

SECTION C

This document covers spray-dried natural butter flavor granules 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-20351 NATURAL BUTTER FLAVOR GRANULES, SPRAY-DRIED

Type, Style, and Package.

Type I	-	Regular
Style A	-	Granules/sprinkles
Package 1	-	2.0 g packet
Package 4	-	57 g packet

Packages.

Package C	-	Meal, Ready-to-Eat (MRE)
Package E	-	Unitized Group Ration (UGR) – Heat & Serve
Package K	-	Unitized Group Ration (UGR) - Express

C-2 PERFORMANCE REQUIREMENTS

A. Product standard. A sample shall be subjected to first article (FA) or product demonstration model (PDM) inspection as applicable, in accordance with the tests and inspections of Section E of this Packaging Requirements and Quality Assurance Provisions. The approved sample shall serve as the Product Standard. Should the contractor at any time plan to, or actually produce the product using different raw material or process methodologies from the approved Product Standard, which result in a product non comparable to the Product Standard, the contractor shall arrange for a new or alternate FA or PDM approval. In any event, all product produced must meet all requirements of this document including Product Standard comparability.

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

C. Net weight. The net weight of package 1 shall be not less than 2.0 grams. The net weight of package 4 shall be not less than 57 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. Analytical and microbiological tests.

(1)The sodium, standard plate count, Coliform, Salmonella, and E. coli requirements, procedures, and testing shall be in accordance with A-A-20351.

(2) Moisture content. The moisture content shall not be greater than 5.0 percent. The moisture procedures and testing shall be in accordance with A-A-20351.

C-3 MISCELLANEOUS INFORMATION

THE FOLLOWING INGREDIENTS ARE FOR INFORMATION ONLY. THIS IS NOT A MANDATORY REQUIREMENT.

A. Ingredients. Maltodextrin (natural carbohydrate derived from corn), natural butter flavor, dried butter, salt, guar gum and baking soda.

SECTION D

D-1 PACKAGING

A. Packaging. Natural butter flavor granules shall be filled into an envelope. The filled envelope shall be sealed. Package 1 shall have maximum outside dimensions of 3 by 2 inches. Package 4 shall have maximum outside dimensions of 6 by 4 inches. 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 or sealed on three edges with the fourth edge being formed by folding the material prior to filling. The seals shall be not less than 1/8 inch wide. The seals shall be free of foldover wrinkles or entrapped matter that reduces the effective seal width to less than 1/16 inch. A tear nick, notch or serrations shall be provided to facilitate opening of the filled and sealed envelope. The sealed envelope shall exhibit no leakage when examined in accordance with E-6,B,(1). The sealed envelope shall not show any evidence of delamination, degradation or foreign odor. There shall be no crushed, misshapen or unclean envelopes.

D-2 LABELING

A. Envelopes. Each envelope shall be correctly and legibly labeled. Printing ink shall be permanent black ink or other, dark, contrasting color which is free of carcinogenic elements. The label shall contain the following information:

- (1) Name of product (letters not less than 1/8 inch high)
- (2) Ingredients
- (3) Date 1/
- (4) Net Weight
- (5) Name and address of packer
- (6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA 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, 14 February 07 would be coded as 7045. 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/D 5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes. Each container shall be securely closed in accordance with ASTM D1974, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-5 MARKING

A. Shipping containers. Shipping containers shall be marked in accordance with DSCP FORM 3556, Marking Instructions for Shipping Cases, Sacks and Unit Loads of Perishable and Semiperishable Subsistence.

SECTION E INSPECTION AND ACCEPTANCE

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

A. Definitions.

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

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

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

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

(1) Product standard inspection. The first article or product demonstration model shall be inspected in accordance with the provisions of this document and evaluated for 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 Research, Development and Engineering Command
Natick Soldier Research, Development, and Engineering Center
AMSRD-NSC-CF-F
15 Kansas Street
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 five working days from the end of the production month and upon completion of all USDA inspection requirements. The sample units will be evaluated for the characteristics of appearance, odor, flavor, texture and overall quality.

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

E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)

A. Product examination. The finished product shall be examined for compliance with the performance requirements specified in A-A-20351 and Section C of the Packaging Requirements and Quality Assurance Provisions document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. 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/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
101		Product not type or style or package as specified.
		<u>Appearance</u>
	201	Product not an off white/light yellow to medium yellow color.
	202	Product not a free flowing or uniform or granular powder.
	203	Presence of hard lumps. <u>3/</u>
		<u>Odor and flavor</u>
102		Product not a mild butter odor or flavor.
		<u>Texture</u>
	204	Product not a fine granular shape.
	205	Product not readily dissolvable in mouth or on hot, moist food.
		<u>Weight</u>
	206	Net weight of package 1 individual envelope less than 2.0 grams.
	207	Net weight of package 4 individual envelope less than 57 grams.

1/ Presence of any foreign materials such as, but not limited to, dirt, insect parts, hair, wood, glass, metal or mold, or any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, stale, musty or moldy 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/ Lumps that do not fall apart under light pressure between the fingers shall be scored as a defect.

B. Methods of inspection.

(1) Shelf life. The contractor shall provide a Certificate of Conformance that the product has a 36 month shelf life when stored at 80°F. Government verification may include storage for 6 months at 100°F or 36 months at 80°F. Upon completion of either storage period, the product will be subjected to a sensory evaluation panel for appearance and palatability and must receive an overall score of 5 or higher based on a 9 point hedonic scale to be considered acceptable.

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

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

A. Packaging and labeling.

(1) Envelope material certification. Conformance to envelope material requirements shall be determined by a Certificate of Conformance.

(2) Filled and sealed envelope examination. The filled and sealed envelopes shall be examined for the defects listed in table II. The sample 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/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
101		Tear or hole or open seal.
	201	Envelope dimensions not as specified.
102		Leakage
103		Seal separation. <u>2/</u>
104		Delamination or degradation. <u>2/</u>
105		Envelope not heat sealed on all four edges or on three edges with the fourth edge being formed by folding the material prior to filling with minimum 1/8 inch wide seals.
106		Unclean.
107		Envelope has foreign odor.
108		Seal width less than 1/16 inch. <u>3/</u>
	202	Label missing or incorrect or illegible.
	203	Tear nick or notch or serrations missing or do not facilitate opening.
	204	Envelope crushed or misshapen.

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

2/ Examine envelope after removal from leakage test apparatus.

3/ 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.

B. Methods of inspection.

(1) Leakage test. 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.

C. 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 missing or incorrect or illegible.
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 FORMS

DSCP FORM 3556 Marking Instructions for Boxes, Sacks, and Unit Loads of
Perishable and Semiperishable Subsistence

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ)

ANSI/ASQ Z1.4-2003 Sampling Procedures and Tables for Inspection by Attributes

ASTM INTERNATIONAL

D 1974-98 (2003) Standard Practice for Methods of Closing, Sealing, and
Reinforcing Fiberboard Boxes

D 5118/D 5118M-05ae1 Standard Practice for Fabrication of Fiberboard Shipping
Boxes