

SECTION C

This document covers chewing gum 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-20175D, CHEWING GUM**

Types, sizes, styles, flavors, classes, and packages.

Type I - Tablet
Size B - Regular
Style (1) - Without caffeine
Flavor a - Peppermint
Flavor c - Cinnamon
Class 3 - With xylitol as primary sweetener (In accordance with 5.3.3 of A-A-20175D)
Package A - Meal, Cold Weather (MCW)
Package B - Food Packet, Long Range Patrol (LRP)
Package C - Meal, Ready-to-Eat™ (MRE™)
Package J - First Strike Ration® (FSR™)

Type I - Tablet
Size C - Large
Style (2) - With caffeine (Applicable to Types I and VII)
Flavor a - Peppermint
Flavor c - Cinnamon
Class 1 - Regular
Package J - First Strike Ration® (FSR™)

Type VII - Disk
Size B - Regular
Style (2) - With caffeine (Applicable to Types I and VII)
Flavor a - Peppermint
Flavor c - Cinnamon
Class 1 - Regular
Package J - First Strike Ration® (FSR™)

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 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. For all package types, the packaged product shall meet the minimum shelf life requirement of 36 months at 80°F.

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

D. Odor and flavor. The packaged product shall be free from foreign odors and flavors.

E. Analytical requirements. For all types specified, the water insoluble base and xylitol content requirements, procedures, and testing shall be in accordance with A-A-20175D.

(1) Caffeine release. Ninety percent of the total caffeine content of one piece of gum for Type I, Size C, Style (2), Flavor a or c, Class 1, and Type VII, Size B, Style (2), Flavor a or c, Class 1 shall be released from the gum by chewing.

C-3 MISCELLANEOUS INFORMATION

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

A. Ingredients.

(1) Type I, Size B, Style (1), Flavor a, Class 3. Ingredients may be as follows: xylitol, sorbitol, gum base, mannitol, maltitol syrup, natural and artificial flavors, soy lecithin, gum arabic, titanium dioxide color, aspartame (contains phenylalanine), acesulfame K, beeswax, shellac, carnauba wax, BHT (to preserve freshness).

(2) Type I, Size B, Style (1), Flavor c, Class 3. Ingredients may be as follows: xylitol, sorbitol, gum base, mannitol, maltitol syrup, natural and artificial flavors, soy lecithin, gum arabic, titanium dioxide color, aspartame (contains phenylalanine), acesulfame K, red #40, beeswax, shellac, carnauba wax, BHT (to preserve freshness).

(3) Type I, Size C, Style (2), Flavor a, Class 1 and Type VII, Size B, Style (2), Flavor a, Class 1. Ingredients may be as follows: dextrose with maltodextrin, sugar, gum base, natural and artificial flavors, caffeine, vegetable fibers, corn starch, magnesium stearate, aspartame, sucralose, glycerine, corn syrup, silicon dioxide, tapioca dextrin, carnauba wax, confectioners glaze, Blue Lake #1, and titanium dioxide.

(4) Type I, Size C, Style (2), Flavor c, Class 1 and Type VII, Size B, Style (2), Flavor c, Class 1. Ingredients may be as follows: dextrose with maltodextrin, sugar, gum base, natural and artificial flavors, caffeine, vegetable fibers, corn starch, magnesium stearate, aspartame, sucralose, glycerine, corn syrup, silicon dioxide, tapioca, dextrin, carnauba wax, confectioners glaze, and titanium dioxide.

SECTION D

D-1 PACKAGING

A. Packaging. For Type I, Size B, Style (1), Flavor a or c, Class 3, two tablets shall be packaged in a plastic wrapper or a paperboard box in accordance with good commercial practice. For Type I, Size C, Style (2), Flavor a or c, Class 1 and Type VII, Size B, Style (2), Flavor a or c, Class 1, five pieces shall be packaged in a fin-seal style pouch. The fin-seal pouch shall be constructed of a heat-sealable barrier material consisting of 0.0010-0.0020 inch thick polyethylene base layer, a 0.00025 inch thick aluminum foil layer, and an outer layer of paper, polyester or other protective material. The maximum outside dimensions of the pouch shall be 2-1/2 inches in width by 4-1/2 inches in length.

D-2 LABELING

A. Type I, Size B, Style (1), Flavor a or c, Class 3. Labeling of product shall be in accordance with good commercial practice.

B. Type I, Size C, Style (2), Flavor a or c, Class 1 and Type VII, Size B, Style (2), Flavor a or c, Class 1. Each package shall be correctly and legibly labeled. Printed ink shall be permanent black ink or other, dark, contrasting color which is free of carcinogenic elements. The label shall contain the following information:

- (1) Name and flavor of product (letters not less than 1/8 inch high)
- (2) Ingredients
- (3) Date 1/
- (4) Piece count or net weight
- (5) Name and address of packer
- (6) "Nutrition Facts" label in accordance with the Nutrition Labeling and Education Act (NLEA) and all applicable FDA regulations
- (7) (a) Instructions:
 - Chew 1 piece for 5 minutes
 - If not alert within 15 minutes, chew a second piece
 - **DO NOT EXCEED 2 PIECES IN 3 HOURS OR MORE THAN 10 PIECES IN 24 HOURS**
- (8) Caffeine content per piece in milligrams

1/ Each package shall have the date of pack noted by using a four-digit code beginning with the final digit of the current year followed by the three digit Julian day code. For example, 14 February 2013 would be coded as 3045. The Julian day code shall represent the day the product was packaged into the pouch or envelope.

D-3 PACKING

A. Packing. Not more than 40 pounds of product 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.

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 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. 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. Twelve (12) sample units of each item produced shall be randomly selected from that one production lot.

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The twelve (12) 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 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-20175D 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 packages. The sample unit shall be the contents of one package. The inspection level shall be S-3 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects. Defects and defect classifications are listed in table I.

TABLE I. Product defects 1/ 2/

Category		Defect
<u>Major</u>	<u>Minor</u>	
		<u>General</u>
101		Product not type, or not size, or not style, or not class, or not flavor as specified.
102		Product not fresh.
		<u>Appearance</u>
	201	Candy coating does not cover the centers completely.
	202	Candy coating not free from pits, or cracks, or the appearance of discoloration.
		<u>Flavor</u>
103		Flavor not as specified.
		<u>Texture</u>
104		Texture sticky, or grainy, or flabby, or stringy.
		<u>Dimension</u>
	203	Product dimension not as specified.
		<u>Weight</u>
	204	Net weight less than label statement.
	205	Piece weight less than specified.

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.

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) Piece weight examination. The piece weight shall be determined by weighing each piece of chewing gum on a suitable scale. Results shall be reported to the nearest 0.1 gram (or to the nearest 0.01 ounce). Product not conforming to the piece weight requirement as specified in A-A-20175D shall be cause for rejection of the lot.

(3) Piece count or net weight examination. The piece count or net weight shall be verified with a Certificate of Conformance (CoC). Product not conforming to the net weight requirement as specified in A-A-20175D shall be cause for rejection of the lot.

(4) Analytical. The sample to be analyzed shall be a composite of eight filled and sealed packages which have been selected at random from the lot. The composite sample shall be prepared and analyzed in accordance with the following Official Methods of Analysis of AOAC International (OMA).

<u>Test</u>	<u>Method Number</u>
Caffeine <u>1/</u>	980.14
Caffeine release <u>2/</u>	
Xylitol <u>3/</u>	

1/ Caffeine content of Type I, Size C, Style (2), Flavor a or c, Class 1 and Type VII, Size B, Style (2), Flavor a or c, Class 1 gum shall be verified by a producer's Certificate of Analysis (CoA).

2/ Caffeine release shall be verified with a producer's CoA.

3/ Xylitol content of Type I, Size B, Style (1), Flavor a or c, Class 3 gum shall be verified with a producer's CoA.

Test results shall be reported to the nearest 1 milligram. 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.

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(5) Caffeine release for Type I, Size C, Style (2), Flavor a or c, Class 1 and Type VII, Size B, Style (2), Flavor a or c, Class 1. Sample preparation methodology shall be submitted to the applicable Government inspection agency and Natick for approval. Caffeine analysis shall be performed as required in E-5,B(4).

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

A. Packaging.

(1) Package certification. A CoC may be accepted as evidence that the packages conform to the requirements specified in D-1,A.

(2) Filled and sealed package examination. The filled and sealed packages shall be examined for the defects listed in table II. The sample size shall be expressed in packages. The sample unit shall be one package. The inspection level shall be I and the AQL, expressed in terms of defects per hundred units, shall be 0.65 for major defects and 2.5 for minor defects.

TABLE II. Filled and sealed package defects 1/

Category	Defect
<u>Major</u>	Minor
101	Tear or hole or open seal.
102	Not two tablets of gum per package for Type I, Size B, Style (1), Class 3.
103	Not five pieces of gum per package for Type I, Size C, Style (2), Class 1 or Type VII, Size B, Style (2), Class 1.
104	Type I, Size B, Style (1), Class 3 gum not packaged in plastic wrapper or a paperboard box.
105	Type I, Size C, Style (2), Class 1 or Type VII, Size B, Style (2), Class 1 gum not packaged in a fin-seal style pouch.
106	Unclean package. <u>2/</u>
107	Package has foreign odor.
201	Label missing or incorrect or illegible.

1/ Any evidence of rodent or insect infestation shall be cause for rejection of the lot.

2/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause pouch damage (for example, glass, metal filings) or generally detracts from the clean appearance of the pouch. The following examples shall not be classified as defects for unclean:

a. Foreign matter which presents no health hazard or potential pouch damage and which can be readily removed by gently shaking the package or by gently brushing the pouch with a clean dry cloth.

b. Dried product which affects less than 1/8 of the total surface area of one pouch face (localized and aggregate).

B. Packing.

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

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Marking missing or incorrect or illegible.
102		Inadequate workmanship. <u>1/</u>
	201	More than 40 pounds of product.

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.

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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 3556 Marking Instructions for Boxes, Sacks and Unit Loads of
Perishable and Semiperishable Subsistence

NON-GOVERNMENTAL STANDARDS

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

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

ASTM INTERNATIONAL www.astm.org

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

D 4727/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

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International