SECTION C

This document covers chewing gum packaged 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-20175E, CHEWING GUM

Types, sizes, styles, flavors, and classes.

Type I - Tablet Size B - Regular Style (1) - Without caffeine Flavor a - Peppermint Flavor c - Cinnamon Class 3 - With xylitol as primary sweetener

Type I - Tablet Size C - Large Style (2) - With caffeine Flavor a - Peppermint Flavor c - Cinnamon Class 1 - Regular

Type VII - Disk Size B - Regular Style (2) - With caffeine Flavor a - Peppermint Flavor c - Cinnamon Class 1 - Regular

Packages.

Package a - One tablet or disk Package b - Two tablets Package c - Five tablets or disks

C-2 PERFORMANCE REQUIREMENTS

A. <u>Product standard</u>. 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. <u>Shelf life</u>. The packaged product shall meet the minimum shelf life requirement of 36 months at 80°F.

C. <u>Palatability and overall appearance</u>. 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. <u>Analytical requirements</u>. For all types specified, the water insoluble base and xylitol content requirements, procedures, and testing shall be in accordance with A-A-20175E.

(1) <u>Caffeine release</u>. Ninety percent of the total caffeine content in one piece of chewing 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 chewing gum by chewing.

SECTION D

<u>D-1 PACKAGING</u>

A. Packaging.

(1) <u>Type I, Size B, Package b</u>. Two tablets shall be packaged in a plastic wrapper in accordance with good commercial practice.

(2) Type I, Size C and Type VII, Size B.

a. <u>Package a</u>. One tablet or disk shall be packaged in a packet. The packet shall be made from a heat sealable barrier material, one layer of which is a minimum of 0.00025 inch thick aluminum foil. The packet shall be heat sealed on all four edges or on three edges with the fourth edge being formed by folding the material prior to filling. The filled and sealed packet shall have maximum outside dimensions of 3 inches long by 2-1/4 inches wide. The seals shall be a minimum 1/8 inch in width. The filled and sealed packet shall tear easily across the width of the packet. A tear nick, notch, or serrations may be provided to facilitate opening of the filled and sealed packet.

b. <u>Package c</u>. Five tablets or disks 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 minimum of 0.00025 inch thick aluminum foil layer, and an outer layer of paper, polyester, or other protective material. The pouch shall be heat sealed with a length-wise fin seal and heat sealed at each end. The filled and sealed pouch shall have maximum outside dimensions of 4-1/2 inches long by 2-1/2 inches wide. All seals shall be a minimum of 1/8 inch in width. The filled and sealed pouch shall tear easily across the width of the pouch. A tear nick, notch, or serrations may be provided to facilitate opening of the filled and sealed pouch.

D-2 LABELING

A. <u>Type I, Size C and Type VII, Size B packets or pouches</u>. Each packet or pouch shall be correctly and legibly labeled. Printing 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 <u>1</u>/

(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 Food and Drug Administration (FDA) regulations

(7) Caffeine content per piece in milligrams (Style (2) only)

(8) Instructions (Package c only): 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.

1/ Each packet or pouch shall have the date of pack noted by using a four-digit code or fivedigit code. When using the four-digit code, begin with the final digit of the current year followed by the three-digit Julian code. For example, 14 February 2050 would be coded as 0045. When using the five-digit code, begin with the decade digit of the current year followed by the three-digit Julian code. For example, 14 February 2050 would be coded as 50045. The Julian code shall represent the day the product was packaged into the packet or pouch.

D-3 PACKING

A. <u>Packing</u>. Not more than 40 pounds of product shall be packed in a fiberboard shipping box constructed in accordance with 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, minimum burst grade 200 or ECT 32 of ASTM D4727/D4727M, Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes. Each box shall be closed in accordance with ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes.

D-5 MARKING

A. <u>Shipping containers</u>. 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) <u>Critical defect</u>. 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) <u>Major defect</u>. 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) <u>Minor defect</u>. 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. <u>Classification of inspections</u>. The inspection requirements specified herein are classified as follows:

(1) <u>Product standard inspection</u>. 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) <u>Periodic review evaluation</u>. 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 U.S. Department of Agriculture (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:

COMBAT CAPABILITIES DEVELOPMENT COMMAND (DEVCOM) SOLDIER CENTER FCDD-SCD-SCR 10 GENERAL GREENE AVENUE NATICK, MA 01760-5000

One lot shall be randomly selected during each calendar month of production or as otherwise specified in the contract. Six (6) sample units shall be randomly selected from that one production lot. The six (6) sample units shall be shipped to DEVCOM Soldier Center 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) <u>Conformance inspection</u>. Conformance inspection shall include the product examination/tests and methods of inspection cited in this section.

E-5 QUALITY ASSURANCE PROVISIONS (PRODUCT)

A. <u>Product examination</u>. The finished product shall be examined for compliance with the performance requirements specified in A-A-20175E 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 packets or pouches. The sample unit shall be the contents of one packet or pouch. 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.

Category		Defect
<u>Major</u>	<u>Minor</u>	General
101		Product not type or not size or not style or not flavor or not class as specified.
		Appearance
	201	Candy coating does not cover the centers completely or is not free from pits or cracks or discoloration.
		<u>Flavor</u>
102		Packaged food not characteristic of flavor specified.
		Texture
103		Chewing gum not fresh or is sticky or is grainy or is flabby or is stringy.
		Dimension
	202	Product dimensions not as specified.

TABLE I. Product defects 1/2/

		TABLE I. <u>Product defects 1/ 2</u> / - Continued
Category		Defect
Major	Minor	
		Net weight
	203	Net weight of an individual package not as specified.
	204	Piece weight not as 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) <u>Shelf life</u>. 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) <u>Piece weight examination</u>. 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-20175E shall be cause for rejection of the lot.

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

(4) <u>Analytical</u>. The sample to be analyzed shall be a composite of eight filled and sealed packets or pouches which have been selected at random from one lot. The composite sample shall be prepared and analyzed in accordance with the following methods of the Official Methods of Analysis (OMA) of AOAC International:

Test	Method Number
Caffeine <u>1</u> /	980.14

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 requirement shall be cause for rejection of the lot.

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 chewing gum shall be verified by a producer's Certificate of Analysis (CoA).

(5) Caffeine release.

a. <u>Type I, Size C, Style (2), Flavor a or c, Class 1 and Type VII, Size B, Style (2),</u> <u>Flavor a or c, Class 1</u>. Sample preparation methodology shall be submitted to the applicable Government inspection agency and DEVCOM Soldier Center (FCDD-SCD-SCR) for approval. Caffeine analysis shall be performed as required in E-5,B(4). Caffeine release shall be verified with a producer's CoA.

(6) <u>Xylitol</u>.

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

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

A. Packaging and labeling.

(1) <u>Packet or pouch material certification</u>. A Certificate of Conformance (CoC) may be accepted as evidence that the packet or pouch conforms to the requirements specified in D-1.

(2) <u>Filled and sealed plastic wrapper, packet, or pouch examination</u>. The filled and sealed plastic wrapper, packet, or pouch shall be examined for the defects listed in table II. The sample size shall be expressed in pastic wrappers, packets, or pouches. The sample unit shall be one plastic wrapper, packet, or pouch. 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.	<u>Filled and sealed plastic wrapper, packet, or pouch defects 1</u> /
Category		Defect
Major	Minor	
101	_	Not one piece of chewing gum per packet (package a) for Type I,
		Size C, Style (2), Class 1 or Type VII, Size B, Style (2), Class 1.
102		Not two tablets of chewing gum per plastic wrapper (package b) for
		Type I. Size B. Style (1). Class 3.
103		Not five pieces of chewing gum per pouch (package c) for Type I
105		Size C Style (2) Class 1 or Type VII Size B Style (2) Class 1
		Size C , Style (2) , Class 1 of Type VII, Size D , Style (2) , Class 1.
104		Type I Size B Style (1) Class 3 chewing gum not packaged in a
104		nlactic wropper
		plastic wrapper.
105		Type I Size C Style (2) Class 1 or Type VII Size B Style (2)
105		Class 1 showing sum not nackaged in a nackat
		Class I chewing guin not packaged in a packet.
106		Turne I. Size C. Stule (2) Clease 1 or Turne VII. Size D. Stule (2)
100		Class 1 showing swe not necks and in a fin seal nevel
		Class I chewing guin not packaged in a fin sear pouch.
107		Teen on hele on energiesel
107		rear or note or open seat.
109		Seel width loss than 1/16 inch 2/
108		Sear widur less than 1/10 men. $\underline{2}$
100		Scal concretion 2/
109		Sear separation. <u>2</u> /
110		Program of delemination 2/
110		Presence of defamination. <u>5</u> /
111		Unalean plastic warmon on poolation pouch 1/
111		Onciean plastic wrapper or packet or pouch. <u>4</u> /
110		Diastia warman on noolect on nough has family a dar
112		Plastic wrapper or packet or pouch has foreign odor.
	201	Destrope not as superified
	201	Package not as specified.
	202	Label missing on incompation illegible
	202	Laber missing or incorrect or megible.

 TABLE II. Filled and sealed plastic wrapper, packet, or pouch defects 1/ - Continued

Category		Defect
<u>Major</u>	Minor	
·	203	Presence of delamination. $\underline{3}/$
	204	Seal width less than 1/8 inch but greater than or equal to 1/16 inch.
	205	Does not easily tear across width of the packet or pouch.

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

 $\frac{2}{Effective}$ seals are defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide, that produces a hermetically sealed pouch.

$\underline{3}$ / Delamination defect classification:

Major - Delamination of the outer ply in the package seal area that can be propagated to expose inner barrier film at the food product edge of the package after manual flexing of the delaminated area. To flex, the delaminated area shall be held between the thumb and forefinger of each hand with both thumbs and forefingers touching each other. The delaminated area shall then be rapidly flexed 10 times by rotating both hands in alternating clockwise- counterclockwise directions. Care shall be exercised when flexing delaminated areas near the tear notches to avoid tearing the package material. After flexing, the separated outer ply shall be grasped between thumb and forefinger and gently lifted toward the food product edge of the seal or if the separated area is too small to be held between thumb and forefinger, a number two stylus shall be inserted into the delaminated area and a gentle lifting force applied against the outer ply. If separation of the outer ply can be made to extend to the product edge of the seal with no discernible resistance to the gentle lifting, the delamination shall be classified as a major defect. Additionally, spot delamination of the outer ply in the body of the package that is able to be propagated beyond its initial borders is also a major defect. To determine if the laminated area is a defect, use the following procedure: Mark the outside edges of the delaminated area using a bold permanent marking pen. Open the package and remove the contents. Cut the package transversely not closer than 1/4 inch (+1/16 inch) from the delaminated area. The package shall be flexed in the area in question using the procedure described above. Any propagation of the delaminated area, as evidenced by the delaminated area exceeding the limits of the outlined borders, shall be classified as a major defect.

<u>Minor</u> - Delamination of the outer ply in the package seal area is acceptable and shall not be classified as a minor defect unless it extends to within 1/16 inch of the food product edge of the seal. All other minor outer ply delamination in the package seal area or isolated spots of delamination in the body of the package that do not propagate when flexed as described above shall be classified as minor defects.

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

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

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

B. Packing.

(1) <u>Shipping container and marking examination</u>. 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 and marking defects		
Category		Defect
<u>Major</u>	Minor	
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.

SECTION J REFERENCE DOCUMENTS

Unless otherwised specified, the applicable version of these documents is that which is active on the date of the solicitation or contract.

DLA Troop Support Form

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

AOAC INTERNATIONAL www.aoac.org

Official Methods of Analysis (OMA) of AOAC International

ASTM INTERNATIONAL www.astm.org

D1974/D1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
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