

SECTION C

This document covers thermostabilized meatballs and pasta in brown gravy packaged in a polymeric tray for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PCR-B-058, BROWN GRAVY WITH MEATBALLS AND PASTA, PACKAGED IN A POLYMERIC TRAY, SHELF STABLE

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 product 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 a blend of brown gravy with meatballs and mafalda noodles. The finished product shall be free from foreign materials.

(2) Gravy. The gravy shall be a medium brown color and may contain visible flecks of spices. The gravy shall be moderately thick and glossy.

(3) Meatballs. The meatballs shall be a minimum of 1/8 ounce in weight and shall be 1/2-3/4 inches in size. The cooked meatballs shall be a medium brown color, and shall be a uniform shape. The cooked meatballs shall be practically free of bone or bone fragments, cartilage, coarse connective tissue, tendons or ligaments, and glandular material.

(4) Pasta. The mafalda noodles shall be enriched pasta product. The dry mafalda noodles shall be broad, flat noodles with ruffled edges. The cooked mafalda noodles shall have measurements of not less than 1-1/4 inches in length by 3/4 inch in width and shall have a cooked pasta color. The pasta may have a brown color from absorbed sauce.

E. Odor and flavor.

(1) General. The packaged food shall have an odor and flavor of cooked beef in gravy. The packaged food shall be free from foreign odors and flavors.

(2) Gravy. The gravy shall have a cooked beef odor and a cooked beef and mild mushroom flavor.

(3) Pasta. The mafalda noodles shall have a cooked pasta odor and flavor.

F. Texture.

(1) Gravy. The gravy shall be smooth and moderately thick.

(2) Meatballs. The cooked meatballs shall be moist and moderately firm and shall not be mushy.

(3) Pasta. The cooked mafalda noodles shall be slightly soft to slightly firm and shall not be mushy or pasty.

G. Net weight. The average net weight shall be not less than 92 ounces (2608 grams). The net weight of an individual polymeric tray shall be not less than 90 ounces (2552 grams).

H. Drained weight. The average drained weight of meatballs and mafalda noodles (combined) shall be not less than 37.0 ounces (1049 grams). The drained weight of intact meatballs and mafalda noodles (combined) in an individual polymeric tray shall be not less than 35.0 ounces (992 grams).

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

J. Analytical requirements.

(1) Protein. The protein content shall be not less than 7.0 percent.

(2) Fat. The fat content shall be not greater than 11.0 percent.

(3) Salt. The salt content shall be not greater than 0.8 percent.

C-3 MISCELLANEOUS INFORMATION

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

A. Ingredients. Water, meatballs (beef, chicken, water, textured vegetable protein [soy protein concentrate, caramel color], bread crumbs [enriched wheat flour {niacin, iron, thiamine mononitrate, riboflavin, folic acid}, durum flour, leavening [sodium bicarbonate, sodium acid pyrophosphate, yeast], tomato paste, soy protein concentrate, salt, dehydrated Worcestershire sauce [dextrose, dehydrated garlic, salt, cellulose gum, chili pepper, spices, mustard, malic acid, natural flavorings, dehydrated onions], flavoring, spice, lemon flavor [corn syrup solids, lemon juice solids], dried beef stock, autolyzed yeast, sodium phosphates), mafalda pasta (semolina [wheat], egg whites, niacin, ferrous sulfate, thiamin mononitrate, riboflavin, folic acid), modified food starch, beef flavoring (roast beef including beef juices, autolyzed yeast extract, potato flour, maltodextrin [from corn], natural flavorings, caramel color, paprika), contains less than two percent of the following: tomato paste, mushroom flavoring (portabella mushrooms, salt, maltodextrin, olive oil, water, onion, mushroom juice concentrate [sunflower oil], dried shitake mushrooms, natural flavorings, shallot juice concentrate, potato flour, garlic juice concentrate [sunflower oil], dry porcini powder, black pepper, black truffle), unsalted butter (pasteurized cream, natural flavorings), sour cream (Grade A Cultured), sugar, soy lecithin, non-fat milk powder (modified food starch, dextrose, medium chain triglycerides, natural and artificial flavors). Allergens: wheat, milk, soy eggs.

SECTION D

D-1 PACKAGING

A. Preservation. Product shall be filled into polymeric trays and the trays with protective sleeves shall conform to the requirements of section 3 of MIL-PRF-32004, Packaging of Food in Polymeric Trays. Government verification testing and inspection of trays, lids and sleeves shall be in accordance with Section 4 of MIL-PRF-32004 and the Quality Assurance Provisions of Section E of this Performance-based Contract Requirements document.

B. Polymeric tray closure. The filled, sealed, and processed tray shall be securely closed.

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. To avoid erroneous marking of trays, the product name, lot number and filling equipment number shall be applied prior to processing. Additional tray marking may be applied before or after processing. 1/

Tray body markings shall include:

- (1) Product name. Commonly used abbreviations may be used.
- (2) Tray code includes: 2/
 - Lot number
 - Filling equipment identification number
 - Retort identification number
 - Retort cook number
 - Official establishment number

1/ As an alternate method, tray body markings may be clearly printed or stamped onto the polymeric tray lid prior to processing, 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 2014 would be coded as 4045). 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
Ingredients
Net weight
Name and address of packer
Official inspection legend
“Nutrition Facts” label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable USDA regulations

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

YIELD: Serves 9 portions and approximately 1 cup gravy with meatballs and pasta.

TO HEAT IN WATER: Submerge unopened tray in water. Bring water to a boil. Simmer gently 35-40 minutes. Avoid overheating (tray shows evidence of bulging).

WARNING: Do not heat tray in oven.

TO TRANSPORT AFTER HEATING: Insert tray back into protective sleeve to protect during transport. If sleeve is unavailable, stack trays lid-to-lid with fiberboard pads in between.

CAUTION: Use care when opening as pressure may have been generated within the tray.

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.

BROWN GRAVY WITH MEATBALLS AND PASTA

D-3 PACKING

A. Packing. Four filled, sealed, processed and sleeved polymeric trays shall be packed in a fiberboard box conforming to 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, burst grade 275 of ASTM D4727/D4727M, Standard Specification for

Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes. The sleeved trays shall be placed flat with the first two trays placed with the lids together and the next two trays with the lids together. 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. Boxes shall be arranged in unit loads 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:

US Army Research, Development and Engineering Command
Natick Soldier Research, Development and Engineering Center
RDNS-CFF
15 Kansas Street
Natick, MA 01760-5056

One lot shall be randomly selected during each calendar month of production. Two (2) sample units of each item produced shall be randomly selected from that one production lot. The two (2) 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 Performance-based 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 trays shall be heated in accordance with the heating instructions from the tray label prior to conducting any portion of the product examination. The samples for drained weight inspection shall be selected using the same sampling criteria as above.

TABLE I. Product defects 1/ 2/ 3/ 4/ 5/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Appearance</u>
101		Product not a blend of meatballs and mafalda noodles in brown gravy.
102		Bone or bone fragment measuring more than 0.3 inch in any dimension.
	201	Total weight of cartilage, coarse connective tissue, tendons or ligaments, and glandular material more than 2.0 ounces (57 grams).
	202	Gravy not a medium brown color or not moderately thick or not glossy.
	203	Meatballs not a uniform shape.
	204	Meatballs not a medium brown color.
	205	Mafalda noodles not broad or not flat or not with ruffled edges.
	206	Mafalda noodles not a cooked pasta color.
		<u>Odor and flavor</u>
103		Product does not have a cooked beef odor or a cooked beef and mild mushroom flavored brown gravy.
	207	Gravy does not have a cooked beef odor or does not have a cooked beef and mild mushroom flavor.
	208	Mafalda noodles do not have a cooked pasta odor or flavor.
		<u>Texture</u>
	209	Gravy is not smooth or not moderately thick.
	210	Cooked meatballs not moist or not moderately firm, are mushy.
	211	Cooked mafalda noodles not slightly soft to slightly firm, are mushy or pasty.

TABLE I. Product defects 1/ 2/ 3/ 4/ 5/ - Continued

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
		<u>Net weight</u>
	212	Net weight of an individual polymeric tray is less than 90 ounces (2552 grams). <u>6/</u>
		<u>Drained weight</u>
	213	Drained weight of intact meatballs and mafalda noodles (combined) in an individual polymeric tray less than 35.0 ounces (992 grams). <u>7/</u>

1/ Presence of any foreign material 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/ Meatball weight and size requirement shall be verified by Certificate of Conformance (CoC).

4/ Verification of the mafalda noodle as enriched pasta product shall be with the statement of ingredients on the label. Any nonconforming result shall be cause for rejection of the lot.

5/ Size requirement for the mafalda noodle shall be verified by CoC.

6/ Sample average net weight less than 92 ounces (2608 grams) shall be cause for rejection of the lot.

7/ Sample average drained weight of meatballs and mafalda noodles (combined) less than 37.0 ounces (1049 grams) shall be cause for rejection of the lot.

B. Methods of inspection.

(1) Commercial sterility. Commercial sterility shall be verified in accordance with USDA/FSIS 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.

(3) 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 tray and lid. Results shall be reported to the nearest 1 ounce or to the nearest 1 gram.

(4) Drained weight. To determine drained weight, the contents shall be poured into a flat bottom container. A minimum of three times the polymeric tray's volume of not less than 140° F and not greater than 190° F water shall be added to the container so as to cover the contents. The contents and water shall be agitated so as to liquefy rendered fat and to remove the gravy without breaking the meatballs or mafalda noodles. The contents shall then be poured into the U.S. Standard No. 7 sieve in a manner that will distribute the product over the sieve without breaking the meatballs or mafalda noodles. Sieve area shall be such that the distributed product does not completely cover all the openings of the sieve. The sieve shall be tilted at such an angle to assure complete drainage of liquid from the product. Drain product for two minutes before determining the combined drained weight by subtracting the sieve tare weight from the gross weight. The drained weight shall be reported to the nearest 0.5 ounce or to the nearest 1 gram.

(5) Analytical. The sample to be analyzed shall be a one-pound composite of three filled and sealed polymeric trays that have been selected at random from the production lot. The composite sample shall be prepared using Method 983.18 and analyzed in accordance with the following Official Methods of Analysis (OMA) of AOAC International:

<u>Test</u>	<u>Method Number</u>
Protein	984.13, 992.15, or 2011.04
Fat	991.36, or 2008.06
Salt	935.47

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

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 polymeric tray with protective sleeve and polymeric tray material 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 processing

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

After processing

Characteristic	Lot size expressed in	Sample unit	Inspection level
Processing	Trays	1 tray	S-2
Rough handling survivability	Test containers	1 container	S-2
Protective sleeve	Containers	1 container	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 with protective sleeve removed 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. Two hundred 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> 101	<u>Minor</u> 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 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> 101	<u>Minor</u> 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 the requirements of 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

MILITARY SPECIFICATIONS

MIL-PRF-32004	Packaging of Food in Polymeric Trays
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GOVERNMENT PUBLICATIONS

Federal Meat Inspection Act (FMIA) and the Poultry Products Inspection Act (PPIA) and regulations promulgated thereunder (9 CFR Parts 300-End)

Food Standards and Labeling Policy Book

NON-GOVERNMENTAL STANDARDS

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

ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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ASTM INTERNATIONAL www.astm.org

D1974/1974M	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

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International