

SECTION C

This document covers shelf stable filled pastry packaged in a polymeric tray for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-P-050, PASTRY, FILLED, INDIVIDUAL, PACKAGED IN A POLYMERIC TRAY, SHELF STABLE

Type.

Type I - Blueberry

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

C. Appearance.

(1) General. The finished product shall be 18 filled pastries in a polymeric tray. The filled pastries shall be triangular in shape and size and shall be not less than 4-1/2 inches on the long side by not less than 3-1/2 inches on the shorter sides. The pastry crust shall be intact and shall have a uniform light golden brown exterior color. Pastries may have slight filling leakage through the crust portion of the product, which should not exceed a total of 2-1/2 inches in any individual pastry. The finished product shall be free from foreign materials.

(2) Type I. The blueberry fruit filling shall be a dark blue to purple color and may have visible blueberry pieces dispersed throughout the gel matrix.

D. Odor and flavor. The pastry crust shall have a sweet, slightly buttery baked flavor typical of baked pie crust. The crust may be slightly salty. The packaged food shall be free from foreign odors and flavors.

(1) Type I. The blueberry fruit filling shall have a sweet, cooked blueberry odor and flavor.

E. Texture. The texture of the pastry crust shall not be excessively dry and crumbly or excessively firm. The texture shall not be excessively moist and gummy. The crust may have a slight granular texture.

(1) Type I. The texture of the blueberry fruit filling shall be thick.

F. Net Weight.

(1) For Type I, there shall be 18 filled pastries per polymeric tray. The average net weight shall be not less than 37 ounces (1049 grams). The net weight of an individual polymeric tray shall be not less than 34 ounces (964 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. Analytical requirements.

(1) Fat. The fat content shall be not less than 20.0 percent. The *trans* fat content shall be not greater than 0 grams per serving.

(2) Water activity. The water activity (a_w) for type I packaged product shall be not greater than 0.86 when measured at 77°F (25°C).

(3) Oxygen. The oxygen content of the filled and sealed polymeric tray shall not exceed 0.30 percent.

C-3 MISCELLANEOUS INFORMATION

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

A. Type I ingredients. Enriched Bleached Flour (Wheat Flour, Malted Barley Flour, Niacin, Reduced Iron, Thiamine Mononitrate, Riboflavin, Folic Acid), Blueberry Filling [Water, Invert Sugar, Blueberry Juice Concentrate, Dextrose, Dried Blueberries (Blueberry, Sugar, Sunflower Oil), Dried Cranberries (Cranberry, Sugar, Sunflower Oil, Natural Flavor), Corn Syrup, Modified Food Starch, Glycerin, Contains less than 2 percent of Cellulose Gel,

Cellulose Gum, Color Added (Red Cabbage Juice), Natural and Artificial Flavor, Sodium Citrate], Unsalted Butter (Pasteurized Cream, Natural Flavors), Water, Palm Oil, Sugar, Salt, Nonfat Milk.

SECTION D

D-1 PACKAGING

A. Preservation. Eighteen (18) filled pastries plus the appropriate number of oxygen scavengers shall be filled and sealed into polymeric trays within 4 hours of baking and the trays shall conform to the requirements of section 3 of MIL-PRF-32004, Packaging of Food in Polymeric Trays, Type II Oven-baked products. Government verification testing and inspection of trays, lids, and fiberboard pads shall be in accordance with section 4 of MIL-PRF-32004 and the Quality Assurance Provisions of Section E of this Product Contract Requirements document.

B. Oxygen scavenger. The oxygen scavenger shall be constructed of materials that are safe for direct food contact. The oxygen scavenger shall be in compliance with all applicable FDA regulations.

D-2 LABELING

A. Polymeric tray body. The polymeric tray body shall be clearly printed or stamped, in a manner that does not damage the tray, with permanent ink of any contrasting color, which is free of carcinogenic elements. One end of the polymeric tray (see figure 1 of MIL-PRF-32004) shall be marked with the product name and number of portions. If the tray body end markings are not readily legible in low light conditions, a small, easily legible label shall be applied, but not over any existing tray markings. All other markings may be applied along the tray body side. The marking of trays with the product name, lot number and filling equipment number shall be applied at the time of tray sealing. 1/

Tray body markings shall include:

- (1) Product name. Commonly used abbreviations may be used.
- (2) Tray code includes: 2/
Lot number

1/ As an alternate method, tray body markings may be clearly printed or stamped onto the polymeric tray lid at the time of sealing, in a manner that does not damage the lid, with permanent ink of any contrasting color, which is free of carcinogenic elements, provided that the required markings are applied onto the tray body after processing.

2/ 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 2019 would be coded as 9045). The Julian code shall represent the day the product was packaged into the tray and processed. Sublotting (when used) shall be represented by an alpha character immediately following the four digit Julian code. Following the four digit Julian code and the alpha character (when used), the other required code information shall be printed in the sequence as listed above.

B. Polymeric tray lid. The lid shall be clearly printed or stamped in a manner that does not cause damage. Permanent ink of any contrasting color, which is free of carcinogenic elements, shall be used. As an alternate labeling method, a pre-printed self-adhering 0.002 inch thick clear polyester label printed with indelible contrasting color ink may be used.

Note: The font tested by Natick was Microsoft Helvetica. The font used shall be similarly clear/easy to read as Helvetica. The recommended font sizes are as follows: 22 for the product name, 14 for “yield” and “to heat in water.” If an additional note is required on the label, such as “fluff before serving,” it should also be in font size 14. All other information should be in font size 9.

(1) Lid labeling shall include:

Product name and flavor
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

(2) Lid labeling shall also show the following statements:

YIELD: Serves 18 portions of 1 filled pastry each.

TO OPEN: Using a clean knife, cut the lidding around the inside perimeter of the tray seals.

SUGGESTION: Cut lid along 3 sides and fold over uncut portion. Fold back to keep unused portions protected.

(3) The product shall be formulated and labeled in accordance with all USDA labeling regulations and policies. The lid shall be labeled with the following product name(s):

<u>Type</u>	<u>Product Name</u>
I	BLUEBERRY PASTRY

D-3 PACKING

A. Packing. Four filled, sealed and processed polymeric trays shall be packed with fiberboard pads in a fiberboard shipping container 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. Type II trays shall be stacked with lids oriented upright. Fiberboard pads shall be placed between the trays and on the top and bottom of the stacked trays. The pad dimensions shall be not less than 1/8 inch of the full length and width inside dimensions of the box and shall be fabricated of class D, minimum burst grade 200 fiberboard. Each box shall be closed in accordance with ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-4 UNITIZATION

A. Unit loads. Unit loads shall be specified in accordance with DLA Troop Support Form 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items.

D-5 MARKING

A. Shipping containers and unit loads. Shipping containers and unit loads 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.

(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:

DEPARTMENT OF THE ARMY
RDNS-SEC-EMR
NATICK SOLDIER SYTEMS CENTER
10 GENERAL GREENE AVENUE
NATICK, MA 01760

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.

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 Product Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. The lot size shall be expressed in trays. The sample unit shall be the contents of one tray. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 4.0 for major defects and 6.5 for minor defects. Defects and defect

classifications are listed in table I. The filled and sealed polymeric trays shall be brought to room temperature (65°F to 75°F).

TABLE I. Product defects 1/ 2/ 3/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>General</u>
101		Pastry not type as specified.
102		Polymeric tray does not contain intact oxygen scavenger(s). <u>4/</u>
103		Tear or hole or open seal in oxygen scavenger.
	201	Less than 18 filled pastries in a polymeric tray.
	202	Pastry not shape or not size as specified.
	203	Leakage of filling from the pastry crust portion of the product. <u>5/</u>
		<u>Pastry crust</u>
	204	Pastry crust not intact. <u>6/</u>
	205	Pastry crust not a uniform light golden brown exterior color.
104		Pastry crust does not have a sweet or slightly buttery baked flavor typical of baked pie crust.
	206	Pastry crust excessively dry or crumbly or excessively firm or excessively moist or gummy.
		<u>Type I – Blueberry</u>
	207	Blueberry fruit filling not a dark blue to purple color.
105		Blueberry fruit filling does not have a sweet or cooked blueberry odor or flavor.
	208	Blueberry fruit filling not thick.

TABLE I. Product defects 1/ 2/ 3/ - Continued

Category		Defect
<u>Major</u>	<u>Minor</u>	<u>Net weight</u>
	209	Net weight of an individual polymeric tray less than 34 ounces (964 grams). <u>7/</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 *trans* fat content shall be verified by the NLEA “Nutrition Facts” label. Product not conforming to the *trans* fat content as specified in Section C of this document shall be cause for rejection of the lot.

4/ Construction of the oxygen scavenger and compliance with FDA regulations will be verified by CoC.

5/ Not more than six of the pastries in a polymeric tray have filling leaking from individual pastries. An individual pastry is classified as having leaking filling when the combined leaking openings exceed 2-1/2 inches in length.

6/ More than six of the individual pastries broken into three or more pieces.

7/ Type I, sample average net weight less than 37 ounces (1049 grams) shall be cause for rejection of the lot.

B. Methods of inspection.

(1) Shelf life. The contractor shall provide a Certificate of Conformance (CoC) 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.

(2) Net weight. The net weight of the filled and sealed polymeric tray shall be determined by weighing each sample unit on a suitable scale tared with a representative

empty polymeric tray and lid. Results shall be reported to the nearest 1 ounce or to the nearest 1 gram.

(3) Analytical. The sample to be analyzed shall be a one-pound composite of three filled and sealed polymeric trays which have been selected at random from the production lot. The composite sample shall be prepared and analyzed in accordance with the following methods of the Official Methods of Analysis (OMA) of AOAC International:

<u>Test</u>	<u>Method Number</u>
Fat	922.06, 991.36 or 2008.06

(4) Water activity (a_w) testing. Eight filled and sealed polymeric trays shall be selected at random from one production lot and tested for a_w in accordance with the latest edition of the Official Methods of Analysis (OMA) of AOAC International, method 978.18, using an electric hygrometer system self-temperature controlled (at 25°C) or an equivalent instrument. Water activity shall be determined not less than 4 days but not more than 14 days after baking to allow moisture equilibration in the product. The sample unit shall be a specimen from the center of the product. The results shall be reported to the nearest 0.001. Government verification will be conducted through actual testing by a Government laboratory. Any nonconforming a_w result shall be cause for rejection of the lot.

(5) Oxygen content testing. Eight filled and sealed polymeric trays shall be randomly selected from one production lot and individually tested for oxygen content. Testing shall be accomplished after the filled and sealed polymeric trays have been allowed to equilibrate at room temperature for not less than 72 hours from the time of sealing. Test results shall be reported to the nearest 0.01 percent. Government verification will be conducted through actual testing by a Government laboratory. Any individual result not conforming to the oxygen content requirement shall be classified as a major defect and shall be cause for rejection of the lot.

(6) Inspection of filling. The contractor shall provide a Certificate of Analysis (CoA) for the filling mixture a_w (see 6a). A Certificate of Conformance (CoC) for filling storage time and temperature is required (see 6b and c). Any result not conforming to the requirements specified in Section C of this Product Contract Requirements document shall be cause for rejection of the lot.

a. The filling mixture water activity (a_w) shall not be greater than 0.84 and shall be verified by CoA.

b. All filling mixture shall be cooled at room temperature and not refrigerated. The filling shall be used in the finished product or frozen within 60 days.

c. If frozen, the filling shall be held at 0°F (-18°C) or below for not more than 180

days and shall be verified by CoC.

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

A. Packaging and labeling.

(1) Polymeric tray testing. For purposes of clarification, the polymeric tray without the lid will be referred to as the “tray” and the polymeric tray with the lid shall be referred to as the “container”. The tray, container and packaging materials shall be examined for the characteristics listed in table I of MIL-PRF-32004, Packaging of Food in Polymeric Trays. The lot size, sample unit, and inspection level criteria are provided in table II for each of the test characteristics. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot. For rough handling survivability at frozen temperature, polymeric tray survival rate shall be at least 85 percent.

TABLE II. Polymeric tray quality assurance criteria
Prior to filling

Characteristic	Lot size expressed in	Sample unit	Inspection level
Tray configurations and dimensions	trays	1 tray	S-1
Oxygen gas transmission rate of tray	trays	1 tray	S-1
Oxygen gas transmission rate of lid	yards	1/2 yard	S-1
Water vapor transmission rate of tray	trays	1 tray	S-1
Water vapor transmission rate of lid	yards	1/2 yard	S-1
Camouflage	containers	1 container	S-1

<u>After filling and sealing</u>			
Characteristic	Lot size expressed in	Sample unit	Inspection level
Rough handling survivability	shipping containers	1 container	S-2
Protective sleeve (as applicable)	sleeves	1 sleeve	S-1
Fiberboard pad (as applicable)	fiberboard pads	1 pad	S-1
Residual gas	containers	1 container	S-1
Closure seal	containers	1 container	S-1
Internal pressure	containers	1 container	S-1
Lid opening	containers	1 container	S-1

(2) Examination of container. The container shall be examined for the defects listed in table II of MIL-PRF-32004 and the labeling defects listed in table III. The lot size shall be expressed in containers. The sample unit shall be one processed and labeled container. 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. Fifty sample units shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot.

TABLE III. Container labeling defects

Category		Defect
<u>Major A</u>	<u>Minor</u>	
101		Polymeric tray lid or body labeling missing or incorrect or illegible.
	201	When a pre-printed self-adhering label is used, the label not adhering to tray lid (for example, label raised or peeled back from edge to corner) or presence of any areas of gaps along the perimeter of the label where the label is not properly adhered.

(3) Label adhesive examination. When self-adhering labels are used, the adhesive shall be tested in accordance with ASTM D3330/D3330M, Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape. In lieu of testing, a Certificate of Conformance (CoC) shall be provided.

B. Packing.

(1) Shipping container and marking examination. The filled and sealed shipping containers shall be examined for the defects listed in table IV. 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 IV. 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	Arrangement or number of polymeric trays not as specified.

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.

C. Unitization.

(1) Unit load examination. The unit load shall be examined in accordance with DLA Troop Support Form 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items. Any nonconformance shall be classified as a major defect.

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 Forms

- | | |
|-----------|--|
| Form 3507 | Loads, Unit: Preparation of Semiperishable Subsistence Items |
| Form 3556 | Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence |

DEPARTMENT OF DEFENSE SPECIFICATION

- | | |
|---------------|--------------------------------------|
| MIL-PRF-32004 | Packaging of Food in Polymeric Trays |
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GOVERNMENT PUBLICATION

- Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder (21 CFR Parts 1 - 199) and (9 CFR Parts 1 - 391)

NON-GOVERNMENTAL STANDARDS

AMERICAN SOCIETY FOR QUALITY (ASQ) www.asq.org

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

AOAC INTERNATIONAL www.aoac.org

- Official Methods of Analysis (OMA) of AOAC International

ASTM INTERNATIONAL www.astm.org

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|--------------|---|
| D1974/D1974M | Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes |
| D3330/D3330M | Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape |
| 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 |