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SUPERSEDING
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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 have a dark reddish-brown surface color with a medium reddish-brown interior color. The beef bites shall have a dried, moderately wrinkled exterior surface and shall have a whole muscle appearance. The beef bites shall be approximately 1 to 1-1/2 inches in length by 3/8 to 1/2 inch in width and height.

(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 lighter reddish-brown interior matrix color. The beef sticks shall have a slightly wrinkled exterior surface and may have small fat pieces 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, smoky odor and flavor and a slightly sweet flavor.

(2) Variety A, type IV, style a, class 2, flavor (b). The packaged food 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 28 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.

Analytical and microbiological requirements

	Variety A, type II, class 5	Variety A, type IV, class 2
Protein (percent by weight)	Not less than 35.0	1/
Fat (percent by weight)	Not greater than 9.0	1/
Sodium (mg/100g)	1/	Not greater than 2000
pH	1/	1/
Water activity	1/	1/
Oxygen (percent in the filled and sealed pouch)	Not greater than 0.30	N/A
Aerobic plate count	1/	1/
E. coli	1/	1/

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

SECTION D

D-1 PACKAGING

A. Packaging. For type II, class 5, product shall be packaged in a preformed or form-fill-seal commercially labeled pouch and contain one oxygen scavenger. For type IV, class 2, product or commercially labeled prepackaged product shall be packaged in a preformed or form-fill-seal barrier pouch.

(1) Preformed pouch.

a. Pouch material. The preformed pouch shall be fabricated from 0.002 inch thick ionomer or polyolefin film laminated or extrusion coated to 0.00035 inch thick aluminum foil which is then laminated to 0.0005 inch thick polyester. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for the foil layer shall be plus or minus 10 percent. The material shall show no evidence of delamination, degradation, or foreign odor.

The material shall be suitably formulated for food packaging and shall not impart an odor or flavor to the product. Pouch colors, design, and labeling shall be submitted to the Contracting Officer for review and approval and to the Combat Capabilities Development Command (DEVCOM) Soldier Center (FCDD-SCD-SCR) for review.

b. Pouch construction. The pouch shall be a flat style preformed pouch having maximum outside dimensions of 5 inches wide by 7 inches long for type II, class 5. For type IV, class 2, the maximum outside dimensions shall be 3-1/2 inches wide by 8-1/4 inches long or 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 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. For type II, class 5, the product and one oxygen scavenger shall be filled into the pouch and shall be gas-flushed with nitrogen and carbon dioxide. The filled pouch shall be sealed. For type IV, class 2, the product or prepackaged product shall be filled into the pouch and 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) Form-fill-seal pouch.

a. Pouch material. 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. As applicable, the polyolefin layer of pouch material shall be suitably formulated for hot-fill or post-fill processing. The material shall show no evidence of delamination, degradation, or foreign odor. The material shall be suitably formulated for food packaging and shall not impart an odor or flavor to the product. Pouch colors, design, and labeling shall be submitted to the Contracting Officer for review and approval and to the Combat Capabilities Development Command (DEVCOM) Soldier Center (FCDD-SCD-SCR) for review.

1. The flat style form-fill-seal pouch shall be fabricated from 0.002 inch thick ionomer or polyolefin film laminated or extrusion coated to 0.00035 inch thick aluminum foil which is then laminated to 0.0005 inch thick polyester.

2. The vacuum-formed pouch shall be fabricated from 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 Melt 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 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 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.

b. Pouch construction. For type II, class 5, the maximum outside dimensions of the sealed pouch shall be 5 inches wide by 7 inches long. For type IV, class 2, the maximum outside dimensions of the sealed pouch shall be 3-1/2 inches wide by 8-1/4 inches long or 5 inches wide by 7-1/4 inches long. The 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. As applicable, a 1/8 inch wide lip may be incorporated at the open end of the 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 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 closure seal width of the pouch shall be a minimum of 1/8 inch.

1. The flat style pouch shall be made by heat sealing three edges with 1/4 inch (-1/8 inch, +1/4 inch) wide seals. For type II, class 5, the product and one oxygen scavenger shall be filled into the pouch and shall be gas-flushed with nitrogen and carbon dioxide. For type IV, class 2, the product shall be filled into the pouch and sealed under a vacuum of not less than 20 inches of mercury. The filled pouches shall be sealed.

2. The vacuum-formed pouch shall be formed by drawing the flexible laminate material into an appropriately shaped cavity. The cover shall be in the form of a flat sheet of the barrier material taken from roll stock. For type II, class 5, the product and one oxygen scavenger shall be filled into the tray-shaped body of the pouch and shall be gas-flushed with nitrogen and carbon dioxide. For type IV, class 2, the product shall be filled into the tray-shaped body of the pouch and 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.

(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 U.S Department of Agriculture (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 labeled prepackaged products 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 (Regular Slotted Container with Liner) 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 American National Standards Institute (ANSI)/American Society for Quality (ASQ) Z1.4, Sampling Procedures and Tables for Inspection by Attributes, are required. Unless otherwise specified, single sampling plans indicated in ANSI/ASQ Z1.4 will be utilized. When required, the manufacturer shall provide the Certificate(s) of Conformance to the appropriate inspection activity. Certificate(s) of Conformance not provided shall be cause for rejection of the lot.

A. Definitions.

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

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

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

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

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

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

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

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

(3) Conformance inspection. Conformance inspection shall include the examinations/tests and 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 acceptance quality limit (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
Critical	Major	Minor	
			General
	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. Variety A, type II, style a, class 5, flavor (a) Beef, moist cured/kippered, chopped and formed, bites, smoked
1			Pouch does not contain one intact oxygen scavenger. 3/
		202	Beef bites do not have a dark reddish-brown surface color or not with a medium reddish-brown interior color.
		203	Beef bites do not have a dried or not a moderately wrinkled or not a slightly glossy exterior surface or does not have a whole muscle appearance.
		204	Beef bites not dimensions as specified.

TABLE I. Product defects 1/ 2/ - Continued

Category			Defect
Critical	Major	Minor	
	102		Packaged food does not have a dried beef or not salty or not cured or not smoky odor or flavor or not a slightly sweet flavor.
		205	Beef bites texture not tender to bite or not fibrous.
		206	Beef bites texture is excessively dry or excessively mealy.
		207	Net weight of an individual pouch less than 28 grams.
			Variety A, type IV, style a, class 2, flavor (b) Beef, fermented, chopped and formed, sticks, teriyaki
		208	Beef sticks do not have a dark reddish-brown to brown exterior casing color or not with a slightly lighter reddish-brown interior matrix color.
		209	Beef sticks do not have a slightly wrinkled or not a slightly glossy exterior surface.
		210	Beef sticks not dimensions as specified.
	103		Packaged food does not have a dried beef or not salty or not cured or not teriyaki odor or flavor.
		211	Beef sticks casing texture does not have a slightly firm initial bite.
		212	Beef sticks interior matrix texture not tender to bite.
		213	Beef sticks interior matrix texture is excessively dry or excessively mealy.
		214	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).

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 labeled product in pouch. The net weight shall be verified with the label on the commercial pouch. Product not conforming to the net weight requirement, as specified, shall be cause for rejection of the lot.

b. Noncommercially labeled prepackaged 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.

a. Oxygen testing (For type II, class 5 only). Eight filled and sealed pouches shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 48 hours from the time of sealing. Test results shall be reported to the nearest 0.01 percent. Any individual result not conforming to

the oxygen content requirement shall be classified as a major defect and shall be cause for rejection of the lot.

The following conditions apply for analytical and microbiological testing with the exception of oxygen testing:

a. For commercially labeled 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 all analytical and microbiological testing (other than oxygen 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.

Characteristic	Requirement paragraph	Test procedure
Thickness of films for laminated material	D-1,A(1)a and D-1,A(2)a	ASTM D2103 1/
Aluminum foil thickness	D-1,A(1)a and D-1,A(2)a	ASTM B479 2/
Laminated material identification and construction	D-1,A(1)a and D-1,A(2)a	Laboratory evaluation

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

(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 (Type IV, Class 2 only). 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. 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
Major	Minor	
101		Tear or hole or open seal.
102		Seal width less than 1/16 inch. 2/
103		Presence of delamination. 3/
104		Unclean pouch. 4/
105		Pouch has foreign odor.
106		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. 5/
107		Not packaged as specified.
108		Presence of stress cracks in the aluminum foil. 6/ 7/
	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. 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 seal surface that could conceal or impair visual detection of seal defects, score the

impression and/or design as a major defect, retain the sample, and contact the Government agency supervisor or the contracting officer for instruction. 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 the pouch 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) Seal testing. The pouch integrity shall be tested as required in a or b, 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. Seal strength test. The seals of the pouches 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 side and each end of each pouch in the sample. The average seal strength of any side or end shall be calculated by averaging the three specimens cut from that side or end. 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. 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 sides and bottom of the pouch and the distance between restraining plates shall be 1/2 inch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled

pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be 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. Any test failing to reach and maintain 14 psig for 30 seconds during testing shall be considered a test failure. The pouches shall then be examined for separation or yield of the heat seals. Any evidence of seal separation greater than 1/16 inch in the seal shall be considered a test failure. Any seal separation that reduces the effective seal width to less than 1/16 inch shall be considered a test failure. Any test failure shall be cause for rejection of the lot.

C. Packing.

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table III. The lot size shall be expressed in shipping containers. The sample unit shall be one shipping container fully packed. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 4.0 for major defects and 10.0 for total defects.

TABLE III. Shipping container and marking defects

Category		Defect
Major	Minor	
101		Marking missing or incorrect or illegible.
102		Inadequate workmanship. 1/
	201	More than 40 pounds of product.

1/ Inadequate workmanship is defined as, but not limited to, incomplete closure of container flaps, loose strapping, inadequate stapling, improper taping, or bulged or distorted container.

SECTION J REFERENCE DOCUMENTS

Unless otherwise specified, the applicable version of these documents is that which is active on the date of the solicitation or contract.

DLA Troop Support Form

Form 3556	Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence

(This form is available online at https://www.dla.mil/Troop-Support/Subsistence/Operational-rations/PCR-ACR/)

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