

SECTION C

This document covers fortified cocoa beverage powder packaged in a flexible pouch for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-C-041, COCOA BEVERAGE POWDER, FORTIFIED, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE

Designs

- A Flat pouch (discontinued)
- B Flat, interlocking closure pouch

Comment [U1]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08. after "A Flat pouch", insert "(discontinued)"

Packages

- Package A – Meal, Cold Weather (MCW)
- Package B – Food Packet, Long Range Patrol (LRP)
- Package C – Meal, Ready-to-Eat (MRE)

C-2 PRODUCT REQUIREMENTS

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

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

C. Powdered product.

(1) Appearance. The fortified cocoa beverage powder shall be a free-flowing well-blended light brown homogenous mixture. The packaged food shall be free from foreign materials.

(2) Odor. The packaged food shall have an odor typical of cocoa and sweet milk solids. The packaged food shall be free from foreign odors.

(3) Texture. The fortified cocoa beverage powder shall be free from lumps that do not fall apart under light pressure between fingers and shall have a fine texture.

D. Hydrated product.

(1) Appearance. The fortified cocoa beverage powder shall disperse readily in hot or cold water. The hydrated product shall have a well-blended, uniform consistency and be free of floating, agglomerated cocoa particles. The fortified cocoa shall have a milk chocolate color.

(2) Odor and flavor. The fortified cocoa beverage powder shall have a sweet, chocolate cream-like odor and flavor. The hydrated product shall be free from foreign odors and flavors.

E. Weight. The average net weight shall be not less than 42.5 grams. The net weight of an individual pouch shall be not less than 40.4 grams.

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

G. Analytical requirements.

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

(2) Vitamin B₁ (thiamine mononitrate). The Vitamin B₁ content shall be not less than 0.84 mg per pouch.

(3) Vitamin B₆ (pyridoxine hydrochloride). The Vitamin B₆ content shall be not less than 1.26 mg per pouch.

(4) Vitamin A. The Vitamin A content shall be not less than 752 retinol equivalents per pouch.

H. Microbiological requirement.

(1) Salmonella. The fortified cocoa beverage powder shall be salmonella negative.

I. Ingredient requirements.

(1) Sugar. Sugar shall be white, refined, granulated superfine, extrafine or smaller grind, cane or beet sugar or a combination thereof.

(2) Creamer, nondairy, dry. The dry, nondairy creamer shall contain not less than 30 percent fat and shall be a white to light cream color, free-flowing, uniformly granular powder that is free from foreign materials and free from noticeable scorched particles. The product shall impart a sweet creamy flavor, free from foreign or objectionable flavors and odors (e.g., sour, malty, tallowy, stale, soapy, rancid, or bitter).

(3) Milk, nonfat dry (low heat). Nonfat dry milk shall be U.S. Extra Grade, Low Heat as defined in the U.S. Standards for Grades of Nonfat Dry Milk (spray process). The nonfat dry milk shall be fortified with vitamin D and may be fortified with vitamin A. The nonfat dry milk shall be spray dried not more than 60 days prior to the time the finished cocoa beverage powder is filled into the pouch and the pouch sealed. The nonfat dry milk shall be salmonella free.

(4) Cocoa. Cocoa powder shall be prepared from nibs of domestically roasted, mature, well fermented, sound and wholesome cocoa beans, which have been properly dried, cured, and mildly alkalized in accordance with the definitions and standards of the Food and Drug Administration. The pH shall be not less than 6.0 nor more than 7.5, and the fat content (cocoa butter) shall be not less than 14 percent. Chemically extracted cocoa, in part or whole, shall not be acceptable. When washed with petroleum ether, not less than 98 percent by weight shall pass through a U.S. Standard No. 200 sieve.

(5) Salt. Salt shall be iodized white, refined sodium chloride with or without anticaking agents.

(6) Vitamins. Vitamin A shall be the dry, water-dispersible vitamin A palmitate, stabilized in gelatin, gums, or other edible materials with or without sugar. One hundred percent of the stabilized vitamin A palmitate shall pass through a U.S. Standard No. 20 sieve, and not less than 90 percent shall pass through a U.S. Standard No. 30 sieve. Thiamine mononitrate, and pyridoxine hydrochloride shall be of U.S. Pharmacopoeia grade, and the particle size shall be such that the vitamins will be uniformly distributed throughout the cocoa beverage powder.

(7) Flavoring. Vanilla extract, pure vanilla sugar, vanillin, ethyl vanillin, methyl vanillin or combinations of these may be used.

(8) Lecithin. Lecithin shall comply with the Food Chemicals Codex description for lecithin.

(9) Stabilizers. Stabilizers shall be of cold water soluble type.

(10) Whey, dried, reduced lactose. The dried reduced whey shall comply with the Food and Drug Administration's regulations for Direct Food Substances Affirmed as Generally Recognized as Safe. The whey shall be free flowing and not more than 60 days old from time of spray drying to the time the finished cocoa beverage powder is filled into the envelope and the envelope sealed. The reduced lactose whey shall be salmonella free. The whey shall be manufactured in a plant approved by the Dairy Division, AMS, USDA. The whey shall have been pasteurized before spray drying and meet the following analytical requirements:

Protein (N x 6.38)	Not less than 16.0
Ash	Not more than 18 percent
Moisture	Not more than 5 percent

J. Ingredients and formulation. Ingredients shall be uniformly mixed in the following proportions:

<u>Ingredient</u>	<u>Percent by weight</u>
Sugar	Not more than 45 percent
Nondairy creamer	Not more than 35 percent
Nonfat dry milk (solids) 1/	Not less than 9.9 percent
Cocoa	Not less than 9.5 percent
Salt	Not more than 0.5 percent
Vitamins	As specified in C-2,G.
Flavoring	Sufficient to provide an acceptable flavor in the finished product.
Lecithin	Not more than 1 percent
Stabilizers	Not more than 1 percent

1/ Whey, dried, reduced lactose meeting the requirements of C-2, I (10), may be substituted on a 1 for 1 basis.

SECTION D

D-1 PACKAGING

A. Packaging. A net weight of 42.5 grams of fortified cocoa beverage powder shall be filled into a preformed barrier pouch as described below.

(1) Design A flat pouches.

a. Pouch material. The preformed pouches 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. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for 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. For package A (MCW), the complete exterior surface of the pouch shall be colored white overall with a color in the range of 37778 through 37886 of FED-STD-595, Colors Used in Government Procurement. For package B (LRP) and package C (MRE), the complete exterior surface of the pouch shall be uniformly colored in the range of 20219, 30219, 30227, 30279, 30313, 30324, or 30450 of FED-STD-595.

b. Pouch construction. The pouch shall be a flat design preformed pouch having maximum inside dimensions of 3 7/8 inches wide by 5 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. A tear nick or notch shall be provided on one or two edges of the pouch to facilitate opening of the filled and sealed pouch. A 1/8 inch wide lip may be incorporated at the open end of the pouch.

c. Pouch filling and sealing. The fortified cocoa beverage powder shall be filled into the pouch and the pouch sealed. 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 filled and sealed pouch shall not leak when tested in accordance with E-6, B,(1) or the pouch shall exhibit no rupture or seal separation greater than 1/16 inch when tested for internal pressure resistance as specified in E-6,B,(2).

(2) Design B Flat, interlocking closure pouch. The pouch shall be used as a package and as a hydrating pouch for the beverage.

Comment [U2]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08. Delete entirely sub para a., b., and c. Justification: product only uses the interlocking closure pouch in all operational rations

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W/CHANGE 06 16 Dec 08

a. Pouch material. The interlocking closure preformed pouch shall be fabricated from 0.002 inch thick ionomer or polyethylene film inner layer laminated or extrusion coated to 0.00035 inch thick aluminum foil which is then bonded to 0.0005 inch thick polyester. The three plies may be laminated with nylon on the exterior of the pouch. Tolerances for thickness of plastic films shall be plus or minus 20 percent and tolerance for 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 material shall be approved for addition of hot water (less than or equal to 212°F). For package A (MCW), the complete exterior of the pouch shall be colored overall with a color in the range of 37778 through 37886 of FED-STD-595, Colors Used in Government Procurement. For Package B (LRP) and Package C (MRE), the complete exterior surface of the pouch shall be uniformly colored in the range of 20219, 30219, 30227, 30279, 30313, 30324, or 30450 of FED-STD-595.

b. Pouch construction. The pouch shall be a flat design preformed pouch with an interlocking closure. The design and dimensions shall be as indicated in Figure 1. The pouch shall be made by heat sealing the sides and top of the pouch with ~~1/4 inch (+1/8 inch)~~ **3/8 inch (+1/8,-1/4)** wide seals. The pouch shall exhibit no rupture or seal separation greater than 1/16 inch when tested for internal pressure resistance as specified in E-6,B,(2). The interlocking closure of the pouch shall not leak more than 15 ml when tested in accordance with E-6,B,(3). A tear nick or notch shall be provided on one or two opposite edges of the pouch above the interlocking closure 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.

Comment [U3]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08, line 3, delete "1/4 inch (\pm 1/8 inch) wide seals."; insert "3/8 inch (+1/8,-1/4) wide seals."

c. Pouch filling and sealing. Product shall be inserted into the pouch and the filled pouch shall be sealed with a ~~3/8 inch \pm 1/4~~ **1/8 to 1** inch wide heat seal. **The closure seal shall be applied no 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 pouch shall exhibit no rupture or seal separation greater than 1/16 inch when tested for internal pressure resistance as specified in E-6,B,(2).

Comment [U4]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08, line 2, delete "3/8 inch \pm 1/4 inch" for closure seal; insert "1/8 to 1 inch". Insert the following new sentence after sentence one: "The closure seal shall be applied no more than 1/2 inch from the open end of the pouch."

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 of product (letters not less than 1/8 inch high)
- (2) Ingredients
- (3) Date 1/
- (4) Net Weight
- (5) Contractor's name and address
- (6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA/USDA regulations.

(7) DIRECTIONS FOR USE (Design A):

Allow water just chemically purified to stand 30 minutes before adding to beverage powder. Mix contents with 6 fluid ounces (1/4 canteen cup) water. For hot cocoa, add contents to hot water and stir until dissolved. For cold cocoa, mix contents with about 1 fluid ounce of water to make a smooth paste and then add remainder of cold water and stir until blended.

8) Directions for Design B flat interlocking closure pouch:

Allow water just chemically purified to stand 30 minutes before adding to beverage powder.

TEAR POUCH AT NOTCHES. OPEN ZIPPER, ADD 6 OZ HOT OR COLD WATER (1/4 CANTEEN CUP) TO FILL LINE. CLOSE ZIPPER. SHAKE TO MIX. SINGLE USE ONLY.

- (9) Fill line for Design B flat interlocking closure pouch: A fill line (not less than 1/32 inch thick, not less than 2 inches long and centered) shall be placed on the pouch/label for 6-ounce fill at ~~4-3/4 ± 1/4 from the bottom open end of the pouch~~ **4-1/8 ± 1/4 inches from the inside edge of the closure seal.**

Comment [U5]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08. Delete "4-3/4 ± 1/4 inches from the bottom open end of the pouch"; insert "4-1/8 ± 1/4 inches from the inside edge of the closure seal."

1/ Each pouch shall have the date of pack noted by using a four digit code beginning with the final digit of the current year followed by the three digit Julian day code. For example, 26 November 2003 would be coded as 3330. The Julian day code shall represent the day the product was packaged into the pouch.

D-3 PACKING

A. Packing for shipment to ration assembler. Not more than 40 pounds of pouched product shall be packed flat in layers in a fiberboard shipping container constructed in accordance with style RSC-L, class domestic, variety SW, grade 200 of ASTM D5118/D5118M-95 (2001), Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each container shall be securely closed in accordance with ASTM D1974-98, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-4 MARKING

A. Shipping containers. Shipping containers shall be marked in accordance with DSCP FORM 3556, Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence.

SECTION E INSPECTION AND ACCEPTANCE

The following quality assurance criteria, utilizing ANSI/ASQC Z1.4-1993, Sampling Procedures and Tables for Inspection by Attributes, are required. Unless otherwise specified, Single Sampling Plans indicated in ANSI/ASQC Z1.4-1993 will be utilized. When required, the manufacturer shall provide the certificate(s) of conformance to the appropriate inspection activity. Certificate(s) of conformance not provided shall be cause for rejection of the lot.

A. Definitions.

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

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

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

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

(1) Product standard inspection. The first article or product demonstration model shall be inspected in accordance with the provisions of this document and evaluated for overall appearance and palatability. Any failure to conform to the product requirements or any appearance or palatability failure, shall be cause for rejection of the lot. The approved first article or product demonstration model shall be used as the product standard for periodic review evaluations. All food components that are inspected by the USDA shall be subject to periodic review sampling and evaluation. The USDA shall select sample units during production of contracts and submit them to the following address for evaluation:

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

One lot shall be randomly selected during each calendar month of production. Six (6) sample units of each item produced shall be randomly selected from that one production lot. The six (6) sample units shall be shipped to Natick within two (2) working days upon completion of all USDA inspection requirements. The sample units will be evaluated for the characteristics of appearance, odor, flavor, texture and overall quality.

(2) Conformance inspection. Conformance inspection shall include the examinations 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 product requirements specified in Section C of this document utilizing the double sampling plans indicated in ANSI/ASQC Z1.4 - 1993. The lot size shall be expressed in pouches. The sample unit shall be the contents of one pouch. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects. Defects and defect classifications are listed in Table I.

TABLE I. Product defects 1/ 2/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Product not fortified cocoa beverage powder.
		<u>Powdered product</u>
		<u>Appearance</u>
	201	Beverage powder not free flowing or not a light brown homogenous mixture.
		<u>Odor</u>
102		Powdered product does not have typical cocoa and sweet milk solids odor.
		<u>Texture</u>
	202	Presence of hard lumps. <u>3/</u>
	203	Not fine in texture.
		<u>Weight</u>
	204	Net weight of an individual pouch less than 40.4 grams. <u>4/</u>
		<u>Hydrated product 5/</u>
		<u>Appearance</u>
103		Does not disperse readily in hot or cold water.
	205	Not a uniform consistency.
104		Not free of agglomerated cocoa particles.
	206	Not milk chocolate in color.
		<u>Odor and flavor</u>
105		Cocoa beverage not a sweet, chocolate cream-like odor or flavor.

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

3/ Lumps that do not fall apart under light pressure between fingers shall be scored as a defect.

4/ Sample average net weight less than 42.5 grams shall be cause for rejection of the lot.

5/ Prepare beverage in accordance with instructions on primary container. Use a sufficient amount of product to prepare 6 ounces of beverage.

B. Methods of inspection.

(1) Shelf life. The contractor shall provide a certificate of conformance that the product has a 3 year shelf life when stored at 80°F. Government verification may include storage for 6 months at 100°F or 36 months at 80°F. Upon completion of either storage period, the product will be subjected to a sensory evaluation panel for appearance and palatability and must receive an overall score of 5 or higher based on a 9 point hedonic scale to be considered acceptable.

(2) Net weight. 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. Results shall be reported to the nearest 0.1gram.

(3) Analytical. The sample to be analyzed shall be a composite of eight filled and sealed pouches which have been selected at random from the lot. The composite sample shall be prepared and analyzed in accordance with the following methods of the Official Methods of Analysis of AOAC International:

<u>Test</u>	<u>Method Number</u>
Moisture	925.45

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

Using the same composite sample, vitamin testing is listed below:

<u>Test</u>	<u>Method Number</u>
Vitamin A	992.06 or 15.15 <u>1/ 2/</u>
Vitamin B ₁	986.27 or Thiamin <u>1/ 3/</u>
Vitamin B ₆	985.32 or Pyridoxine <u>1/ 3/</u>

Test results shall be reported to the nearest 0.01 milligram for B₁ and B₆, and RE for Vitamin A. Any nonconforming result shall be cause for rejection of the lot.

1/ Tests will be conducted for Vitamins A, B₁, B₆ and C on the first production lot and USDA will verify the formula. A certificate of conformance will be provided on all future lots. If the formula is changed or a new contract starts, then another set of tests shall be conducted, a Certificate of Analysis will be provided and USDA will verify the formula.

2/ Vitamins A and D in Milk Products in Chapter 15 of Standard Methods For The Examination Of Dairy Products, 16th Edition, 1992.

3/ Simultaneous Analysis of Niacin, Niacinamide, Pyridoxine, Thiamin, and Riboflavin, Page 87, Methods of Vitamin Assay, 4th Edition.

(4) Microbiological testing. The finished product shall be tested for Salmonella. Five filled and sealed pouches shall be selected at random from the lot regardless of lot size. The pouched product shall be individually tested for Salmonella in accordance with the Official Methods of Analysis of the AOAC International, method 986.35, 996.08, and 2000.06 D (c). Verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the microbiological requirements shall be cause for rejection of the lot.

NOTE: The following conditions apply for salmonella and microbiological testing:

- (1) For prepackaged product received from a supplier and is not further processed, the contractor will furnish a Certificate of Analysis that the product is Salmonella negative and meets all microbiological requirements.
- (2) For bulk product received, the contractor is responsible for providing a Certificate of Analysis stating that the bulk product is Salmonella negative and meets all microbiological requirements. USDA Salmonella and additional microbiological testing is required for each end item lot and shall be the basis for lot acceptance with respect to Salmonella and other microbiological testing requirements.

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

A. Packaging.

(1) Pouch material certification. Material listed below may be accepted on the basis of a contractor's certification of conformance to the indicated requirements. Compliance to 21 CFR substances in contact with hot water (less than or equal to 212°F) may be verified by certificate of conformance (CoC). In addition, compliance to the requirements for inside pouch dimensions and dimensions of manufacturer's seals may be verified by certificate of conformance.

<u>Requirement</u>	<u>Requirement Paragraph</u>	<u>Test procedure</u>
Thickness of films for laminated material	D-1,A,(1)a & D-1,A,(2),a	As specified in ASTM D2103-97 <u>1/</u>
Aluminum foil thickness	D-1,A,(1)a & D-1,A,(2),a	As specified in ASTM B479-00 <u>2/</u>
Laminated material identification and construction	D-1,A,(1)a & D-1,A,(2),a	Laboratory evaluation
Color of laminated material	D-1,A,(1)a & D-1,A,(2),a	Visual evaluation by FED-STD-595 <u>3/</u>

1/ ASTM D2103-03 Specification for Polyethylene Film and Sheeting

2/ ASTM B479-00 Specification for Annealed Aluminum and Aluminum-Alloy Foil For Flexible Barrier, Food Contact, and Other Applications

3/ FED-STD-595 Colors Used in Government Procurement

(2) Unfilled preformed pouch certification. A certification of conformance may be accepted as evidence that unfilled pouches conform to the requirements specified in D-1,A,(1) a and b, and D-1,A,(2),a and b.

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

TABLE II. Filled and sealed pouch defects 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Tear, hole, or open seal.
102		Design A pouch leaks. <u>2/</u>
103		Seal width less than 1/16 inch. <u>3/</u>
104		Presence of delamination. <u>4/</u>
105		Unclean pouch. <u>5/</u>
106		Pouch has foreign odor.
107		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. <u>6/</u>
108		Not packaged as specified.
109		Design B pouch fill line missing or does not measure within $\pm 1/4$ inch of 4 3/4 inches from the bottom open end $4-1/8 \pm 1/4$ inches from the inside edge of the closure seal.
201		Label missing, 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 1/16 inch.
204		Presence of delamination. <u>4/</u>
205		Design B pouch does not meet design or dimensions cited in Figure 1.
206		Fill line on Design B pouch not required thickness or length.

Comment [U6]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08. Delete "within $\pm 1/4$ inch of 4-3/4 inches from the bottom open end."; insert "4-1/8 $\pm 1/4$ inches from the inside edge of the closure seal."

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

2/ Pouches shall be tested for leakage as specified in E-6,B,(1).

3/ The effective closure seal is defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide, from side seal to side seal that produces a hermetically sealed pouch.

4/ 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 ($\pm 1/16$ inch) from the delaminated area. The pouch shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be classified as a major defect.

Minor - Minor delamination of the outer ply in the pouch seal area is acceptable and shall not be classified as a minor defect unless it extends to within 1/16 inch of the food product edge of the seal. All other minor outer ply delamination in the pouch seal area or isolated spots of delamination in the body of the pouch that do not propagate when flexed as described above shall be classified as minor defects.

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

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

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

c. Water spots.

6/ 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.

B. Methods of Inspection.

(1) Leakage test (Design A). The filled and sealed pouches shall be tested by placing them in a dry desiccator, or similar apparatus, and subjecting them to a vacuum of 26 inches of mercury (atmospheric pressure is 29.9 inches of mercury) for 30 seconds. Any pouch that does not swell to form a tightly distended package having at least one distorted edge during the test shall be recorded as a leaker. After vacuum testing, the pouches shall be visually inspected for evidence of delamination and for seal separation. Any leakage, any delamination, or any seal separation of more than 1/16 inch from the product edge of any seal shall be recorded as a major defect.

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

inch (see table II, footnote 3/) 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.

(3) Interlocking closure test (Design B). The interlocking closure of the pouch shall be tested. The lot size is expressed in pouches. 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 beverage in accordance with instructions using 70°F (±5°F) water. Close pouch. Invert pouch and suspend pouch for 15 seconds. Collect and measure any water that drips. A pouch that leaks more that 15 ml shall be 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 below. The lot size shall be expressed in shipping containers. The sample unit shall be one shipping container fully packed. The inspection level shall be S-3 and the AQL, expressed in 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 omitted, incorrect, illegible, or improper size, location sequence or method of application.
102		Inadequate workmanship. <u>1/</u>
	201	More than 40 pounds of product.

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

SECTION J REFERENCE DOCUMENTS

DSCP FORMS

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

GOVERNMENT PUBLICATIONS

Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder
(21 CFR Parts 1-199) and (9CFR Parts 1-391)

U.S. Standards for Grades of Nonfat Dry Milk

FEDERAL STANDARD

FED-STD-595 Colors Used in Government Procurement

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)
ANSI/ASQCZ1.4-1993 Sampling Procedures and Tables for Inspection by
Attributes

ASTM International

B479-00	Standard Specification for Annealed Aluminum and Aluminum-Alloy Foil for Flexible Barrier, Food Contact, and Other Applications
D1974-98 (2003)	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers
D2103-03	Standard Specification for Polyethylene Film and Sheeting
D5118/D5118M-95 (2001)	Standard Practice for Fabrication of Fiberboard Shipping Boxes

AOAC INTERNATIONAL Official Methods of Analysis (OMA) of the AOAC International

UNITED STATES PHARMACOPOEIA (USP)

NATIONAL ACADEMY OF SCIENCES Food Chemicals Codex

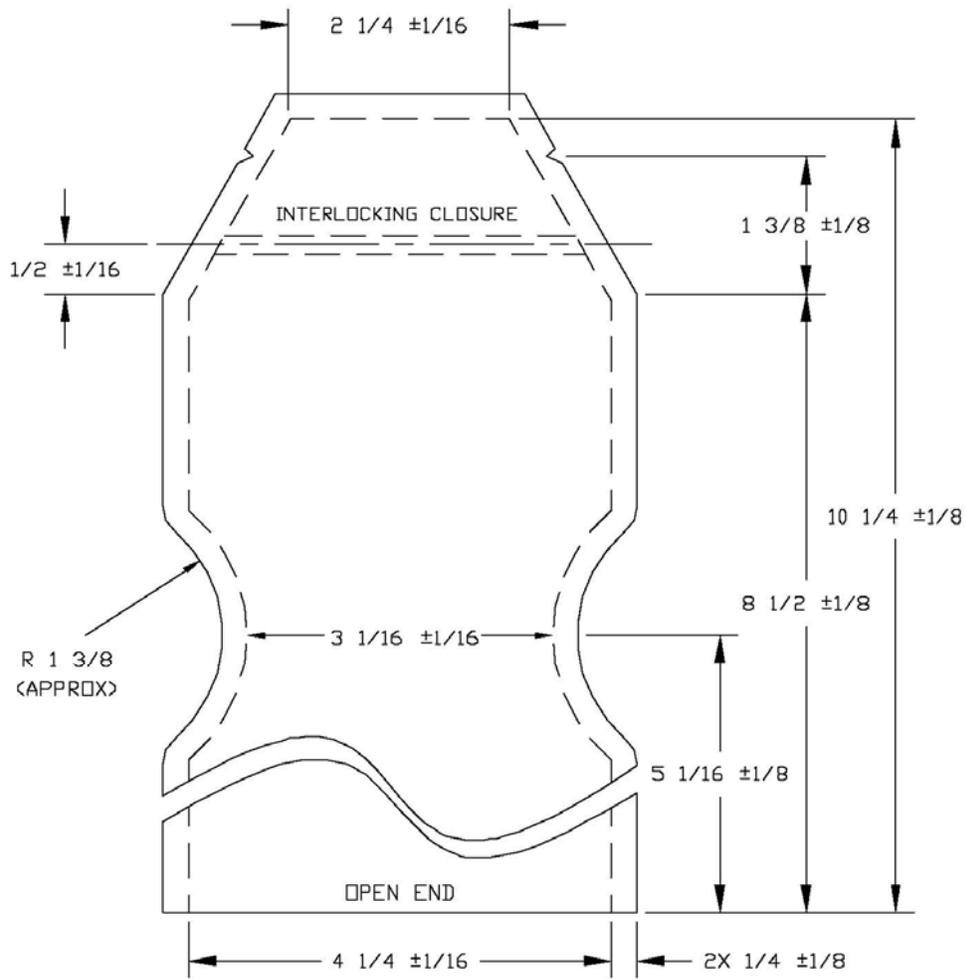


FIGURE 1. Design B Flat, Interlocking Closure Pouch
 (Not actual size)

Comment [U7]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08. Delete current Figure 1. ; insert New Figure 1 on page 20

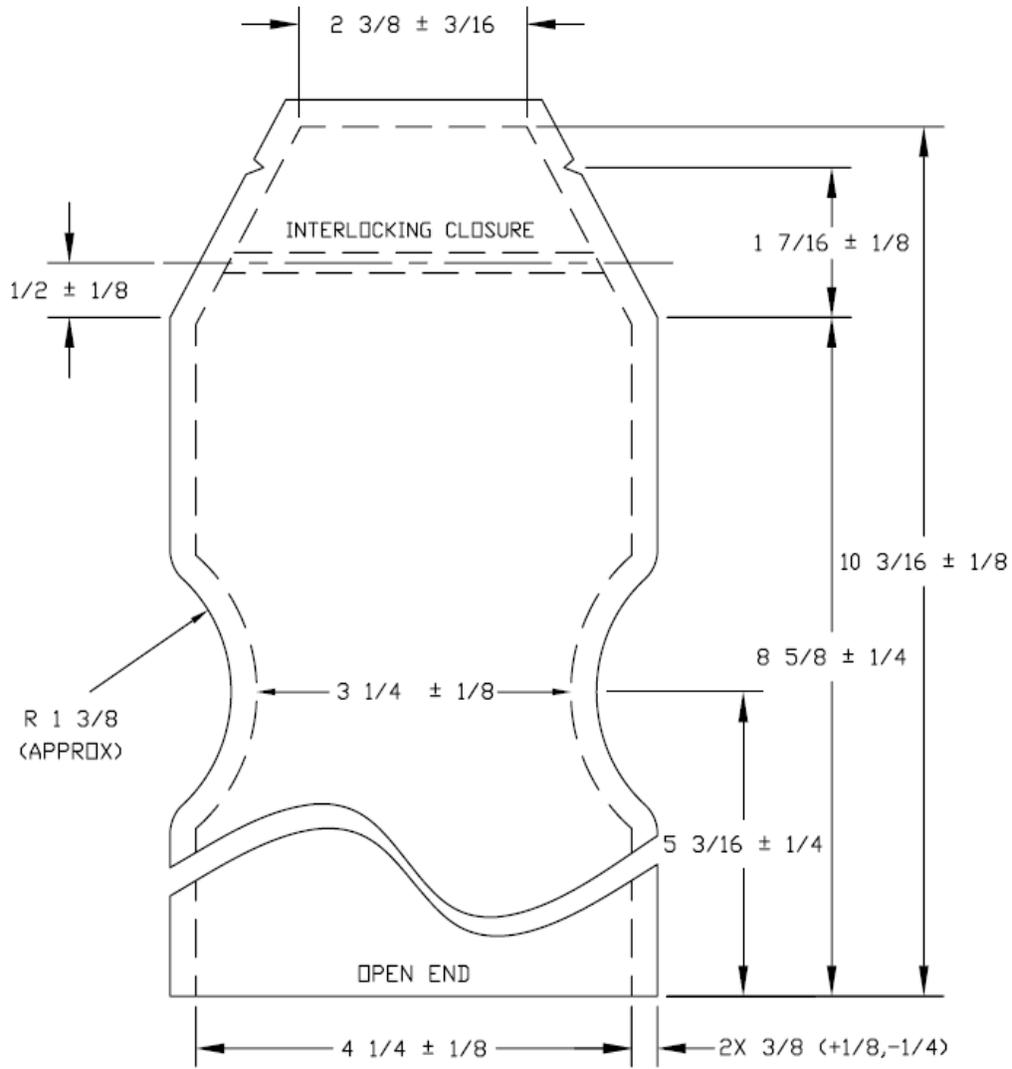


FIGURE 1. Design B Flat, Interlocking Closure Pouch
 (Not actual size)

Comment [p8]: Natick case ES08-147 (DSCP-SS-08-19888) change 06, 16-DEC-08. New figure 1

For DSCP Website Posting

AMSRD-NSR-CF-F

16 December 2008

TO: DSCP-FTRE

SUBJECT: ES08-147 (DSCP-SS-08-19888) Review of Interlocking Closure Pouch, Design B, Packaging changes for PCR-C-041 Cocoa Beverage Powder.

Date received: 30 September 2008

Date due: 29 October 2008

Date extended: Open

Date replied: 16 December 2008

1. Natick reviewed the interlocking closure pouch requirements for the subject document and evaluated submitted samples from the vendors.
2. Natick submits the following change to the subject document for all current, pending and future contracts until the document is formally amended or revised:
 - a. Section C-1, Designs, after "A Flat pouch", insert "(discontinued)"
 - b. Section D-1, A, (1), Design A Flat pouches. Delete entirely sub para a., b., and c.
 - c. Section D-1, A, (2), b. Pouch construction, line 3, delete "1/4 inch (\pm 1/8 inch) wide seals."; insert "3/8 inch (+1/8,-1/4) wide seals."
 - d. Section D-1, A, (2), c. Pouch filling and sealing, make the following changes:
 - (1) Line 2, delete "3/8 inch \pm 1/4 inch"; insert "1/8 to 1 inch"
 - (2) Insert the following new sentence after sentence one: "The closure seal shall be applied no more than 1/2 inch from the open end of the pouch."
 - e. Section D-2, A, (9) Fill line paragraph. Delete "4-3/4 \pm 1/4 inches from the bottom open end of the pouch"; insert "4-1/8 \pm 1/4 inches from the inside edge of the closure seal."
 - f. Section E-6, A, 3. Table II. Defect 109, delete "within \pm 1/4 inch of 4-3/4 inches from the bottom open end."; insert "4-1/8 \pm 1/4 inches from the inside edge of the closure seal."

g. Figure 1. Design B Flat, Interlocking Closure Pouch, delete entirely; insert new Figure 1

3. The Figure 1. Design B Flat, Interlocking Closure Pouch has been updated to include new measurements that reflect both manufacturing methods for the pouch and tolerances for those processes. The file is attached. Please note that the drawing is not actual size nor is it to engineering scale and should not be used as a direct drawing for die manufacture. The measurements themselves are the requirements.

4. The Design A, flat pouch requirements are deleted for the subject document since this product only uses the interlocking closure pouch in all operational rations. Eliminating the flat pouch requirements will greatly simplify the document.