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SECTION C

The Meal, Cold Weather (MCW) is an individual ration intended for feeding during extreme cold weather operations. It will not freeze and supplies extra drink mixes for countering dehydration during cold weather activities.

C-1 ITEM DESCRIPTION

ACR-C-22, MEAL, COLD WEATHER (MCW), ASSEMBLY REQUIREMENTS

C-2 ASSEMBLY REQUIREMENTS

A. Components. The components are specified in table I.

TABLE I. <u>Components</u>	
Component	Reference
<u>Entrées</u>	
Adobo Rice and Chicken, Mexican Style	PCR-A-006
Beef Stew	PCR-B-015A
Beef Stroganoff with Noodles	PCR-B-016A
Breakfast Skillet, (Shredded Potatoes and Scrambled Eggs Mixed with Meat or Poultry Sausage, Bell Peppers and Onions), Pork Sausage	PCR-B-053B, Style I, Flavor 1
Chicken and Biscuit Dumplings with Vegetables	PCR-C-092
Chicken and Rice	PCR-C-025A
Chicken Fajita Bowl (Chicken with Rice, Black Beans, and Vegetables in a Fajita Sauce)	PCR-C-091
Chili and Macaroni with Beef	PCR-C-073A
Egg, Scrambled	PCR-E-001A
Scrambled Eggs with Uncured Bacon	Type I
Western Style Scrambled Eggs with Uncured Ham, Cheese, Peppers and Onions	Type II
Homestyle Chicken Noodle Casserole	PCR-H-016
Spaghetti with Meat Sauce	PCR-S-008A

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TABLE I. Components - Continued

Component	Reference
<u>Starches and Soups</u>	
Cereals, Rolled Oats	A-A-20090FJ
Instant, Regular	Type III, Style 1
Maple and Brown Sugar	Flavor C
Strawberries and Cream	Flavor F
Cornbread	PCR-C-075
Granola	PCR-G-003AB
With Milk and Blueberries	Type I
Soup, Noodle, Ramen, Instant	A-A-20297C
Fried Noodle, Cup/Bowl,	Type I, Style A,
Chicken, Reduced Sodium, Flat	Flavor 2, Class b, Design B
Interlocking Closure Pouch	
Tortillas, 2 Count Individual Serving Package	PCR-T-008B, Type I
Plain	Flavor 1
<u>Desserts and Snacks</u>	
Cakes, Brownies, Muffin Tops and Filled Cakes	PCR-C-007F
Pound Cakes	Type I
Vanilla, <i>Trans</i> Fat Free	Flavor 1, Style 2
Marble, <i>Trans</i> Fat Free	Flavor 11, Style 2
Muffin Tops	Type III
Maple, <i>Trans</i> Fat Free	Flavor 2, Style 2
Candy and Chocolate Confections	A-A-20177FG
Pan Coated Candy	Type IV
Disks, Milk Chocolate, Plain	Style A, Flavor 1
Oval/Round, Milk Chocolate with Peanuts	Style B, Flavor 1
Cheese Spread, Cheddar, Fortified	PCR-C-039AB
Plain	Type I Flavor 1
With Jalapeno Peppers	Type II Flavor 2
Cookies	A-A-20295D/PKG&QAP
Regular, Individual Serving Package	Type I, Class 1
Crisp, Sugar Cookies, Patriotic	Bake Type a, Style D, Shape (b)
Crackers, Fortified	PCR-C-037AB
Plain	Type I Flavor 1
Vegetable	Type II Flavor 2

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TABLE I. Components - Continued

Component	Reference
Dessert Bar	PCR-D-004A
Mocha	Flavor I1
Peanut Butter	Flavor II2
Chocolate Banana Nut	Flavor III3
Filled Bakery Item	MIL-DTL-32221E D
Cinnamon Bun	Type II
First Strike Bars	PCR-F-001A
Chocolate, Regular, Barrier Pouch	Flavor I, Style A, Type I
Cran-Raspberry, Regular, Barrier Pouch	Flavor III, Style A, Type I
Fruits, Infused and Dried	A-A-20299C
No Sulfiting Agents	Class (1)
Sweetened with Nutritive Sweeteners	Sweetening option a
Cranberries, Sliced, Unflavored	Type VII, Style B, Flavor 1
Whole Raisins, Seedless	Type IX, Variety A
Nut and Fruit Mix	PCR-N-003B
Nuts and Raisins with Pan Coated Chocolate Disks	Type II
Nut Butters and Nut Spreads	A-A-20328C
Manufactured from Dry Roasted Nuts, Regular, Stabilized, Fortified, Salted, Conventional	Form (a), Class A, Type a, Fortification ii, Seasoning (a), Agricultural Practice (1)
Peanut Spread, Smooth, Chocolate	Style II, Texture 1, Flavor (2)
Nuts, Shelled, Roasted	A-A-20164E
Almonds (Unblanched), Flavored (Smoke), 38.0 g	Type VI, Style c, Package size c
Snack Foods	A-A-20195E
Pretzels, Filled Pretzels, Cheddar Cheese	Type II, Style F, Flavor 1
Toasted Corn Kernels, Plain, Salted	Type VI, Flavor 1
Toaster Pastries, Regular, Not Fortified	A-A-20211C, Type I, Fortific. b
Enriched Wheat Flour, Conventional	Grain Comp. (1), Agric. Practice i
Single Serving Packet, Frosted (Icing)	Servings (a), Style B
Chocolate Chip, Swirl and/or Drizzled Icing	Flavor 12, Icing Option (c)

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TABLE I. Components - Continued

Component	Reference
<u>Beverages</u>	
Beverage Bases (Powdered)	A-A-20098F
Lap or Fin Seal Pouch, Sweetened with Non-Nutritive Sweetener	Design D, Type III
Orange, Fortified with Ascorbic Acid and Calcium	Flavor 1, Formulation h
Beverage Powder, Carbohydrate	PCR-B-055A
Flat Interlocking Closure Pouch	Design B
Fortified with Ascorbic Acid and Enhanced with Maltodextrin	Formulation a
Grape or Lemon-Lime or Orange or Tropical Punch <u>1/</u>	Flavor 2 or 3 or 4 or 5
Chocolate Protein Drink Powder	PCR-C-082B
Chocolate	Flavor I
Cocoa Beverage Powder	A-A-20189C
Sugar Sweetened, Without Marshmallows	Type I, Style B
Flat Interlocking Closure Pouch	Design B,
Milk Chocolate	Flavor A
Drink Mixes, Coffee (Unflavored and Flavored)	A-A-20336B
Flavored Instant Cappuccino, Regular	Type V, Style A
Flat Interlocking Closure Pouch	Design B
Irish Cream	Flavor 4
<u>Other</u>	
Fork, Knife, and Spoon, Picnic (Plastic)	A-A-3109B
High Impact, Spoon, MRE, 7-Inch (Brown)	Type IV, Item 13

1/ Flavors shall be procured in equal quantities and assembled in a distribution which provides the greatest variation.

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B. Accessory components. Accessory components are specified in table II.

TABLE II. Accessory Components

Component	Reference	Packet
Chewing Gum, Tablet, Regular	A-A-20175E, Type I, Size B	All
Without Caffeine	Style (1)	
With Xylitol Sweetener	Class 3	
Peppermint or Cinnamon <u>1/</u>	Flavor a or c	
Coffee, Soluble	A-A-20184C	All
Spray Dried, Agglomerated	Type II	
or Freeze Dried, Regular	or Type III, Style A	
Creamer, Non-Dairy, Dry	A-A-20043D	All
Regular, Plain/Unflavored	Style 1, Flavor A	
Hand and Body Wipes, Pre-Moistened	A-A-461C D	All
Hand Wipe, Non-antibacterial	Type I, Style 2	
Individually Wrapped, Single Pack	Packaging a A	
Hot Sauce	A-A-20097G	All
Extra Hot 4x, Conventional 2/ Spices and	Type II, Agric. Practices A, 1/8 fl.	
Spice Blends	oz pouch or bottle A-A-20001C	
Conventional	Agricultural Practice (i)	
Spice Blends, Powdered Hot Sauce	Type II, Blend N	
Seasoning		
Sugar, White, Refined, and Sugar, Brown	A-A-20135E	All
White (Refined)	Type I	
Granulated (Fine or Extra Fine)	Style A	
Conventional, 1/7 Ounce 2.8 Grams	Agricultural Practice 1	
Toilet Tissue, Institutional, Folded	A-A-59594A, Style II	
One Ply, Perforated, 4-1/2" by 4-1/2"	Type A, Class 1, Sheet Size b	
Matches, Safety	A-A-59489B	All
Paper, 20 Splint Book	Type I, Class B	

1/ Flavors shall be procured in equal quantities and assembled in a distribution which provides the greatest variation.

2/ Alternatively, hot sauce may be packed loose in the meal bag.

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C. Contents. The contents of each meal are specified in table III. Refer to table I for full citation and document number of components.

TABLE III. Contents

<u>Menu #1</u> Beef Stroganoff with Noodles Filled Pretzels, Cheddar Cheese Dessert Bar, Peanut Butter Chocolate Protein Drink Powder, Chocolate Beverage Powder, Carbohydrate, Fortified <u>1</u> / Accessory Packet Spoon	<u>Menu #2</u> Chicken Fajita Bowl Nuts and Raisins with Pan Coated Chocolate Disks Dessert Bar, Mocha Beverage Powder, Carbohydrate, Fortified <u>1</u> / Dried Fruit, Cranberries Accessory Packet Spoon
<u>Menu #3</u> Chili and Macaroni with Beef Crackers, Plain Cheese Spread, Cheddar, Plain Toasted Corn Kernels Pan Coated Candy, Oval/Round, Milk Chocolate with Peanuts Coffee, Cappuccino, Irish Cream Accessory Packet Spoon	<u>Menu #4</u> Homestyle Chicken Noodle Casserole First Strike Bar, Chocolate Crackers, Plain Peanut Spread, Smooth, Chocolate Beverage Powder, Carbohydrate, Fortified <u>1</u> / Accessory Packet Spoon

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TABLE III. Contents – Continued

<u>Menu #5</u> Chicken and Rice Filled Bakery Item, Cinnamon Bun First Strike Bar, Cran-Raspberry Cocoa Beverage Powder, Milk Chocolate Accessory Packet Spoon	<u>Menu #6</u> Chicken and Biscuit Dumplings with Vegetables Ramen Noodle Soup Pound Cake, <i>Trans</i> Fat Free, Marble Crackers, Vegetable Beverage Powder, Carbohydrate, Fortified <u>1</u> / Accessory Packet Spoon
<u>Menu #7</u> Beef Stew Toasted Corn Kernels Nuts, Almonds, Smoked Pound Cake, <i>Trans</i> Fat Free, Vanilla Beverage Powder, Carbohydrate, Fortified <u>1</u> / Accessory Packet Spoon	<u>Menu #8</u> Spaghetti with Meat Sauce Ramen Noodle Soup Pan Coated Candy, Disks, Milk Chocolate, Plain Beverage Powder, Carbohydrate, Fortified <u>1</u> / Cocoa Beverage Powder, Milk Chocolate Dried Fruit, Whole Raisins Accessory Packet Spoon

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TABLE III. Contents – Continued

<u>Menu #9</u> Mexican Style Adobo Rice and Chicken Dessert Bar, Chocolate Banana Nut Cornbread Dried Fruit, Cranberries Beverage Powder, Carbohydrate, Fortified <u>1/</u> Accessory Packet Spoon	<u>Menu #10</u> Western Style Scrambled Eggs with Uncured Ham, Cheese, Peppers and Onions Granola with Milk and Blueberries Toaster Pastry, Chocolate Chip Muffin Top, Maple Filled Pretzels, Cheddar Cheese Beverage Base, Sweetened with Non- nutritive Sweetener, Fortified, Orange Coffee, Cappuccino, Irish Cream Accessory Packet Spoon
<u>Menu #11</u> Scrambled Eggs with Uncured Bacon Cereals, Rolled Oats, Instant, Maple and Brown Sugar Nuts and Raisins with Pan Coated Chocolate Disks Patriotic Sugar Cookies Cocoa Beverage Powder, Milk Chocolate Accessory Packet Spoon	<u>Menu #12</u> Breakfast Skillet with Pork Sausage Cereals, Rolled Oats, Instant, Strawberries and Cream Tortillas, Plain Cheese Spread, Cheddar, With Jalapeno Peppers Beverage Powder, Carbohydrate, Fortified <u>1/</u> Chocolate Protein Drink Powder, Chocolate Accessory Packet Spoon

1/ Flavors shall be procured in equal quantities and assembled in a distribution which provides the greatest variation.

SECTION D

D-1 PACKAGING

A. Components.

(1) Subassembly/accessory packet pouch. The subassembly/accessory packet pouch shall be a preformed pouch or a form-fill-seal pouch. Dimensions shall be sufficient to contain all components. Seals shall be a minimum 1/8 inch wide. A tear nick, notch or serrations shall be provided to facilitate opening the filled and sealed accessory packet. The average seal strength of the pouch seals shall be not less than 3.5 pounds per inch of width and no individual specimen shall have a seal strength of less than 3.0 pounds per inch of width. As an alternative to the seal strength requirement, the filled and sealed packet shall exhibit no rupture or seal separation greater than 1/16 inch or seal separation that reduces the effective seal width to less than 1/16 inch when tested for internal pressure resistance. The pouch shall be made from polymeric film or film combinations with adequate strength and thickness to contain and protect the components. The water vapor transmission rate (WVTR) of the film shall not exceed 6.2 g/m²/24hrs at 90% RH and 100°F when tested in accordance with ASTM F1249, Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor, ASTM E96/E96M, Standard Test Methods for Water Vapor Transmission of Materials or Method 3030 of MIL-STD-3010, Test Procedures for Packaging Materials and Containers. The exterior color of the packet shall be clear or tan.

(2) Meal bag. The meal bag shall be made from food grade, low density polyethylene (LDPE) tubing or tubing made from a blend of food grade, low density polyethylene (LDPE) and linear low density polyethylene (LLDPE). Additives may be used in order to improve sealability, peelability, tear resistance or other attributes provided all additives are approved for food contract. Polyethylene shall have a minimum thickness of 0.010 inch. Inside dimensions of the bag shall not exceed 8-1/8 by 12-1/2 inches. The color of the bag shall conform to number 37778 or 37886 of SAE AMS-STD-595; Colors Used in Government Procurement. One seal shall be a minimum 1/8 inch wide, continuous, peelable seal that forms a hermetic closure. The seal shall be designed with an inverted “V” shaped peel indicator along the seal path. There shall be a minimum of 1/2 inch between the apex of the “V” and the end of the bag. The seal strength of the peelable seal shall be not less than 4 pounds per inch of width and shall be not greater than 10 pounds per inch of width. Alternative bag construction, bag materials, and material thicknesses may be used provided that the alternative method can be demonstrated to meet or exceed the requirements of this

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document, military abuse testing and controlled pest testing. Samples may be submitted to the contracting officer to be qualified on a case by case basis.

(3) Time-temperature indicator (TTI) label. The TTI label shall be a 3/4 inch square, bull's-eye type, pressure sensitive adhesive label. The TTI label shall have an activation energy (E_a) of 24–30 kcal/mole, be protected from ultraviolet radiation, and have a shelf life of 1100 days at 80°F as pivot point.

B. Assembly.

(1) Subassembly/accessory packet assembly. One of each applicable component as described in table II shall be inserted in an accessory packet pouch. If a subassembly is used, additional components may also be inserted in the packet. For a preformed pouch, components shall be inserted in the pouch and the pouch shall be closed with a heat seal not less than 1/8 inch wide. For a form-fill-seal pouch, components shall be placed in the body and the cover applied by heat sealing with a seal not less than 1/8 inch wide. The closure seal shall be free of foldover wrinkles or entrapped matter that reduces the effective seal width to less than 1/16 inch. The average seal strength of the pouch seals shall be not less than 3.5 pounds per inch of width and no individual specimen shall have a seal strength of less than 3.0 pounds per inch of width. As an alternative to the seal strength requirement, the filled and sealed packet shall exhibit no rupture or seal separation greater than 1/16 inch or seal separation that reduces the effective closure seal width to less than 1/16 inch when tested for internal pressure resistance.

(2) Meal assembly. Each applicable component for each meal as described in table III shall be inserted in a meal bag. The bag shall be closed with a heat seal not less than 1/8 inch wide. The closure seal shall have an average seal strength of not less than 4 pounds per inch of width with no individual specimen test result less than 3 pounds per inch of width. The sealed meal bag shall not show any evidence of foreign odor.

D-2 LABELING

A. Meal bag. Each meal bag shall be correctly and legibly labeled on at least one face with permanent ink of other dark contrasting color with the information contained in accordance with figure 1. The label shall cite the correct menu number, name of entrée, and name and address of assembler.

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D-3 PACKING

A. Packing. Twelve meals shall be packed in a fiberboard box. The fiberboard box shall conform to RSC-L of ASTM D5118/D5118M, Standard Practice for Fabrication of Fiberboard Shipping Boxes and grade V2s of ASTM D4727/D4727M, Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes, except the requirements for dry burst strength shall be minimum 425 psi, the requirement for wet burst strength shall be minimum 250 psi and the laminated board thickness shall be 0.069 inches. [DEVCOM Soldier Center found that solid fiberboard shipping container material consisting of two outer facings of 90 pound wet strength linerboard and an inner ply of 69 pound linerboard meets the performance criteria of this specification.] The box liner shall be a full inside width box liner fabricated from grade W5c fiberboard in accordance with ASTM D5118/D5118M, except the terminal ends of the liner shall overlap a minimum of 2 inches and no fastening of the overlap is required. The box shall be closed in accordance with closure method 2A1 of ASTM D1974/D1974M, Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes; except the gap between the outer flaps shall be not more the 3/4 inch wide. Each box shall be reinforced with two girthwise nonmetallic straps. The inside dimensions of the box shall be 16-11/16 inches in length, 9-1/8 inches in width and 10-1/4 inches in depth.

D-4 UNITIZATION

A. Unit loads. Forty-eight boxes shall be arranged in unit loads in accordance with type I, class C of DLA Troop Support Form 3507, Loads, Unit: Preparation of Semiperishable Subsistence Items. At least two boxes in each tier shall be oriented to display the TTI label.

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 and as specified in the contract with the following exceptions:

(1) Identification markings normally placed on an end of the shipping container shall read from top to bottom, left to right, when the shipping container is rotated from its upright position onto its side for palletization. The major flaps of the shipping container closure immediately to the right of the marked end of the shipping container shall bear the following marking:

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Contract data and other required markings

Date of pack

Lot number

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(2) Time Temperature Indicator label shall be centrally positioned on the panel. A minimum distance (quiet zone) of 1/4 inch from the nearest identification marking shall be maintained.

(3) One side panel of shipping container shall be marked “MEAL, COLD WEATHER” in letters not less than 1-1/4 inches high.

B. Unit loads. Unit loads shall be marked in accordance with DLA Troop Support Form 3556.

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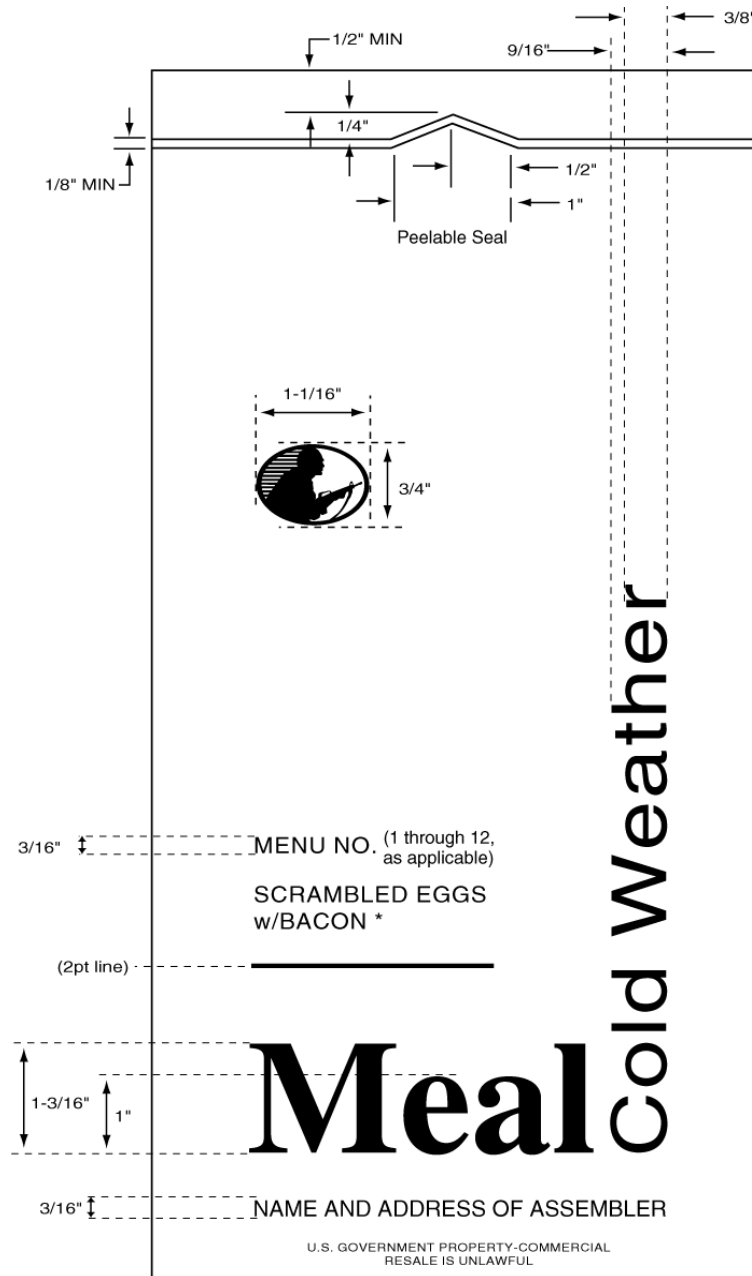


FIGURE 1. GRAPHIC DESIGN AND LETTERING HEIGHT **

* Name of applicable entree component as listed in table I component column

** A tolerance of plus or minus 1/16 inch is applicable to letter height requirements

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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. Conformance inspection. Conformance inspection shall include the examinations/tests and the methods of inspection cited in this section.

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C. Packaging examination.

(1) Pouch material certification. The pouch material shall be tested for these characteristics. A Certificate of Conformance (CoC) may be accepted as evidence that the characteristics conform to the specified requirements.

Requirement	Requirement paragraph	Test procedure
Thickness of meal bag	D-1,A(2)	ASTM D2103 <u>1/</u>
Color of meal bag	D-1,A(2)	Visual evaluation and SAE AMS-STD-595, as applicable <u>2/</u>
Water vapor transmission rate	D-1,A(1)	ASTM F1249 <u>3/</u> , ASTM E96/E96M <u>4/</u> or Method 3030 of MIL-STD-3010 <u>5/</u>

1/ Standard Specification for Polyethylene Film and Sheeting

2/ Colors Used in Government Procurement

3/ Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor

4/ Standard Test Methods for Water Vapor Transmission of Materials

5/ Test Procedures for Packaging Materials and Containers

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(2) Subassembly/accessory packet examination. The filled and sealed packets shall be examined for the defects listed in table V. The lot size shall be expressed in packets. The sample unit shall be one packet. The inspection level shall be S-4 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5 for major defects and 4.0 for minor defects.

TABLE V. Subassembly/accessory packet defects

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Not clean. <u>1/</u>
	201	Seal width less than 1/16 inch. <u>2/</u>
	202	Tear nick or notch or serrations missing or does not facilitate opening.
	203	Tear or hole or open seal.
	204	Pouch not sealed on four sides.

1/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause package damage (for example, glass, metal fillings, etc.), or generally detracts from the clean appearance of the package. The following examples shall not be scored 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.

2/ An effective seal is defined as any uncontaminated, fusion bonded, continuous path, minimum 1/16 inch wide, producing a hermetically sealed pouch.

(3) Subassembly/accessory packet contents examination. The filled and sealed packets shall be examined for the defects listed in table VI (this examination may be performed on the preformed packets after filling and prior to sealing). The lot size shall be expressed in packets. The sample unit shall be one packet, open or sealed. The inspection level shall be S-4 and the AQL, expressed in terms of defects per hundred units, shall be 1.5 for major defects and 4.0 for minor defects.

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TABLE VI. Subassembly/accessory packet contents defects

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Component not clean. <u>1/</u>
	201	Missing or unserviceable component.

1/ Outer packaging shall be free from foreign matter which is unwholesome, has the potential to cause package damage (for example, glass, metal filings, etc.), or generally detracts from the clean appearance of the package. The following examples shall not be scored 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. Localized dried product which affects less than 1/8 of the total surface area of one package face, or an aggregate of scattered dried product which affects less than 1/4 of the total surface area of one package face.

(4) Assembled meal bag examination. The filled and sealed meal bags shall be inspected for the defects listed in table VII. The lot size shall be expressed in bags. The sample unit shall be one bag. The inspection level shall be S-4 and the AQL, expressed in terms of defects per hundred units, shall be 2.5 for major defects and 4.0 for minor defects. A minimum of 50 samples shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot. The inspection sample shall contain a proportionate amount of each of the meals.

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TABLE VII. Assembled meal bag defects

Category			Defect
<u>Critical</u>	<u>Major</u>	<u>Minor</u>	
1			Tear or hole or open seal in cheese spread.
2			Swollen cheese spread pouch.
	101		Menu component missing or incorrect assortment for menu. <u>1/</u>
	102		Meal bag not clean or outer packaging of its contents not clean. <u>2/</u>
	103		Foreign odor.
	104		Labeling missing or incorrect or illegible.
	105		Loss of vacuum in vacuum packaged components. <u>3/</u>
	106		Crushed or broken component. <u>4/</u>
	107		Broken spoon.
	108		Tear or hole or open seal in component packages.
	109		Swollen peanut spread, chocolate pouch.
		201	Tear or hole or open seal or split in meal bag.
		202	Tear or hole or open seal in subassembly/accessory packet.
		203	Inverted "V" shaped peel indicator missing or not located as specified.
		204	Labeling graphics of meal bag not correct.

1/ A missing entrée shall be cause for rejection of the lot.

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2/ Outer packaging shall be free from foreign matter, which is unwholesome, has the potential to cause package damage (i.e. glass, metal filings, etc.), or generally detracts from the clean appearance of the package. The following examples shall not be scored 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. Localized dried product which affects less than 1/8 of the total surface area of one pouch face, or an aggregate of scattered dried product which affects less than 1/4 of the total surface area of one pouch face.

3/ When vacuum retention cannot be determined visually by obvious cling of the bag walls to the contents, retention shall be verified by testing as specified in the applicable component document.

4/ For definition of crushed or broken, refer to applicable component document.

D. Methods of inspection.

(1) Seal testing. The pouch seals shall be tested for seal strength or internal pressure resistance as required in a, b, c, or d, as applicable.

a. Unfilled preformed subassembly/accessory packet pouch. The seals of the unfilled preformed pouches for the subassembly/accessory packet shall be tested for seal strength in accordance with ASTM F88/F88M, Standard Test Method for Seal Strength of Flexible Barrier Materials. The lot size shall be expressed in pouches. The sample unit shall be one unfilled pouch. The inspection shall be level S-1 and the AQL, expressed in defects per hundred units, shall be 10.0. Three specimens shall be cut from each of the three sealed sides of each pouch in the sample. The average seal strength of any side shall be calculated by averaging the results of the three specimens cut from that side. Any individual test specimen failing to meet a seal strength of 3 pounds per inch of width shall be scored as a major defect. Any average seal strength of less than 3.5 pounds per inch of width shall be cause for rejection of the lot. Alternatively, the internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates. The sample size shall be the number of pouches indicated by inspection level S-1. If a three-seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall

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be cut off for testing the side and end of the pouch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be equal to the thickness of the product +1/16 inch. Pressure shall be applied at the rate of 1-2 pounds per square inch gage (psig) per second until 14 psig pressure is reached. The 14 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for separation or yield of the heat seals. Any rupture of the pouch or evidence of seal separation greater than 1/16 inch in the pouch manufacturer's seal shall be considered a test failure. Any seal separation that reduces the effective closure seal width to less than 1/16 inch (see table V, footnote 2/) shall be considered a test failure. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

b. Unfilled meal bag. The seals of the unfilled meal bags shall be tested for seal strength in accordance with ASTM F88/F88M. The lot size shall be expressed in bags. The sample unit shall be one unfilled bag. The sample size shall be the number of bags indicated by inspection level S-1. Three specimens shall be cut from the sealed end of each bag in the sample. Samples shall not be taken from the inverted "V" peel initiation. Any specimen with a seal strength less than 4 pounds per inch of width or greater than 10 pounds per inch of width shall be classified as a major defect and shall be cause for rejection of the lot.

c. Subassembly/accessory packet pouch closure. The closure seals of the pouches for the subassembly/accessory packet shall be tested for seal strength in accordance with ASTM F88/F88M. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The inspection level shall be S-1 and the AQL, expressed in defects per hundred units, shall be 10.0. For the closure seal on preformed pouches, three adjacent specimens shall be cut from the closure seal of each pouch in the sample. For the form-fill-seal pouches, three specimens shall be cut from each side and each end of each pouch in the sample. The average seal strength of any side, end or closure shall be calculated by averaging the three specimens cut from that side, end or closure. Any individual test specimen failing to meet a seal strength of 3 pounds per inch of width shall be scored as a major defect. Any average seal strength of less than 3.5 pounds per inch of width shall be cause for rejection of the lot. Alternatively, the internal pressure resistance shall be determined by pressurizing the pouches while they are restrained between two rigid plates. The sample size shall be the number of pouches indicated by inspection level S-1. If a three-seal tester (one that pressurizes the pouch through an open end) is used, the closure seal shall be cut off for testing the side and end of the pouch and the distance between restraining plates shall be 1/2

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inch. For testing the closure seal, the bottom seal shall be cut off. The pouches shall be emptied prior to testing. If a four-seal tester (designed to pressurize filled pouches by use of a hypodermic needle through the pouch wall) is used, all four seals can be tested simultaneously. The distance between rigid restraining plates on the four-seal tester shall be equal to the thickness of the product +1/16 inch. Pressure shall be applied at the rate of 1-2 pounds per square inch gage (psig) per second until 14 psig pressure is reached. The 14 psig pressure shall be held constant for 30 seconds and then released. The pouches shall then be examined for separation or yield of the heat seals. Any rupture of the pouch or evidence of seal separation greater than 1/16 inch in the pouch manufacturer's seal shall be considered a test failure. Any seal separation that reduces the effective closure seal width to less than 1/16 inch (see table V, footnote 2/) shall be considered a test failure. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

d. Meal bag closure. The closure seals of the meal bags shall be tested for seal strength in accordance with ASTM F88/F88M. The lot size shall be expressed in bags. The sample unit shall be one bag. The sample size shall be the number of bags indicated by inspection level S-1. Three specimens shall be cut from the closure seal of each bag in the sample. The average seal strength shall be calculated by averaging the three test specimens cut from that seal (the sample unit). Any test specimen result less than 3 pounds per inch of width shall be cause for rejection of the lot. Any average seal strength of less than 4 pounds per inch of width shall be cause for rejection of the lot.

(2) Unfilled meal bag and unfilled preformed subassembly/accessory packet pouch seal certification. A CoC may be accepted as evidence that unfilled bags or pouches conform to the seal strength requirements specified in D-1,A(1) and (2). When deemed necessary by the government inspector, testing of the unfilled preformed pouches for seal strength shall be as specified in Section E,D(1)a and b.

E. Packing.

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

Category		Defect
<u>Major</u>	<u>Minor</u>	
101		Marking missing or incorrect or illegible.
102		Outer flaps do not completely meet, leaving an opening greater than 3/4 inch between flap ends.
103		Inadequate workmanship. <u>1/2/</u>
104		Not 12 meals per case. <u>2/</u> Not one of each menu specified.
105		Not one of each menu specified.
	201	Time-temperature indicator missing or not centrally located on panel.
	202	Time-temperature indicator 1/4-inch quiet zone not maintained.
	203	Meal bag graphics do not coincide with specified design.

1/ A missing meal shall be cause for rejection of the lot.

2/1/ 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.

~~2/ A missing meal shall be cause for rejection of the lot.~~

(2) Flap closure testing. The lot size shall be expressed in shipping containers. The sample unit shall be one shipping container. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 4.0. The closure of the four outer flaps of the container shall be tested separately. A 90 degree angular bar with each leg approximately 5 inches long by 3 inches wide by 1/8 inch thick shall be used to test the flap closures. Insert one leg of the angular bar full length under the center of one outer flap. Insertion shall be made through the open slot between the outer flaps. Lift the container vertically by the other leg of the bar until the container is suspended. The complete upper surface of the inserted leg shall be in contact with the inner surface of the flap during the

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lifting and suspension of the container. Complete separation of the adhesive bond of one or more of the outer flaps, showing no evidence of fiber tear, shall be scored as a major defect.

F. Unit load examination. The unit load shall be examined in accordance with the requirements of DLA Troop Support Form 3507. Any nonconformance shall be classified as a major defect.

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 3507 Loads, Unit: Preparation of Semiperishable Subsistence Item

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

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-STD-3010 Test Procedures for Packaging Materials and Containers

(Copies of these documents are available from <http://quicksearch.dla.mil/qsSearch.aspx> or from the Standardization Document Order Desk, 700 Robbins Ave. Building 4D, Philadelphia, PA 19111-5094.)

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

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

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D2103	Standard Specification for Polyethylene Film and Sheeting
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
E96/E96M	Standard Test Methods for Water Vapor Transmission of Materials
F88/F88M	Standard Test Method for Seal Strength of Flexible Barrier Materials
F1249	Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor

SAE INTERNATIONAL www.sae.org

SAE AMS-STD-595 Colors Used in Government Procurement