

## **SECTION C**

This document covers Egg Mix, Pasteurized, Uncooked, Dehydrated, packaged in a boil-in-bag (BIB) pouch then overpacked in a barrier pouch, for use by the Department of Defense as a component of operational rations.

### **C-1 ITEM DESCRIPTION**

**PCR-E-017, EGG MIX, PASTEURIZED, UNCOOKED, DEHYDRATED,  
PACKAGED IN A BOIL-IN-BAG (BIB) POUCH**

### **C-2 PRODUCT 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 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 product, overpacked in a barrier pouch, shall meet the minimum shelf life requirement of 36 months at 80°F.

C. Dehydrated product.

(1) Appearance. The product shall be pasteurized, uncooked, dehydrated egg mix. The egg mix shall be a free flowing homogenous mixture. The egg mix shall be free from foreign materials. The egg mix shall be light yellow in color.

(2) Odor. The product shall have an odor of butter-flavored egg mix. The egg mix shall be free from foreign odors.

(3) Texture. The product shall have no lumps that cannot be broken apart under light finger pressure.

D. Rehydrated and cooked product. The product shall rehydrate readily in accordance with label instructions and shall show complete water penetration within five minutes. The rehydrated egg mix shall be cooked. Cooking shall be by placing the packaged egg mix in boiling water or by pouring egg mix onto a grill.

(1) Appearance. The rehydrated and cooked product shall have the appearance of cooked scrambled eggs. The eggs shall be light yellow in color, with no color foreign to the product.

(2) Odor and flavor. The rehydrated and cooked product shall have an odor and flavor of cooked scrambled eggs with butter. The eggs shall be free from foreign odors and flavors.

(3) Texture. The rehydrated and cooked product shall be moist and tender and shall have a texture of cooked scrambled eggs.

E. Net weight. The average net weight shall be not less than 500 grams (17.6 ounces). No individual pouch shall have a net weight of less than 475 grams (16.8 ounces).

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

G. Analytical requirements.

(1) Protein content. The protein content shall be not less than 36 percent.

(2) Salt content. The salt content shall be not less than 0.5 and not greater than 1.0 percent.

(3) Moisture content. The moisture content of any individual pouch shall not be greater than 2.0 percent.

H. Microbiological requirements.

(1) Aerobic plate count. The aerobic plate count shall not exceed 25,000 CFU/gram.

(2) E. coli count. The *E. coli* count shall be less than 3 per gram using the MPN technique.

(3) Salmonella. The *Salmonella* test shall be negative in 25 grams.

I. Oxygen content. The oxygen content of the headspace gas in the barrier pouch shall not exceed 2.0 percent. Product shall be tested no sooner than 96 hours after packaging.

J. Ingredients.

(1) Eggs. The egg components shall be produced under USDA inspection in compliance with the Egg Products Inspection Act. The liquid egg mix, prior to dehydration, shall contain a minimum of 80 percent eggs.

Comment [CN1]: ES06-070, change 01 21 June 06 to assure the amount of egg in product.

(2) Milk. The U.S. Extra Grade Nonfat Dry Milk shall be produced in a facility in compliance with the provisions of the General Specifications for Approved Plants and Standards for Grades of Dairy Products and listed in the Publication Dairy Plants Surveyed and Approved for USDA Grading Service.

(3) Additional ingredients. Additional ingredients; such as salt, citric acid, butter flavor, water, and flavors; may be used.

(3) Dry buttermilk. The U.S. Extra Grade Dry Buttermilk and Dry Buttermilk Product shall be produced in a USDA approved plant.

(4) Additional ingredients. Additional ingredients; such as salt, citric acid, butter flavor, carrageenan, starch, water, and flavors; may be used.

Comment [CN2]: ES06-070, change 01 21 June 06 to cite other potential ingredients.

K. Processing.

(1) Pasteurization. The liquid eggs or liquid egg mix shall be pasteurized in accordance with USDA Egg Inspection guidelines. The pasteurized egg mix may be held at 40°F or below for not more than 48 hours prior to drying or freezing. Note: Frozen eggs may be stored up to six months prior to freeze drying if held at 0°F or below.

Comment [CN3]: ES06-070, change 01 21 June 06 to emphasize the pasteurization step.

(2) Dehydration. The product shall be dehydrated utilizing pressures and temperatures so that the end product meets the requirements.

L. Pouch filling and sealing. The product shall be completely packaged within 96 hours from drying. If the product cannot be packaged within 96 hours, then the remaining product shall be adequately protected from moisture and oxygen by either holding under a nitrogen atmosphere with 2.0 percent or less oxygen, or under a vacuum of at least 27 inches of mercury (27 Hg). If vacuum is used, it shall be broken with nitrogen. Product may be held for a period not to exceed 30 days prior to packaging into pouches.

**SECTION D**

**D-1 PACKAGING**

A. Packaging. Five hundred grams (17.6 oz) of product shall be packaged in a preformed BIB pouch as described below. The pouch shall be used as a rehydrating pouch and may be used as the cooking vessel for the product.

(1) BIB pouch.

a. Pouch material. The preformed pouch shall be fabricated from 0.0020 inch thick LLDPE/EVOH/LLDPE laminated or extrusion coated to 0.0006 inch thick biaxially oriented nylon (BON) which is then bonded with 0.0020 inch thick polyethylene. All tolerances for thickness of pouch material shall be plus or minus 20 percent. Alternative materials shall be acceptable if all performance requirements are met. 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 clear or translucent so the water level is visible through the pouch.

b. Pouch construction. The pouch shall be a flat style preformed pouch having inside dimensions of 11-3/4 inches by 15-3/8 inches ( $\pm 1/8$  inch). The pouch shall be made by heat sealing three edges with 3/8 inch (-1/8, +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 when tested as specified in E-6,B,(1),a. A heat seal, minimum 4 inches long, shall be placed in the center of the pouch to create a partial left/right division in the pouch. The pouch shall show no material degradation and shall not damage the product when the rehydrated product in the BIB pouch is placed in boiling water for 2 hours when tested in accordance with E-6,B,(3).

c. Cap. The plastic threaded fitment cap shall have a minimum opening of 1-1/2 inch. The cap shall thread onto the neck to provide a liquid barrier.

d. Venting. The pouch shall be fitted with a one-way air venting system which allows air to escape and does not allow water to enter the pouch.

e. Pouch filling and sealing. Product shall be inserted into the pouch and the filled pouch shall be sealed 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 when tested as specified in E-6,B,(1),b.

(2) Barrier pouch. Three BIB pouches and oxygen scavenger(s) shall be placed in a barrier foil pouch having maximum outside dimensions of 18 by 18 inches. The pouch shall be made from a heat sealable barrier material, one layer of which is a minimum of 0.00035 inch thick aluminum foil. All four edges of the pouch shall be heat-sealed with seals not less than 1/8 inch wide. A tear notch shall be provided on one or two opposite outside edges of the pouch. The side, bottom and closure seals shall have an average seal strength of not less than 6 pounds per inch of width and no individual specimen shall have a seal strength of less than 5 pounds per inch of width when tested as specified in E-6,B,(1),a. Alternatively, the sealed pouch shall not leak when examined in accordance with Section E-6,B,(1),c.

(3) Oxygen scavenger packet. The oxygen scavenger (absorber) shall be constructed of materials that are safe for direct and indirect food contact, and shall be suitable for use with edible products. The oxygen scavenger (absorber) shall be in compliance with all applicable FDA and USDA regulations

(4) Paperboard carton. One barrier pouch shall be packed in a paperboard carton. The carton shall be RSC, tray or telescoping design. The paperboard shall be minimum 0.028 inch thick and shall have a minimum basis weight of 100 pounds per square feet. The paperboard may be coated. The paperboard may be bleached. The use of materials composed of the highest percentage of recovered materials practicable is encouraged. The outside dimensions of the carton shall not exceed 12-1/2 x 11-1/2 x 4-1/2 inches.

**D-2 LABELING**

A. BIB pouch. Each BIB pouch shall be correctly and legibly labeled. Printing ink (direct printing or label) shall be permanent black ink or other, dark, contrasting color which is free of carcinogenic elements. A carcinogenic-free pre-printed self-adhering clear polyester label printed with indelible contrasting ink may also be used. The label shall contain the following information:

- (1) Name of product (letters not less than 1/4 inch high)
- (2) Ingredients
- (3) Date 1/
- (4) Net Weight
- (5) Contractor's name and address

NOTE: There shall be a black line, minimum 1/16 inch thick, on the pouch, indicating the fill level.

1/ Each pouch shall have the date of pack noted by using a four-digit code beginning with the final digit of the current year followed by the three digit Julian day code. For example, 23 May 06 would be coded as 6143. The Julian day code shall represent the day the product was packaged into the BIB pouch.

The following instructions shall also be on the BIB pouch:

**YIELD:** Serves 18 portions of approximately 1/2 cup each.

**PREPARATION:** Shake pouch to settle contents. Open cap. Support pouch on flat surface. Add about 56 ounces (7 cups) of potable water to fill line. Replace cap. Shake pouch until contents are rehydrated. Knead if necessary. If level of egg mix is below fill line, add more water.

**WARNING:** Do not heat pouch in oven.

**Rehydrated egg mix should be used within one hour unless refrigerated. Do not use rehydrated egg mix in uncooked salad dressings or other recipes that do not require cooking.**

### **COOKING**

**IN WATER:** Place unopened pouch in boiling water. Simmer gently 35 minutes or until egg appears fully cooked. Avoid overcooking (pouch may show evidence of bulging).

**ON GRILL:** Use as a fresh liquid egg product and fully cook.

**TO TRANSPORT AFTER HEATING:** Insert pouch into an insulated food container or empty cooked eggs into an insulated food container to protect during transport.

**CAUTION:** Use care when opening as pressure may have been generated within the pouch.

**TO OPEN:** Cut bottom of pouch with clean knife.

Note: The font tested by Natick was Microsoft Helvetica. The font used shall be similarly clear/easy to read as Helvetica. The recommended font sizes are as follows: 22 for the product name, 14 for “yield” and “to heat in water.” If an additional note is required on the label, such as “fluff before serving,” it should also be in font size 14.

B. Barrier pouch. Each barrier pouch shall be correctly and legibly labeled. Printing ink shall be permanent black ink or other, dark, contrasting color. The label shall contain the following information:

- (1) Name of product (letters not less than 1/4 inch high)
- (2) Contents
- (3) Date   /  /
- (4) Contractor's name and address

In addition, the following warning shall be labeled:

**DO NOT OPEN WITH KNIFE**  
**USE IMMEDIATELY. DO NOT STORE BOIL-IN-BAG POUCHES.**

1/ Each pouch shall have the date of pack noted by using a four-digit code beginning with the final digit of the current year followed by the three digit Julian day code. For example, 23 May 06 would be coded as 6143. The Julian day code shall represent the day the product was packaged into the BIB pouch.

C. Paperboard carton. Each carton shall be correctly and legibly labeled. Printing ink shall be permanent black ink or other, dark, contrasting color. The label shall contain the following information:

- (1) Name of product (letters not less than 1/4 inch high)
- (2) Contents
- (3) Date 1/
- (4) Contractor's name and address

1/ Each carton shall have the date of pack noted by using a four-digit code beginning with the final digit of the current year followed by the three digit Julian day code. For example, 23 May 06 would be coded as 6143. The Julian day code shall represent the day the product was packaged into the BIB pouch.

### **D-3 PACKING**

A. Packing for shipment to ration assembler. Paperboard cartons of packaged product shall be packed in a fiberboard shipping container conforming to style RSC-L, type CF, grade 275 of ASTM D 5118/D 5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each shipping container shall be closed in accordance with ASTM D 1974, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

### **D-4 UNITIZATION**

A. Unit loads. Unit loads shall be as specified in DSCP FORM 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items.

### **D-5 MARKING**

A. Shipping containers and unit loads. Marking of shipping containers and unit loads shall be as specified in 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. CoC 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. The sample unit shall be one paperboard carton. Two (2) sample units of each item produced shall be randomly selected from that one lot. The two (2) sample units shall be shipped to Natick within five working days from the end of the production month and upon completion of all USDA inspection requirements. The sample units will be evaluated for the characteristics of appearance, odor, flavor, texture and overall quality.

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

**E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)**

A. Product examination. The 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. The lot size shall be expressed in BIB pouches. The sample unit shall be the contents of one BIB 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 6.5 for minor defects. Defects and defect classifications are listed in table I.

TABLE I. Product defects 1/ 2/ 3/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
101		Product not dehydrated egg mix.
<b><u>Dehydrated product</u></b>		
<u>Appearance</u>		
	201	Egg mix not free flowing or not a homogenous mixture.
	202	Egg mix not light yellow color.
<u>Odor</u>		
102		Packaged food does not have an odor of butter-flavored egg mix.
<u>Texture</u>		
	203	Presence of hard lumps. <u>4/</u>

TABLE I. Product defects cont'd 1/ 2/ 3/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Weight</u>
	204	Net weight of an individual BIB pouch less than 475 grams (16.8 ounces). <u>5/</u>
		<b><u>Rehydrated and cooked product</u></b> <u>6/</u>
		<u>Appearance</u>
	205	Product does not rehydrate readily or does not show complete water penetration within 5 minutes.
103		Not cooked scrambled eggs appearance.
	206	Eggs not light yellow in color.
		<u>Odor and flavor</u>
104		Cooked eggs do not have the odor or flavor of cooked scrambled eggs with butter.
		<u>Texture</u>
	207	Cooked egg product not moist or not tender.
	208	Texture not cooked scrambled eggs.

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

2/ 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 dehydrated product.

3/ The producer shall provide a USDA Certificate for the eggs and a USDA Grade Certificate for the nonfat dry milk and the dry buttermilk. The percent egg in the liquid egg mix shall be verified by CoC.

Comment [CN4]: ES06-070, to verify ingredients.

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

5/ Sample average net weight less than 500 grams (17.6 ounces) shall be cause for rejection of the lot.

6/ Prepare egg mix in accordance with boil-in-bag directions.

B. Methods of inspection.

(1) Shelf life. The contractor shall provide a Certificate of Conformance (CoC) 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 hedonic scale to be considered acceptable.

(2) Net weight. The net weight of the filled and sealed pouch shall be determined by weighing each sample unit on a suitable scale tared with a representative empty pouch. Results shall be reported to the nearest 1 gram or 0.1 ounce.

(3) Oxygen content. Eight filled and sealed barrier pouches shall be randomly selected from one lot and individually tested for oxygen content in accordance with any established test method. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 96 hours from the time of sealing. Test results shall be reported to the nearest 0.10 percent. Verification will be conducted through actual testing by a Government laboratory. Any individual result not conforming to the oxygen content requirement shall be cause for rejection of the lot.

(4) Analytical. The sample to be analyzed shall be a one-pound composite of dehydrated egg mix from three filled and sealed pouches that have been selected at random from one lot. The composite sample shall be prepared and analyzed in accordance with the following Official Methods of Analysis (OMA) of AOAC International.

<u>Test</u>	<u>Method Number</u>
Protein	988.05, 992.15
Salt	935.47
Moisture	927.05, 985.14

Test results for salt, moisture and protein 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.

(5) Microbiological testing. Eight filled and sealed pouches shall be selected at random from the lot. The product shall be individually tested in accordance with the Official Methods of Analysis (OMA) of the AOAC International or FDA Bacteriological Analytical Manual (BAM) methods.

<u>Test</u>	<u>Method Number</u>
Aerobic Plate Count	990.12, 966.23
<i>E. coli</i>	966.24 or BAM Ch. 4 (IC & IF)
<i>Salmonella</i>	967.26, 986.35, 994.04, 996.08, 2000.06 (b)

For *Salmonella*, other AOAC rapid screening methods for dried egg products are permitted.

The test results for aerobic plate count shall be reported to the nearest 100/gram, and *E. coli* to the nearest MPN. The test results for *Salmonella* shall be reported as negative or positive in 25 grams. 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.

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

A. Packaging.

(1) BIB and barrier pouch material certification. Material listed below may be accepted on the basis of a contractor's Certification of Conformance (CoC) to the indicated requirements. In addition, compliance to the requirements for inside pouch dimensions and dimensions of manufacturer's seals may be verified by CoC.

<u>Requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Thickness of films for laminated material	D-1,A,(1) & (2)	As specified in ASTM D 2103 <u>1/</u>
Laminated material identification and construction	D-1,A,(1) & (2)	Laboratory evaluation.
Color of BIB pouch Material	D-1,A,(1)	Fill the pouch with minimum 8 oz. of water. The water level in the pouch shall be easily discernible through the pouch material. Inability to discern the water level shall constitute a test failure.

1/ ASTM D 2103 Specification for Polyethylene Film and Sheeting

(2) Unfilled BIB and barrier preformed pouch certification. A Certification of Conformance may be accepted as evidence that unfilled BIB and barrier pouches conform to the requirements specified in D-1,A,(1) & (2). 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 BIB pouch examination. The filled and sealed BIB 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 BIB pouch defects 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Tear or hole or open seal.
102		Seal width less than 1/16 inch. <u>2/</u>
103		Presence of delamination. <u>3/</u>
104		Unclean pouch. <u>4/</u>
105		Pouch has foreign odor.
106		Any impression or design on the heat seal surfaces which conceals or impairs visual detection of seal defects. <u>5/</u>
	201	Label missing or incorrect or illegible.
	202	Seal width less than 1/8 inch but greater than 1/16 inch.
	203	Presence of delamination. <u>3/</u>
	204	Center heat seal not provided.
107		Venting system missing or not functional.
108		Cap missing or does not fit or does not provide a liquid barrier.
	205	Fill line missing or incorrect.
	206	When self-adhering label is used, label not adhered to pouch (for example, label raised or peeled back or presence of gaps along perimeter).

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

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

3/ Delamination defect classification:

Major - Delamination of the outer ply in the pouch seal area that can be propagated to expose inner barrier film 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.

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

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

(4) Filled and sealed barrier pouch examination. The filled and sealed barrier pouches shall be examined for the defects listed in Table III. 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 III. Filled and sealed barrier pouch defects 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Tear or hole or open seal.
102		Seal width less than 1/16 inch. 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/
	201	Label missing or incorrect or illegible.
	202	Tear notch missing or does not facilitate easy opening.
	203	Seal width less than 1/8 inch but greater than 1/16 inch.
	204	Presence of delamination. 3/
107		Not 3 BIB pouches in barrier pouch.

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

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

3/ Delamination defect classification:

Major - Delamination of the outer ply in the pouch seal area that can be propagated to expose inner barrier film 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.

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

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

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

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

**B. Methods of inspection.**

(1) Seal testing. The pouch seals shall be tested for seal strength as required in a, b or c, as applicable.

a. Unfilled preformed pouch seal testing. The seals of the unfilled preformed BIB or barrier pouch shall be tested for seal strength in accordance with ASTM F 88, Standard Test Method for Seal Strength of Flexible Barrier Materials. The lot size shall be expressed in pouches. The sample size shall be the number of pouches indicated by inspection level S-1. Three adjacent specimens shall be cut from each of the three sealed sides of each pouch in the sample. The average seal strength of any side shall be calculated by averaging the three specimens cut from that side. Any average seal strength of less than 6 pounds per inch of width or any test specimen with a seal strength of less than 5 pounds per inch of width shall be classified as a major defect and shall be cause for rejection of the lot.

b. Pouch closure seal testing. The closure seals of the BIB or barrier pouch shall be tested for seal strength in accordance with ASTM F 88. The lot size shall be expressed in pouches. The sample size shall be the number of pouches indicated by inspection level S-1. Any average seal strength of less than 6 pounds per inch of width or any test specimen with a seal strength of less than 5 pounds per inch of width shall be classified as a major defect and shall be cause for rejection of the lot.

c. Internal pressure test (for barrier pouch). The internal pressure resistance shall be determined by pressurizing the barrier 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 bottom seals of the pouch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be equal to the thickness of the product +1/16 inch. Pressure shall be applied at the approximate uniform rate of 1 pound per square inch gage (psig) per second until 14 psig pressure is reached. The 14 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for separation or yield of the heat seals. Any rupture of the pouch or evidence of seal separation greater than 1/16 inch in the pouch manufacturer's seal shall be considered a test failure. Any seal separation that reduces the effective closure seal width to less than 1/16 inch (see table II, footnote 2/) shall be considered a test failure. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

(2) Label adhesive examination. When self-adhering labels are used, the adhesive shall be tested in accordance with ASTM D 3330/D 3330M, Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape. In lieu of testing, a CoC shall be provided.

(3) BIB in boiling water test. Rehydrated BIB egg mix pouches shall be tested for durability in boiling water. The lot size shall be expressed in BIB pouches. The inspection level shall be S-2. The rehydrated BIB pouches shall be placed in boiling water for two hours. After removal from the boiling water, the pouches shall be inspected. Any delamination or degradation of the BIB pouch or damage to the product shall be classified as a major defect and shall be cause for rejection of the lot.

C. Paperboard carton. The filled and closed paperboard cartons shall be examined for the defects listed in table IV. The lot size shall be expressed in paperboard boxes. The sample unit shall be one carton 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 IV. Paperboard carton and label defects

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Labeling missing or incorrect or illegible.
102		Inadequate workmanship. <u>1/</u>
	201	Does not contain one filled and sealed barrier pouch.

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

D. Packing.

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table V. 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 V. Shipping container and marking defects

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Marking missing or incorrect or illegible.
102		Inadequate workmanship. <u>1/</u>

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.

D. Unitization.

(1) Unit load examination. The unit load shall be examined in accordance with the requirements of DSCP FORM 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items. Any nonconformance shall be classified as a major defect.

**SECTION J REFERENCE DOCUMENTS**

DSCP FORMS

- |                |   |
|----------------|---|
| DSCP FORM 3507 | Loads, Unit: Preparation of Semiperishable Subsistence Items                                      |
| 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 (9 CFR Parts 1-391)

Inspection of Egg and Egg Products (Egg Products Inspection Act 7 CFR)

FDA Bacteriological Analytical Manual (BAM), 8th Edition

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ)

- |                    |   |
|--------------------|---|
| ANSI/ASQCZ1.4-2003 | Sampling Procedures and Tables for Inspection by Attributes |
|--------------------|---|

ASTM INTERNATIONAL

- |                    |   |
|--------------------|---|
| D 1974-98 (2003)   | Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes |
| D 5118/D 5118M-05a | Standard Practice for Fabrication of Fiberboard Shipping Boxes                      |
| D 2103-05          | Specification for Polyethylene Film and Sheeting                                    |
| D 3330/D 3330M-04  | Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape.                  |

AOAC INTERNATIONAL

Official Methods of Analysis (OMA) of the AOAC International

**For DSCP Website posting**

AMSRD-NSC-CF-F

21 June 06

TO: DSCP-SS

Subject: ES 06-070; Resolution of Additional Comments on Document, PCR-E-017, Egg, Mix, Pasteurized, Uncooked, Dehydrated, Packaged in a Boil-In-Bag Pouch

1. The introduction of the Boil-In-Bag (BIB) eggs generated much interest and many comments during the development of the document, PCR-E-017. Since the approval of the document, additional comments were received.
2. The following discussions on the comments and issues are presented:
  - a. USDA inspectors will be present when eggs are cracked and when the liquid eggs or egg mix is pasteurized. In para C-2, K(1), language was improved to cite that the liquid eggs or egg mix shall be pasteurized in accordance with the USDA Egg Inspection.
  - b. The concern about the source of the protein in the egg mix led to addition of a requirement that a minimum of 80% of the egg mix shall be eggs.
  - c. The current moisture level requirement is not more than 2%. While recognizing that this is a potential challenge for spray drying type operations, there is no shelf life data for a product at a higher moisture level. At this time, the 2% moisture requirement will be retained.
  - d. With the emphasis on end item performance requirements, attributes such as palatability and overall appearance are subjectively assessed with a Product Demonstration Model (PDM) or First Article.
  - e. Conducting the oxygen content test 96 hours after packaging is necessary to allow the product to equilibrate.
  - f. The compositing of samples for analytical testing is based on lowering the overall cost and has been effective in the past on a wide range of products.
  - g. Seal testing may be waived with a Certificate of Conformance (CoC). Contractor still retains responsibility to provide a properly sealed pouch.

**PCR-E-017**  
**23 May 06**  
**CHANGE 01 21 June 06**

h. Additional potential ingredients (dry buttermilk, starch and carrageenan) were added to the document.

3. The corrected document is Change 01, dated 21 June 06.