

**SECTION C**

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

**C-1 ITEM DESCRIPTION**

**PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR CID A-A-20000B, CEREAL, PREPARED, READY-TO-EAT**

Types, classes, and styles.

Type I - Wheat products

Class 1 - Shredded whole wheat

Style E - Small shredded wheat biscuits, coated

Type IV - Oat products

Class 3 - Oat cereal (other than oven or gun puffed)

Style A - Small biscuits, coated, cinnamon flavored

Type VII - Combination grain products.

Class 19 - Barley oat, wheat, corn and rice cereal.

**C-2 PERFORMANCE REQUIREMENTS**

A. Product standard. A sample shall be subjected to first article or product demonstration model inspection, as applicable, in accordance with the tests and inspections of Section E of this Packaging Requirements and Quality Assurance Provisions document.

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

C. Appearance.

(1) Type I. The wheat biscuits shall be small shredded wheat biscuits of varying shades of tan/brown color. The exterior shall be glazed with a sugar coating. Biscuits shall be whole.

(2) Type IV. The oat biscuits shall be small latticed biscuits with a golden brown color. The surface of the biscuits shall contain dark brown specs and small crystals of sugar. Biscuits shall be whole.

(3) Type VII. The barley, oat, wheat, corn, and rice cereal shall be small, slightly irregular torus (doughnut) shaped pieces of varying shades of tan and gold. The surface of the cereal shall be rough and porous.

D. Odor and flavor.

(1) Type I. The wheat biscuits shall possess a sweet, mild, toasted grain odor and flavor.

(2) Type IV. The oat biscuits shall possess a sweet, mild, toasted grain with cinnamon odor and flavor.

(3) Type VII. The barley, oat, wheat, corn, and rice shall possess a sweet, mild, toasted grain odor and flavor.

E. Texture.

- (1) Type I and Type II. The biscuits shall be crisp and crunchy.
- (2) Type VII. The cereal shall be crisp and crunchy.

F. Net weight.

- (1) Type I. The net weight of one serving shall be 52 grams.
- (2) Type IV. The net weight of one serving shall be 42 grams.
- (3) Type VII. The net weight of the one serving shall be 19 grams.

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

H. Nutrient content.

(1) Calorie content.

- a. Type I. The calorie content shall be not less than 155 calories.
- b. Type IV. The calorie content shall be not less than 130 calories.
- c. Type VII. The calorie content shall not be less than 70 calories.

(2) Folic acid content. For Type VII, the cereal shall have not less than 60 percent of the U.S. Recommended Allowances (RDAs) for folic acid.

I. Moisture content.

- (1) Type I and IV. The moisture content shall be not greater than 5.0 percent.
- (2) Type VII. The moisture content shall be not greater than 2.5 percent.

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

**SECTION D**

**D-1 PACKAGING**

A. Packaging. Product and one oxygen scavenger packet shall be packed in a preformed or form-fill-seal barrier pouch as described below.

(1) Preformed pouches.

a. Pouch material. The preformed pouch 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. The three plies shall be laminated with the polyester on the exterior of the pouch. All tolerances for thickness of pouch materials shall be plus or minus 20 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 complete exterior surface of the pouch shall be uniformly colored in the range of 20219, 30219, 30279, 30313, 30324, or 30450 of FED-STD-595, Colors Used in Government Procurement.

b. Pouch construction. The pouch shall be a flat style preformed pouch having maximum inside dimensions of 4 inches wide by 7 inches long ( $\pm 1/8$  inch in each dimension). The pouch shall be made by heat sealing three edges with  $3/8$  inch ( $-1/8$  inch,  $+3/16$  inch) wide seals. The heat seals shall be made in a manner that will assure hermetic seals. The

side and bottom 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,A,(4),a. 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 as specified in E-6,A,(4),c. A tear nick or tear notch shall be provided on one outside edge or two opposite outside edges of the pouch to facilitate easy opening of the filled and sealed pouch. A 1/8 inch (+1/16 inch) wide lip may be incorporated at the open end of the pouch to facilitate opening and filling of the pouch.

c. Pouch filling and sealing. The net weight as specified in C-2,F for Type I, Type IV, or Type VII product and one oxygen scavenger packet shall be inserted into the pouch. The filled pouch shall be 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 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,A,(4),b. 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 as specified in E-6,A,(4),c.

(2) Horizontal form-fill-seal pouches.

a. Pouch material. The horizontal form-fill-seal pouch shall consist of a formed tray-shaped body with a flat sheet, heat sealable cover or a tray-shaped body with a tray-shaped heat sealable cover. The tray-shaped body and the tray-shaped cover shall be fabricated from a 3-ply flexible laminate barrier material consisting of, from outside to inside, 0.0009 inch thick oriented polypropylene bonded to 0.0007 inch thick aluminum foil with 10 pounds per ream pigmented polyethylene or adhesive and bonding the opposite side of the aluminum foil to 0.003 inch thick ionomer or a blend of not less than 50 percent linear low density polyethylene and polyethylene. The linear low density polyethylene portion of the blend shall be the copolymer of ethylene and octene-1 having a melt index range of 0.8 to 1.2 g/10 minutes in accordance with ASTM D 1238, Flow Rates of Thermoplastics by Extrusion Plastometer and a density range of 0.918 to 0.922 g/cc in accordance with ASTM D 1505, Density of Plastics by Density Gradient Technique. Alternatively, 0.0005 inch thick polyester may be used in place of the oriented polypropylene as the outer ply of the laminate. The flat sheet cover shall be made of the same 3-ply laminate as specified for the tray-shaped body except the aluminum foil thickness may be 0.00035 inch. All tolerances for thickness of pouch materials shall be plus or minus 20 percent. The color requirements of the exterior (oriented polypropylene or polyester side) of the laminate shall be as specified in D-1,A,(1),a. 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 any odor or flavor to the product.

b. Pouch construction. The tray-shaped body and the tray-shaped cover shall be formed by drawing the flexible laminate material into an appropriately shaped cavity. The flat cover shall be in the form of a flat sheet of the barrier material taken from roll stock. The net weight as specified in C-2,F for Type I, Type IV, or Type VII product and one oxygen scavenger packet shall be placed into the tray-shaped body of the pouch. The filled pouch body shall be hermetically sealed. Pouch closure shall be effected by heat sealing together the cover and body along the entire pouch perimeter. The closure seal width shall be a minimum of 1/8 inch. The closure seal 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,A,(4),b. 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 as specified in E-6,A,(4),c. The maximum outside dimensions of the sealed pouches shall be 5-1/2 inches wide by 8-5/8 inches long. The closure seal width shall be a minimum of 1/8 inch. A tear nick, a tear notch, or serrations shall be provided on one outside edge or two opposite outside edges of the pouch to facilitate easy opening of the filled and sealed pouch. The sealed pouches shall not show any evidence of material degradation, aluminum stress cracking, delamination or foreign odor. Heat seals shall be free of occluded matter. Seals shall be free of impression or design on the seal surface that would conceal or impair visual detection of seal defects.

(3) Oxygen scavenger packet. The oxygen scavenger (absorber) shall be constructed of materials that are safe for direct or 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.

#### **D-2 LABELING**

A. Pouches. Each pouch shall be clearly printed or stamped, in a manner that does not damage the pouch, with permanent black ink or other, dark, contrasting color which is free of carcinogenic elements. The information shall be located on the body of the pouch not closer than 1/16 inch to any seal. If a non-contact type printer is used, the information maybe located anywhere on the pouch (in one complete print), except the closure seal area. The label shall contain the following information:

Product name (letters not less than 1/8 inch high)  
Date 1/  
Net weight  
Contractor's name and address  
"Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA/USDA regulations

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, 2 June 2000 would be coded as 0154. 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 D 5118, Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each container shall be securely closed in accordance with ASTM D 1974, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers.

#### **D-4 MARKING**

A. Shipping containers. Shipping containers shall be marked in accordance with DPSC Form 3556, Marking Instructions for Shipping Cases, Sacks and Palletized/Containerized Loads of Perishable and Semiperishable Subsistence.

#### **SECTION E INSPECTION AND ACCEPTANCE**

The cereal product shall be examined and analyzed in accordance with applicable provisions of this Packaging Requirements and Quality Assurance Provisions document. The Processed Products Branch (PPB), Fruit and Vegetable Division, Agricultural Marketing Service, U.S. Department of Agriculture shall be the certifying activity and shall determine the product quality and acceptability in accordance with PPB procedures.

The following quality assurance criteria, utilizing ANSI/ASQC Z1.4-1993, Sampling Procedures and Tables for Inspection by Attributes, are required. When required, the manufacturer shall be required to 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 performance 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 Soldier & Biological Chemical Command  
Soldiers System Ctr., Natick Soldier Center  
Attn: AMSSB-RCF-F(N)  
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. Failure of samples to conform to all such characteristics may be cause for rejection.

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

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

A. Product examination. The finished product shall be examined for compliance with the performance requirements specified in Section C of the Packaging Requirements and Quality Assurance Provisions document and A-A-2000B 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/ 3/

Category	Defect
<u>Major</u>	<u>Minor</u>
	<u>Appearance</u>
101	Wheat biscuits not tan/brown color.
102	More than 50 percent of biscuits or type VII torus not whole. <u>4/</u>
103	Oat biscuits not small latticed biscuits with a golden brown color.
104	Combination grain cereal not small, slightly irregular doughnut shaped pieces of varying shades of tan and gold.
	201 Product not the type, class, style as specified.
	202 The surface of the combination grain cereal not rough and porous.
	203 Wheat biscuits exterior not glazed with sugar coating.
	204 Surface of oat biscuits do not exhibit dark brown specs and small crystals of sugar.
	<u>Odor and flavor</u>
105	Wheat biscuits do not possess a sweet, mild, toasted grain odor or flavor.
106	Oat biscuits do not possess a sweet, mild, toasted grain with cinnamon odor or flavor.
107	Combination grain cereal does not possess a sweet, mild, toasted grain odor or flavor.
	<u>Texture</u>
	205 Biscuits not crisp or crunchy.
	206 Combination grain cereal not crisp or crunchy.
	<u>Weight</u>
	207 Net weight not as specified.
	<u>Other</u>
108	Pouch does not contain one intact packet of oxygen scavenger.

1/ The presence of foreign material for example, dirt, insect parts, hair, wood, glass, metal or mold, or foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, or stale shall be cause for rejection of the lot.

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

3/ Pouches which contain an amount of discolored, burnt, crushed or very small pieces which materially distract from the overall good quality, appearance and palatability of the product shall be classified as a major defect.

4/ Half a biscuit or more constitutes a whole biscuit. Half a torus or more constitutes a whole torus. Perform visual exam only.

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 unit on a suitable scale tared with a representative empty pouch and one oxygen scavenger packet. Results shall be reported to the nearest 1 gram.

(3) Nutrient content. The calories and folic acid shall be verified by the NLEA "Nutrition Facts" label. Product not conforming to the calories or folic acid as specified in Section C of this Packaging Requirements and Quality Assurance Provisions document shall be cause for rejection of the lot.

(4) Moisture content testing. Eight filled and sealed pouches shall be randomly selected from each lot and individually tested for moisture content in accordance with the Official Methods of Analysis of AOAC International method number 925.09. Results shall be reported to the nearest 0.1 percent. Any result not conforming to the requirement as specified in Section C of this Packaging Requirements and Quality Assurance Provisions document shall be cause for rejection of the lot.

(5) Oxygen content testing. Eight filled and sealed pouches shall be randomly selected from each lot and individually tested for oxygen content in accordance with any USDA approved test method. Testing shall be accomplished after the filled and sealed pouches have been allowed to equilibrate at room temperature for not less than 48 hours from the time of sealing. Results shall be reported to the nearest 0.01 percent. Any oxygen content test exceeding 0.30 shall be cause for rejection of the lot.

**E-6 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. 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 and D-1,A,(2),a	As specified in ASTM D 2103 <u>1/</u>
Aluminum foil thickness	D-1,A,(1),a and D-1,A,(2),a	As specified in ASTM B 479 <u>2/</u>
Laminated material identification and construction	D-1,A,(1),a and D-1,A,(2),a	Laboratory evaluation

Color of laminated material D-1,A, (1),a and Visual evaluation with FED-STD-595 3/  
 D-1,A, (2),a

- 1/ ASTM D 2103 Specification for Polyethylene Film and Sheeting
- 2/ ASTM B 479 Specification for Annealed Aluminum Foil For Flexible Barrier Application
- 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. When deemed necessary by the USDA, testing of the unfilled preformed pouches for seal strength shall be as specified in E-6,A, (4),a.

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

TABLE II. Filled and sealed pouch defects 1/

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Tear, 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>
107		Not packed as specified.
108		Presence of stress cracks in the aluminum foil. <u>6/ 7/</u>
	201	Label smudges, is missing, incorrect, or illegible.
	202	Tear notch or serrations 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>3/</u>

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 aluminum foil at the food product edge of the pouch after manual flexing of the delaminated area. To flex, the delaminated area shall be held between the thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delaminated area shall then be rapidly flexed 10 times by rotating both hands in



alternating clockwise- counterclockwise directions. Care shall be exercised when flexing delaminated areas near the tear notches to avoid tearing the pouch material. After flexing, the separated outer ply shall be grasped between thumb and forefinger and gently lifted toward the food product edge of the seal or if the separated area is too small to be held between thumb and forefinger, a number two stylus shall be inserted into the delaminated area and a gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to the product edge of the seal with no discernible resistance to the gentle lifting, the delamination shall be classified as a major defect. Additionally, spot delamination of the outer ply in the body of the pouch that is able to be propagated beyond its initial borders is also a major defect. To determine if the laminated area is a defect, use the following procedure: Mark the outside edges of the delaminated area using a bold permanent marking pen. Open the pouch and remove the contents. Cut the pouch transversely not closer than 1/4 inch (+1/16 inch) from the delaminated area. The pouch shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be classified as a major defect.

Minor - 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).

c. Water spots.

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.

6/ Applicable to form-fill-seal pouches only.

7/ To examine for stress cracks, the inside surface of both tray-shaped bodies shall be placed over a light source and the outside surface observed for the passage of light. Observation of light through the pouch material in the form of a curved or straight line greater than 2 mm in length shall be evidence of the presence of stress cracks. Observation of light through the pouch material in the form of a curved or straight line 2 mm in length or smaller or of a single pinpoint shall be considered a pinhole. Observation of ten or more pinholes per pouch shall be evidence of material degradation.

(4) 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 pouch shall be tested for seal strength in accordance with ASTM F 88 - 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 cause for rejection of the lot.

(b) Pouch closure seal testing. The closure seals of the pouches 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. For the closure seal on preformed pouches, three adjacent specimens shall be cut from the closure seal of each pouch in the sample. For the form-fill-seal pouches, three adjacent specimens shall be cut from each side and each end of each pouch in the sample. The average seal strength of any side, end or closure shall be calculated by averaging the three specimens cut from that side, end or closure. 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 cause for rejection of the lot.

c. Internal pressure test. 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 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 I, footnote 2/) shall be considered a test failure. Any test failure shall be cause for rejection of the lot.

**B. 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 terms of defects per hundred units, shall be 4.0 for major defects and 10.0 for total defects.

TABLE III. Shipping container and marking defects

Category	Defect
<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 FORM 3556 Marking Instructions for Shipping Cases, Sacks and Palletized/Containerized Loads of Perishable and Semiperishable Subsistence.

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

B 479 - Specification for Annealed Aluminum Foil For Flexible Barrier Application

D 1238 - Flow Rates of Thermoplastics by Extrusion Plastometer

D 1505 - Density of Plastics by Density Gradient Technique

D 1974 - Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers

D 2103 - Specification for Polyethylene Film and Sheeting

D 5118 - Standard Practice for Fabrication of Fiberboard Shipping Boxes

F 88 - Seal Strength of Flexible Barrier Materials

AOAC INTERNATIONAL Official Methods of Analysis of the AOAC International

AMSSB-RCF-FN (Valvano/4259)

28 November 2000

TO: DSCP-HSL (Woloszyn/4435)

Subject: Document changes; Quality Assurance Provisions and Packaging Requirements for CID A-A-20000 Cereal, Prepared, Ready-To-Eat, Sep 30 1999 version, Net weight verification (DDC01-028)

Ref: R&DA Fall Meeting Oct 25 2000, PCR IPT One on One Sessions.

1. Based on discussions at referenced meeting, the U.S. Army Soldier and Biological Chemical Command, Soldier Systems Center (SBCCOM) has decided to relax the quality assurance for net weight on several snack component items to reflect a 1 gram rather than a 0.1 gram tolerance. The newest Packaging requirements document (15 Nov 2000 version) already incorporates this requirement.

2. SBCCOM requests that DSCP implement the following changes to the subject document for all current, pending and future procurements until the document is formally amended or revised:

In Section D, part D-1, A, line 1: delete "Two ounces of".

In Section E, part E-6, C, subpara (1), line 4: delete "0.1 ounce" and insert "1 gram".

DONALD A. HAMLIN  
Team Leader  
Food Engineering Services Team  
Combat Feeding Program

ES REQUIRED

R Valvano

CF:  
Aylward, Hamlin, Beward, Hoffman, Nattress, Richards, H. Richardson, Sherman, Valvano  
Wagner, Yedinak, Malason, D. Anthony, J. LeCollier, M. Konrady

AMSSB-RCF-F(N) (Richards/5037)

2 April 2001

TO: DSCP-HRAC (Galligan/8030)

SUBJECT: (ES01-040); Request for Spec Change; CID A-A-20000B PKG & QA Provisions  
dated 15 November 2000 (Cereal, Prepared, Ready-To-Eat) DSCP Case # 1-R-008-01.

1. Date received: 8 March 2001  
Date due: 19 March 2001  
Extended Date: 2 April 2001  
Date replied: 2 April 2001

2. Natick concurs with changing the moisture requirement of the Type IV, Style A, (small biscuits, coated, cinnamon flavored) cereal product of subject PKG & QA Provisions from 5.0% maximum to 5.5% maximum. This moisture content reflects moistures found using the 925.09 AOAC method (100°C, 5 hour, vacuum method).

In the packaging and quality assurance requirements, change C-2, I as follows:

I. Moisture content.

- (1) Type I. The moisture content shall be not greater than 5.0 percent.
- (2) Type IV. The moisture content shall be not greater than 5.5 percent.
- (3) Type VII. The moisture content shall be not greater than 2.5 percent.

3. Natick non concurs with changing the moisture requirement of the Type I (shredded wheat biscuit) at this time. A request for substitution of Type IV for Type I has been approved under DDC01-062 on 23 March 2001.

4. Additional information has been gathered to support this decision. Quaker submitted information on moisture limits for their product (Type IV) indicating a 3.0 to 5.3% range for production and a reject of over 5.5% moisture (ENCL). A request for verification of the test methodologies used by the cereal companies indicated that both were using alternate methods than those specified in the military requirements. These methods (AACC 44-15A and AOAC 925.10) both used 130°C, 1 hour no vacuum method. Although the manufacture's method provides them with internal quality assurance criteria it can be too harsh a test for a sweetened dry cereal and probably results in browning and oxidation giving unrealistically high values for moisture. An analysis by Quaker of a composite sample of Type IV cereal on 23 March 2001, conducted at 100°C, vacuum oven (926.08 AOAC) resulted in 4.7% moisture. The military provisions using AOAC 925.09 (100°C, 5 hours, vacuum method) resulted in USDA laboratory (Winter Haven DD1222 dtd March 5 2001) results

for lots 1064, 1065 and 1061 of Type IV cereal of moistures between 2.31-3.21%. Subsequent lots (1062,1066, 1067, 1068, 1069, 1072, 1073, and 1074) moisture results ranged from 3.8-5.0%. It remains unclear that the first three lots were in fact tested at 100°C. There is laboratory support for using an even lower temperature (60-70°C, vacuum method, ~16 hour) for these products because of their sugar content and low moisture levels.

5. The frosted shredded wheat cereal (Type I) has not been packed but has been bulk evaluated for moisture by the USDA. The bulk analysis of 8 bags of product showed moisture levels ranging from 4.6-6.1%. These values would fail even if the maximum moisture value were elevated to 5.5%.

6. As a result of this request the description of the Type I (Shredded Wheat biscuit, Class 1, Style E) has also been reviewed. The originally field-tested and approved item was a honey nut flavored coating not a frosted one sided coating. The company found that the honey nut type was not apparently available in bulk for repacking in military foil and requested an alternate frosted item PDM be evaluated. Unfortunately the menu developers were not available for this evaluation or involved in a subsequent request for a change on the label. Fortunately the frosted shredded wheat product was sensory  
AMSSB-RCF-I(N) 30 March 2001

SUBJECT: (ES01-040); Request for Spec Change; CID A-A-20000B PKGQA Provisions dated 15 November 2000 (Cereal, Prepared, Ready-To-Eat) DSCP Case # 1-R-008-01.

evaluated after short-term high temperature storage and might be substituted for the honey nut product. Further evaluations of the Packaging and Quality Assurance Provisions documentation have highlighted that in order to describe the frosted product changes will need to be made in the sensory descriptions. In addition a more complete evaluation of fill weights and nutrient requirements related to the additional bulk of the frosted product will be required and the assembler may need to review the additional bulk issue for the frosted product submitted by Transpackers. The CID also refers to biscuit size as small medium and large without dimensional information. Other commercial frosted shredded wheat cereals have smaller and denser profiles and the submitted sample may have breakage characteristics as well as bulk issues that have not been evaluated.

7. Until a variety of commercial frosted shredded wheat can be more thoroughly evaluated for size, moisture (at 70°C and 100°C vacuum methods), breakage, nutrition and fill weights the Type IV cinnamon oat cereal will be substituted in MRE assembly. Changes to the Packaging and Quality Assurance Provisions and the CID will be required to properly procure frosted wheat biscuits.

8. POC for this action is Mr. Allen Richards, X5037.

DONALD A. HAMLIN  
Team Leader  
DoD Food Engineering  
Services Team

ES REQUIRED

CF: (ARichards)  
Anthony  
Arthur  
Beward  
Boies  
Hamlin  
Hoffman  
Kavanagh  
Konrady A.  
Konrady M.

Lecollier  
Loveridge  
Lowry  
Malason  
Richards  
Richardson  
Salerno  
Trottier  
Valvano  
Wagner

AMSSB-RCF-F(N) (Friel/4261)

24 May 2001

TO: DSCP-HRAC(D. Elam/7346)

SUBJECT: (ES01-063) Specification Change Request; Ameriquel, Stress Cracks in Pouches; Quality Assurance Provisions and Packaging Requirements for A-A-20295, Cookies; Quality Assurance Provisions and Packaging Requirements for A-A-20296, Sandwich Crackers; Quality Assurance Provisions and Packaging Requirements for A-A-20298, Beef Snacks; Quality Assurance Provisions and Packaging Requirements for A-A-20000, Cereal; PCR-C-031, Cookie(s), with Pan Coated Chocolate Disks, Packaged in a Flexible Pouch; DSCP Case # 1-R-012-01

1. Date received: 16 May 2001  
Date due: 24 May 2001  
Date replied: 24 May 2001

2. Reference:

a. AMSSB-RCF-F(N) (Friel) to DSCP-HRAC (Galligan), dated 22 March 2001, SUBJECT: (ES01-041) Technical Support Request, Ameriquel; Document Changes for PCR-C-031, Cookie(s), with Pan Coated Chocolate Disks, Packaged in a Flexible Pouch, dated September 30, 1999; DSCP Case # 1-R-009-01

b. AMSSB-RCF-F(N) (Mungovan) to DSCP-HRAC (Elam), dated 29 November 1999, SUBJECT: Quality Assurance Provisions and Packaging Requirements for CID A-A-20295, Cookies; Quality Assurance Provisions and Packaging Requirements for CID A-A-20211, Toaster Pastry; DSCP Case # 1-R-053-99 (ES00-027)

3. Natick concurs with the contractor's request for the document change to these documents.

4. Natick has previously sent the requested change for Quality Assurance Provisions and Packaging Requirements for CID A-A-20295, Cookies and PCR-C-031, Cookie(s), with Pan Coated Chocolate Disks (ref 2.a. and 2.b.).

5. Natick recommends the following changes to Quality Assurance Provisions and Packaging Requirements for A-A-20296, Sandwich Crackers; Quality Assurance Provisions and Packaging Requirements for A-A-20298, Beef Snacks; and Quality Assurance Provisions and Packaging Requirements for A-A-20000, Cereal for all current, pending and future procurements until the documents are formally amended or revised:

a. footnote 7, before "To examine. . . ", insert new sentences:

"The initial examination shall be a visual examination of the closed package. Any suspected visual evidence of stress cracks in the aluminum foil (streaks, breaks, or other disruptions in the laminated film) shall be verified by the following physical examination.

DONALD A. HAMLIN  
Team Leader  
Food Engineering Services Team  
Combat Feeding Program  
24 May 2001  
ES01-063  
Page 2

ES REQUIRED

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CF:	
Alyward	H. Richardson
Loveridge	A. Boies
Richards	Salerno
Valvano	M.Malason
Sherman	D.Anthony
A.Konrady	J.Lecollier
M.Konrady	D.Kavanagh
Hoffman	C.Galligan
Beward	D.Arthur
Wagner	A.Lowry
D.Elam	

AMSSB-RCF-F(N) (Richards/5037)

11 July 2001

TO: DSCP-HRAC (Galligan/8030)

SUBJECT: (ES01-080); Reply to Request for Waiver; CID A-A-20000B PKGQA Provisions dated 15 November 2000 (Cereal, Prepared, Ready-To-Eat), DSCP-SS-01-22205.

1. Date received: 5 July 2001  
Date due: 16 July 2001  
Date replied: 11 July 2001

2. This Center concurs with changing the moisture test method for subject Packaging and Quality Assurance Provision from the 100°C 5 hour vacuum method (AOAC 925.09) to the 70°C vacuum method (AOAC 925.45). This method change has been discussed with several food chemistry laboratories and was the method preferred for this type of product in past Military Specifications.

3. Make the following change to subject document:

a. Section D-1 Packaging, B. Methods of Inspection, (4) Moisture content testing. Line 3 delete method number "925.09" and insert "925.45A except that the temperature-time cycle shall be modified by using a temperature of 70°C for 16 hours at a pressure of not more than 100 mm of mercury."

4. Natick does not concur with a change to the moisture requirement. Quaker Oats has indicated in a letter dated March 9, 2001 that the "Product would be rejected if the lower specification was below 2.5 and the high 5.5". Quaker's moisture method has been identified as a 130°C 1 hour method without vacuum which would theoretically give higher moisture readings, due to browning, than either of the AOAC methods cited above. In addition this product has passed numerous USDA moisture analysis in production this year. The current vendor analysis will now be compared to AVI testing at Ft. Sam Houston and no data is yet available to compare analysis.

5. A review of moisture testing requirements in new documentation appears to be needed to insure that appropriate methods are being specified for the type of product being evaluated. Perusal of several new and older documents conducted in researching this case



has raised the question of whether appropriate methods have been selected for our quality assurance documentation.

6. POC for this action is Mr. Allen Richards, X5037.

DONALD A. HAMLIN  
Team Leader  
DoD Food Engineering  
Services Team

ES REQUIRED

(ARichards)

AMSSB-RCF-F(N)

SUBJECT: (ES01-080); Reply to Request for Waiver; CID A-A-20000B PKGQA Provisions dated 15 November 2000 (Cereal, Prepared, Ready-To-Eat), DSCP-SS-01-22205.

CF:

Anthony  
Arthur  
Beward  
Boies  
Hamlin  
Hill  
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Kavanagh  
Konrady A.  
Konrady M.  
Lecollier  
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