SECTION C

This document covers cocoa beverage powder, fortified with calcium, packaged in an envelope 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-20189A, COCOA BEVERAGE POWDER

Types, Styles, Flavors.

Type I – Sugar Sweetened

Style B – Without Marshmallows

Flavor A – Milk Chocolate

Packages.

Package E – Unitized Group Ration (UGR)

Package F – Meal Module, 18 Soldier (MM)

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. Net weight. The net weight of one serving shall be not less than 28 grams.

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

E. Calcium content. The calcium content shall be not less than 42 mg per serving.

SECTION D

D-1 PACKAGING

A. Packaging. Not less than 28 grams of cocoa beverage powder shall be filled into an envelope having maximum outside dimensions of 4-7/8 inches long by 3-7/16 inches wide. The envelope 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 envelope shall be heat-sealed with seals not less than 1/8 inch wide. The sealed envelope shall no leakage when examined in accordance with Section E-6,(3). There shall be no crushed, misshapen or unclean envelopes. For package E (UGR) and package F (MM), the exterior surface of the envelope shall be uniformly colored in the range of 20219, 30219, 30227, 30279, 30313, 30324, or 30450 of FED-STD-595, Colors Used in Government Procurement.

D-2 LABELING

A. Envelope. Each envelope shall be clearly printed or stamped, in a manner that does not damage the envelope, with permanent black ink or other, dark, contrasting color which is free of carcinogenic elements. The following information shall be printed on the envelope at random provided that the complete information appears at least once on the envelope:

Name and flavor of product (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 envelope 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, February 17, 1999 would be coded as 9048. The Julian day code shall represent the day the product was packaged into the envelope.

D-3 PACKING

A. Packing for shipment to ration assembler. Not more than 40 pounds of product shall be packed 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 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 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 utilizing the double sampling plans indicated in ANSI/ASQC Z1.4 - 1993. The lot size shall be expressed in envelopes. The sample unit shall be the contents of one envelope. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects. Defects and defect classifications are listed in table I.

TABLE I. Product defects 1/ 2/

Category		Defect
Major	Minor	
		Dehydrated product
	201	Net weight of an individual envelope less than 28 grams.
	202	Cocoa beverage powder not free flowing or not a homogenous mixture.
	203	Presence of hard lumps. 3/
		Rehydrated product 4/ Appearance
101		Not a milk chocolate color.
102		Product contains floating, agglomerated cocoa particles.
		Odor and flavor
103		Product does not have a characteristic sweet milk chocolate cream-like odor or flavor.

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

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

4/ Prior to conducting the hydrated product examination, the cocoa beverage powder shall be reconstituted per label instructions. Product that does not fully dissolve within 1 minute with constant stirring shall be cause for rejection of the lot.

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 80^0F. Government verification may include storage for 6 months at 100^0F or 36 months at 80^0F. 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 envelopes shall be determined by weighing each sample on a suitable scale tared with a representative empty envelope. Results shall be reported to the nearest 0.1 gram.

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

Test	Method Number
Calcium	984.27, 985.35 1/

Test results shall be reported to the nearest milligram. Any nonconforming result shall be cause for rejection of the lot.

NOTE: The USDA will use AOAC Method 983.18 for preparation of the sample.

1/ Tests will be conducted for calcium on the first production lot and USDA will certify the formula. A certificate of conformance will be provided on all future lots. If the formula is changed, another set of tests shall be conducted for calcium.

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

A. Packaging.

(1) Envelope 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 envelope dimensions and dimensions of manufacturer's seals may be verified by certificate of conformance.

Requirement	Requirement paragraph	Test procedure
Thickness of films for laminated material	D-1,A	ASTM D 2103 1/
Aluminum foil thickness	D-1,A	ASTM B 479 2/
Laminated material identification and construction	D-1,A	Laboratory evaluation
Color of laminated material	D-1,A	Visual evaluation by FED-STD-595 3/

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) Filled and sealed envelope examination. The filled and sealed envelopes shall be examined for the defects listed in table II. The lot size shall be expressed in envelopes. The sample unit shall be one envelope. 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 envelope defects 1/

Category		Defect
Major	Minor	
101		Any opening in the envelope, such as, but not limited to a tear, hole, or open seal, or sifter. 2/
102		Envelopes exceed maximum length and width (4 7/8 by 3 7/16 inches).
103		Crushed or misshapen, resulting in two or more creases in the product area of the envelope.
104		Unclean envelope.
105		Envelope has foreign odor.
106		Leakage. 3/
107		Seal separation. 3/
108		Delamination. 3/
109		Envelope not heat sealed on all four edges with minimum 1/8 inch wide seals.
	201	Label smudges, is missing, incorrect, or illegible.

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

2/ A sifter is an envelope which loses any amount of contents when shaken vigorously.

3/ Examine envelope after removal from leakage test apparatus.

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

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
Major	Minor	
101		Marking omitted, incorrect, illegible, or improper size, location sequence or method of application.
102		Inadequate workmanship. 1/
	201	More than 40 pounds of product

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

SECTION J REFERENCE DOCUMENTS

DPSC FORM

DPSC FORM 3556 Marking Instructions for Shipping Cases, Sacks and Palletized/Containerized Loads of Perishable and Semiperishable Subsistence, May 96

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 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

AOAC INTERNATIONAL Official Methods of Analysis of the AOAC International