

SECTION C

C-1 ITEM DESCRIPTION

PCR-M-007, MASHED POTATOES WITH BROWN GRAVY, PACKAGED IN A POLYMERIC TRAY, SHELF STABLE

Each component is consumed by combat personnel under worldwide environmental extremes as part of an operational ration, and is a source of nutritional intake.

C-2 PERFORMANCE REQUIREMENTS

A. Product standard. A sample shall be subjected to first article or product demonstration model inspection as applicable, in accordance with the tests and inspections of Section E of this Performance-based Contract Requirements document.

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 cooked mashed potatoes with a top layer of brown gravy. The mashed potatoes shall be off white to tan and the gravy shall be light brown to brown in color. The mashed potatoes shall be practically free of small lumps and pieces of potato skin. The packaged food shall be free from foreign materials.

E. Odor and flavor.

(1) General. The packaged food shall have a cooked mashed potato and mild gravy odor and flavor. The packaged food shall be free from foreign odors and flavors.

F. Texture. The mashed potatoes shall be moderately thick and may have small soft lumps. The mashed potatoes shall not be pasty. The gravy shall be moderately thick and smooth.

G. Net Weight. The average net weight shall be not less than 93 ounces. No individual polymeric tray shall have a net weight of less than 91 ounces.

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. Nutrient content.

(1) Fat content. The fat content shall be not greater than 4.5 percent. **The trans fat content shall be not greater than 0 grams per serving.**

(2) Salt content. The salt content shall be not less than 0.8 percent and not greater than 1.3 percent.

(3) Moisture content. The moisture content shall be not greater than 84.0 percent and not less than 79.0 percent.

C-3 MISCELLANEOUS INFORMATION

~~THE FOLLOWING IS PROVIDED FOR INFORMATION ONLY TO PROVIDE THE BENEFIT OF PAST GOVERNMENT EXPERIENCE. THIS IS NOT A MANDATORY CONTRACT REQUIREMENT.~~

~~A. Ingredients/formulation. Ingredients and formulation percentages for the brown gravy may be as follows:~~

<u>Ingredients</u>	<u>Percent by weight</u>
Water	88.08
Modified high opacity starch	4.80
Tomato paste	2.50
Onion powder	2.50
Salt	0.90
Natural roast beef flavoring <u>1/</u>	0.65
Garlic powder	0.35
Ground black pepper	0.12
Powdered caramel color <u>2/</u>	0.10

~~1/ Natural rare roast beef flavoring used was Harrmann & Reimer Natural Roast Beef flavor powder W0NF.~~

~~2/ Powdered caramel color used was Sethness caramel powder 858.~~

~~B. Ingredients/formulation. Ingredients and formulation percentages for the mashed potatoes may be as follows:~~

<u>Ingredients</u>	<u>Percent by weight</u>
Dehydrofrozen mashed potatoes <u>1/</u>	47.00
Water	46.97
Margarine	5.00
Salt	1.00
Ground white pepper	0.03

~~1/ Dehydrofrozen potatoes used were Ore Ida frozen scratch plus supplied by McCains Inc. Potato preparation: HEAT WATER TO BOILING; ADD MARGARINE AND MELT; ADD SALT AND PEPPER AND ADJUST WITH WATER BACK TO FORMULA WEIGHT.~~

~~C. Product preparation. Percentages for product preparation may be as follows:~~

<u>Ingredients</u>	<u>Percent by weight</u>
Potatoes	83.00
Gravy	17.00

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. 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. One side of each polymeric tray 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 or ingredients. To avoid erroneous marking of trays, the product name, lot number and filling equipment number shall be applied prior to processing. All other tray marking may be applied before or after processing. If these markings are applied along the tray body side (see figure 1 of MIL-PRF-32004), or if applied along the tray body end, are not readily legible in low light conditions, a small, easily legible label detailing product name and number of portions shall be applied along one tray body end, but not over any existing tray markings. 1/

- (1) Tray body markings shall include:
 - Product name. Commonly used abbreviations may be used when authorized by the inspection agency.
 - Tray code. Tray code includes: 2/
 - Lot number
 - Filling equipment identification number
 - Retort identification number
 - Retort cook number
 - Company code

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 or ingredients, provided that the required markings are applied onto the tray body after processing.

2/ Shall be code marked as follows: 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, 12 April 2000 would be coded as 0103). 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 or ingredients, 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.

- (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 FDA regulations

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

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.

YIELD: Serves 18 portions of approximately 2/3 cup each.

(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:

MASHED POTATOES WITH BROWN GRAVY

D-3 PACKING

A. Packing for shipment to ration assembler. Four filled, sealed, processed and sleeved polymeric trays shall be packed in a snug fitting fiberboard box conforming to style RSC-L, type CF, grade 275 of ASTM D 5118, Standard Practice for Fabrication of Fiberboard Shipping Boxes. 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. The inside of each box shall be provided with a box liner. The height of the box liner shall be equal to the full inside depth of the box (+ 0 inch, - 1/8 inch). Flute direction of the box liner shall be vertical. The box shall be closed in accordance with ASTM D 1974, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers.

D-4 UNITIZATION

A. Unit loads. Unit loads shall be as specified in DSCP FORM 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items.

D-5 MARKING

A. Shipping containers and unit loads. Marking of shipping containers and unit loads shall be as specified in DPSC FORM 3556 Marking Instructions for Shipping Cases, Sacks and Palletized/Containerized Loads of Perishable and Semiperishable Subsistence.

SECTION E INSPECTION AND ACCEPTANCE

The following quality assurance criteria, utilizing ANSI/ASQC Z1.4-1993, Sampling Procedures and Tables for Inspection by Attributes, are required. 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 Performance-based Contract Requirements 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.

(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 Section C of this Performance-based Contract Requirements document utilizing the double sampling plans indicated in ANSI/ASQC Z1.4 - 1993. 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 below. The trays shall be heated in accordance with the heating instructions from the tray label prior to conducting any portion of the product examination.

TABLE I. Product defects 1/ 2/ 3/

Category	Defect
<u>Major</u>	<u>Minor</u>
	<u>Appearance</u>
	201 Mashed potatoes not a off white to tan color.
	202 Gravy not a light brown to brown color.
	203 Product not practically free of small lumps or pieces of potato skins.
	<u>Odor and flavor</u>
101	The packaged food does not have an odor or flavor of cooked mashed potato and mild gravy.
	<u>Texture</u>
	204 Mashed potatoes lumps not soft.
	205 Mashed potatoes are pasty.
	206 Mashed potatoes not moderately thick.

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

Category	Defect
<u>Major</u>	<u>Minor</u>
	207
	Gravy not smooth.
	208
	Gravy not moderately thick.
	<u>Net weight</u>
	209
	Net weight of an individual polymeric tray is less than 91 ounces. <u>3</u> <u>4/</u>

1/ The presence of any foreign material such as but not limited to, dirt, insect parts, hair, wood, glass, metal, or mold or the presence of any foreign odors or flavors such as, but not limited to burnt, scorched, rancid, sour, or stale 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.

34/ Sample average net weight less than 93 ounces 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 or U.S. Food and Drug Administration regulations, as applicable.

(2) Shelf life. The contractor shall provide a certificate of conformance that the product has a 3 year 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.

(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 polymeric tray and lid. Results shall be reported to the nearest 1 ounce.

(4) Nutrient content. The sample to be analyzed shall be a composite of three filled and sealed polymeric trays which have been selected at random from the lot. The composited sample shall be prepared (see NOTE) and analyzed for fat content, salt content, and moisture content in accordance with the following methods of the Official Methods of Analysis of AOAC International:

<u>Test</u>	<u>Method Number</u>
Fat	922.06
Salt	935.47
Moisture	926.08

Test results shall be reported to the nearest 0.1 percent. Any nonconforming results shall be cause for rejection of the lot.

NOTE: The USDA will use AOAC method 983.18 for preparation of the sample.

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 below 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

<u>Prior to processing</u>			
<u>Characteristic</u>	<u>Lot size expressed in</u>	<u>Sample unit</u>	<u>Inspection level</u>
Tray configurations and dimensions-	Trays	1 tray	S-1
Oxygen gas transmission rate - tray-	Trays	1 tray	S-1
Oxygen gas transmission rate - lid-	Yards	½ yard	S-1
Water vapor transmission rate - tray-	Trays	1 tray	S-1
Water vapor transmission rate - lid-	Yards	½ yard	S-1
Camouflage-	Containers	1 container	S-1
<u>After processing</u>			
<u>Characteristic</u>	<u>Lot size expressed in</u>	<u>Sample unit</u>	<u>Inspection level</u>
Processing-	Trays	1 tray	S-2
Rough handling survivability-	Test containers	1 test 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 below. 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>	<u>Minor</u>	
101		Polymeric tray lid or body labeling missing, 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.

B. Packing.

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

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		National stock number, item description, contract number, name and address of producer, or date of pack missing, incorrect, or illegible.
102		Container not closed properly.
103		Interior packing not as specified.
	201	Other required markings missing, incorrect, or illegible.
	202	Arrangement or number of trays not as specified.

C. Unitization.

(1) Unit load examination. The unit load shall be examined in accordance with the requirements of DSCP Form 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items. Any nonconformance shall be classified as a major defect and shall be cause for rejection of the lot.

SECTION J REFERENCE DOCUMENTS

DPSC/DSCP FORMS

- DPSC FORM 3556 Marking Instructions for Shipping Cases, Sacks and Palletized/Containerized Loads of Perishable and Semiperishable Subsistence
- DSCP FORM 3507 Loads, Unit: Preparation of Semiperishable Subsistence Items

MILITARY SPECIFICATIONS

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

GOVERNMENT PUBLICATIONS

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)

ANSI/ASQCZ1.4-1993 Sampling Procedures and Tables for Inspection by Attributes

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 1974 Standard Practice for Methods of Closing, Sealing, and Reinforcing
Fiberboard Shipping Containers

D 5118 Standard Practice for Fabrication of Fiberboard Shipping Boxes

AOAC INTERNATIONAL Official Methods of Analysis of the AOAC International