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29 November 1999
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SECTION C

C-1 ITEM DESCRIPTION

**PCR-H-005, HASH, CORNED BEEF, 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 a mixture of coarsely ground or shaved cured beef, potato dices, and onion pieces. The packaged food shall be free from foreign materials.

(2) Cured beef. The cured beef shall be sizes typically produced by a 1/2 inch grinder plate or by chopping down to chunks/strips/pads and then cut through a 1/4 inch machine setting, and shall be practically free of bone or bone fragment, cartilage, coarse connective tissue, tendons or ligaments, and glandular material. The cured beef shall be light to medium red color.

(3) Potatoes. The cooked potatoes shall be sizes typically produced by a 3/8 inch dicer setting. The potatoes shall be intact and shall be off white color.

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E. Odor and flavor.

(1) General. The packaged food shall have an odor and flavor of corned beef hash made from cured beef, potatoes, and onions, and seasoned with herbs and spices. The packaged food shall be free from foreign odors and flavors.

F. Texture.

(1) Cured beef. The cured beef shall be moist and tender.

(2) Potatoes. The potatoes shall be slightly soft to slightly firm.

G. Weight.

(1) Net weight. The average net weight shall be not less than 88 ounces. No individual polymeric tray shall contain less than 86 ounces.

(2) Free liquid weight. The free liquid weight in an individual polymeric tray shall be not more than 2.7 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) Protein content. The protein content shall be not less than 10.0 percent.

(2) Fat content. The fat content shall be not greater than 5.5 percent.

(3) Salt content. The salt content shall be not less than 0.7 percent and not greater than 1.5 percent.

C-3 MISCELLANEOUS INFORMATION

THE FOLLOWING FORMULA 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 may be as follows:

<u>Ingredients</u>	<u>Percent by weight</u>
Beef, cured, blanched <u>1/</u>	43.650
Potatoes, fresh <u>2/</u>	45.000
Water <u>1/</u>	6.867
Potatoes, crushed, dehydrated	1.650
Salt <u>3/</u>	1.240
Onions, dehydrated, chopped	0.720
Sugar, white, granulated	0.600
Garlic powder	0.170
Pepper, black, ground	0.070
Bay leaves, ground	0.025
Clove, ground	0.008

1/ The beef amount is based on a blanching yield of approximately 70 percent. The beef and water percentages may be adjusted, as necessary, to compensate for blanching yields from 65.0 percent to 69.0 percent.

2/ When dehydrofrozen potatoes are used, the formulation may be 20.489 percent by weight of potatoes and 24.511 percent by weight of water.

3/ The total amount of salt in the formula may be adjusted, as necessary, to produce a product that complies with the finished product salt requirements.

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

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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

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 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, 13 June 2003 would be coded as 3164). 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.

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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/USDA 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:

CORNED BEEF HASH

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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.

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(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 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. Free liquid shall be determined prior to other product examination.

TABLE I. Product defects 1/ 2/ 3/

<u>Category</u>		<u>Defect</u>
<u>Major</u>	<u>Minor</u>	
		<u>Appearance</u>
101		Bone or bone fragment measuring more than 0.3 inch in any dimension.
	201	Cured beef and potato dices are not evenly distributed.
	202	Cured beef is not light to medium red color.

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TABLE I. Product defects 1/ 2/ 3/ cont'd

Category	Defect	
<u>Major</u>	<u>Minor</u>	
	203	Potatoes are not intact dices or not off white color.
	204	Total weight of cartilage, coarse connective tissue, tendons or ligaments, and glandular material is more than 2.0 ounces.
		<u>Odor and flavor</u>
102		The packaged food does not have an odor or flavor of corned beef hash made from cured beef, potatoes, and onions, and seasoned with herbs and spices.
		<u>Texture</u>
	205	Cured beef is not moist or not tender.
	206	Potatoes are not slightly soft to slightly firm.
		<u>Weight</u>
	207	The net weight of an individual polymeric tray is less than 86 ounces. <u>4/</u>
		<u>Free liquid</u>
103		The free liquid in an individual polymeric tray is more than 2.7 ounces.

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/ Grinder plate or machine cut size requirement for cured beef and dicer size requirement for potatoes shall be verified by the producer's certificate of conformance.

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4/ Sample average net weight less than 88 ounces shall be cause for rejection of the lot.

C. 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 3 year shelf life when stored at 80⁰F. Government verification may include storage for 6 months at 100⁰F or 36 months at 80⁰F. 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 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.

(4) Free liquid weight. The weight of free liquid in each tray shall be determined by the following procedure. The tray shall be opened at one corner sufficiently to allow the free liquid to drain. The tray shall be elevated on end so that any liquid will flow out of the open corner into a tared container. Collect the liquid. Drain product for 1 minute before determining the free liquid weight by subtracting the container tare weight from the gross weight. The free liquid shall be reported to the nearest 0.5 ounce.

(5) 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 protein content, fat content, and salt content in accordance with the following methods of the Official Methods of Analysis of AOAC International:

<u>Test</u>	<u>Method Number</u>
Protein	988.05 or 992.15
Fat	922.06 or 2008.06
Salt	935.47 or 971.27

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.

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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>			
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 processing</u>			
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

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Residual gas	Containers	1 container	S-1
Closure seal	Containers	1 container	S-1
Characteristic	Lot size expressed in	Sample unit	Inspection level
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 acceptable quality level (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	201	Polymeric tray lid or body labeling missing, incorrect or illegible. 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.

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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)

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U.S. Standards for Condition of Food Containers

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 (OMA)