

## SECTION C

This document covers fruit puree squeeze in a flexible pouch for use by the Department of Defense as a component of operational rations.

### C-1 ITEM DESCRIPTION

#### **PCR-F-004 FRUIT PUREE SQUEEZE, PACKAGED IN A FLEXIBLE POUCH, SHELF STABLE**

##### Flavors.

- Flavor I - Apple, strawberry, and carrot
- Flavor II - Banana and pumpkin

### 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 Performance-based Contract Requirements (PCR) document. The approved sample shall serve as the product standard. Should the contractor at any time plan to or actually produce the product using different raw material or process methodologies from the approved product standard, which result in a product noncomparable to the product standard, the contractor shall submit a replacement FA or PDM for approval. In any event, all product produced must meet all requirements of this document including product standard comparability.

B. Commercial sterility. The packaged food shall be processed until commercially sterile.

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

D. Appearance.

(1) General. The finished product shall be free from foreign materials.

(2) Flavor I. The apple, strawberry, and carrot fruit puree squeeze shall contain apple, strawberry, and carrot purees. The puree shall have a uniform fine pulp, glossy sheen and minimal free liquid. The puree shall be a golden orange-tan color with a slight pink hue.

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(3) Flavor II. The banana pumpkin fruit puree squeeze shall be a puree and shall contain banana and pumpkin purees. The puree shall be smooth, glossy and a golden orange color. The puree may have flecks from the banana seeds.

E. Odor and flavor.

(1) General. The packaged food shall be free from foreign odors and flavors.

(2) Flavor I. The puree shall have a moderate apple and strawberry with a slight carrot odor and flavor. The puree shall be free from astringent flavor.

(3) Flavor II. The puree shall have a moderate ripe banana, a slightly fruity sour and a slightly fruity sweet, and a slight to moderate pumpkin odor and flavor.

F. Texture.

(1) Flavor I. The puree shall be a uniform fine pulp, moderately to very thick with no undissolved particles.

(2) Flavor II. The puree shall be smooth, slightly thin and shall have a creamy mouthfeel.

G. Net weight. The average net weight shall be not less than 5.0 ounces (142 grams). The net weight of an individual pouch shall be not less than 4.5 ounces (128 grams).

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

I. Analytical requirements.

(1) Carbohydrate. The total carbohydrate content shall be not less than 18.0 grams per 100 grams.

(2) pH. For flavor I the pH shall be not less than 3.6 and not greater than 4.0. For flavor II the pH shall be not less than 4.0 and not greater than 4.4.

(3) Brix. The Brix measurement shall be not less than 18° and not more than 22° Brix.

**SECTION D**

**D-1 PACKAGING**

Product shall be filled into pouches and sealed in accordance with MIL-PRF-44073, Packaging of Food in Flexible Pouches, Type I, Style 2 or 3.

**D-2 LABELING**

A. Pouches. Each pouch shall be correctly and legibly labeled. Printing ink shall be permanent black ink or any other contrasting color, which is free of carcinogenic elements. Prior to thermal processing of the pouches, the product name, lot number, filling equipment number and time stamp shall be applied. All other marking may be applied before or after thermal processing.

(1) Product name (not less than 1/8 inch high). Commonly used abbreviations may be used.

(2) Pouch code includes: 1/

- Lot number
- Filling equipment identification number
- Company code
- Retort identification number and Retort cook number (Optional)
- Time stamp (Hour and minute of filling/sealing operation)

1/ The lot number shall be expressed as a four digit Julian code. The first digit shall indicate the year of production and the next three digits shall indicate the day of the year (Example, 14 February 2030 would be coded as 0045). The Julian code shall represent the day the product was packaged into the pouch and processed. Following the four digit Julian code, the other required code information shall be printed in the sequence as listed above.

The pouches or paperboard sleeves or paperboard insert cards shall also be labeled with:

- Product name (7/32 to 9/32 inch block letters)
- Ingredients
- Net weight
- Name and address of packer
- “Nutrition Facts” label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations

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(3) The product shall be formulated and labeled in accordance with all FDA labeling regulations and policies. The pouches or paperboard sleeves or paperboard insert cards shall be labeled with the following product name, as applicable:

<u>Flavor</u>	<u>Product Name</u>
I	APPLE, STRAWBERRY, AND CARROT FRUIT PUREE SQUEEZE
II	BANANA AND PUMPKIN FRUIT PUREE SQUEEZE

**D-3 PACKING**

A. Packing. Not more than 40 pounds of product shall be packed in a fiberboard shipping box constructed in accordance with style RSC-L of ASTM D5118/D5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes. The fiberboard shall conform to type CF, class D, variety SW, minimum burst grade 200 or ECT 32 of ASTM D4727/D4727M, Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes. Each box shall be closed in accordance with ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

**D-5 MARKING**

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

**SECTION E INSPECTION AND ACCEPTANCE**

The following quality assurance criteria, utilizing 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.

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

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

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

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

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

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

One lot shall be randomly selected during each calendar month of production or as otherwise specified in the contract. Three (3) sample units shall be randomly selected from that one production lot. The three (3) sample units shall be shipped to Natick within five (5) working days from the end of the production month from which they are randomly selected and upon completion of all USDA inspection requirements. The sample units will be evaluated for overall quality against the current first article or product demonstration model.

(3) Conformance inspection. Conformance inspection shall include the examinations/tests and methods of inspection cited in this section and in section 4 of MIL-PRF-44073.

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

A. Product examination. The finished product shall be examined for compliance with the performance requirements specified in Section C of this Performance-based Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4.

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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/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>General</u>
101		Product not flavor as specified.
		<u>Appearance</u>
102		Flavor I fruit puree squeeze does not contain apple or not strawberry or not carrot purees. 3/
	201	Flavor I puree not a uniform fine pulp or not a glossy sheen or not with minimal free liquid.
	202	Flavor I puree not a golden orange-tan color or not with a slight pink hue.
103		Flavor II fruit puree squeeze does not contain banana or not pumpkin purees. 3/
	203	Flavor II puree not smooth or not glossy or not a golden orange color.
		<u>Odor and flavor</u>
104		Flavor I puree does not have a moderate apple or not a moderate strawberry or not a slight carrot odor or flavor.
105		Flavor I puree not free from astringent flavor.
106		Flavor II puree does not have a moderate ripe banana or not a slightly fruity sour or not a slightly fruity sweet or not a slight to moderate pumpkin odor or flavor.

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TABLE I. Product defects 1/ 2/ - Continued

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
		<u>Texture</u>
	204	Flavor I puree not a uniform fine pulp or not moderately to very thick or with undissolved particles.
	205	Flavor II puree not smooth or not slightly thin or not with a creamy mouthfeel.
		<u>Net weight</u>
	206	Net weight of an individual pouch less than 4.5 ounces (128 grams). <u>4/</u>

1/ Presence of any foreign materials such as, but not limited to dirt, insect parts, hair, glass, wood, or metal, or any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, stale, musty or moldy 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/ The inclusion of **fruits and vegetables** ~~fruit purees~~ shall be verified with the statement of ingredients on the pouch or paperboard insert card.

4/ Sample average net weight less than 5.0 ounces (142 grams) shall be cause for rejection of the lot.

**B. Methods of inspection.**

(1) Commercial sterility. Commercial sterility shall be verified in accordance with FDA regulations.

(2) 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 quality scale to be considered acceptable.

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(3) 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. Results shall be reported to the nearest 0.1 ounce or to the nearest 1 gram.

(4) Carbohydrate. The carbohydrate content shall be verified by tests conducted by the contractor for carbohydrate content on the first production lot and USDA will perform verification testing and verify the formula. A Certificate of Conformance (CoC) will be provided on all future lots. If the formula is changed or a new contract starts, then another set of tests shall be conducted, a Certificate of Analysis (CoA) will be provided and USDA will verify the formula. Any result not conforming to the analytical requirement shall be cause for rejection of the lot.

(5) pH testing. Three filled and sealed pouches shall be randomly selected from one production lot and prepared and analyzed in accordance with the following method of the Official Methods of Analysis (OMA) of AOAC International:

<u>Test</u>	<u>Method Number</u>
pH	981.12

Test results shall be reported to the nearest 0.1 pH. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the analytical requirement shall be cause for rejection of the lot.

(6) Brix testing. Three filled and sealed pouches shall be randomly selected from one production lot and prepared and analyzed for density of the liquid packing media (degrees Brix) in accordance with the Official Methods of Analysis (OMA) of AOAC International:

<u>Test</u>	<u>Method Number</u>
Brix	925.48, 932.12, or 932.14

Test results shall be reported to the nearest whole number. Government verification will be conducted through actual testing by a Government laboratory. Any result not conforming to the analytical requirement shall be cause for rejection of the lot.

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

A. Packaging.

(1) Pouch material testing. The pouch material, pouch and sleeve, as applicable, in accordance with the lot size, sample unit, and inspection level criteria shall be tested for the

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performance characteristics listed in table I of MIL-PRF-44073, Packaging of Food in Flexible Pouches for Type I. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

(2) Filled and sealed pouch examination. The filled and sealed commercially sterile pouches shall be examined for the defects listed in table II of MIL-PRF-44073 for Type I. The lot size shall be expressed in pouches. The sample unit shall be one thermal processed pouch. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major A defects, 2.5 for major B defects, and 4.0 for minor defects. Two hundred sample units shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot.

(3) Paperboard sleeve or paperboard insert card examination. The sleeve or insert card (as applicable) shall be examined for the defects listed in table III of MIL-PRF-44073 for Type I. The lot size shall be expressed in units of sleeves or insert cards. The sample unit shall be one sleeve or one insert card. The inspection level shall be S-3 and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

**B. Packing.**

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table II. 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 II. 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**

Unless otherwise specified, the applicable version of these documents is that which is active on the date of the solicitation or contract.

DLA Troop Support Form

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

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-44073              Packaging of Food in Flexible Pouches

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ) [www.asq.org](http://www.asq.org)

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

AOAC INTERNATIONAL [www.aoac.org](http://www.aoac.org)

Official Methods of Analysis (OMA) of AOAC International

ASTM INTERNATIONAL [www.astm.org](http://www.astm.org)

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

D4727/D4727M                      Standard Specification for Corrugated and Solid  
Fiberboard Sheet Stock (Container Grade) and Cut Shapes

D5118/D5118M                      Standard Practice for Fabrication of Fiberboard Shipping  
Boxes