SECTION C

This document covers pasteurized, uncooked, dehydrated egg mix packaged in a boil-in-bag (BIB) 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-020, EGG MIX, PASTEURIZED, UNCOOKED, DEHYDRATED, PACKAGED IN A BOIL-IN-BAG (BIB)

Class, type, and style.

Class.

Class 2 - Large opening fitment and cap

Type.

Type I - BIB with center seal

Style.

Style A - Freeze-dried

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 noncomparable to the product standard, the contractor shall submit a replacement FA or PDM for approval. In any event, all product produced must meet all requirements of this document including product standard comparability.

B. Shelf life. The packaged product, overpacked in a barrier pouch, shall meet the minimum shelf life requirement of 36 months at 80°F.

C. Dehydrated, uncooked product.

(1) Appearance. The finished product shall be dehydrated, uncooked egg mix. The egg mix shall be a free-flowing homogenous powder. The egg mix shall be a light yellow color and free of scorched particles. The finished product shall be free from foreign materials.

(2) Odor. The dehydrated packaged food shall have an odor of butter and egg. The dehydrated packaged food shall be free from foreign odors.

(3) Texture. The product shall not have wet or soft spots indicating incomplete dehydration. The product shall have no lumps that cannot be broken apart under light pressure.

D. Net weight. The average net weight shall be not less than 20 ounces (567 grams). The net weight of an individual BIB shall be not less than 19.8 ounces (561 grams).

E. Rehydrated, cooked product. The finished product shall rehydrate readily in accordance with label instructions and shall show complete water penetration within five minutes. After rehydration the egg mix shall be fully cooked per the preparation instructions in Section D of this Product Contract Requirements document.

(1) Appearance. The finished product shall be cooked scrambled eggs. The scrambled eggs shall be a light yellow color. The finished product shall be free from foreign colors and materials.

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

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

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) Protein. The protein content shall be not less than 36.0 percent.

(2) Salt. The salt content shall be not greater than 3.5 percent.

(3) Moisture. The moisture content of the dehydrated product shall be not greater than 3.0 percent.

(4) Oxygen. The oxygen content of the headspace gas in the barrier pouch shall not exceed 2.0 percent.

H. Microbiological requirements.

(1) Aerobic plate count. The aerobic plate count shall not exceed 25,000 Colony Forming Units (CFU) per gram.

(2) *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.

(3) *Listeria monocytogenes*. The *Listeria monocytogenes* test shall be negative.

(4) S*almonella*. The S*almonella* test shall be negative for each of five BIBs tested per production lot.

I. Ingredients.

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

(2) Additional ingredients. Additional ingredients, such as nonfat dry milk, salt, citric acid, butter flavor, carrageenan, starch, water, and other flavors may be used.

J. Processing.

(1) Pasteurization. Prior to dehydrating, the liquid egg mix shall be pasteurized in accordance with USDA Food Safety Inspection Service (FSIS) Egg Products Inspection Regulations (9 CFR Part 590). The pasteurized egg mix shall be held at 40°F or below for not more than 120 hours prior to dehydrating or freezing. Note: Frozen eggs may be stored up to twelve months prior to dehydrating if held at 0°F or below.

(2) Freeze-Dried (Style A only). The product shall be freeze-dried utilizing pressures and temperatures such that the finished product meets the requirements specified herein and is produced according to USDA FSIS Egg Products Inspection Regulations (9 CFR Part 590).

K. BIB filling and sealing. The product shall be packaged into the BIB and then into the barrier pouch within 312 hours from drying. If the product cannot be packaged within 312 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 BIBs.

SECTION D

D-1 PACKAGING

A. Packaging. The product shall be filled and sealed in a preformed BIB in accordance with PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A BOIL-IN-BAG (BIB).

(1) Barrier pouch. Two BIB(s) and oxygen scavenger(s) (in accordance with the applicable assembly document) shall be placed in a barrier pouch having maximum outside dimensions of 18 by 18 inches. The pouch shall be made from a heat sealable barrier material. Note that material conforming to MIL-PRF-131 has been used. All four edges of the pouch shall be heat-sealed with seals not less than 1/8 inch wide. The BIB(s) and oxygen scavenger(s) shall not be entrapped in the heat seals. 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. Alternatively, the filled and sealed pouch shall exhibit no rupture or seal separation greater than 1/16 inch or seal separation that reduces the effective closure seal width to less than 1/16 inch when tested for internal pressure resistance. A tear nick, notch, or serrations shall be provided to facilitate opening of the filled and sealed pouch.

(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.

(3) Box. One barrier pouch with two BIB(s) and oxygen scavenger(s) shall be packed in a box in accordance with the applicable assembly document. The box shall be style RSC (Regular Slotted Container), or telescoping design. If paperboard is used, it shall be minimum 0.028 inch thick and shall have a minimum basis weight of 100 pounds per 1,000 square feet (ream). The material may be coated. The material may be bleached. Corrugated materials of E, B, or C flute may also be used. 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 by 11-1/2 by 4-1/2 inches.

D-2 LABELING

A. Labeling. Each BIB shall be correctly and legibly labeled. Printing ink shall be permanent black ink or other dark contrasting color, which is free of carcinogenic elements. Each BIB shall include clearly marked water fill lines on the pouch (e.g., Lines A, B, C, D, E), with a black line at a minimum thickness of 1/16 inch. The corresponding line will be referenced in the preparation instructions as water add indicators.

The following instructions shall be printed on the BIB:

WARNING: Do not heat BIB in oven. Cook rehydrated product within one hour, unless refrigerated for use within 24 hours.

CAUTION: Use care when opening, as pressure may have been generated within the BIB.

TO OPEN: Cut bottom of BIB with clean knife.

B. Barrier pouch. Each barrier 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. 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
(6) Official establishment number
(7) USDA official inspection legend for the packer’s plant
(8) “Nutrition Facts” label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable USDA regulations

1/ Each barrier 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 BIB.

The following instructions shall be printed on the barrier pouch:

YIELD: Serves 25 portions of approximately 1/2 cup each.

PREPARATION:

1. Shake BIB to settle contents. Open cap.
2. Support BIB on flat surface.
3. Add about 64 fluid ounces (8 cups) of potable water to fill line H. Replace cap. (In the absence of a measuring device, add water to fill line marked H. An approximate measure is sufficient to achieve desired rehydration.)
4. Shake BIB until contents are rehydrated. Knead if necessary.
5. Loosen cap and remove excess air from BIB. Tighten cap.

WARNING: Do not heat BIB in oven.
Rehydrated egg mix should be cooked within one hour unless refrigerated for use within 24 hours. Do not use rehydrated egg mix in uncooked salad dressings or other recipes that do not require cooking.

COOKING:

IN WATER: Place rehydrated closed BIB in boiling water. Simmer gently for 12 minutes. Remove from boiling water. Place BIB on a flat surface and knead product until thoroughly mixed. Place BIB back in boiling water for an additional 23 minutes or until egg appears fully cooked. Avoid overcooking (BIB may show evidence of bulging).

ON GRILL: Use as a rehydrated egg mix and fully cook.

TO TRANSPORT AFTER HEATING: Insert BIB into an insulated food container or empty cooked product into an insulated food container to protect during transport.

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

TO OPEN: Cut bottom of BIB with clean knife.

Note: The font tested by DEVCOM Soldier Center 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 “cooking/heating.” If an additional note is required on the label it should also be in font size 14. All other information should be in font size 9.

(1) The product shall be formulated and labeled in accordance with all USDA labeling regulations and policies. The barrier pouch shall be labeled with the following product name:

EGG MIX, PASTEURIZED, UNCOOKED, DEHYDRATED

In addition, the label shall contain the following warnings:

DO NOT OPEN WITH KNIFE
USE IMMEDIATELY
DO NOT STORE REHYDRATED PRODUCT IN BOIL-IN-BAG POUCHES

C. Box. Each box 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 box 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 BIB.

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 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-4 UNITIZATION

A. Unit loads. Unit loads shall be as specified in accordance with DLA Troop Support Form 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items.

D-5 MARKING

A. Shipping containers and unit loads. Shipping containers and unit loads shall be marked in accordance with DLA Troop Support Form 3556, Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence.

SECTION E INSPECTION AND ACCEPTANCE

The following quality assurance criteria, utilizing American National Standards Institute (ANSI)/American Society for Quality (ASQ) Z1.4, Sampling Procedures and Tables for Inspection by Attributes, are required. Unless otherwise specified, single sampling plans indicated in ANSI/ASQ Z1.4 will be utilized. When required, the manufacturer shall provide the Certificate(s) of Conformance to the appropriate inspection activity. Certificate(s) of Conformance not provided shall be cause for rejection of the lot.

A. Definitions.

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

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

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

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

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

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

them to the following address for evaluation:

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

One lot shall be randomly selected during each calendar month of production or as otherwise specified in the contract. Two (2) sample units shall be randomly selected from that one production lot. The two (2) sample units shall be shipped to DEVCOM Soldier Center within five (5) working days from the end of the production month from which they are randomly selected and upon completion of all USDA inspection requirements. The sample units will be evaluated for overall quality against the current first article or product demonstration model.

(3) Conformance inspection. Conformance inspection shall include the examinations/tests and methods of inspection cited in this section and in PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A BOIL-IN-BAG (BIB).

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 Product Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. The lot size shall be expressed in BIBs. The sample unit shall be the contents of one BIB. The inspection level shall be S-2 and the acceptance quality limit (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/ 4/

Category		Defect
Major	Minor	
		Dehydrated, uncooked product
		Appearance
101		Product not dehydrated or not uncooked egg mix.
102		Product not style as specified. 5/
	201	Egg mix not a free-flowing or not a homogenous powder.
	202	Egg mix not a light yellow color or not free of scorched particles.
		Odor
103		Dehydrated packaged food does not have an odor of butter or not egg.
		Texture
104		Product has wet or soft spots indicating incomplete dehydration.
	203	Presence of hard lumps. 6/
		Net weight
	204	Net weight of an individual BIB less than 19.8 ounces (561 grams). 7/
		Rehydrated, cooked product 8/
		Appearance
105		Product not cooked scrambled eggs.
	205	Scrambled eggs not a light yellow color.

TABLE I. Product defects 1/ 2/ 3/ 4/ - Continued

Category		Defect
Major	Minor	
		Odor and flavor
106		Rehydrated and cooked packaged food does not have an odor or flavor of cooked scrambled eggs or not with butter.
		Texture
	206	Rehydrated and cooked eggs not moist or not tender or does not have a texture of cooked scrambled eggs.

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 or foreign color shall be cause for rejection of the lot. Foreign flavor is not applicable to dehydrated 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 dehydrated product.

3/ The percent egg in the liquid egg mix shall be verified by Certificate of Conformance (CoC).

4/ Verification that the liquid egg mix is pasteurized shall be verified by CoC.

5/ Verification that Style A is freeze-dried shall be verified by CoC.

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

7/ Sample average net weight less than 20 ounces (567 grams) shall be cause for rejection of the lot.

8/ Prior to conducting the rehydrated and cooked product examination, the product shall be rehydrated and cooked per BIB instructions. Product that does not rehydrate readily or does not show complete water penetration within five minutes shall be cause for rejection of the lot.

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 quality scale to be considered acceptable.

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

(3) Analytical. The sample to be analyzed shall be a one-pound composite from three filled and sealed BIBs that have been selected at random from one lot. The composite sample shall be blended to uniformity using a blender or food processor. The blending must be rapid and conducted in such a way that minimum heat is transferred to the product and that the product has minimum exposure to atmospheric moisture. The composite sample shall be analyzed in accordance with the following Official Methods of Analysis (OMA) of AOAC International:

Test	Method Number
Protein	988.05 or 992.15
Salt	935.47 or 971.27
Moisture 1/	925.09, 925.30, 985.14, 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 100°C.

Test results for the protein, salt and moisture shall be reported to the nearest 0.1 percent. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the analytical requirements specified in Section C of this Product Contract Requirements document shall be cause for rejection of the lot.

(4) Oxygen testing. Eight filled and sealed barrier pouches shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed barrier pouches have been allowed to equilibrate at room temperature for not less than 144 hours from the time of sealing. Test results shall be reported to the nearest 0.01 percent. Government verification will be conducted through actual testing by a Government laboratory. 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.

(5) Microbiological testing. The finished product shall be tested for microbiological activity. Five filled and sealed BIBs shall be selected at random from the lot regardless of lot size. The product shall be individually tested for microbiological levels in accordance with the OMA of AOAC International or the FDA Bacteriological Analytical Manual (BAM) or the FSIS, Microbiology Laboratory Guidebook (MLG). Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the microbiological requirements specified in Section C of this Product 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
E. coli	991.14 or BAM Ch. 4
Listeria monocytogenes	2016.08, RI-080901, RI-070202, FSIS MLG Ch. 8, or BAM Ch. 10
Salmonella	967.26, 994.04, 996.08, 2000.06 (b), 2003.09, 2004.03, 2013.09, 2014.01, RI-121501, or BAM Ch. 5

1/ NOTE: The following condition applies for microbiological testing:

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. Inspection for packaging, labeling, packing, and marking shall be in accordance with the PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A BOIL-IN-BAG (BIB).

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.

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-131	Barrier Materials, Watervaporproof, Greaseproof, Flexible, Heat-Sealable

(Copies of this document are available online at https://quicksearch.dla.mil.)

DLA Troop Support Forms

Form 3507	Loads, Unit: Preparation of Semiperishable Subsistence Items
Form 3556	Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence

(These forms are available online at https://www.dla.mil/Troop-Support/Subsistence/Operational-rations/PCR-ACR/)

GOVERNMENT PUBLICATIONS

FDA Bacteriological Analytical Manual (BAM)
http://www.fda.gov/food/foodscienceresearch/laboratorymethods/ucm2006949.htm

Inspection of Eggs and Egg Products (Egg Products Inspection Act) (9 CFR Part 590)

Food Safety and Inspection Service, Microbiology Laboratory Guidebook (MLG), Chapter 8.

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

D1974/D1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
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

SPECIFICATION

PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR PRODUCT PACKAGED IN A BOIL-IN-BAG (BIB)