SECTION C

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

C-1 ITEM DESCRIPTION

PCR-C-095, CEREAL, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Type.

Type I - Fruit flavored rings with rice milk

C-2 PERFORMANCE REQUIREMENTS

A. Product standard. A sample shall be subjected to first article (FA) or product demonstration model (PDM) inspection as applicable, in accordance with the tests and inspections of Section E of this Performance-based Contract Requirements (PCR) document. The approved sample shall serve as the product standard. Should the contractor at any time plan to or actually produce the product using different raw material or process methodologies from the approved product standard, which result in a product noncomparable to the product standard, the contractor shall submit a replacement FA or PDM approval. In any event, all product produced must meet all requirements of this document including product standard comparability.

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

C. Dry product.

(1) Appearance. The finished product shall be free from foreign materials.

a. Type I. The finished product shall be intact fruit flavored rings with a free-flowing dry rice milk powder. The cereal rings shall be approximately 1/2 to 3/4 inches in diameter and shall have a frosted matte surface with a slightly porous structure. The cereal shall be a variety of at least five of the following colors: red, orange, yellow, green, blue, and purple. The dry rice milk powder shall be a white to off-white color. The cereal may have color from the rice milk powder.

(2) Odor. The packaged food shall be free from foreign odors.

a. Type I. The packaged food shall have a toasted cereal grain and a sweet fruity odor.

(3) Net weight. The average net weight shall be not less than 48 grams. The net weight of an individual pouch shall be not less than 44 grams.

D. Rehydrated product.

(1) Appearance.

a. Type I. The finished product shall be a rehydrated mixture of fruit flavored cereal rings in a thin white to off-white milky liquid.

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

a. Type I. The packaged food shall have a fruity cereal and sweetened rice milk flavor. The rehydrated rice milk may have a slightly fruity flavor from the cereal.

(3) Texture. When rehydrated per instructions, the product shall have free liquid.

a. Type I. The fruit flavored cereal rings shall be slightly crunchy in a thin milky liquid.

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

F. Analytical requirements.

(1) Calories. The calorie content shall be not less than 200 per serving.

(2) Protein. The protein content shall be not less than 4.0 percent.

(3) Fat. The fat content shall be not greater than 11.0 percent.

(4) Sodium. The sodium content shall be not greater than 450 milligrams per 100 grams.

(5) Moisture. The moisture content shall be not greater than 3.0 percent.

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

(7) Aflatoxin. The aflatoxin content shall be negative. Negative aflatoxin content is 15 parts per billion (ppb) or less.

G. Microbiological requirements.

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

(2) Yeast and mold. The yeast and mold count (combined) shall not exceed 100 CFU per gram.

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

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

(5) *Enterobacteriaceae* count. The *Enterobacteriaceae* count shall be not greater than 100 CFU per gram.

(6) *Bacillus cereus (B. cereus)* count. The *B. cereus* count shall be not greater than 1000 CFU per gram.

H. Vegan requirement. The product shall NOT contain any animal or animal by-products, honey or honeybee products, insects or products from insects such as silk or dyes or be processed with any animal products or by-products. This includes, but is not limited to oils, fats, fatty acids and their esters, flavorings, gelling agents, coagulants, binders, emulsifiers, extenders, fatty alcohol, aldehydes, and ketones, lactones, glycerol, amino acids, hydrolyzed proteins, enzymes, and enzyme modified products. Furthermore, these products shall NOT contain any ethyl alcohol, or ingredients derived from or containing methyl alcohol.

SECTION D

D-1 PACKAGING

A. Packaging. Product and one oxygen scavenger shall be packaged in an interlocking closure barrier pouch.

(1) Pouch. The pouch is intended to be used as a unit pack and a rehydrating pouch for the cereal.

a. Pouch material. The 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 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.

b. Pouch construction. The interlocking closure pouch shall be a flat design preformed or form-fill-seal pouch. The pouch shall have maximum outside dimensions of 5-1/2 inches wide by 8-5/8 inches long. The pouch shall be made by heat sealing the sides and top of the pouch with 3/8 (+1/8, -1/4) 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. The interlocking closure of the pouch shall not fail to remain closed/locked during the interlocking closure test. A tear nick or notch shall be provided to facilitate opening of the filled and sealed pouch. A 1/8 inch wide lip may be incorporated at the open end of the pouch.

c. Pouch filling and sealing. Product and one oxygen scavenger shall be inserted into the pouch and the filled pouch shall be sealed with a 1/8 to 1 inch wide heat seal. The closure seal shall be applied not more than 1/2 inch from the open end of 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.

(2) Oxygen scavenger. The oxygen scavenger shall be constructed of materials that are safe for direct food contact. The oxygen scavenger shall be in compliance with all applicable Food and Drug Administration (FDA) regulations.

D-2 LABELING

A. Pouches. Each pouch shall be correctly and legibly labeled. Printing ink shall be permanent black ink or other dark contrasting color which is free of carcinogenic elements. The label shall contain the following information:

(1) Name and flavor of product (letters not less than 1/8 inch high)
(2) Ingredients
(3) Date 1/
(4) Net weight
(5) Name and address of packer
(6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations
(7) Directions: Tear pouch at notch, open zipper, and remove oxygen scavenger. Add 4 ounces of potable water to pouch, close the zipper, and shake to mix. Consume promptly (within 1 hour).

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

NOTE: Commercial pouch graphics (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.

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 U.S. Department of Agriculture (USDA) shall be subject to periodic review sampling and evaluation. The USDA shall select sample units during production of contracts and submit them to the following address for evaluation:

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

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

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

E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)

A. Product examination. The finished product shall be examined for compliance with the performance requirements specified in Section C of this Performance-based Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch. The inspection level shall be S-3 and the 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/ 3/

Category		Defect
Major	Minor	
		Dry product
		General
101		Product not type as specified.
102		Pouch does not contain one intact oxygen scavenger. 4/
103		Tear or hole or open seal in oxygen scavenger.
		Appearance
	201	Type I finished product not intact or not fruit flavored rings or not with a free-flowing dry rice milk powder. 5/

TABLE I. Product defects 1/ 2/ 3/ - Continued

Category		Defect
Major	Minor	
	202	Type I cereal rings not approximately 1/2 to 3/4 inches in diameter or does not have a frosted or not a matte surface or not with a slightly porous structure.
	203	Type I cereal does not have a variety of at least five of the following colors: red, orange, yellow, green, blue, purple.
	204	Type I dry rice milk powder not a white to off-white color.
		Odor
104		Type I packaged food does not have a toasted cereal grain or not a sweet fruity odor.
		Net weight
	205	Net weight of an individual pouch less than 44 grams. 6/
		Rehydrated product 7/
		Appearance
	206	Type I finished product not a rehydrated mixture of fruit flavored cereal rings or not in a thin or not white to off-white milky liquid.
		Odor and flavor
105		Packaged food does not have a sweet or not a toasted cereal grain odor or flavor.
106		Type I packaged food does not have a fruity cereal or not a sweetened rice milk flavor.
		Texture
	207	When rehydrated per instructions, product does not have free liquid.

TABLE I. Product defects 1/ 2/ 3/ - Continued

Category		Defect
Major	Minor	
	208	Type I fruit flavored cereal rings not slightly crunchy or not in a thin milky liquid.

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

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

3/ Compliance with the vegan requirement shall be verified by Certificate of Conformance (CoC). Any product not conforming to the requirement shall be cause for rejection of the lot.

4/ Construction of the oxygen scavenger and compliance with FDA regulations will be verified by CoC.

5/ Intact is defined as not more than 25 percent by weight of cereal rings (with the dry rice milk powder combined) broken in an individual pouch and shall be verified by USDA on the first production lot of a contract cycle and each subsequent replenishment PDM during a contract cycle or in the case of a new formula or supplier. A CoC for intact product shall be provided on all future lots produced using the same formula and supplier.

6/ Sample average net weight less than 48 grams shall be cause for rejection of the lot.

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

B. Methods of inspection.

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

(2) Net weight. The net weight of the filled and sealed pouches shall be determined by weighing each sample on a suitable scale tared with a representative empty pouch and one oxygen scavenger. Results shall be reported to the nearest 0.01 ounce or to the nearest 1 gram.

(3) Analytical.

a. Calories. The calorie content shall be verified by the NLEA "Nutrition Facts" label. Product not conforming to the calorie content as specified in Section C-2,F(1) of this document shall be cause for rejection of the lot.

b. Protein, fat, sodium, and moisture. The sample to be analyzed shall be a composite of eight filled and sealed pouches which have been selected at random from one lot. The composite sample shall be prepared and analyzed in accordance with the following methods of the Official Methods of Analysis (OMA) of AOAC International:

Test	Method Number
Protein	992.15 or 992.23
Fat	945.38 or 2008.06
Sodium	984.27, 985.35, 2011.14, or 2011.19
Moisture 1/	925.45A or 2008.06

1/ Moisture determination may be performed on a calibrated Brookfield Ametek Computrac Moisture Analyzer using the manufacturer's recommended instructions for test method and sample preparation. Moisture analysis on this device shall be performed at 130°C.

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

c. Oxygen testing. Eight filled and sealed pouches shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 48 hours from the time of sealing. Test results shall be reported to the nearest 0.01 percent. Any individual result not conforming to the oxygen content requirement shall be classified as a major defect and shall be cause for rejection of the lot.

d. Aflatoxin testing. The sample to be analyzed shall be a composite of eight filled and sealed pouches which have been selected at random from the lot. The composited sample shall be prepared and analyzed in accordance with the Official Methods of Analysis (OMA)

of AOAC International method 991.31 with preparation of the sample performed according to AOAC method 977.16. Test results shall be reported to the nearest whole number. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the requirement shall be cause for rejection of the lot.

NOTE: The following conditions apply for aflatoxin testing:

a. For rice milk powder received in bulk (to be used in cereal end item), the contractor can accept a USDA certificate that the aflatoxin in the bulk lot is below 15 ppb. If a USDA certificate does not accompany the bulk lot, the following alternate method of inspection may be used. The contractor shall have the bulk shipment sampled and tested by USDA. (Sampling shall take place at the contractor location where the finished product will be placed into the pouch.)

(i) Three sets of representative, independently-drawn samples shall be submitted to the laboratory for testing – the number of sampling points and quantity of rice milk powder per sampling point to be determined using USDA procedures. Each of the three sets of samples shall be composited and respectively designated as test sample 1, test sample 2, and test sample 3.

(ii) Lots will be reported as negative for aflatoxin if test sample 1 has an aflatoxin level at or below 5 ppb. If test sample 1 is at or above 25 ppb the lot fails.

(iii) If the aflatoxin level for test sample 1 is above 5 ppb and less than 25 ppb, test sample 2 may be analyzed. Test results for test sample 1 and 2 will be averaged. If the average aflatoxin level for test samples 1 and 2 is 10 ppb or less the lot will be reported as negative for aflatoxin, but fails if the aflatoxin level is at or above 20 ppb.

(iv) If the average value for test samples 1 and 2 is above 10 ppb but less than 20 ppb, test sample 3 may be analyzed. The results of test samples 1, 2 and 3 will be averaged. If the average aflatoxin level for test samples 1, 2, and 3 is 15 ppb or less the lot will be reported as negative for aflatoxin. If the average aflatoxin level for test samples 1, 2, and 3 is above 15 ppb the lot fails.

(v) Bulk lots determined to be conforming for aflatoxin as evidenced by a USDA certificate, in accordance with the above procedures will be considered acceptable for use as ingredients. Results shall be reported to the nearest whole number. No additional finished product aflatoxin testing is required if the end item lots are manufactured using that bulk product and both the bulk and end item lots'

identities have been preserved. Bulk rice milk powder with aflatoxin greater than 15 ppb shall not be used as ingredients.

b. If rice milk powder is received in bulk (to be used in cereal end item), and the conditions in (b) above are not met, each end-item lot of rice milk powder must be sampled and tested by USDA. End item lots determined to have not greater than 15 ppb in aflatoxin in the rice milk powder ingredient as evidenced by a USDA Certificate will be considered acceptable.

NOTE: A USDA CoA on rice milk powder which has been kept in storage (at less than 80°F and less than 75 percent relative humidity) is acceptable. Contractor must attest to these storage conditions. If storage conditions for the rice milk powder are not established, a USDA CoA for aflatoxin on the rice milk powder will be considered current if not more than 30 days have elapsed since the date of the analysis.

(4) Microbiological testing. The finished product shall be tested for microbiological activity. Five filled and sealed pouches shall be randomly selected from one lot regardless of lot size. The pouched product shall be individually tested for microbiological levels in accordance with the latest edition of the OMA of AOAC International or the FDA Bacteriological Analytical Manual (BAM). Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the requirements specified in Section C of this Performance-based Contract Requirements document shall be cause for rejection of the lot. 1/

Test	Method Number
Aerobic plate count	966.23, 990.12, or BAM Ch. 3
Yeast and mold	997.02 or 2014.05
E. coli	966.24, 991.14, or BAM Ch. 4
Salmonella	967.26, 986.35, 2004.03, or 2013.09
Enterobacteriaceae	2003.01
B. cereus	2025.01

1/ NOTE: The following conditions apply for microbiological testing:

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

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

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

A. Packaging.

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

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

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) Filled and sealed pouch examination. The filled and sealed pouches shall be examined for the defects listed in table II. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

TABLE II. Filled and sealed pouch defects 1/

Category		Defect
Major	Minor	
101		Tear or hole or open seal.
102		Seal width less than 1/16 inch. 2/
103		Presence of delamination. 3/
104		Unclean pouch. 4/
105		Pouch has foreign odor.
106		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. 5/
107		Not packaged as specified.
	201	Label missing or incorrect or illegible.
	202	Tear nick or notch 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/
	205	Pouch closure seal more than 1/2 inch from the open end of the pouch.

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 can be made to extend to the product edge of the seal with no discernible resistance to the gentle lifting, the delamination shall be classified as a major defect. Additionally, spot delamination of the outer ply in the body of the pouch that is able to be propagated beyond its initial borders is also a major defect. To determine if the laminated area is a defect, use the following procedure: Mark the outside edges of the delaminated area using a bold permanent marking pen. Open the pouch and remove the contents. Cut the pouch transversely not closer than 1/4 inch (±1/16 inch) from the delaminated area. The pouch shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be classified as a major defect.

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

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 end of the pouch and the distance between restraining plates shall be 1/2 inch. For testing the closure seal, the interlocking closure end 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.

(2) Interlocking closure test. The interlocking closure of the pouch shall be tested. The lot size shall be expressed in pouches. The sample unit should be one pouch. The sample size shall be the number of pouches indicated by inspection level S-2. Open a filled and sealed interlocking closure pouch and prepare product in accordance with the label directions for preparation. Close pouch. Invert pouch and suspend pouch for 15 seconds. Interlocking closures that fail to remain closed/locked and spill contents out when inverted shall be classified as a minor defect and shall be cause for rejection of the lot.

C. Packing.

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

TABLE III. Shipping container and marking defects

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

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

SECTION J REFERENCE DOCUMENTS

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

DLA Troop Support Form

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

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

GOVERNMENT PUBLICATION

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

NON-GOVERNMENTAL STANDARDS

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

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

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International

ASTM INTERNATIONAL www.astm.org

B479	Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications
D1974/D1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D2103	Standard Specification for Polyethylene Film and Sheeting
D4727/D4727M	Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes
D5118/D5118M	Standard Practice for Fabrication of Fiberboard Shipping Boxes
F88/F88M	Standard Test Method for Seal Strength of Flexible Barrier Materials