

SECTION C

This document covers beef chunks for use by the Department of Defense as a component of operational rations.

C-1 ITEM DESCRIPTION

PACKAGING REQUIREMENTS AND QUALITY ASSURANCE PROVISIONS FOR CID A-A-20343A, BEEF CHUNKS, CANNED OR IN FLEXIBLE POUCHES

Types and style.

- Type I - No. 10 Can – 3.06 kg (108 oz)
- Type II - Institutional Size Pouch – 2.95 kg (104 oz)
- Type III - Institutional Size Pouch – 2.27 kg (80 oz)
- Type IV - Institutional Size Pouch – 1.81 kg (64 oz)
- Type V - Institutional Size Pouch – 1.36 kg (48 oz)

Style A - Cube size 1.9 – 2.54 cm (3/4 - 1 in.)

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 Packaging Requirements and Quality Assurance Provisions 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 non comparable 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. Net weight.

(1) Type I. The average net weight shall be not less than 108.0 ounces (3.06 kilograms). No individual can shall have a net weight of less than 106.0 ounces (3.01 kilograms).

(2) Type II. The average net weight shall be not less than 104.0 ounces (2.95 kilograms). No individual pouch shall have a net weight of less than 102.0 ounces (2.90 kilograms).

(3) Type III. The average net weight shall be not less than 80.0 ounces (2.27 kilograms). No individual pouch shall have a net weight of less than 78.0 ounces (2.22 kilograms).

(4) Type IV. The average net weight shall be not less than 64.0 ounces (1.81 kilograms). No individual pouch shall have a net weight of less than 63.0 ounces (1.79 kilograms).

(5) Type V. The average net weight shall be not less than 48.0 ounces (1.36 kilograms). No individual pouch shall have a net weight of less than 47.0 ounces (1.34 kilograms).

D. Drained weight. The drained weight requirements and procedures shall be in accordance with A-A-20343A.

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

F. Analytical requirements. For type specified, the salt and fat content requirements and testing shall be in accordance with A-A-20343A.

SECTION D

D-1 PACKAGING

A. Pouches. Product shall be filled into pouches, processed and each pouch placed into a carton in accordance with MIL-PRF-44073, Packaging of Food in Flexible Pouches, Type II.

B. Cans. Product shall be packaged and processed in a No. 10 metal can (603 x 700) in accordance with good commercial practice. The filled can shall be hermetically sealed under

a vacuum of not less than 20 inches (50.8 cm) of mercury. The filled, sealed, and processed can shall conform to the United States Standards for Condition of Food Containers.

D-2 LABELING

A. Pouches and cans. Each pouch and can shall be correctly and legibly labeled. Labeling of metal cans shall be as specified in DLA Troop Support Form 2997, Labeling of Metal Cans for Subsistence Items. 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 or cans, 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. As an alternate method, a pre-printed self-adhering 0.002 inch thick clear polyester label printed with indelible contrasting color ink may be used. The label shall contain the following information:

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) Product name
- (2) Ingredients
- (3) Net weight
- (4) Name and address of packer
- (5) Pouch or can code includes: 1/

Lot Number
Filling equipment identification number
Retort identification number and Retort cook number (Optional)
Time stamp (hour and minute of filling/sealing operation)

- (6) Official establishment number
- (7) USDA official inspection legend for the packer’s plant
- (8) “Nutrition Facts” label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable USDA regulations.

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,

PKG&QAP A-A-20343A
1 February 2012
SUPERSEDING
PKG&QAP A-A-20343
28 October 2005

14 February 2013 would be coded as 3045). The Julian code shall represent the day the product was packaged into the pouch or can 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. In addition the pouch label shall contain the following information:

TO HEAT IN WATER: Submerge unopened pouch in water. Bring water to a boil. Simmer gently [cite appropriate time] minutes. Avoid overheating (pouch shows evidence of bulging).

WARNING: Do not heat pouch in oven.

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

TO OPEN: Open at tear notch or cut with a clean knife.

Note: The number of portions and the heating time will be different, depending on the net weight of the pouch. These requirements will be determined during production.

B. Cartons. Each carton shall be correctly and legibly labeled with the product name. Commonly used abbreviations may be used when authorized by the inspection agency.

D-3 PACKING

A. Pouches. Four filled, sealed, processed and cartoned ISPs shall be packed in a fiberboard shipping box constructed in accordance with style RSC-L of ASTM D 5118/D 5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes. The fiberboard shall conform to type CF, class D, variety SW, burst grade 200 or ECT grade 32 of ASTM D 4727/D 4727M, Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes. Each box shall be closed in accordance with ASTM D 1974, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

B. Cans. Six cans of product shall be packed in a fiberboard shipping box constructed in accordance with style RSC of ASTM D 5118/D 5118M. The fiberboard shall conform to type CF, class D, variety SW, burst grade 200 or ECT grade 32 of ASTM D 4727/D 4727M. Each box shall be closed in accordance with ASTM D 1974.

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.

(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 overall appearance and palatability. Any failure to conform to the performance requirements or any appearance or palatability failure, shall be cause for rejection of the lot. 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

PKG&QAP A-A-20343A
1 February 2012
SUPERSEDING
PKG&QAP A-A-20343
28 October 2005

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 working days from the end of the production month and upon completion of all USDA inspection requirements. The sample units will be evaluated for the characteristics of appearance, odor, flavor, texture and overall quality.

(2) Conformance inspection. Conformance inspection shall include the product examination 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 A-A-20343A and Section C of this Packaging Requirements and Quality Assurance Provisions document utilizing the double sampling plans indicated in ANSI/ASQ Z1.4. The lot size shall be expressed in pouches or cans. The sample unit shall be the contents of one pouch or can. 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 product shall be heated 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/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>Appearance</u>
101		Product not beef chunks.
102		Bone or bone fragment measuring more than 0.3 inch (7.6 mm) in any dimension.
	201	Less than 60 percent of beef chunks within the specified cube size range of 3/4 to 1 inch (1.9 – 2.54 cm).
/	202	More than 25 percent of beef chunks smaller than 1/2 inch (1.25 cm) cubes or more than 15 percent of beef chunks pass through a 1/4 inch (6.35 mm) sieve.
	203	Total weight of cartilage, coarse connective tissue, tendons or ligaments and glandular material more than 2.00 ounces (56.7 grams).
	204	Beef chunks not a light to medium brown color, typical of cooked beef.
		<u>Odor and flavor</u>
103		Odor or flavor not of cooked beef.
		<u>Texture</u>
	205	Beef chunks not tender or not moist or not firm.

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

Category	Defect	
<u>Major</u>	<u>Minor</u>	
	206	Product dry or tough or mushy.
		<u>Net weight</u>
	207	For type I, net weight of an individual can less than 106.0 ounces (3.01 kilograms). <u>4/</u>
	208	For type II, net weight of an individual pouch less than 102.0 ounces (2.90 kilograms). <u>4/</u>
	209	For type III, net weight of an individual pouch less than 78.0 ounces (2.22 kilograms). <u>4/</u>
	210	For type IV, net weight of an individual pouch less than 63.0 ounces (1.79 kilograms). <u>4/</u>
	211	For type V, net weight of an individual pouch less than 47.0 ounces (1.34 kilograms). <u>4/</u>
		<u>Drained weight</u>
	212	For type I, drained weight of beef chunks in an individual can less than 59.2 ounces (1.68 kilograms). <u>5/</u>
	213	For type II, drained weight of beef chunks in an individual pouch less than 57.0 ounces (1.62 kilograms). <u>5/</u>
	214	For types III, IV, and V, drained weight of beef chunks in an individual pouch less than 58 percent of the net weight. <u>6/</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/ Dicer size and the requirement for whole muscle beef cuts shall be verified by a Certificate of Conformance.

4/ For type I, sample average net weight less than 108.0 ounces (3.06 kilograms) shall be cause for rejection of the lot. For type II, sample average net weight less than 104.0 ounces (2.95 kilograms) shall be cause for rejection of the lot. For type III, sample average net weight less than 80.0 ounces (2.27 kilograms) shall be cause for rejection of the lot. For type IV, sample average net weight less than 64.0 ounces (1.81 kilograms) shall be cause for rejection of the lot. For type V, sample average net weight less than 48.0 ounces (1.36 kilograms) shall be cause for rejection of the lot.

5/ For type I, sample average drained weight less than 60.7 ounces (1.72 kilograms), and for type II, sample average drained weight less than 59.0 ounces (1.67 kilograms) shall be cause for rejection of the lot.

6/ For types III, IV, and V, sample average drained weight less than 58 percent of the net weight shall be cause for rejection of the lot.

B. Methods of inspection.

(1) 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.

(2) Net weight. The net weight of the filled and sealed can or pouch shall be determined by weighing each sample unit on a suitable scale tared with a representative empty can or pouch. Results shall be reported to the nearest 1 ounce (0.03 kilogram).

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

A. Packaging and labeling.

(1) Pouch material testing. The pouch material shall be examined for the characteristics listed in table I of MIL-PRF-44073. The lot size, sample unit, and inspection

PKG&QAP A-A-20343A
1 February 2012
SUPERSEDING
PKG&QAP A-A-20343
28 October 2005

level criteria for each of the test characteristics listed below. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

Characteristic	Lot size expressed in	Sample unit	Inspection level
Prior to processing			
Oxygen transmission rate	yards	1/2 yard	S-1
Water vapor transmission rate	yards	1/2 yard	S-1
After processing			
Thermal processing	pouches	1 pouch	S-2
Standard temperature	pouches	1 pouch	S-2
Frozen temperature	pouches	1 pouch	S-2
Residual gas	pouches	1 pouch	S-2
Internal pressure	pouches	1 pouch	S-2

(2) Filled and sealed pouch testing. The filled and sealed thermoprocessed pouches shall be examined for the defects listed in table II of MIL-PRF-44073. 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) Examination of pouch and carton assembly. The completed pouch and carton assemblies shall be examined for the defects listed in table III of MIL-PRF-44073. The lot size shall be expressed in units of completed assemblies. The sample unit shall be one pouch and carton assembly. 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. Fifty sample pouch and carton assemblies shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot.

(4) Can condition examination. Examination of filled and sealed cans shall be in accordance with the United States Standards for Condition of Food Containers. In addition, scratches, scuffs or abrasions that occur on the outside coating as a result of the filling, sealing, and processing of the cans shall not be scored as a defect.

(5) Can closure examination. Can closures shall be examined visually and by teardowns in accordance with the can manufacturer's requirement and 21 CFR, Part 113, Subpart D, or 9 CFR, Part 318, Subpart G, as applicable. Any nonconformance based on

observation of can seam teardowns or on record of can seam teardowns shall be classified as a major defect and shall be cause for rejection of any involved product.

(6) Can vacuum examination. The filled and sealed cans selected for the product examination shall be examined for vacuum. The cans and contents shall be allowed to reach 70° to 80° F. The vacuum reading shall be taken with a puncture-type vacuum gauge making the puncture as near as possible to the double seam to minimize error due to distortion of the end. A correction of 1 inch of vacuum shall be added to the gauge reading for each 1000 feet above sea level at which the determination is made. Failure of any can to meet the vacuum requirement of 5 inches shall be cause for rejection of the lot.

(7) Can labeling examination. The can labeling shall be examined in accordance with the requirements of DLA Troop Support Form 2997, Labeling of Metal Cans for Subsistence Items.

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	Number of pouches or cans 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.

SECTION J REFERENCE DOCUMENTS

Unless otherwise specified, the issues of these documents are those active on the date of the solicitation or contract.

DLA Troop Support Forms

Form 2997	Labeling of Metal Cans for Subsistence
Form 3556	Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence

MILITARY SPECIFICATIONS

MIL-PRF-44073	Packaging of Food in Flexible Pouches
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GOVERNMENT PUBLICATIONS

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

U.S. Standards for Condition of Food Containers

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

D 1974	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
D 4727D/D 4727M	Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes.
D 5118/D 5118M	Standard Practice for Fabrication of Fiberboard Shipping Boxes