

SECTION C

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

C-1 ITEM DESCRIPTION

ACR-M-043, 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 Patty, Grilled Jalapeno Pepper Jack	PCR-B-029A Flavor 2
Beef Ravioli in Meat Sauce	PCR-B-021A
Beef, Shredded, in Barbecue Sauce	PCR-B-057
Beef Stew	PCR-B-020A
Beef Strips in a Savory Tomato Sauce	PCR-B-061
Beef Taco Filling	PCR-B-054
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-088
Chicken Chunks, White, Cooked, Flexible Pouch, 5 oz. Pouch, Regular, Conventional	A-A-20352C Type V, Style A, Agric. Practice 1
Chili and Macaroni	PCR-C-027B
Chili with Beans	PCR-C-062A
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 Cheese	MIL-DTL-32541A Type I
Pepperoni	Type II
Pork Sausage Patty, Maple Flavored	PCR-P-045
Southwest Style Beef and Black Beans with Sauce	PCR-S-018

TABLE I. Components - Continued

Component	Reference
Spaghetti with Beef and Sauce	PCR-S-002
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 Whole Wheat	PCR-B-064 Type I
Cornbread	PCR-C-075
Granola, With Milk and Blueberries	PCR-G-003A Type I
Hash Brown Potatoes with Bacon, Peppers and Onions	PCR-H-012A
Potatoes, Au Gratin	PCR-P-048
Santa Fe Style Brown Rice and Beans	PCR-S-019
Snack Bread, Fortified Italian Bread Sticks, Single Pack Multigrain Snack Bread, Single Pack White Wheat Snack Bread, Single Pack	PCR-S-009D Type IV, Style A Type V, Style A Type VI, Style A
Tortillas, 2 Count Individual Serving Package Plain Chipotle Whole Grain	PCR-T-008B, Type I Flavor 1 Flavor 2 Flavor 3
<u>Fruits</u>	
Apple Pieces in Spiced Sauce	PCR-A-001C
Cobbler Cherry Blueberry	PCR-C-058A Flavor 1
Fruits, Infused, Dried No Sulfiting Agents Sweetened with Nutritive Sweeteners Cranberries, Sliced, Unflavored	A-A-20299C Class (1) Sweetening option a Type VII, Style B, Flavor 1
Fruit Puree Squeeze Apple, Strawberry, and Carrot Banana and Pumpkin	PCR-F-004 Flavor I Flavor II
Fruits, Wet Pack Applesauce, with Raspberry Puree, Sweetened, Reg. Applesauce, Carbohydrate Enhanced, Sweetened, Reg. Applesauce, with Mango and Peach Puree, Sweetened, Reg.	PCR-F-002D Type VI Type VII Type VIII

TABLE I. Components - Continued

Component	Reference
<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
Lemon Poppy Seed, <i>Trans</i> Fat Free	Flavor 6, Style 2
Marble, <i>Trans</i> Fat Free	Flavor 11, Style 2
Applesauce, <i>Trans</i> Fat Free	Flavor 12, Style 2
Muffin Tops	Type III
Maple, <i>Trans</i> Fat Free	Flavor 2, Style 2
Cheese Spread, Cheddar, Fortified	PCR-C-039A
Plain	Type I
With Jalapeno Peppers	Type II
With Bacon	Type III
Chocolate Pudding	PCR-C-081A
Chocolate Pudding with Protein	Type II
Cookies, Regular, Individual Serving Package,	A-A-20295D, Type I, Class 1,
Crisp	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
Chocolate Chip Cookies, Plain	Style J, Flavor 1
Crackers, Fortified	PCR-C-037A
Plain	Type I
Vegetable	Type II
Filled Bakery Item	MIL-DTL-32221C
Cinnamon Bun	Type II
First Strike Bars	PCR-F-001A
Chocolate, Regular, Barrier Pouch	Flavor I, Style A, Type I
Apple-Cinnamon, Regular, Barrier Pouch	Flavor II, Style A, Type I
Cran-Raspberry, Regular, Barrier Pouch	Flavor III, Style A, Type I
Jelly, Fruit, Standardized, Single, Regular	A-A-20078D, Type I, Style 1
U.S. Grade A	Finished Product Quality a
Apple	Kind A
Grape	Kind M
Meat and Poultry Snacks, Cured	A-A-20298C
Beef, Fermented, Chopped and Formed	Variety A, Type IV, Style a
Sticks, Teriyaki	Class 2, Flavor (b)
Nut and Fruit Mix	PCR-N-003B
Nuts and Raisins with Pan Coated Chocolate Disks	Type II

TABLE I. Components - Continued

Component	Reference
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 Butter, Smooth, Plain	Style I, Texture 1, Flavor (1)
Peanut Butter, Chunky/Crunchy, Plain	Style I, Texture 3, Flavor (1)
Peanut Spread, Smooth, Chocolate	Style II, Texture 1, Flavor (2)
Nuts, Shelled, Roasted	A-A-20164E
Conventional	Agricultural Practices (1)
Peanuts, Virginia Type or Runner Type, Dry Roasted, Salted	Type II, Style a
Cashews, Halves (Splits), Flavored (Jalapeno)	Type III, Size 2, Style c
Almonds (Unblanched), Flavored (Smoke)	Type VI, Style c
Preserves (or Jams), Fruit	A-A-20079D, Type I
U.S. Grade A	Finished Product Quality a
Single Fruit, Blackberry, Regular	Group I, Flavor A, Style 1
Single Fruit, Strawberry, Regular	Group I, Flavor Q, Style 1
Trail Mix, Recovery	PCR-T-014A
Trail Mix, Recovery with Pretzels	Type I
Trail Mix, Recovery with Beef Jerky	Type II
Recovery Bar, Shelf Stable	PCR-R-016
Salted Caramel Marshmallow Crisp	Flavor I
Snack Foods	A-A-20195E
Pretzels, Nuggets, Honey Mustard and Onion	Type II, Style E, Flavor 2
Pretzels, Filled Pretzels, Cheddar Cheese	Type II, Style F, Flavor 1
Baked Snack Crackers, Cheddar Cheese	Type V, Flavor 1
Toasted Corn Kernels, Barbecue	Type VI, Flavor 2
Cheese Filled Crackers, Pepperoni Pizza	Type VII, Flavor 2
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, Swirled and/or Drizzled Icing	Flavor 12, Icing Option (c)
<u>Candy</u>	
Candy and Chocolate Confections	A-A-20177F
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, Fruit Flavored, Sour	Style A, Flavor 2, Flavor Style d
Disks, Peanut Butter, Plain	Style A, Flavor 4
Oval/Round, Milk Chocolate with Peanuts	Style B, Flavor 1
Licorice Style Candy, Bite Size, Cherry	Type V, Style B, Flavor 1
Mint Candy, Rings, Peppermint	Type VI, Style B, Flavor 2

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
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-013A
Flat Interlocking Closure Pouch	Design B
Fruit Punch	Flavor I
Grape	Flavor II
Lemon Lime	Flavor III
Orange	Flavor IV
Beverage Powder, Carbohydrate	PCR-B-055
Flat Interlocking Closure Pouch	Design B
Fortified with Ascorbic Acid and Enhanced with Maltodextrin	Formulation a
Lemon-Lime	Flavor 3
Orange	Flavor 4
Tropical Punch	Flavor 5
Chocolate Protein Drink Powder	PCR-C-082B
Chocolate	Flavor I
Chocolate Hazelnut	Flavor II
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
Fork, Knife, and Spoon, Picnic (Plastic)	A-A-3109B
High Impact, Spoon, MRE, 7-Inch (Brown)	Type IV, Item 13
Hot Sauce	A-A-20097G
Extra Hot 4x, Conventional	Type II, Agric. Practices A
Mayonnaise, Salad Dressing, and Tartar Sauce	A-A-20140E
Mayonnaise, Plain, Fat Free	Type I, Flavor A, Style 3
Paperboard Insert Card	MIL-PRF-44073H
Paperboard Sleeve	MIL-PRF-44073H
Ration Supplement, Flameless Ration Heater (FRH)	MIL-R-44398B

TABLE I. Components - Continued

Component	Reference
<u>Other Items</u>	
Spices and Spice Blends	A-A-20001B
Spices, Pepper, Red, Crushed	Type I, Class Z, Form 3
Spice Blends, Other (Powdered Hot Sauce)	Type II, Class O
Syrup (Not Including Maple Syrup)	A-A-20124E
Syrup, Table (for Pancakes, Waffles, etc.)	Type V
Artificial Maple, Regular Calorie	Flavor A, Style 1

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, 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	
Hand and Body Wipes, Pre-Moistened,	A-A-461C	All
Hand Wipe, Non-antibacterial	Type I, Style 2	
Individually Wrapped, Single Pack	Packaging a	
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

<p><u>Menu #1</u> Chili with Beans Cheese Spread, Cheddar, Plain Crackers, Vegetable Cornbread Cheese Filled Crackers, Pepperoni Pizza Beverage Powder, Carbohydrate Electrolyte, Grape Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve</p>	<p><u>Menu #2</u> Beef, Shredded, in Barbecue Sauce Fruit Puree Squeeze, Apple, Strawberry, and Carrot Cheese Spread, Cheddar, with Jalapeno Peppers Tortillas, Plain Filled Bakery Item, Cinnamon Bun Chocolate Protein Drink Powder, Chocolate Hazelnut Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)</p>
<p><u>Menu #3</u> Chicken, Egg Noodles, and Vegetables, in Sauce Fruit, Wet Pack, Applesauce, with Raspberry Puree Crackers, Plain Peanut Butter, Smooth Jelly, Apple Pan Coated Candy, Disks, Fruit Flavored, Original Beverage Powder, Carbohydrate, Fortified, Tropical Punch Spice Blend, Powdered Hot Sauce Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)</p>	<p><u>Menu #4</u> Spaghetti with Beef and Sauce Toaster Pastry, Chocolate Chip Cheese Spread, Cheddar, Plain Snack Bread, Italian Bread Sticks Fruit, Dried Cranberries, Sliced Chocolate Protein Drink Powder, Chocolate Hazelnut Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Not Fortified Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>

TABLE III. Contents - Continued

<p><u>Menu #5</u> Chicken Chunks, White, Cooked First Strike Bar, Apple-Cinnamon Cheese Spread, Cheddar, Plain Tortillas, Plain Toasted Corn Kernels, Barbecue Meat Snack, Sticks, Teriyaki Beverage Powder, Carbohydrate Electrolyte, Fruit Punch Barbecue Sauce Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>	<p><u>Menu #6</u> Beef Taco Filling Santa Fe Style Brown Rice and Beans Cheese Spread, Cheddar, Plain Tortillas, Whole Grain Nut and Fruit Mix, Nuts and Raisins with Pan Coated Chocolate Disks Beverage Bases, 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 Chocolate Pudding with Protein Peanut Butter, Smooth Snack Bread, White Wheat Preserves, Blackberry Mint Candy, Rings, Peppermint Fruit and Vegetable Blend Juice Smoothie Powder, Tropical Blend Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)</p>	<p><u>Menu #8</u> Meatballs in Marinara Sauce Cobbler, Cherry Blueberry Chocolate Chip Cookie, Plain Cheese Spread, Cheddar, with Jalapeno Peppers Snack Bread, Italian Bread Sticks Meat Snack, Sticks, Teriyaki Beverage Powder, Carbohydrate Electrolyte, Orange Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)</p>

TABLE III. Contents - Continued

<p><u>Menu #9</u> Beef Stew Cake, Pound, <i>Trans</i> Fat Free, Vanilla Snack Bread, Multigrain Peanut Butter, Smooth Jelly, Grape Pan Coated Candy, Disks, Fruit Flavored, Sweet and Sour Beverage Powder, Carbohydrate, Fortified, Lemon-Lime Hot Sauce, Extra Hot 4x Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve</p>	<p><u>Menu #10</u> Chili and Macaroni Cake, Pound, <i>Trans</i> Fat Free, Lemon Poppy Seed Cheese Spread, Cheddar, with Jalapeno Peppers Crackers, Vegetable Meat Snack, Sticks, Teriyaki Licorice Style Candy, Bite Size, Cherry Beverage Powder, Carbohydrate Electrolyte, Orange Hot Sauce, Extra Hot 4x Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>
<p><u>Menu #11 Vegetarian</u> Pizza Slice, Cheese Fruit, Wet Pack, Applesauce, Carbohydrate Enhanced First Strike Bar, Chocolate Peanut Butter, Chunky/Crunchy Crackers, Plain Jalapeno Cashews Beverage Bases (Powdered), Sweetened with Non-Nutritive Sweetener, Not Fortified Spice, Crushed Red Pepper Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve Paperboard Insert Card (as applicable)</p>	<p><u>Menu #12 Vegetarian</u> Elbow Macaroni in Tomato Sauce Recovery Bar, Salted Caramel Marshmallow Crisp Fruit, Wet Pack, Applesauce, with Mango and Peach Puree Peanut Butter, Smooth Preserves, Strawberry Bread, Mini-Loaf, Sliced, Whole Wheat 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)</p>

TABLE III. Contents – Continued

<p><u>Menu #13 Vegetarian</u> Cheese Tortellini in Tomato Sauce Peanuts, Dry Roasted, Salted Peanut Spread, Smooth, Chocolate Crackers, Plain Trail Mix, Recovery with Pretzels Beverage Powder, Carbohydrate Electrolyte, Lemon Lime 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 First Strike Bar, Cran-Raspberry Peanut Butter, Smooth Crackers, Plain Pretzels, Nuggets, Honey Mustard and Onion Chocolate Protein Drink Powder, Chocolate Spice Blend, Powdered Hot Sauce 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 First Strike Bar, Chocolate Chocolate Protein Drink Powder, Chocolate Hazelnut Spice Blend, Powdered Hot Sauce Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)</p>	<p><u>Menu #16</u> Chicken Burrito Bowl (Chicken with Brown Rice, Beans and Vegetables) Trail Mix, Recovery with Pretzels Toaster Pastry, Chocolate Chip Tortillas, Whole Grain Cheese Spread, Cheddar, Plain Spice Blend, Powdered Hot Sauce Beverage Powder, Carbohydrate Electrolyte, Lemon-Lime Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>

TABLE III. Contents – Continued

<p><u>Menu #17</u> Pork Sausage Patty, Maple Flavored Hash Brown Potatoes with Bacon, Peppers and Onions Granola with Milk and Blueberries Muffin Top, Maple, <i>Trans</i> Fat Free Smoked Almonds Beverage Powder, Carbohydrate Electrolyte, Grape Syrup, Table, Imitation Maple 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 Marshmallow Crisp Cheese Spread, Cheddar, Plain Italian Bread Sticks Pan Coated Candy, Disks, Milk Chocolate, Plain Beverage Powder, Carbohydrate Electrolyte, Fruit Punch Hot Sauce, Extra Hot 4x Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>
<p><u>Menu #19</u> Beef Patty, Grilled, Jalapeno Pepper Jack Potatoes, Au Gratin Oatmeal Cookie, Chocolate Chunk Cheese Spread, Cheddar, with Bacon Tortillas, Plain Pan Coated Candy, Oval/Round, Milk Chocolate with Peanuts Beverage Bases, Sweetened with Non-nutritive Sweetener, Fortified, Orange Barbecue Sauce Mayonnaise, Fat Free 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 Trail Mix, Recovery with Beef Jerky Fruit, Dried Cranberries, Sliced Cheese Spread, Cheddar, Plain Crackers, Plain Peanuts, Dry Roasted, Salted Beverage Bases, Sweetened with Non-nutritive Sweetener, Fortified, Orange Accessory Packet A Spoon Flameless Ration Heater Bag, Hot Beverage Paperboard Sleeve</p>

TABLE III. Contents – Continued

<p><u>Menu #21</u> Tuna, Chunk Light, Lemon Pepper Cake, Pound, <i>Trans</i> Fat Free, Marble Cheese Spread, Cheddar, Plain Tortillas, Plain Baked Snack Crackers, Cheddar Beverage Powder, Carbohydrate, Fortified, Lemon-Lime Pan Coated Candy, Disks, Peanut Butter, Plain Mayonnaise, Fat Free Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve</p>	<p><u>Menu #22</u> Beef Goulash (Beef with Brown Rice, Spinach, Carrots, Tomatoes and Smoked Paprika) Fruit, Wet Pack, Applesauce, Carbohydrate Enhanced Peanut Butter, Chunky/Crunchy Preserves, Strawberry Bread, Mini-Loaf, Sliced, Whole Wheat Sugar Cookies, Patriotic Beverage Powder, Carbohydrate, Fortified, Orange Accessory Packet B Spoon Flameless Ration Heater Paperboard Sleeve Paperboard Insert Card (as applicable)</p>
<p><u>Menu #23</u> Pizza Slice, Pepperoni Apple Pieces in Spiced Sauce Cheese Spread, Cheddar, Jalapeno 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)</p>	<p><u>Menu #24</u> Southwest Style Beef and Black Beans with Sauce Cobbler, Cherry Blueberry Cake, Pound, <i>Trans</i> Fat Free, Applesauce Meat Snack, Sticks, 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)</p>

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) Meal bag or pouch.

a. Type I Preformed meal bag. The preformed 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 contact. Polyethylene shall have a minimum thickness of 0.010 inch. Inside dimensions of the bag shall not exceed 8-1/2 inches by 13-1/4 inches. The color of the bag shall conform to number 20219, 30219, 30227, 30279, 30313, 30324 or 30450 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 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.

b. Type II 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 nylon, polyethylene, and polypropylene having puncture resistance properties with a minimum thickness of 0.006 inch. The tray-shaped body and flat cover shall be hermetically 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-44073. 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 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.

a. Type I Preformed meal bag. One of 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 filled and sealed meal bag shall not show any evidence of foreign odor.

b. Type II Horizontal form-fill-seal meal pouch. 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 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 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 closure 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. Meal bag or pouch.

(1) Type I Preformed meal bag. Each preformed meal bag shall be correctly and legibly labeled on at least one face with permanent ink or other dark contrasting color with

the information contained in accordance with Figures 1, 2 or 3, 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 1-4 and 13-16 shall be printed in accordance with Design 1 (figure 1). Menus 5-8 and 17-20 shall be printed in accordance with Design 2 (figure 2). Menus 9-12 and 21-24 shall be printed in accordance with Design 3 (figure 3). The French translation printed on the meal bag, in accordance with the design specified above, shall be as specified in table IV.

(2) Type II 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 4, 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 Design 4 (figure 4). The French translation printed on the meal bag, in accordance with the design 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 Patty, Grilled, Jalapeno Pepper Jack	Steak haché au fromage pimenté
Beef Ravioli in Meat Sauce	Ravioli au bœuf, sauce à la viande
Beef, Shredded, in Barbecue Sauce	Émincé de bœuf, sauce barbecue
Beef Stew	Ragoût de bœuf
Beef Strips in a Savory Tomato Sauce	Lanières de boeuf en sauce tomate
Beef Taco Filling	Garniture au bœuf pour taco
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
Chili and Macaroni	Chili et Macaroni
Chili with Beans	Chili aux haricots rouges
Elbow Macaroni in Tomato Sauce	Couquillettes a la sauce tomate
Italian Sausage with Peppers and Onions in Marinara Sauce	Saucisse italienne avec poivrons et onions 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
Pork Sausage Patty, Maple Flavored	Saucisse de porc, saveur d'érable
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
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 5, 6 or 7, 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 5). Menus 5-8 and 17-20 shall be printed in accordance with Recovery Nutrition Graphics (figure 6). Menus 9-12 and 21-24 shall be printed in accordance with Fortification Table Graphics (figure 7).

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 bag 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.

Peelable Seal ↑



Meal, Ready-to-Eat, Individual

Warfighter Recommended,
Warfighter Tested,
Warfighter Approved

MIRTE

MENU 18 MEATBALLS IN MARINARA SAUCE

(BOULETTES DE VIANDE,
SAUCE MARINARA)

**THE WORNICK COMPANY
CINCINNATI, OHIO 45242**

**U.S. GOVERNMENT PROPERTY
COMMERCIAL RESALE IS UNLAWFUL**

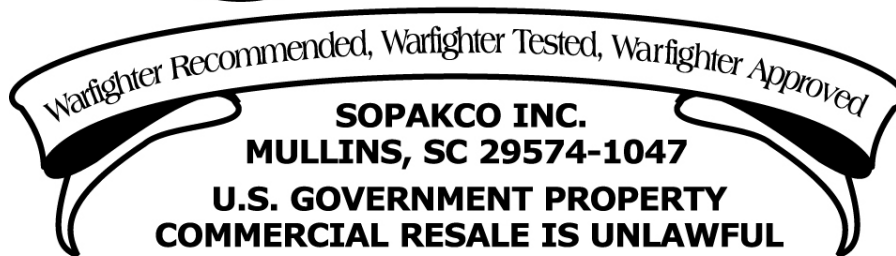
**FLAMELESS RATION HEATERS ARE PROHIBITED ON COMMERCIAL
AIRLINES UNLESS SEALED IN ORIGINAL MEAL BAG**

FIGURE 1. Example of Design 1 of Meal Bag Graphics

Peelable Seal ↑



MENU 18
Meatballs in
Marinara Sauce
(BOULETTES DE VIANDE,
SAUCE MARINARA)



**FLAMELESS RATION HEATERS ARE PROHIBITED ON COMMERCIAL
AIRLINES UNLESS SEALED IN ORIGINAL MEAL BAG**

FIGURE 2. Example of Design 2 of Meal Bag Graphics

Peelable Seal ↑



MENU 18
MEATBALLS
IN MARINARA SAUCE
(BOULETTES DE VIANDE, SAUCE MARINARA)

MRE
MEAL, READY-TO-EAT, INDIVIDUAL

**Warfighter Recommended,
Warfighter Tested,
Warfighter Approved**

**AMERIQUAL PACKAGING
EVANSVILLE, IN 47710**

**U.S. GOVERNMENT PROPERTY
COMMERCIAL RESALE IS UNLAWFUL**

**FLAMELESS RATION HEATERS ARE PROHIBITED ON COMMERCIAL
AIRLINES UNLESS SEALED IN ORIGINAL MEAL BAG**

FIGURE 3. Example of Design 3 of Meal Bag Graphics



FIGURE 4. Example of Design 4 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) 	<p>GOOD SOURCES</p> <ul style="list-style-type: none"> • Fruits, Potatoes, Rice, Pasta, Bakery, and Beverages 	<p>MRE FOOD SOURCES</p> <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) 	<p>GOOD SOURCES</p> <ul style="list-style-type: none"> • Beef, Poultry, Pork, Seafood, Nuts, Dairy, Eggs 	<p>MRE FOOD SOURCES</p> <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) 	<p>GOOD SOURCES</p> <ul style="list-style-type: none"> • Fatty Fish, Vegetable Oils, Nuts, Almonds, Olives, and Avocados 	<p>MRE FOOD SOURCES</p> <ul style="list-style-type: none"> • Nuts • Peanut Butter • Trail Mix

FIGURE 5. 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 REGULARLY
5 REST AND RECOVER FOR THE NEXT MISSION
TIMING IS CRITICAL
EAT AND 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 and Pudding: 90 grams carbohydrate and 17 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 6. Example of Recovery Nutrition Graphics for Paperboard Sleeve

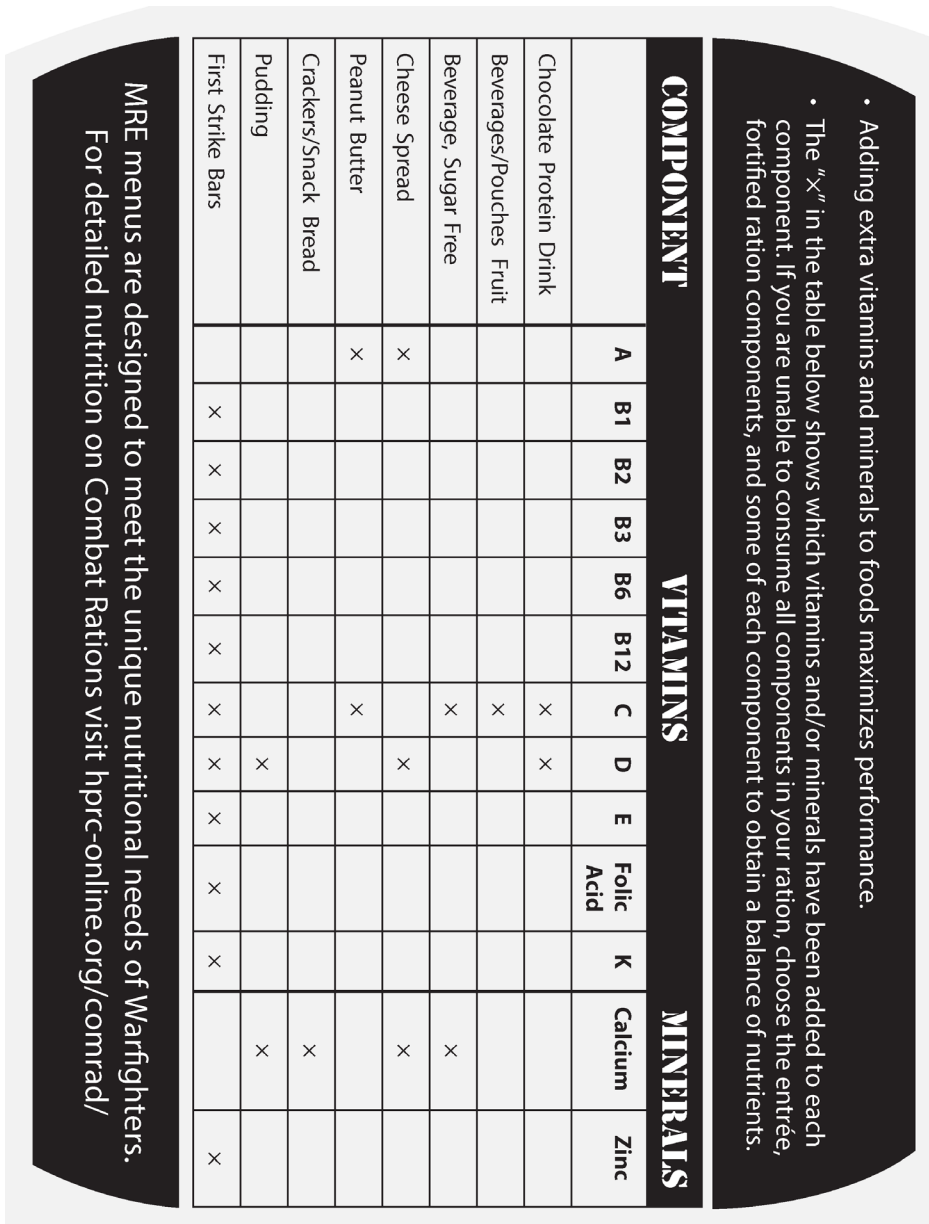


FIGURE 7. Example of Fortification Table Graphics for Paperboard Sleeve

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 preformed meal bag/horizontal form-fill-seal meal pouch	D-1,A(3)	ASTM D2103 <u>1/</u>
Color of preformed meal bag/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 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.

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 Type I Preformed meal bag/Type II Horizontal form-fill-seal meal pouch examination. The filled and sealed preformed meal bags or horizontal form-fill seal meal pouches shall be inspected for the defects listed in table VII. The lot size shall be expressed in bags or pouches. The sample unit shall be one bag or 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 Type I meal bag/Type II 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		For Type II horizontal form-fill-seal meal pouch seal width is less than 1/16 inch. <u>1/</u>
	102		Menu component missing or incorrect assortment for menu. <u>2/</u>
	103		Type I preformed meal bag and Type II horizontal form-fill-seal 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		Mint candy rings not packaged in barrier pouch.
	111		Bond strength of paperboard sleeve glue joint is not greater than fiber strength of paperboard sleeve. <u>5/</u>
	112		Dimensions of paperboard sleeve not as specified. <u>5/</u>

TABLE VII. Assembled Type I meal bag/Type II meal pouch defects - Continued

Category			Defect
<u>Critical</u>	<u>Major</u>	<u>Minor</u>	
		201	For Type II horizontal form-fill-seal meal pouch tear nick, notch or 1/8 inch (3.175 mm) zig-zag cut missing.
		202	Tear or hole or open seal or split in preformed meal bag/horizontal form-fill-seal meal pouch.
		203	Tear or hole or open seal in subassembly/accessory packet.
		204	For Type I preformed meal bag inverted "V" shaped peel indicator missing or not located as specified.
		205	Labeling graphics of meal bag not correct.
		206	Labeling graphics of paperboard sleeve not correct.
		207	Color of paperboard sleeve or paperboard insert card not as specified. <u>5/</u>
		208	Paperboard sleeve does not form an open-ended carton when folded along the bottom score lines. <u>5/</u>
		209	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 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 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 Type I preformed meal bag/Type II horizontal form-fill-seal meal pouch. For Type I and Type II, the seals of the unfilled meal bags or pouches shall be tested for seal strength in accordance with ASTM F88/F88M. The lot size shall be expressed in bags or pouches. The sample unit shall be one unfilled bag or pouch. The sample size shall be the number of bags or pouches indicated by inspection level S-1. Three specimens shall be cut from the sealed end of each bag or pouch in the sample. For Type I preformed meal bag, samples shall not be taken from the inverted "V" peel initiation. For Type I preformed meal

bag, 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. For Type II horizontal form-fill-seal meal pouch, any specimen with a seal strength less than 6 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 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. For Type I preformed meal bag, 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) Seal certification.

a. Unfilled Type I meal bag , unfilled Type II meal pouch and unfilled subassembly/accessory packet pouch. A CoC may be accepted as evidence that unfilled meal bags, meal pouches or subassembly/accessory packet pouches conform to the seal strength requirements specified in D-1,A(1) and (3). When deemed necessary by the government inspector, testing of the unfilled meal bags or preformed pouches for seal strength shall be as specified in Section E,D(1)a.

(3) Internal pressure test. For Type II horizontal form-fill-seal meal pouch, the closure seal of the 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.

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

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/</u>
104		Not 12 meals per case. <u>2/</u>
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.
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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 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-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-44073H Packaging of Food in Flexible Pouches

(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

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