MIL-C-3031J
13 February 1987
SUPERSEDING
MIL-C-3031H
26 March 1985

MILITARY SPECIFICATION

COCOA BEVERAGE POWDER

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This document covers cocoa beverage powder for use by the Department of Defense as an item of general issue and as a component of operational rations.

1.2 Classification. The product shall be of the following types and classes, as specified (see 6.1).

Type I - Regular
Type II - Commercial

Class 1 - Fortified
Class 2 - Nonfortified

2. APPLICABLE DOCUMENTS

2.1 Government documents

2.1.1 Documents. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Natick Research, Development and Engineering Center, Natick, MA 01760-5014 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8960

AMSC N/A

SPECIFICATIONS

FEDERAL

L-P-378 - Plastic Sheet and Strip, Thin Gauge, Polyolefin
QQ-A-1876 - Aluminum Foil
PPP-B-566 - Boxes, Folding, Paperboard
PPP-B-636 - Boxes, Shipping, Fiberboard

MILITARY

MIL-L-10547 - Liners, Case, and Sheet, Overwrap; Water-Vaporproof or Waterproof, Flexible
MIL-L-35078 - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For

STANDARDS

FEDERAL

FED-STD-595 - Colors

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

* 2.1.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of solicitation.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

U.S. DEPARTMENT OF AGRICULTURE (USDA)

U.S. Standards for Grades of Nonfat Dry Milk (Spray Process)

General Specification for Approved Dairy Plants and Standards for Grades of Dairy Products

(Application for copies should be addressed to the Dairy Standardization Section, Dairy Division, Room 2750-S, Agricultural Marketing Service (AMS), U.S. Department of Agriculture, Washington, DC 20250.)

* 2.2 Other publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issues of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issues of the nongovernment documents which are current on the date of the solicitation.

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS (AOAC)

Official Methods of Analysis of the Association of Official Analytical Chemists

(Application for copies should be addressed to the Association of Official Analytical Chemists, 1111 North 19th Street, Suite 210, Arlington, VA 22209.)

* AMERICAN ASSOCIATION OF CEREAL CHEMISTS

Approved Methods of the American Association of Cereal Chemists

(Application for copies should be addressed to the American Association of Cereal Chemists, 3340 Pilot Knob Road, St. Paul, MN 55121.)

ASSOCIATION OF VITAMIN CHEMISTS

Methods of Vitamin Assay

(Application for copies should be addressed to the Interscience Publishers, Inc., Division of John Wiley and Sons, Inc., 605 Third Avenue, New York, NY 10016.)

THE UNITED STATES PHARMACOPOEIAL CONVENTION, INC.

The United States Pharmacopeia (USP) and the National Formulary (NF)

(Application for copies should be addressed to the U.S. Pharmacopoeial Convention, 12601 Twinbrook Parkway, Rockville, MD 20852.)

NATIONAL ACADEMY OF SCIENCES

Food Chemicals Codex

(Application for copies should be addressed to the National Academy Press, 2101 Constitution Avenue, N.W., Washington, DC 20418.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 2200 Mill Road, Alexandria, VA 22314.)

UNIFORM CLASSIFICATION COMMITTEE, AGENT

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Suite 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

* 2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Bid sample approval. Three 16-ounce samples, representative of the product which the bidder proposes to furnish shall be submitted to the contracting officer prior to the bid opening and will be tested to the extent necessary to properly evaluate the bid. One sample of those selected by the contracting officer shall be used to determine bid sample approval by panel testing (see 6.3). The remaining two samples submitted by the successful bidder shall be used as approved reference samples for determining the acceptability of deliveries, as concerns palatability. The approval of any bid sample for palatability will not constitute approval of the sample as meeting the other requirements of this document.

3.2 Ingredients. All ingredients shall be clean, sound, wholesome, and free from foreign material, evidence of rodent and insect infestation, extraneous material, off-odors, off-flavors, and off-colors. For type I product only, the following ingredient requirements shall apply.

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

* 3.2.2 Sugar. Sugar shall be white, refined, granulated, superfine, extrafine or smaller grind, cane or beet sugar or a combination thereof.

* 3.2.3 Milk, nonfat dry (low heat). Nonfat dry milk shall be U.S. Extra Grade, Low Heat as defined in the U.S. Standards for Grades of Nonfat Dry Milk (spray process). The nonfat dry milk shall be spray dried not more than 60 days prior to the time the finished cocoa beverage powder is filled into the envelope and the envelope sealed.

3.2.4 Salt. Salt shall be noniodized white, refined sodium chloride with or without anticaking agents.

* 3.2.5 Flavoring. Vanilla extract, pure vanilla sugar, vanillin, ethyl vanillin, methyl vanillin or combinations of these, may be used.

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

3.2.7 Lecithin. Lecithin shall comply with the Food Chemicals Codex description for lecithin.

3.2.8 Stabilizers. Stabilizers shall be of cold water soluble type.

* 3.2.9 Creamer, nondiary, dry. The dry, nondairy creamer shall contain not less than 30 percent fat and shall be a white to light cream color, free-flowing, uniformly granular powder that is free from foreign materials and free

from noticeable scorched particles. The product shall impart a sweet creamy flavor, free from foreign or objectionable flavors and odors (e.g., sour, malty, tallowy, stale, soapy, rancid, or bitter).

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

Protein (N x 6.38)	- Not less than 16.0 percent
Ash	- Not more than 16 percent
Moisture	- Not more than 5 percent

3.3 Preparation and processing.

3.3.1 Product formulation. The ingredients for type I product shall be uniformly mixed in the following proportions:

Ingredient	Percent by weight
Sugar	Not more than 45 percent
Nondairy creamer	Not less than 35 percent
Nonfat dry milk (solids) 1/	Not less than 9.9 percent
Cocoa	Not less than 9.5 percent
Salt	Not more than 0.5 percent
Vitamins	(For class 1 product only - In quantities to comply with 3.4.2)
Flavoring	Sufficient to provide an acceptable flavor in the prepared ready-to-use product.
Lecithin	Not more than 1 percent
Stabilizers	Not more than 1 percent

1/ Whey, dried, reduced lactose meeting the requirements of 3.2.10, may be substituted on a 1 for 1 basis.

3.4 Finished product requirements.

3.4.1 Finished product. The finished product shall conform to 3.4.2 or 3.4.3, as applicable. The beverage, prepared from the finished product, shall be equal in palatability to the approved bid sample.

3.4.2 Type I product. The cocoa beverage powder shall consist of a well-blended homogeneous mixture of the specified ingredients; free of lumps which do not fall apart under light pressure and free of extraneous material. The moisture content shall not exceed 3.0 percent by weight. Type I product shall have a maximum sedimentation of 1 mL and shall not contain "Floating" agglomerated cocoa particles. (Note: A check for this defect can be made when the sedimentation test is run in an Imhoff cone. The particles appear as brown coalesced agglomerants that may be seen at the top surface of the beverage). Class 1 product shall have the following vitamin content per ounce: Thiamine mononitrate - not less than - 0.56 mg, Pyridoxine hydrochloride - not less than 0.84 mg, Vitamin A palmitate - not less than 1670 I.U., Ascorbic acid - not less than 25 mg. The prepared ready-to-use product shall possess a good cocoa flavor and odor and disperse readily in hot or cold water.

3.4.3 Type II product. The type II product shall be a commercial cocoa beverage powder which disperses readily in hot or cold water and has a characteristic chocolate flavor.

* 3.5 Plant qualification. The product shall be prepared, processed and packaged in establishments meeting the requirements of Title 21, Code of Federal Regulations, Part 110, "Current Good MAnufacturing Practice in Manufacturing, Processing, Packaging or Holding of Human Foods", and the plant sanitation requirements of the appropriate Government inspection agency.

3.6 Federal Food, Drug, and Cosmetic Act. All deliveries shall conform in every respect to the provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor's responsibility. Inspection and acceptance by the USDA shall not relieve the contractor of obligation and responsibility to deliver a product complying with all requirements of this document. The contractor shall assure product compliance prior to submitting the product to the USDA for any inspection.

* 4.2 Inspection and acceptance service. Product acceptability shall be determined by the USDA. The USDA will determine the degree of acceptance service necessary to assure compliance with the requirements of this document. The cost of grading and acceptance services performed by the USDA involving inspection, official documentation, and related services shall be borne by the contractor.

4.3 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.3.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

* 4.3.1.1 Ingredient examination (for type I only). Conformance of ingredients to identity, condition, and other requirements specified in 3.2 shall be certified by the ingredient supplier or ingredient manufacturer, or compliance be verified by examination of pertinent labels, markings, US Grade Certificates, certificates of analyses, or other such valid documents acceptable to the inspection agency. If necessary, each ingredient shall be examined organoleptically or inspected according to generally recognized test methods, such as the standard methods described in the Official Methods of Analysis of the Association of Official Analytical Chemists and in the Approved Methods of the American Association of Cereal Chemists, to determine conformance to the condition requirements. Any noncoformance to an identity, condition, or other requirement shall be cause for rejection of the ingredient or of any involved product.

4.3.1.2 Packaging material certification. Material listed below shall be accepted on the basis of a contractor's certificate of conformance to the indicated requirements.

TABLE I. Packaging material certification

Material requirement	Requirement paragraph	Test procedure
Ionomer or polyethylene film thickness and polyester film thickness	5.1.1.1	L-P-378, except that a machinist's micrometer may be used provided that its graduations and accuracy conform to the requirements of L-P-378
Aluminum film thickness	5.1.1.1	QQ-A-1876

TABLE I. Packaging material certification - (cont'd)

Material requirement	Requirement paragraph	Test procedures
Laminated material construction	5.1.1.1	Laboratory
Color of laminated material	5.1.1.1	Visual
Chipboard of intermediate carton	5.1.1.1.1	Machinist's micrometer or suitable measuring device.

* 4.3.1.3 Unfilled envelope examination (type I only). The unfilled envelopes shall be examined for the defects listed in table II. The lot size shall be expressed in units of envelopes. The sample unit shall be one envelope. The inspection level shall be S-4 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 0.65 for major defects and 4.0 for minor defects.

TABLE II. Unfilled envelope defects

Category		Defect
Major	Minor	
101		Tear, hole, or open seal
102		Not material specified
103		Seals not produced by heat
104		Not sealed on three sides
105		Width of side seals and bottom seal less than 3/16 or more than 1/2 inch
106		Inside dimensions not as specified

TABLE II. Unfilled envelope defects (cont'd)

Category		Defect
Major	Minor	
107		Distance between inside edge of tear, nick, or notch and inside edge of seal less than 1/8 inch
108		Exterior color of envelope not as specified
109		Envelope has foreign odor
110		Not clean
110		Individual envelopes that stick together and that tear when separated
	201	Tear-nick or notch missing
	202	Tear-nick or notch not located as specified
	203	Depth of tear-nick or notch not as specified.

* 4.3.2 In-process examination. In-process examination shall be performed to assure formulation as specified in 3.3.1. The end item inspection shall be performed after filling and sealing to conform proper processing, envelope filling, and envelope sealing requirements for type I product and for packing requirements for type I and II products. Any nonconformance revealed by actual examination or by review of records shall be cause for rejection of the involved product.

* 4.3.3 Filled and sealed envelope examination (type I and type II envelopes). The filled and sealed envelopes shall be examined for the defects listed in table III. The lot size shall be expressed in units of envelopes. The sample unit shall be one filled and sealed envelope. The inspection level shall be I and the (AQL), expressed in defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

TABLE III. Filled and sealed envelope defects. 1/

Category		Defect
Major	Minor	
		Applicable to type I product
101		Tear, hole, open seal, or sifter. 2/
102		Closure seal not produced by heat
103		Closure seal width not as specified (see 5.1.1.1).
104		Closure seal location not as specified
105		Not clean
106		Nomenclature or directions for use are missing, incorrect, illegible or of the kind that smudge, rub, or flake off
107		Evidence of delamination or seal separation more than 1/16 inch 3/
	201	Supplier's name and address missing, incorrect, or illegible
108		Excess air not removed from envelope
		Applicable to type II product
109		Not closed in such a manner to prevent spillage or seepage.

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

2/ A sifter is an envelope that loses any amount of product when shaken vigorously.

3/ Delamination shall be scored as a defect except delamination of outer ply when located in the seal area 1/16 inch or further from food product edge of seal. Bags exhibiting this type of delamination shall be tested by manually flexing the delaminated area 10 times. The area of delamination shall be held between the thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delamination area shall then be rapidly flexed by rotating both hands in alternating clockwise-counterclockwise directions. Care shall be exercised when flexing delaminated area near the tear notches to avoid tearing the bag material. After flexing, the separated outer ply shall be grasped between the thumb and forefinger and gently lifted toward the food product edge of the seal. If the separated area is too small to be held between the thumb and forefinger, a number two stylus shall be inserted into the delaminated area and gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to less than 1/16 inch from the product edge of the seal with no discernable resistance to the gentle lifting, the bag shall be rejected.

4.3.4 Net weight examination. The net weight of the filled and sealed primary containers (envelopes or bags) shall be determined by weighing each sample unit on a suitably tared scale. The primary containers shall be examined for defects listed in table IV. The lot size shall be expressed in units of primary containers. The sample unit shall be one filled and sealed primary container. The inspection level shall be S-3 and the AQL, expressed in defects per hundred units, shall be 2.5 for minor defects.

TABLE IV. Net weight defects 1/

Category	Defect
Minor	
201	Net weight of an individual envelope of type I product less than 40.4 grams. 2/
202	Net weight of envelope of type II product less than 26.9 grams. 2/
203	Net weight of bag more than 2.0 percent under specified net weight. 3/

1/ The lot shall be rejected if the sample data indicate a lot average net weight less than the required net weight.

2/ Report to the nearest 0.1 gram.

3/ Report to the nearest 0.1 percent.

4.3.5 Product examination. The end item shall be examined for defects listed in table V. The lot size shall be expressed in primary containers (envelopes or bags). The sample unit shall be the contents of one filled and sealed primary container. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 1.0 for major defects.

TABLE V. Product defects 1/ 2/

Category	Defect
Major	Dry product (type I)
101	Not a homogeneous mixture.
102	Not free of lumps that cannot be broken apart by light finger pressure.
	Prepared product 3/
103	Does not disperse readily in hot or cold water.

1/ The presence of any foreign material (e.g. glass, dirt, insect parts, hair, wood, metal,), foreign odor or flavor (e.g. burnt, scorched, moldy, rancid, sour, stale,), or foreign color shall be cause for rejection of the lot.

2/ Product not equal to or better than the approved bid sample in palatability shall be cause for rejection of the lot. (This comparison shall be performed only when deemed necessary by an AMS agent.)

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

* 4.3.6 Product testing (type I only). The type I finished product shall be tested for the characteristics specified in table VI. The sample shall be a 2-pound composite derived from the number of envelopes necessary to yield 2 pounds of product. For class 1 product, a 2-ounce sample of the nonfortified product is required for performance of the vitamin content test. (The nonfortified product need not be from the same production run as the fortified product but shall be prepared from the same lots of ingredients used to produce the fortified product.) Any test failure shall be cause for rejection of the lot.

TABLE VI. Product tests (type I)

Characteristic	Requirement paragraph	Test method
Moisture content	3.4.2	1/
Sedimentation	3.4.2	2/
Vitamin content (class 1 only)	3.4.2	3/

1/ The moisture content shall be determined in accordance with the Vacuum Drying method in the Official Methods of Analysis of the AOAC, chapter: Sugars and Sugar Products, section: Sugars and Sirups. The results shall be reported to the nearest 0.1 percent.

2/ The sedimentation shall be determined by adding 42.5 grams of the product to 240 mL of hot water (180°F) in a 650-mL beaker and stirring thoroughly for 30 to 45 seconds with a magnetic stirrer or equivalent apparatus until the product is well mixed. The contents shall be poured into a 1-liter Imhoff cone and allowed to stand for 5 minutes. The volume of the sediment (insoluble solids) near the bottom of the cone shall be measured and reported to the nearest 0.1 mL.

3/ The vitamin content shall be determined by calculating the difference in the assay values of the nonfortified and fortified samples. The vitamins shall be determined by the applicable method described in Methods of Vitamin Assay of the Association of Vitamin Chemists, Inc., 3rd Edition: Ascorbic Acid – Leoffler and Pointing method; Thiamine mononitrate – Thiochrome method; Vitamin A; and Pyridoxine. Vitamins shall be reported to the nearest standard of measurement as prescribed in test method.

4.3.7 Envelope leakage, delamination, and seal separation testing (type I). 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 a tightly distended form having at least one distorted edge while under the vacuum shall be counted as a major defect. After leakage testing, the envelopes shall be visually inspected for evidence of delamination and for seal separation. Any seal separation of more than 1/16 inch from the food product edge of any seal shall be counted as a major defect. The lot size shall be expressed in units of envelopes. The sample unit shall be one filled and sealed envelope. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65.

4.3.8 Examination for excess air in envelope. The contents of one filled and sealed envelope shall be evenly distributed in the pouch and a straight edge ruler shall be placed across one face of the envelope at its highest point. The measurement of thickness shall be taken at two points (one on each side) and the two measurements shall be averaged. An average thickness exceeding 7/16 inch shall be counted as a major defect. The sample unit shall be one envelope. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 1.5.

* 4.3.9 Shipping container examination. When shipping containers are required to be in accordance with PPP-B-636, examination for defects in construction, closure, and reinforcement shall be in accordance with the appendix of PPP-B-636. In addition, the following defects shall be classified as follows:

Major: National stock number, item description, contract number, or date of pack markings missing, incorrect, or illegible.
Protective pad and tape, when required, missing, not as specified, or not completely covering metal stitches.
Reinforcement with nonmetallic strapping or tape is not used.
Interior packing with fiberboard pads not as specified.

Minor: Other required marking missing, incorrect, or illegible.

Level C shipping container (see 5.2.3) shall be examined only for the marking defects heretofore specified.

4.3.10 Intermediate carton examination. The intermediate paperboard cartons shall be examined for the defects listed in table VII. The lot size shall be expressed in cartons. The sample unit shall be one filled and sealed intermediate paperboard carton. The inspection level shall be S-3 and the AQL, expressed in defects per hundred units, shall be 6.5 for minor defects.

TABLE VII. Intermediate carton defects

Category	Defect
Minor	
201	Slack fill. 1/
202	Bulged carton. 1/
203	Not closed in the manner specified. 1/
204	Required labeling or marking missing, incorrect, or illegible.
205	Carton insecurely closed or damaged.
206	Number of envelopes less than required.

1/ Applicable to cartons of type I product only.

4.3.11 Unit load inspection. Inspection of unit loads shall be in accordance with the quality assurance provisions of MIL-L-35078.

5. PACKAGING

5.1 Preservation. Preservation shall be in accordance with level A, B or C, as specified (see 6.1).

5.1.1 Level A. The product shall be unit packed in accordance with 5.1.1.1.

* 5.1.1.1 Envelopes. A net weight of 42.5 grams of type I product shall be filled into heat sealable envelopes having, sealed inside dimensions of 3-3/4 by 5-1/8 ± 1/8 inch. A minus 2.1 gram tolerance will be allowed in any one envelope, provided the average net weight of the envelopes, inspected in accordance with table IV, is not less than 42.5 grams. Care shall be taken to expel all excess air by hand, by evacuation, or by gentle mechanical (roller) technique, prior to sealing the envelope. Envelopes shall comply with the requirements hereinafter specified. All seams including folded edge when envelope is made from a single piece of folded material, and the closure seal shall be made by heat sealing. Side and bottom seals shall be 3/8 (+ 1/8, - 3/16) inch wide. The closure seal shall be not less than 1/4 or more than 3/4 inch wide. If a thermal impulse sealer is used or combination of heated curved bar with thermal impulse, any seal width from 1/8 to 7/16 inch will be acceptable. The closure seal shall not extend more than 3/4 inch below the top

edge of the envelope. Tears, nicks or notches at least 1/32 inch deep shall be provided on one or both side seals, and shall be 1 ± 1/8 inch from the open edge of the envelope. The distance between the inside edge of the tear, nick or notch and the inside edge of the heat seal shall be at least 1/8 inch. The envelope material from inside to outside shall consist of 0.002 inch thick ionomer or polyethylene film laminated or extrusion coated to 0.00035 inch thick aluminum foil, laminated on the plain side to 0.0005 inch polyester. The polyester shall be bonded to the aluminum foil by hot extruding 10 pounds per ream of polyethylene between the laminate. The exterior surface of the polyester material shall be colored overall with a color in the number range of 34079 and 34087 inclusive, or 24052 through 24087 inclusive of FED-STD-595. Alternatively, the exterior of the polyester material may be color 10045 or have a color in the range of 30045 to 30118, except color 30109 is not permitted. The material shall show no evidence of delamination (see table III) when made into bags or when closed by heat sealing. The envelope shall not leak when tested in accordance with 4.3.7 and shall not exceed 7/16 inch in thickness when examined in accordance with 4.3.8.

5.1.1.1.1 Intermediate carton. When specified (see 6.1), twenty-five 42.5 gram envelopes of type I product shall be packed in a snug-fitting intermediate folding paperboard box in accordance with style V of PPP-B-566. The carton shall be made of group I or II paperboard except that chipboard or newslined chipboard shall not be used. The paperboard shall have a minimum thickness of 0.032 inch. The cover flap of the carton shall be tuck locked. The dimensions of the carton shall be such as to provide a snug fit for the product without bulging or slack filling.

5.1.2 Level B. The product shall be unit packed in accordance with 5.1.2.1, or 5.1.2.2 as specified (see 6.1).

5.1.2.1 One-ounce envelopes. A net weight of 28.4 grams of type II cocoa beverage powder shall be filled into a foil-laminated envelope of the type commercially used for the product. A minus 1.5-gram tolerance will be allowed in any one envelope, provided the average net weight of the envelopes, inspected in accordance with table IV, is not less than 28.4 grams. The envelope shall be completely closed in such a manner to prevent spillage or seepage of the product.

5.1.2.1.1 Intermediate cartons. Type II products shall be packed in intermediate cartons. The number of envelopes per carton and the characteristics of the carton shall be the same as is commercially used by the contractor.

5.1.2.2 Two pound bag. Two pounds of type II cocoa beverage powder shall be unit packed in a foil-laminated bag of the type commercially used for the product. No bag shall have a net weight of less than 2 percent the specified net weight and average net weight of the bags when examined in accordance with table IV shall be not less than 2 pounds. The bag shall be completely closed to prevent spillage or seepage of the product.

5.1.3 Level C. The product, of the type and quantities specified (see 6.1), shall be unit packed in envelopes or bags to provide protection against deterioration during shipment from the supply source to the first receiving activity.

5.2 Packing. The product shall be packed in accordance with levels A, B or C, as specified (see 6.1).

* 5.2.1 Level A packing. The product shall be packed in accordance with 5.2.1.1, 5.2.1.2, or 5.2.1.2.1, as applicable. Each shipping container shall be constructed, closed, and reinforced in accordance with type RSC, grade V2s of PPP-B-636. Each shipping container shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive filament reinforced tape in accordance with the appendix of PPP-B-636. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class specified (see 6.1). Strapping of unit loads shall be limited to nonmetallic strapping, except for type II, class F loads.

5.2.1.1 Type I product. Twelve intermediate cartons of the type I product, preserved as specified in 5.1.1.1, shall be enclosed in a waterproof case liner, fabricated and sealed in accordance with MIL-L-10547 for subsistence items. The cartons enclosed in the waterproof case liner, shall be overpacked in a snug-fitting fiberboard shipping container. When the bottom flaps of the shipping container are closed by stitching, the case liner shall be protected from the stitches by placing a paperboard pad between the stitches and the case liner. The case liner shall be protected from stitches in the manufacturers joint by placing a strip of pressure-sensitive tape over the stitching.

* 5.2.1.2 Type II product. Intermediate cartons of type II envelopes, preserved as specified in 5.1.2.1, shall be packed in a snug-fitting fiberboard shipping container. Not more than 600 envelopes per shipping container shall be packed in accordance with 5.2.1.1.

5.2.1.2.1 Two-pound bags. Twelve two-pound bags of type II product shall be packed in a domestic shipping container. Not more than two domestic containers shall be enclosed in a case liner and overpacked in a shipping container in accordance with 5.2.1.1. The case liner shall be protected from stitches as specified in 5.2.1.1.

5.2.2 Level B packing. Envelopes or bags of the product, as applicable in the number and arrangement specified in 5.2.1, shall be packed in a snug-fitting shipping container, constructed, closed and reinforced in accordance with the style RSC, grade V3c, V3s or V4s of PPP-B-636. The shipping container for envelopes and bags shall be provided with a waterproof case line as specified in 5.2.1.1. The case liner shall be protected from stitches as specified in 5.2.1.1. Each shipping container shall be reinforced with nonmetallic strapping or pressure-sensitive adhesive filament reinforced tape in accordance with the appendix of PPP-B-636, except that two reinforcing bands may be used, one lengthwise and one girthwise.

5.2.3 Level C packing. Envelopes or bags, as applicable, in the number and arrangement specified, shall be packed in shipping containers complying with the National Motor Freight Classification or Uniform Freight Classification, as applicable, except the closure of the boxes shall be in accordance with method II as specified in the appendix of PPP-B-636.

5.2.3.1 For shipment to ration assembler. Not more than 40 pounds of 42.5 gram envelopes of type I product, unit packed as specified in 5.1.1.1, shall be packed in a manner to ensure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The shipping container shall be in accordance with the National Motor Freight Classification or Uniform Freight Classification, as applicable, except fiberboard containers shall be closed in accordance with method II, as specified in the appendix of PPP-B-636. When metal fasteners are used in the manufacturers joint or setup of the fiberboard box, the fasteners on the inside of the box shall be covered with the tape or paperboard to protect the envelopes from damage.

* 5.3 Unit loading. When specified (see 6.1), the product, packed as specified in 5.2.2 and 5.2.3, shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified. When unit loads are strapped, the strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

5.4 Labeling and marking.

5.4.1 Type I product. Product shall be labeled and marked plainly in black, boldface type, with the information specified in 5.4.1.1 and 5.4.1.2, as applicable. The printing shall not rub or flake off.

5.4.1.1 Envelopes. The envelopes shall be labeled as follows:

COCOA BEVERAGE POWDER

TYPE I

Fortified
1-1/2 oz. net weight
Supplier's name and address
Mix contents with 6 fluid ounces (1/4 canteen cup) water
For hot cocoa, add contents to hot water and stir until dissolved
For cold cocoa, mix contents with about 1 fluid ounce of water to make a smooth paste and then add remainder of cold water and stir until blended

5.4.1.2 Intermediate cartons. Intermediate cartons shall be marked as follows:

COCOA BEVERAGE POWDER
Type I, Fortified
25 (1-1/2 oz. envelopes)

5.4.2 Type II product. Envelopes, intermediate cartons, or bags shall be labeled and marked in accordance with the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

5.4.3 Shipping containers. Shipping containers shall be marked in accordance with MIL-STD-129.

5.4.4 Marking of unit loads. Unit loads shall be marked in accordance with MIL-L-35078.

6. NOTES

6.1 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this document.
b. Type and class of product required (see 1.2).
c. Level of preservation and packing (see 5.1 and 5.2).
d. When type I envelopes are required to be placed into intermediate cartons (see 5.1.1.1.1).
e. Type and class of unit load required (see 5.2.1 and 5.3).

6.2 Appropriate level of pack. Based on conditions known or expected to be encountered during shipment, handling, and storage of the specific item being procured, the contracting officer should select the appropriate level of pack in accordance with the criteria established in AR 700-15/NAVSUPINST 4030.28/AFR 71-6/MCO 4030.33A/DLAR 4145.7.

6.3 Bid sample evaluation. Bid samples will be evaluated by U.S. Army Natick Research, Development and Engineering Center as follows. The bid sample will be used to prepare 2-fluid ounce servings in coded containers at a temperature of 150°F. The servings will be rated by a consumer-type panel on a 9-point Hedonic graduated in successive degrees of "like extremely" to "dislike extremely". For further details of the evaluation procedure, see: "Hedonic Scale Method of Measuring Food Preference" from Food Technology, 1957, Vol. XI, No. 9. (Copies may be obtained from the U.S. Army Natick Research and Development Center, (ATTN : STRNC-WBF), Natick, MA 01760-5014.)

* 6.4 Subject term (key word) listing.

Beverages
Beverage powder
Cocoa

6.5 Changes from the previous issues. The margins of this document are marked with an asterisk (*) to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only, and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - GL
Navy - SA
Air Force - 50

Preparing activity:

Army - GL

Project No. 8960-0069

Review activities:

Army - MD, TS
Navy - MC, MS
DP - SS

Civil Agency Coordinating Activity:

VA - OSS

U.S. GOVERNMENT PRINTING OFFICE: 1987 - 704-034/70997