (a). The beef bites shall be a dark reddish-brown color with a slightly wrinkled exterior surface. At least fifty percent by weight of the beef bites shall be not less than 1/2 inch in any one dimension.

(2) Variety A, type IV, style a, class 2, flavor (b). The beef sticks shall have a dark reddish-brown to brown exterior casing color with a slightly wrinkled exterior surface. The beef sticks shall have a slightly lighter reddish-brown interior matrix color. The beef sticks may have small visible fat pieces uniformly distributed throughout the interior matrix. The beef sticks shall be 4 to 5-1/4 inches in length by 1/2 to 7/8 inch in diameter.

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

(1) Variety A, type II, style a, class 5, flavor (a). The packaged food shall have a dried beef, salty, cured, and smoky odor and flavor.

(2) Variety A, type IV, style a, class 2, flavor (b). The teriyaki beef sticks shall have a dried beef, salty, cured, teriyaki odor and flavor.

E. Texture.

(1) Variety A, type II, style a, class 5. The beef bites shall be tender to bite and shall be fibrous. The beef bites shall not be excessively dry and shall not be excessively mealy.

(2) Variety A, type IV, style a, class 2. The beef sticks casing shall have a slightly firm initial bite. The beef sticks interior matrix shall be tender to bite and shall not be excessively dry and shall not be excessively mealy.

F. Net weight.

(1) Variety A, type II, style a, class 5. The net weight of one serving shall be not less than 43 grams.

(2) Variety A, type IV, style a, class 2. The net weight of one serving shall be not less than 27 grams.

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

H. Analytical and microbiological. The following identifies the analytical and microbiological requirements for the cured meat and poultry snacks in accordance with the AOAC or test methods specified in A-A-20298C and inspection methods in Section E-5,B of this document.

<u>Analytical and microbiological requirements</u>		
	<u>Variety A, type II</u>	<u>Variety A, type IV</u>
Protein (percent by weight)	Not less than 37.0	<u>1/</u>
Fat (percent by weight)	Not greater than 10.0	<u>1/</u>
Sodium (mg/100g)	Not greater than 2600	Not greater than 2000
pH	Not greater than 6.2	<u>1/</u>
Water activity	Not greater than 0.88	<u>1/</u>
Aerobic plate count	<u>1/</u>	<u>1/</u>
<i>E. coli</i>	<u>1/</u>	<u>1/</u>

1/ Requirements shall be in accordance with CID A-A-20298C.

SECTION D

D-1 PACKAGING

A. Packaging. The product or commercially packaged product shall be packaged in a preformed or form-fill-seal barrier pouch. For type II, class 5, the pouch shall contain one oxygen scavenger.

(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. The three plies shall be laminated with the polyester on the exterior of the pouch. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for the foil layer shall be plus or minus 10 percent. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart an odor or flavor to the product. The complete exterior

surface of the pouch shall be uniformly colored and shall conform to number 20219, 30219, 30227, 30279, 30313, 30324, or 30450 of SAE AMS-STD-595, Colors Used in Government Procurement.

b. Pouch construction. The pouch shall be a flat style preformed pouch having maximum inside dimensions of 6 inches wide by 6 inches long. The pouch shall be made by heat sealing three edges with 3/8 inch (-1/8 inch, +3/16 inch) wide seals. The side and bottom seals shall have an average seal strength of not less than 6 pounds per inch of width and no individual specimen shall have a seal strength of less than 5 pounds per inch of width. A tear nick, notch, or serrations shall be provided to facilitate opening of the filled and sealed pouch. A 1/8 inch wide lip may be incorporated at the open end of the pouch.

c. Pouch filling and sealing. The product or commercially packaged product and one oxygen scavenger (if applicable) shall be inserted into the pouch. The filled pouch shall be sealed under a vacuum of not less than 20 inches of mercury with a minimum 1/8 inch wide heat seal. 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.

(2) Horizontal form-fill-seal pouch.

a. Pouch material. The horizontal form-fill-seal pouch shall consist of a formed tray-shaped body with a flat sheet, heat sealable cover or a tray-shaped body with a tray-shaped heat sealable cover. The tray-shaped body and the tray-shaped cover shall be fabricated from a 3-ply flexible laminate barrier material consisting of, from outside to inside, 0.0009 inch thick oriented polypropylene bonded to 0.0007 inch thick aluminum foil with 10 pounds per ream pigmented polyethylene or adhesive and bonding the opposite side of the aluminum foil to 0.003 inch thick ionomer or a blend of not less than 50 percent linear low density polyethylene and polyethylene. The linear low density polyethylene portion of the blend shall be the copolymer of ethylene and octene-1 having a melt index range of 0.8 to 1.2 g/10 minutes in accordance with ASTM D1238, Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer and a density range of 0.918 to 0.922 g/cc in accordance with ASTM D1505, Standard Test Method for Density of Plastics by Density Gradient Technique. Alternatively, 0.0005 inch thick polyester may be used in place of the oriented polypropylene as the outer ply of the laminate. The flat sheet cover shall be made of the same 3-ply laminate as specified for the tray-shaped body except the aluminum foil

thickness may be 0.00035 inch. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for the foil layer shall be plus or minus 10 percent. The color requirements of the exterior (oriented polypropylene or polyester side) of the laminate shall be as specified in D-1,A(1)a. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart any odor or flavor to the product.

b. Pouch construction. The tray-shaped body and the tray-shaped cover shall be formed by drawing the flexible laminate material into an appropriately shaped cavity. The flat cover shall be in the form of a flat sheet of the barrier material taken from roll stock. The product or commercially packaged product and one oxygen scavenger (if applicable) shall be placed into the tray-shaped body of the pouch. The filled pouch body shall be sealed under a vacuum of not less than 20 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. For variety A, type II, style a, class 5, the maximum outside dimensions of the sealed pouches shall be 6 inches wide by 6 inches long. For Variety A, type IV, style a, class 2, the maximum outside dimensions of the sealed pouches shall be 3.5 inches wide by 8.25 inches long or 5.0 inches wide by 7.25 inches long. A tear nick, notch, or serrations shall be provided to facilitate opening of the filled and sealed pouch. The sealed pouch shall not show any evidence of material degradation, aluminum stress cracking, delamination, or foreign odor. Heat seals shall be free of entrapped matter that reduces the effective closure seals width to less than 1/16 inch. Seals shall be free of impression or design on the seal surface that would conceal or impair visual detection of seal defects.

(3) Oxygen scavenger (Type II, Class 5 only). 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 USDA regulations

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.

NOTE: For commercially packaged items that are overwrapped, the above information shall be printed on either the inner or outer package or both. The product name and date shall be printed on the outer package.

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

PKG&QAP A-A-20298C
3 October 2023
SUPERSEDING
PKG&QAP A-A-20298C
24 November 2015

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 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-20298C and Section C of this Packaging Requirements and Quality Assurance Provisions 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
<u>Critical</u>	<u>Major</u>	<u>Minor</u>	
			<u>General</u>
	101		Product not variety or not type or not style or not class or not flavor as specified.
		201	Presence of bone, cartilage, coarse connective tissue, sections of tendons or ligaments or glandular material.
			<u>Variety A, type II, style a, class 5, flavor (a)</u> <u>Beef, moist cured/kippered, chopped and formed, bites, smoked</u>
1			Pouch does not contain one intact oxygen scavenger. <u>3/</u>
		202	Beef bites not a dark reddish-brown color or not with a slightly wrinkled or not a slightly glossy exterior surface.
		203	Beef bites not dimensions as specified. <u>4/</u>
	102		Beef bites odor or flavor not dried beef or not salty or not cured or not smoky.
		204	Beef bites texture not tender to bite or not fibrous.
		205	Beef bites texture are excessively dry or are excessively mealy.
		206	Net weight of an individual pouch less than 43 grams.
			<u>Variety A, type IV, style a, class 2, flavor (b)</u> <u>Beef, fermented, chopped and formed, sticks, teriyaki</u>
		207	Beef sticks do not have a dark reddish-brown to brown exterior casing color or not with a slightly wrinkled or not a slightly glossy exterior surface.

TABLE I. Product defects 1/ 2/ - Continued

Category		Defect
<u>Critical</u>	<u>Major</u>	<u>Minor</u>
		208 Beef sticks do not have a slightly lighter reddish-brown interior matrix color.
		209 Beef sticks not 4 to 5-1/4 inches in length or not 1/2 to 7/8 inch in diameter.
	103	Beef sticks odor or flavor not dried beef or not salty or not cured or not teriyaki.
		210 Beef sticks casing texture does not have a slightly firm initial bite.
		211 Beef sticks interior matrix texture not tender to bite.
		212 Beef sticks interior matrix texture is excessively dry or excessively mealy.
		213 Net weight of an individual pouch less than 27 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/ Applicable to type II, class 5 only. Construction of the oxygen scavenger and compliance with FDA regulations shall be verified by a Certificate of Conformance (CoC).

4/ Verification that at least fifty percent by weight of the beef bites are greater than 1/2 inch in any one dimension shall be measured by the applicable Government Quality Assurance Representative (GQAR) on the first production lot of a contract cycle and annual PDM replenishment or if a new beef bites supplier is obtained. A visual examination for comparability to the PDM shall be conducted on all future lots produced using the same beef bites supplier between PDM replenishments. If the visual examination is noncomparable to the PDM, then the GQAR shall measure the beef bites.

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.

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, shall be cause for rejection of the lot.

b. Noncommercially 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 and oxygen scavenger, and commercial wrap, as applicable. Results shall be reported to the nearest 1 gram. Product not conforming to the net weight requirement, as specified, shall be cause for the rejection of the lot.

(3) Analytical and microbiological tests. The following conditions apply for analytical and microbiological testing:

a. For prepackaged product received from a supplier that is not further processed, the contractor will furnish a Certificate of Analysis (CoA) providing test results showing that the product meets all analytical and microbiological requirements. No additional testing is required.

b. For bulk product received that is to be repackaged, the contractor will furnish a CoA providing test results showing that the bulk product received meets all analytical and microbiological requirements. For protein, fat, sodium, pH, water activity, aerobic plate count, and *E. coli* testing, if the bulk and end item lot identities have been preserved, then skip lot testing may be implemented once an acceptable quality history, as determined by the contracting officer, has been established.

c. If the cured meat or poultry snacks are received in bulk and the conditions in (b) above are not met, each end item lot must be sampled and tested by the USDA and skip lot is not applicable.

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

A. Packaging.

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

<u>Characteristic</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	ASTM D2103 <u>1/</u>
Aluminum foil thickness	D-1,A(1)a and D-1,A(2)a	ASTM B479 <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	SAE AMS-STD-595 <u>3/</u>

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) Pouch vacuum examination. The filled and sealed pouches shall be visually examined for conformance to the vacuum requirement not less than 96 hours after filling and

sealing. The sealed pouch shall continue to exhibit tight adherence to the surface contours of the contents when a pulling force is applied at the center of each side seal. This force shall be applied by holding each side seal between thumb and forefinger of each hand, while simultaneously exerting a slight pull with both hands. Any evidence of loss of vacuum shall be classified as a major defect for type IV, class 2 or shall be classified as a critical defect for type II, class 5. The lot size shall be expressed in pouches. The sample unit shall be one filled and sealed pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65.

(4) 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 or 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 or incorrect or illegible.
	202	Tear nick or notch or serrations missing or does not facilitate opening.

203 Seal width less than 1/8 inch but greater than or equal to 1/16 inch.

204 Presence of delamination. 3/

1/ Any evidence of rodent or insect infestation shall be cause for rejection of the lot.

2/ Effective seals are defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide, 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 in the body of the pouch 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 - Delamination of the outer ply in the pouch seal area is acceptable and shall not be classified as a minor defect unless it extends to within 1/16 inch of the food product edge of the seal. All other minor outer ply delamination in the pouch seal area or isolated spots of delamination in the body of the pouch that do not propagate when flexed as described above shall be classified as minor defects.

4/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause pouch damage (for example, glass, metal filings) or generally detracts from the clean appearance of the pouch. The following examples shall not be classified as defects for unclean:

a. Foreign matter which presents no health hazard or potential pouch damage and which can be readily removed by gently shaking the package or by gently brushing the pouch with a clean dry cloth.

b. Dried product which affects less than 1/8 of the total surface area of one pouch face (localized and aggregate).

5/ If doubt exists as to whether or not the sealing equipment leaves an impression or design on the closure seal surface that could conceal or impair visual detection of seal defects, samples shall be furnished to the contracting officer for a determination as to acceptability.

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

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

B. Methods of inspection.

(1) Pouch integrity testing. The pouch integrity shall be tested as required in a, b, or c, as applicable. The lot 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.

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. Three adjacent specimens shall be cut from

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

b. Filled and sealed pouch seal testing. The side, bottom, and closure seals of the pouches shall be tested for seal strength in accordance with ASTM F88/F88M. 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, two adjacent specimens from the two side and bottom seals and three adjacent specimens shall be cut from the side, bottom, and closure seal of each pouch in the sample. The average seal strength of the seals shall be calculated by averaging the three specimens cut from that 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. 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 of the pouch and the distance between the 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 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 material degradation and separation or yield of the heat seals. Any rupture of the pouch material exposing the product content area to contamination or allowing for leakage or evidence of seal separation greater than 1/16 inch in the pouch seals shall be considered a test failure. Any seal separation that reduces the effective closure seal width to less than 1/16 inch 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
<u>Major</u>	<u>Minor</u>	
101		Marking missing or incorrect or illegible.
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

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

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
D1238	Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
D1505	Standard Test Method for Density of Plastics by the Density-Gradient Technique
D1974/1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D2103	Standard Specification for Polyethylene Film and Sheeting
D4727/D4727M	Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shape
D5118/D511M	Standard Practice for Fabrication of Fiberboard Shipping Boxes
F88/F88M	Standard Test Method for Seal Strength of Flexible Barrier Materials

SAE INTERNATIONAL www.sae.org

SAE AMS-STD-595 Colors Used in Government Procurement