

SECTION C

The Meal, Ready-to-Eat (MRE) provides an operational ration for the individual.

C-1 ITEM DESCRIPTION

ACR-M-046, MEAL, READY-TO-EAT (MRE), ASSEMBLY REQUIREMENTS

C-2 ASSEMBLY REQUIREMENTS

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

TABLE I. Components

Component	Reference
<u>Entrées</u>	
Beef Goulash (Beef with Brown Rice, Spinach, Carrots, Tomatoes and Smoked Paprika)	PCR-B-060
Beef Ravioli in Meat Sauce	PCR-B-021A
Beef Stew	PCR-B-020B, Type I
Beef Strips in a Savory Tomato Sauce	PCR-B-061
Buffalo Style Chicken	PCR-B-065
Cheese Tortellini in Tomato Sauce	PCR-C-020A
Chicken, Egg Noodles, and Vegetables, in Sauce	PCR-C-021B
Chicken Burrito Bowl (Chicken with Brown Rice, Beans, and Vegetables)	PCR-C-088A, Type I
Chicken Chunks, White, Cooked, Flexible Pouch, 5 oz. Pouch, Regular, Conventional	A-A-20352C Type V, Style A, Agric. Practice 1
Chicken Stir Fry	PCR-C-093
Chili and Macaroni	PCR-C-027B
Chili with Beans	PCR-C-062A
Cuban Style Beef Picadillo	PCR-C-094
Elbow Macaroni in Tomato Sauce	PCR-E-019
Italian Sausage with Peppers and Onions in Marinara Sauce	PCR-I-003
Meatballs in Marinara Sauce	PCR-M-015
Mexican Style Chicken Stew	PCR-M-016
Mexican Style Rice and Bean Bowl	PCR-M-017
Pizza Slice	MIL-DTL-32541A
Cheese	Type I
Pepperoni	Type II
Southwest Style Beef and Black Beans with Sauce	PCR-S-018
Spaghetti with Beef and Sauce	PCR-S-002A

TABLE I. Components - Continued

Component	Reference
Thai Style Red Curry with Chicken, Brown Rice, and Vegetables	PCR-T-016
Tuna, Flexible Pouch, Chunk Light, Water, Lemon Pepper, Regular (no more than 1.5 percent salt)	A-A-20155D, Type B, Form I, Color a, Packing Media 1, Flavor 1, Salt/Sodium Level (a)
<u>Starches and Soups</u>	
Bread, Mini-Loaf, Sliced	PCR-B-064
Whole Wheat	Type I
Cornbread	PCR-C-075
Granola	PCR-G-003B
With Milk and Blueberries	Type I
With Milk, Apples and Cinnamon	Type II
Santa Fe Style Brown Rice and Beans	PCR-S-019
Snack Bread, Fortified	PCR-S-009D
Italian Bread Sticks, Single Pack	Type IV, Style A
Multigrain Snack Bread, Single Pack	Type V, Style A
White Wheat Snack Bread, Single Pack	Type VI, Style A
Swirl Roll	PCR-S-026
Italian Style Herb and Cheese	Flavor 1
Tortillas, 2 Count Individual Serving Package	PCR-T-008B, Type I
Plain	Flavor 1
Chipotle	Flavor 2
Whole Grain	Flavor 3
<u>Fruits</u>	
Apple Pieces in Spiced Sauce	PCR-A-001C
Cobbler	PCR-C-058A
Cherry Blueberry	Flavor 1
Fruit Mix, Infused and Dried	PCR-F-006
Apples, Blueberries, and Cherries	Type I
Fruit Puree Squeeze	PCR-F-004
Apple, Strawberry, and Carrot	Flavor I
Banana and Pumpkin	Flavor II
Fruits, Infused, 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

TABLE I. Components - Continued

Component	Reference
Fruits, Wet Pack	PCR-F-002D
Applesauce, with Raspberry Puree, Sweetened, Reg.	Type VI
Applesauce, Carbohydrate Enhanced, Sweetened, Reg.	Type VII
Applesauce, with Mango and Peach Puree, Sweetened, Reg.	Type VIII
<u>Desserts and Snacks</u>	
Cakes and Muffin Tops	PCR-C-007G
Cakes	Type I
Vanilla <u>1</u> /	Flavor 1
Marble <u>1</u> /	Flavor 2
Applesauce <u>1</u> /	Flavor 3
Muffin Top	Type II
Maple, Whole Grain	Flavor 1
Cheese Spread, Cheddar, Fortified	PCR-C-039B
Plain	Flavor 1
With Jalapeno Peppers	Flavor 2
With Bacon	Flavor 3
Cookies	A-A-20295D/PKG&QAP
Regular, Individual Serving Package, Crisp	Type I, Class 1, Bake Type a
Sugar Cookies, Patriotic	Style D, Shape (b)
Oatmeal Cookies, Plain	Style I, Flavor 1
Oatmeal Cookies, Chocolate Chunk	Style I, Flavor 6
Crackers, Fortified	PCR-C-037B
Plain	Flavor 1
Vegetable	Flavor 2
Dessert Spread	PCR-D-005
Apple Pie	Flavor 1
Filled Bakery Item	MIL-DTL-32221D
Cinnamon Bun	Type II
Granola Bars (With or Without Nuts) and Nut Bars	A-A-20245B/PKG&QAP
Nuts (Peanuts and/or Tree Nuts), Uncoated	Base Type II, Coating A
Conventional	Agricultural Practice a
Almond and Coconut	Flavor 1
High Energy Bar	PCR-H-015
Coconut Almond	Flavor 1

TABLE I. Components - Continued

Component	Reference
Jelly, Fruit, Standardized, Single, Regular U.S. Grade A Apple Grape	A-A-20078D, Type I, Style 1 Finished Product Quality a Kind A Kind M
Meat and Poultry Snacks, Cured Beef, Fermented, Chopped and Formed Sticks, Teriyaki	A-A-20298C Variety A, Type IV, Style a Class 2, Flavor (b)
Nut and Fruit Mix Nuts and Raisins with Pan Coated Chocolate Disks	PCR-N-003B Type II
Nut Butters and Nut Spreads Manufactured from Dry Roasted Nuts, Regular, Stabilized Fortified, Salted, Conventional Peanut Butter, Smooth, Plain Peanut Butter, Chunky/Crunchy, Plain Peanut Spread, Smooth, Chocolate	A-A-20328C Form (a), Class A, Type a, Fortification ii, Seasoning (a), Agricultural Practice (1) Style I, Texture 1, Flavor (1) Style I, Texture 3, Flavor (1) Style II, Texture 1, Flavor (2)
Nuts, Shelled, Roasted Conventional, Package Type 1 Peanuts, Virginia Type or Runner Type, Dry Roasted, Salted, 28 g Cashews, Halves (Splits), Flavored (Jalapeno), 38 g Almonds (Unblanched), Flavored (Smoke), 38 g	A-A-20164E Agricultural Practice (1), Individual Serving Pouch Type II, Style a, Package Size b Type III, Size 2, Style c, Package size c Type VI, Style c, Package size c
Peanut Butter Bites, Dehydrated Cocoa	PCR-P-052 Flavor 1
Preserves (or Jams), Fruit U.S. Grade A Single Fruit, Blackberry, Regular Single Fruit, Strawberry, Regular	A-A-20079D, Type I Finished Product Quality a Group I, Flavor A, Style 1 Group I, Flavor Q, Style 1
Trail Mix, Recovery Trail Mix, Recovery with Pretzels	PCR-T-014A Type I
Recovery Bar, Cereal Crisps Salted Caramel S'mores	PCR-R-016A Flavor 1 Flavor 2
Snack Foods Pretzels, Nuggets, Honey Mustard and Onion Pretzels, Filled Pretzels, Cheddar Cheese Baked Snack Crackers, Cheddar Cheese Toasted Corn Kernels, Barbecue Cheese Filled Crackers, Pepperoni Pizza	A-A-20195E Type II, Style E, Flavor 2 Type II, Style F, Flavor 1 Type V, Flavor 1 Type VI, Flavor 2 Type VII, Flavor 2

TABLE I. Components - Continued

Component	Reference
Toaster Pastries, Regular, Not Fortified	A-A-20211C, Type I, Fortification b
Enriched Wheat Flour, Conventional	Grain Comp. (1), Agric. Practice i
Single Serving Packet, Frosted (Icing)	Servings (a), Style B
Chocolate Chip, Swirled and/or Drizzled Icing	Flavor 12, Icing Option (c)
<u>Candy</u>	
Candy and Chocolate Confections	A-A-20177G
Pan Coated Candy	Type IV
Disks, Milk Chocolate, Plain	Style A, Flavor 1
Disks, Fruit Flavored, Original	Style A, Flavor 2, Flavor Style a
Disks, Peanut Butter, Plain	Style A, Flavor 4
Oval/Round, Milk Chocolate with Peanuts	Style B, Flavor 1
Caffeinated Jelly Beans, Bean-Shaped	Type VIII, Style A
Pomegranate, Cherry, and Watermelon	Flavor 8
Caffeinated Chewables/Gels, Dome-Shaped, Lime	Type IX, Style A, Flavor 2
<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
Lemonade, Not Fortified <u>1/</u>	Flavor 8, Formulation a
Raspberry, Not Fortified <u>1/</u>	Flavor 13, Formulation a
Cranberry Grape, Not Fortified <u>1/</u>	Flavor 22, Formulation a
Beverage Powder, Carbohydrate Electrolyte	PCR-B-013B
Flat Interlocking Closure Pouch	Design B
Fruit Punch <u>1/</u>	Flavor I
Grape <u>1/</u>	Flavor II
Lemon-Lime <u>1/</u>	Flavor III
Orange <u>1/</u>	Flavor IV
Beverage Powder, Carbohydrate	PCR-B-055A
Fortified with Ascorbic Acid and Enhanced with Maltodextrin	Formulation a
Lemon-Lime <u>1/</u>	Flavor 3
Orange <u>1/</u>	Flavor 4
Tropical Punch <u>1/</u>	Flavor 5
Enhanced with Caffeine	Formulation c
Lemon-Lime <u>1/</u>	Flavor 3
Mixed Berry <u>1/</u>	Flavor 7
Chocolate Protein Drink Powder	PCR-C-082B
Chocolate	Flavor I

TABLE I. Components - Continued

Component	Reference
Fruit and Vegetable Blend Juice Smoothie Powder	PCR-F-005
Tropical Blend	Flavor I
<u>Other Items</u>	
Bag, Hot Beverage	MIL-PRF-32176A
Barbecue Sauce	A-A-20335B
Plain/Regular, Without Fruit Purees Added	Flavor I, Type B
Chewing Gum	A-A-20175E/PKG&QAP
Tablet, Large, or Disk, Regular,	Type I, Size C, or Type VII, Size B,
With Caffeine, Regular, Peppermint	Style (2), Class 1, Flavor a
One Tablet or Disk	Package a
Fork, Knife, and Spoon, Picnic (Plastic)	A-A-3109B
High Impact, Spoon, MRE, 7-Inch (Brown)	Type IV, Item 13
Mayonnaise, Salad Dressing, and Tartar Sauce	A-A-20140E
Mayonnaise, Plain, Fat Free	Type I, Flavor A, Style 3
Paperboard Insert Card	MIL-PRF-44073J
Paperboard Sleeve	MIL-PRF-44073J
Ration Supplement, Flameless Ration Heater (FRH)	MIL-R-44398B
Spices and Spice Blends	A-A-20001C
Conventional	Agricultural Practice (i)
Spice, Pepper, Red, Crushed	Type I, Spice Y, Form 3
Spice Blends, Picante Seasoning	Type II, Blend K
Spice Blends, Powdered Hot Sauce Seasoning	Type II, Blend N

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

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

TABLE II. Accessory Components

Component	Reference	Acc. Pack
Chewing Gum	A-A-20175E/PKG&QAP	All
Tablet, Regular	Type I, Size B	
Without Caffeine	Style (1)	
With Xylitol Sweetener	Class 3	
Peppermint or Cinnamon <u>1/</u>	Flavor a or c	
Hand and Body Wipes, Pre-Moistened,	A-A-461D	All
Hand Wipe, Non-Antibacterial	Type I, Style 2	
Individually Wrapped, Single Pack	Packaging A	

TABLE II. Accessory Components - Continued

Component	Reference	Acc. Pack
Matches, Safety	A-A-59489B	B
Paper, 20 Splint Book	Type I, Class B	
Salt, Table, Iodized, 0.67-0.75 Grams	NaCl Monograph	All
Toilet Tissue, Institutional, Folded	A-A-59594A, Style II	All
One Ply, Perforated, 4-1/2" by 4-1/2"	Type A, Class 1, Sheet Size b	
Coffee, Soluble	A-A-20184C	A
Spray Dried, Agglomerated	Type II	
or Freeze Dried, Regular	or Type III, Style A	
Creamer, Non-Dairy, Dry	A-A-20043D	A
Regular, Plain/Unflavored	Style I, Flavor A	
Sugar, White, Refined, and Sugar, Brown	A-A-20135E	A
White (Refined)	Type I	
Granulated (Fine or Extra Fine)	Style A	
Conventional, 2.8 Grams	Agricultural Practice 1	
Sugar Substitutes, Non-Carbohydrate	A-A-20178C	A
Sucralose, Granular, 1.0 Gram	Type IV, Style A	
Envelopes/Packets or Sticks	Package 1 or Package 2	

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

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> Chili with Beans Cheese Spread, Cheddar, Plain Crackers, Vegetable Cornbread Cheese Filled Crackers, Pepperoni Pizza Beverage Powder, Carbohydrate Electrolyte Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve	<u>Menu #2</u> Chicken Stir Fry Fruit Puree Squeeze Apple, Strawberry, Carrot Trail Mix, Recovery with Pretzels Filled Bakery Item, Cinnamon Bun Chocolate Protein Drink Powder, Chocolate Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)
<u>Menu #3</u> Chicken, Egg Noodles, and Vegetables in Sauce Applesauce, with Raspberry Puree Crackers, Plain Peanut Butter, Chunky/Crunchy Jelly, Apple Pan Coated Candy, Disks, Fruit Flavored, Original Beverage Powder, Carbohydrate, Fortified Spice Blends, Picante Seasoning Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)	<u>Menu #4</u> Spaghetti with Beef and Sauce Cheese Spread, Cheddar, Plain Snack Bread, Italian Bread Sticks Fruit, Dried Cranberries, Sliced Chocolate Protein Drink Powder, Chocolate Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Not Fortified Chewing Gum, with Caffeine Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve

TABLE III. Contents - Continued

<p><u>Menu #5</u> Chicken Chunks, White, Cooked Fruit Mix, Apples, Blueberries and Cherries Cheese Spread, Cheddar, Plain Tortillas, Plain Toasted Corn Kernels, Barbecue Meat Snack, Beef Stick, Teriyaki Beverage Powder, Carbohydrate, Enhanced with Caffeine Barbecue Sauce Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>	<p><u>Menu #6</u> Cuban Style Beef Picadillo Santa Fe Style Brown Rice and Beans Cheese Spread, Cheddar, Plain Tortillas, Whole Grain Nuts and Raisins with Pan Coated Chocolate Disks Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Fortified, Orange Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)</p>
<p><u>Menu #7</u> Beef Strips in a Savory Tomato Sauce Recovery Bar, S'mores Meat Snack, Beef Stick, Teriyaki Peanut Butter, Smooth Snack Bread, White Wheat Preserves, Blackberry Fruit and Vegetable Blend Juice Smoothie Powder, Tropical Blend Chewing Gum, with Caffeine Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>	<p><u>Menu #8</u> Meatballs in Marinara Sauce Cobbler, Cherry Blueberry Oatmeal Cookie, Chocolate Chunk Cheese Spread, Cheddar, with Jalapeno Peppers Snack Bread, Italian Bread Sticks Beverage Powder, Carbohydrate Electrolyte Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)</p>

TABLE III. Contents - Continued

<u>Menu #9</u> Beef Stew Cake Snack Bread, Multigrain Peanut Butter, Smooth Jelly, Grape Jelly Beans, Caffeinated Beverage Powder, Carbohydrate, Fortified Spice Blends, Powdered Hot Sauce Seasoning Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve	<u>Menu #10</u> Chili and Macaroni Cake Cheese Spread, Cheddar, with Jalapeno Peppers Crackers, Vegetable Meat Snack, Beef Stick, Teriyaki Caffeinated Chewables, Lime Beverage Powder, Carbohydrate Electrolyte Spice Blends, Powdered Hot Sauce Seasoning Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve
<u>Menu #11 Vegetarian</u> Pizza Slice, Cheese Applesauce, Carbohydrate Enhanced High Energy Bar, Coconut Almond Cashews, Jalapeno Flavored Chocolate Protein Drink Powder, Chocolate Spice, Crushed Red Pepper Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)	<u>Menu #12 Vegetarian</u> Elbow Macaroni in Tomato Sauce Recovery Bar, Salted Caramel Applesauce, with Mango and Peach Puree Peanut Spread, Smooth, Chocolate Preserves, Strawberry Bread, Mini-Loaf, Sliced, Whole Wheat Beverage Powder, Carbohydrate Electrolyte Spice, Crushed Red Pepper Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)

TABLE III. Contents - Continued

<p><u>Menu #13 Vegetarian</u> Cheese Tortellini in Tomato Sauce High Energy Bar, Coconut Almond Swirl Roll, Italian Style Herb and Cheese Trail Mix, Recovery with Pretzels Beverage Powder, Carbohydrate, Enhanced with Caffeine Spice, Crushed Red Pepper Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>	<p><u>Menu #14 Vegetarian</u> Mexican Style Rice and Bean Bowl Peanut Butter Bites, Cocoa Cheese Spread, Cheddar, with Jalapeno Peppers Crackers, Plain Pretzels, Nuggets, Honey Mustard and Onion Chocolate Protein Drink Powder, Chocolate Spice Blends, Picante Seasoning Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve</p>
<p><u>Menu #15</u> Mexican Style Chicken Stew Fruit Puree Squeeze, Banana and Pumpkin Filled Pretzels, Cheddar Cheese Cheese Spread, Cheddar, with Jalapeno Peppers Crackers, Plain Nut Bar, Almond and Coconut Chocolate Protein Drink Powder, Chocolate Spice Blends, Picante Seasoning Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)</p>	<p><u>Menu #16</u> Chicken Burrito Bowl Trail Mix, Recovery with Pretzels Toaster Pastry, Chocolate Chip Tortillas, Whole Grain Cheese Spread, Cheddar, Plain Spice Blends, Picante Seasoning Beverage Powder, Carbohydrate Electrolyte Chewing Gum, with Caffeine Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>

TABLE III. Contents - Continued

<p><u>Menu #17</u> Buffalo Style Chicken Tortilla, Plain Granola with Milk and Blueberries Muffin Top, Maple, Whole Grain Peanuts, Dry Roasted, Salted Beverage Powder, Carbohydrate Electrolyte Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve</p>	<p><u>Menu #18</u> Beef Ravioli in Meat Sauce Recovery Bar, Salted Caramel Cheese Spread, Cheddar, Plain Snack Bread, Italian Bread Sticks Pan Coated Candy, Disks, Milk Chocolate, Plain Beverage Powder, Carbohydrate Electrolyte Spice Blends, Powdered Hot Sauce Seasoning Chewing Gum, with Caffeine Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>
<p><u>Menu #19</u> Thai Style Red Curry with Chicken, Brown Rice, and Vegetables Fruit Puree Squeeze, Banana and Pumpkin Granola with Milk, Apples and Cinnamon Cheese Spread, Cheddar, Plain Crackers, Plain Pan Coated Candy, Oval/Round, Milk Chocolate with Peanuts Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Fortified, Orange Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)</p>	<p><u>Menu #20</u> Italian Sausage with Peppers and Onions in Marinara Sauce Toaster Pastry, Chocolate Chip Fruit, Dried Cranberries, Sliced Cheese Spread, Cheddar with Bacon Swirl Roll, Italian Style Herb and Cheese Almonds, Smoke Flavored Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Fortified, Orange Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve</p>

TABLE III. Contents - Continued

<u>Menu #21</u> Tuna, Chunk Light, Lemon Pepper Cake Dessert Spread, Apple Pie Tortillas, Plain Baked Snack Crackers, Cheddar Beverage Powder, Carbohydrate, Fortified Pan Coated Candy, Disks, Peanut Butter, Plain Mayonnaise, Fat Free Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve	<u>Menu #22</u> Beef Goulash Applesauce, Carbohydrate Enhanced Peanut Butter, Chunky/Crunchy Preserves, Strawberry Bread, Mini-Loaf, Sliced, Whole Wheat Sugar Cookies, Patriotic Beverage Powder, Carbohydrate, Fortified Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)
<u>Menu #23</u> Pizza Slice, Pepperoni Apple Pieces in Spiced Sauce Cheese Spread, Cheddar, with Jalapeno Peppers Crackers, Vegetable Oatmeal Cookie, Plain Chocolate Protein Drink Powder, Chocolate Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Not Fortified Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)	<u>Menu #24</u> Southwest Style Beef and Black Beans with Sauce Cobbler, Cherry Blueberry Cake Meat Snack, Beef Stick, Teriyaki Cheese Spread, Cheddar, Plain Tortillas, Chipotle Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Not Fortified Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)

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) 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.

(3) Horizontal form-fill-seal meal pouch. The horizontal form-fill-seal meal pouch shall consist of a formed tray-shaped body with a flat sheet, heat sealable cover. The tray-shaped body shall be fabricated from a food grade multi-layer coextruded polymer containing nylon and polyethylene with a minimum pre-forming average thickness of 0.010 inch. The minimum thickness of the formed tray-shaped body shall be not less than 0.003 inch. The flat cover shall be fabricated from a food grade multi-layer coextruded polymer containing polyethylene and polypropylene or nylon that provides puncture resistance properties with a minimum thickness of 0.006 inch. The tray-shaped body and flat cover shall be sealed and free of wrinkles, pleats, ripples, or creases. The material shall show no evidence of delamination, degradation, or foreign odor when heat sealed or fabricated into pouches. The material shall be suitably formulated for food packaging and shall not impart any odor or flavor to the product. The color of the formed tray-shaped body shall be clear. The color of the flat cover shall conform to number 20219, 30219, 30227, 30279, 30313, 30324 or 30450 of SAE AMS-STD-595, Colors Used in Government Procurement. Alternative pouch

construction, pouch materials, and material thicknesses may be used provided that the alternative method can be demonstrated to meet or exceed the requirements of this 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.

(4) Paperboard sleeve. The paperboard sleeve shall be constructed in accordance with figure 6 of MIL-PRF-44073J. When folded along the score lines located at the bottom of the sleeve, an open-ended carton shall result. Each sleeve shall be securely sealed along the glue joint. The seal shall have a bond strength greater than the fiber tear of the paperboard. The color of the sleeve shall be natural kraft, tan or dull gray.

(5) Paperboard insert card. The paperboard insert card shall not exceed 4 inches in width by 6 inches in length. The color of the insert card shall be natural kraft, tan or dull gray. The paperboard insert card shall contain food product information in accordance with Section D-2 of the appropriate food product document(s).

B. Assembly.

(1) Subassembly/accessory packet pouch 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) Horizontal form-fill-seal meal pouch assembly. The tray-shaped body shall be formed by drawing the flexible laminate material into a shaped cavity. The flat cover shall be in the form of a flat sheet of the barrier material taken from roll stock. One of each applicable component for each meal as described in table III shall be inserted into the tray-shaped body and the flat cover applied by a heat seal not less than 1/8 inch wide. The 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 6 pounds per inch of width and no individual specimen shall have a seal strength of less than 5 pounds per inch of width. As an alternative to the seal strength requirement, the filled and sealed pouch 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 maximum outside dimensions of the filled and sealed meal pouch shall be not greater than 7

inches wide by 11 inches long. A tear nick, notch or 1/8 inch (3.175 mm) zig-zag cut serration shall be provided to facilitate opening across the 7 inch width of the filled and sealed meal pouch. The filled and sealed meal pouch shall not show any evidence of material degradation, stress cracking, delamination or foreign odor.

D-2 LABELING

A. Subassembly/accessory packet. The subassembly/accessory packet shall be labeled on one face in permanent dark contrasting color ink with “A” or “B”, as applicable. Alternatively, the packet letter may be embossed in the seal of the packet.

B. Horizontal form-fill-seal meal pouch. Each horizontal form-fill-seal meal pouch shall be correctly and legibly labeled with at least one complete graphic, but no more than two partial graphics, printed in a continuous format on the flat cover with permanent ink or other dark contrasting color with the information contained in accordance with figure 1, as applicable. The label shall cite the correct menu number, name of entrée, French translation of entrée name (see table IV) and name and address of assembler. Menus 1-24 shall be printed in accordance with figure 1. The French translation printed on the meal pouch, in accordance with the figure specified above, shall be as specified in table IV.

TABLE IV. French Translation of Entrée Name

Entrée Name	French Translation
Beef Goulash	Goulash de boeuf
Beef Ravioli in Meat Sauce	Ravioli au bœuf, sauce à la viande
Beef Stew	Ragoût de bœuf
Beef Strips in a Savory Tomato Sauce	Lanières de boeuf en sauce tomate
Buffalo Style Chicken	Poulet Buffalo
Cheese Tortellini in Tomato Sauce	Tortellini au fromage, sauce tomate
Chicken, Egg Noodles, and Vegetables, in Sauce	Poulet, nouilles et légumes en sauce
Chicken Burrito Bowl	Burrito de poulet bol
Chicken Chunks, White, Cooked	Dés de poulet
Chicken Stir Fry	Sauté de poulet
Chili and Macaroni	Chili et Macaroni
Chili with Beans	Chili aux haricots rouges
Cuban Style Beef Picadillo	Picadillo cubain au boeuf
Elbow Macaroni in Tomato Sauce	Couquillettes a la sauce tomate
Italian Sausage with Peppers and Onions in Marinara Sauce	Saucisse italienne avec poivrons et oignons dans une sauce marinara
Meatballs in Marinara Sauce	Boulettes de viande, sauce marinara
Mexican Style Chicken Stew	Ragoût de poulet à la mexicaine
Mexican Style Rice and Bean Bowl	Bol de riz et haricots à la mexicaine

TABLE IV. French Translation of Entrée Name - Continued

Entrée Name	French Translation
Pizza Slice, Cheese	Tranche de pizza, fromage
Pizza Slice, Pepperoni	Tranche de pizza, pepperoni
Southwest Style Beef and Black Beans with Sauce	Bœuf à la façon “Southwest” aux haricots noirs
Spaghetti with Beef and Sauce	Spaghetti en sauce à la viande de bœuf
Thai Style Red Curry with Chicken, Brown Rice, and Vegetables	Curry thaï rouge avec poulet, riz brun et légumes
Tuna, Chunk Light, Lemon Pepper	Miettes de thon au naturel au poivre citronné

C. Paperboard Sleeve. Each paperboard sleeve shall be correctly and legibly labeled on at least one face with permanent ink or other dark contrasting color with Military Nutrition Information Graphics in accordance with figures 2, 3 or 4, as applicable. The Military Nutrition Information Graphics shall be clearly printed with permanent black ink in an area no smaller than 4 inches by 5-1/4 inches. The label shall cite the correct Military Nutrition Information Graphics (NOTE: Graphic files are available from the Combat Capabilities Development Command (DEVCOM) Soldier Center (FCDD-SCD-SCR) upon request). Menus 1-4 and 13-16 shall be printed in accordance with Macronutrients Graphics (figure 2). Menus 5-8 and 17-20 shall be printed in accordance with Recovery Nutrition Graphics (figure 3). Menus 9-12 and 21-24 shall be printed in accordance with Fortification Table Graphics (figure 4).

D-3 PACKING

A. Packing. Twelve meals shall be packed in a fiberboard box. Case “A” shall contain meals 1 through 12, and case “B” shall contain meals 13 through 24. 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 met 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 15-5/8 inches in length, 9-1/8 inches in width and 9-9/16 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. Each load shall have 24 “A” cases and 24 “B” cases. 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:

Contract data and other required markings
Date of pack
Lot number
Case A or B, as applicable
U.S. GOVERNMENT PROPERTY – COMMERCIAL RESALE IS UNLAWFUL
NOTE: WATER ACTIVATED Flameless Ration Heater, NSN 8970-01-321-9153,
supplied in each MRE pouch when required

(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 the shipping container shall be marked “MEAL, READY-TO-EAT, INDIVIDUAL” in letters not less than 1-1/4 inches high with the French translation “(Repas, Prêt-à-Consommer, Individuel)” marked underneath in letters not less than 1 inch. Underneath the ration nomenclature, in letters not less than 1/2 inch, the shipping container shall be marked “DO NOT ROUGH HANDLE WHEN FROZEN (0°F or below)”.

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



FIGURE 1. Example of Meal Pouch Graphics

CARBOHYDRATES		
<ul style="list-style-type: none"> • Main fuel source for muscle during exercise • Higher activity level = higher carbohydrate needs • Recommended daily intake: ~3 grams per pound of body weight (or 500 grams of carbohydrate per day for 165 lb Warfighter) 	GOOD SOURCES <ul style="list-style-type: none"> • Fruits, Potatoes, Rice, Pasta, Bakery, and Beverages 	MRE FOOD SOURCES <ul style="list-style-type: none"> • Dried Fruit: 40 grams • Beverages: 34 grams • Crackers/Tortilla/Snack Bread: 30–38 grams
PROTEIN		
<ul style="list-style-type: none"> • Essential for proper refueling and recovery • Protein recommendations are generally met through diet alone, without the need for supplementation • Recommended daily intake: ~0.7 grams per pound of body weight (or 115 grams of protein per day for 165lb Warfighter) 	GOOD SOURCES <ul style="list-style-type: none"> • Beef, Poultry, Pork, Seafood, Nuts, Dairy, Eggs 	MRE FOOD SOURCES <ul style="list-style-type: none"> • Trail Mix: 10–14 grams • Peanut Butter: 6 grams • Chocolate Protein Drink: 12 grams • Main Meal: 15–30 grams • Beef Snacks: 8 grams
FAT		
<ul style="list-style-type: none"> • Fat is the most energy dense nutrient we consume and is essential for proper fueling • Stored fat is used as energy during moderate and high intensity exercise • Fat helps our body to use certain vitamins like A, D, E, and K • Recommended daily intake: 20–35% of calories from Fat (2500 calories= 56–98 grams of fat) 	GOOD SOURCES <ul style="list-style-type: none"> • Fatty Fish, Vegetable Oils, Nuts, Almonds, Olives, and Avocados 	MRE FOOD SOURCES <ul style="list-style-type: none"> • Nuts • Peanut Butter • Trail Mix

FIGURE 2. Example of Macronutrients Graphics for Paperboard Sleeve

THE 5 Rs for OPTIMAL RECOVERY:

1) REPLENISH ENERGY STORES OFTEN
2) REPAIR MUSCLES
3) REPLACE FLUIDS AND ELECTROLYTES
4) REFUEL
5) REST AND RECOVER FOR THE NEXT MISSION
TIMING IS CRITICAL
EAT & DRINK WITHIN 30–60 MINUTES AFTER PHYSICAL ACTIVITY

YOUR RECOVERY MEAL	CARBOHYDRATE ~ 80–120 grams
	PROTEIN ~15–25 grams of protein
	FLUIDS ~16–32 ounces
GOOD MRE SOURCES	Recovery Trail Mix, Recovery Bar, and Fruit Pouch: 95 grams carbohydrate and 19 grams protein
	Chocolate Protein Drink, Snack Bread and Cheese Spread: 84 grams carbohydrate and 19 grams protein
	Chocolate Protein Drink, Peanut Butter and Crackers: 90 grams carbohydrate and 25 grams protein

**PLAN AHEAD, CARRY RATION COMPONENT(S) WITH YOU
FOR QUICK RECOVERY**

**SLEEP IS CRITICAL FOR MUSCLE RECOVERY AND REPAIR.
AIM FOR 7+ HOURS OF SLEEP PER 24 HOUR PERIOD.
MORE SLEEP = BETTER PERFORMANCE.**

FIGURE 3. Example of Recovery Nutrition Graphics for Paperboard Sleeve

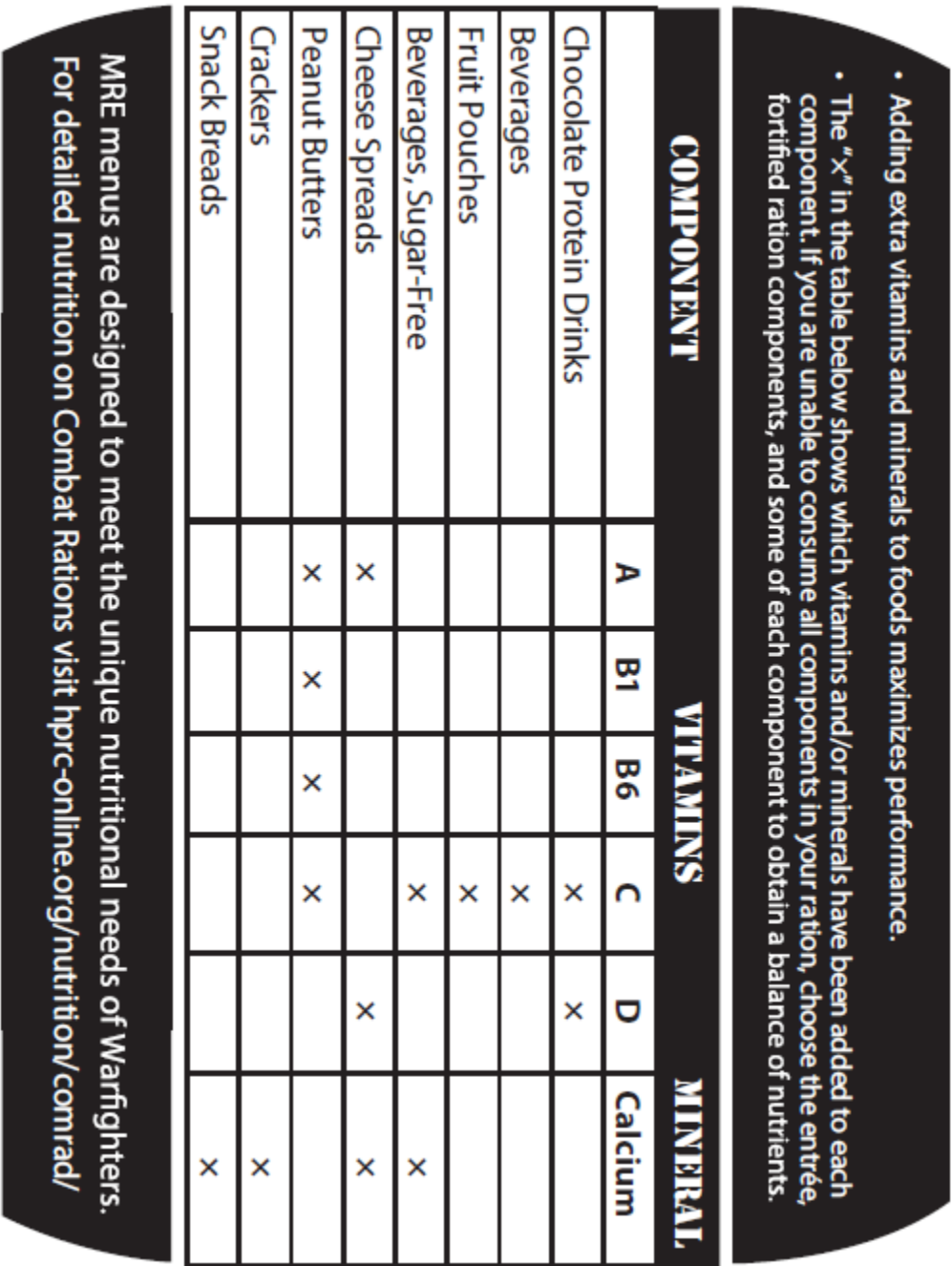


FIGURE 4. Example of Fortification Table Graphics for Paperboard Sleeve

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.

C. Packaging examination.

(1) Material certification. The 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.

<u>Requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Thickness of horizontal form-fill-seal meal pouch	D-1,A(3)	ASTM D2103 <u>1</u> /
Color of horizontal form-fill-seal meal pouch and subassembly/accessory packet	D-1,A(1) and D-1,A(3)	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

(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	Label missing or incorrect or illegible.
	205	Pouch not hermetically sealed.

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.

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.

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.

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 Horizontal form-fill-seal meal pouch examination. The filled and sealed horizontal form-fill-seal meal pouches shall be inspected for the defects listed in table VII. The lot size shall be expressed in pouches. The sample unit shall be one pouch. 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.

TABLE VII. Assembled meal pouch 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 or swollen pouch of thermostabilized item.
3			Tear or hole or puncture in thermostabilized pouch.
	101		Seal width is less than 1/16 inch. <u>1/</u>
	102		Menu component missing or incorrect assortment for menu. <u>2/</u>
	103		Meal pouch not clean or outer packaging of its contents not clean. <u>3/</u>
	104		Foreign odor.
	105		Labeling missing or incorrect or illegible.
	106		Swollen peanut butter or jelly or jam pouch.
	107		Tear or hole or open seal in component packages.
	108		Crushed or broken component. <u>4/</u>
	109		Broken spoon.
	110		Bond strength of paperboard sleeve glue joint is not greater than fiber strength of paperboard sleeve. <u>5/</u>
	111		Dimensions of paperboard sleeve not as specified. <u>5/</u>

TABLE VII. Assembled meal pouch defects - Continued

Category			Defect
<u>Critical</u>	<u>Major</u>	<u>Minor</u>	
		201	Tear nick, notch or 1/8 inch (3.175 mm) zig-zag cut missing.
		202	Tear or hole or open seal or split in meal pouch.
		203	Tear or hole or open seal in subassembly/accessory packet.
		204	Labeling graphics of meal pouch not correct.
		205	Labeling graphics of paperboard sleeve not correct.
		206	Color of paperboard sleeve or paperboard insert card not as specified. <u>5/</u>
		207	Paperboard sleeve does not form an open-ended carton when folded along the bottom score lines. <u>5/</u>
		208	Dimensions of paperboard insert card not as specified. <u>5/</u>

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

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

3/ 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.

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

5/ A CoC may be accepted as evidence of conformance.

D. Methods of inspection.

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

c. Horizontal form-fill-seal meal pouch closure. The closure seals of the horizontal form-fill-seal meal pouches shall be tested for seal strength in accordance with internal pressure testing requirements in this paragraph. The lot size shall be expressed in pouches. The sample unit shall be one pouch. The sample size shall be the number of pouches indicated by inspection level S-1. The filled and sealed meal pouches shall be inserted into a vacuum chamber (bell jar wet or dry) for 30 seconds at 15 inches of mercury vacuum. The vacuum 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 burst of the seal or movement in the seal that reduces the seal width to less than 1/16 inch is considered a seal failure and shall be cause for rejection of the lot.

(2) Seal certification of subassembly/accessory packet pouch. A CoC may be accepted as evidence that preformed subassembly/accessory packet pouches conform to the seal strength requirements specified in D-1,A(1). When deemed necessary by the Government inspector, testing of the unfilled 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 containers 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.

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>2/</u>
104		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 pouch graphics do not coincide with specified design.

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

2/ 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) 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 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 Items
Form 3556	Marking Instructions for Boxes, Sacks, and Unit Loads of Perishable and Semiperishable Subsistence

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-32176A	Bag, Hot Beverage
MIL-R-44398B	Ration Supplement, Flameless Ration Heater (FRH)
MIL-STD-3010	Test Procedures for Packaging Materials and Containers
MIL-PRF-44073J	Packaging of Food in Flexible Pouches

(Copies of these documents are available from <https://quicksearch.dla.mil/qsSearch.aspx>)

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

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