

**SECTION C**

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

**C-1 ITEM DESCRIPTION**

**ACR-M-039, 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)	<a href="#">PCR-B-060</a>
Beef Patty, Grilled Jalapeno Pepper Jack	<a href="#">PCR-B-029A</a> Flavor 2
Beef Ravioli in Meat Sauce	<a href="#">PCR-B-021A</a>
Beef, Shredded, in Barbecue Sauce	<a href="#">PCR-B-057</a>
Beef Stew	<a href="#">PCR-B-020A</a>
Beef Strips in a Savory Tomato Based Sauce	<a href="#">PCR-B-061</a>
Beef Taco	<a href="#">PCR-B-054</a>
Cheese Tortellini in Tomato Sauce	<a href="#">PCR-C-020A</a>
Chicken, Egg Noodles, and Vegetables, in Sauce	<a href="#">PCR-C-021A</a>
Chicken Burrito Bowl (Chicken with Rice, Beans and Vegetables)	<a href="#">PCR-C-088</a>
Chicken Chunks, White, Cooked, Canned or in Flexible Pouches, 5 oz. Pouch	<a href="#">A-A-20352B</a> Type V
Chili and Macaroni	<a href="#">PCR-C-027A</a>
Chili with Beans	<a href="#">PCR-C-062A</a>
Creamy Spinach Fettucine (Egg Noodles, Spinach and Mushrooms in a Cream Sauce)	<a href="#">PCR-C-087</a>
Elbow Macaroni in Tomato Sauce	<a href="#">PCR-E-019</a>
Hash Brown Potatoes with Bacon, Peppers and Onions	<a href="#">PCR-H-012A</a>
Meatballs in Marinara Sauce	<a href="#">PCR-M-015</a>
Mexican Style Chicken Stew	<a href="#">PCR-M-016</a>
Pizza Slice, Pepperoni	<a href="#">MIL-DTL-32541</a>
Pork Sausage Patty, Maple Flavored	<a href="#">PCR-P-045</a>
Southwest Style Beef and Black Beans with Sauce	<a href="#">PCR-S-018</a>
Spaghetti with Beef and Sauce	<a href="#">PCR-S-002</a>

TABLE I. Components - Continued

Component	Reference
Tuna, Flexible Pouch, Chunk, Light, Water, Lemon Pepper, Regular (no more than 1.5 percent salt) Vegetable Crumbles with Pasta in Taco Style Sauce	<a href="#">A-A-20155D</a> , Type B, Form I, Color a, Packing Media 1, Flavor 1, Salt/Sodium Level (a) <a href="#">PCR-V-010</a>
<u>Starches and Soups</u>	
Black Beans in a Seasoned Sauce	<a href="#">PCR-B-056</a>
Cornbread	<a href="#">PCR-C-075</a>
Granola	<a href="#">PCR-G-003A</a>
With Milk and Blueberries	Type I
Potatoes, Au Gratin	<a href="#">PCR-P-048</a>
Potatoes, Mashed, Garlic	<a href="#">PCR-P-011A</a> , Flavor II
Santa Fe Style Rice and Beans	<a href="#">PCR-S-019</a>
Snack Bread, Fortified	<a href="#">PCR-S-009D</a>
Wheat Snack Bread, Single Pack	Type I, Style A
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
Tortillas	<a href="#">PCR-T-008A</a>
Plain	Flavor 1
Chipotle	Flavor 2
<u>Fruits</u>	
Apple Pieces in Spiced Sauce	<a href="#">PCR-A-001C</a>
Cobbler, Cherry Blueberry	<a href="#">PCR-C-058A</a> , Flavor 1
Fruits, Infused, Dried	<a href="#">A-A-20299C</a>
No Sulfiting Agents	Class (1)
Sweetened with Nutritive Sweeteners	Sweetening option a
Cranberries, Sliced, Unflavored	Type VII, Style B, Flavor 1
Whole Raisins, Seedless	Type IX, Variety A

TABLE I. Components - Continued

Component	Reference
<u>Desserts and Snacks</u>	
Cakes, Brownies, Muffin Tops and Filled Cakes	<a href="#">PCR-C-007F</a>
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
Chocolate Banana Nut, <i>Trans</i> Fat Free	Flavor 1, Style 2
Maple, <i>Trans</i> Fat Free	Flavor 2, Style 2
Cheese Spread, Cheddar, Fortified	<a href="#">PCR-C-039A</a>
Plain	Type I
With Jalapeno Peppers	Type II
With Bacon	Type III
Cookies, Regular, Individual Serving Package,	<a href="#">A-A-20295D</a> , 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	<a href="#">PCR-C-037A</a>
Plain	Type I
Vegetable	Type II
Dessert Powder, Pudding, Regular	<a href="#">A-A-20344A</a> , Type I
Instant, Nonfat Dry Milk	Preparation Method C, Style 1
Vanilla	Flavor a
Filled Bakery Item	<a href="#">MIL-DTL-32221B</a>
Cinnamon Bun	Type II
Apple Turnover	Type III
First Strike Bars	<a href="#">PCR-F-001A</a>
Chocolate, Regular	Flavor I, Style A, Type I
Apple-Cinnamon, Regular	Flavor II, Style A, Type I
Cran-Raspberry, Regular	Flavor III, Style A, Type I

TABLE I. Components - Continued

Component	Reference
Jelly, Fruit, Standardized, Single, Regular U.S. Grade A Apple Grape	<a href="#">A-A-20078D</a> , 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 href="#">A-A-20298C</a> Variety A, Type IV, Style a Class 2, Flavor (b)
Nut and Fruit Mix Nuts and Raisins with Pan Coated Chocolate Disks	<a href="#">PCR-N-003A</a> Type II
Nut Butters and Nut Spreads Regular, Stabilized Fortified, Salted Conventional Peanut Butter, Smooth Peanut Butter, Chunky/Crunchy Peanut Spread, Smooth, Chocolate	<a href="#">A-A-20328B</a> Class A, Type a Fortification 2, Seasoning (a) Agricultural Practices (1) Style I, Texture 1 Style I, Texture 3 Style II, Texture 1, Flavor 2
Nuts, Shelled, Roasted Peanuts, Virginia or Runner Type, Dry Roasted, Salted Cashews, Halves (Splits), Flavored (Jalapeno) Almonds (Unblanched), Flavored (Smoked)	<a href="#">A-A-20164D</a> Type V, Style A Type VI, Size 2, Style C Type IX, Style C
Preserves (or Jams), Fruit U.S. Grade A Single Fruit, Blackberry, Regular Single Fruit, Strawberry, Regular	<a href="#">A-A-20079D</a> , Type I Finished Product Quality a Group I, Flavor A, Style 1 Group I, Flavor Q, Style 1
Trail Mix, Recovery	<a href="#">PCR-T-014</a>
Snack Foods Pretzels, Sticks, Plain, Salted 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 href="#">A-A-20195D</a> Type II, Style C, Flavor 1 Type II, Style E, Flavor 2 Type II, Style F, Flavor 1 Type V, Flavor 1 Type VI, Flavor 2 Type VII, Flavor 2
Toaster Pastries, Regular, Not Fortified Enriched Wheat Flour, Conventional Single Serving Packet, Frosted (icing) Chocolate Chip, Swirled and/or Drizzled Icing	<a href="#">A-A-20211C</a> , Type I, Fortific. b Grain Comp. (1), Agric. Practice i Servings (a), Style B Flavor 12, Icing Option (c)

TABLE I. Components - Continued

Component	Reference
<u>Candy</u>	
Candy and Chocolate Confections	<a href="#">A-A-20177E</a>
Pan Coated Candy	Type VI
Disks, Milk Chocolate, Plain	Style A, Flavor 1
Disks, Fruit Flavored, Original	Style A, Flavor 2, Flavor Style a
Disks, Fruit Flavored, Sweet and 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 X, Style B, Flavor 1
Mint Candy, Rings, Peppermint	Type XI, Style B, Flavor 2
<u>Beverages</u>	
Beverage Bases (Powdered), Lap or Fin Seal Pouch	<a href="#">A-A-20098F</a> , Design D
Sweetened with Non-nutritive Sweetener, Orange	Type III, Flavor 1
Fortified with Ascorbic Acid and Calcium	Formulation h
Beverage Powder, Carbohydrate Electrolyte, Flat Pouch	<a href="#">PCR-B-013A</a> , Design A
Fruit Punch	Flavor I
Grape	Flavor II
Lemon Lime	Flavor III
Orange	Flavor IV
Beverage Powder, Carbohydrate, Small Flat Pouch	<a href="#">PCR-B-055</a> , Design E
Fortified with Ascorbic Acid and Enhanced with	Formulation a
Maltodextrin	
Lemon-Lime	Flavor 3
Orange	Flavor 4
Tropical Punch	Flavor 5
Chocolate Protein Drink Powder	<a href="#">PCR-C-082A</a>
Cocoa Beverage Powder	<a href="#">A-A-20189C</a>
Sugar Sweetened, Without Marshmallows	Type I, Style B
Flat Interlocking Closure Pouch	Design B
Milk Chocolate	Flavor A
Chocolate Hazelnut	Flavor F

TABLE I. Components - Continued

Component	Reference
Drink Mixes, Coffee (Unflavored and Flavored)	<a href="#">A-A-20336B</a>
Flavored Instant Cappuccino, Regular	Type V, Style A
Flat Interlocking Closure Pouch	Design B
French Vanilla	Flavor 1
Mocha	Flavor 2
Irish Cream	Flavor 4
<u>Other Items</u>	
Bag, Hot Beverage	<a href="#">MIL-PRF-32176</a>
Barbecue Sauce	<a href="#">A-A-20335B</a>
Plain/Regular, without Fruit Purees	Flavor I, Type B
Fork, Knife, and Spoon, Picnic (Plastic)	<a href="#">A-A-3109B</a>
High Impact, Spoon, MRE, 7-Inch (Brown)	Type IV, Item 13
Hot Sauce	<a href="#">A-A-20097F</a>
Extra Hot 4x	Type II
Chili and Lime	Type VII
Mayonnaise, Salad Dressing, and Tartar Sauce	<a href="#">A-A-20140E</a>
Mayonnaise, Plain, Fat Free	Type I, Flavor A, Style 3
Paperboard Insert Card	<a href="#">MIL-PRF-44073H</a>
Paperboard Sleeve	<a href="#">MIL-PRF-44073H</a>
Ration Supplement, Flameless Ration Heater (FRH)	<a href="#">MIL-R-44398B</a>
Spices and Spice Blends	<a href="#">A-A-20001B</a>
Spices, Pepper, Red, Crushed	Type I, Class Z, Form 3
Syrup (Not Including Maple Syrup)	<a href="#">A-A-20124E</a>
Syrup, Table (for Pancakes, Waffles, etc.)	Type V
Artificial Maple, Regular Calorie	Flavor A, Style 1

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

TABLE II. Accessory Components

Component	Reference	Acc. Pack
Chewing Gum, Tablet, Regular Without Caffeine With Xylitol Sweetener Peppermint or Cinnamon <u>1/</u>	<a href="#">A-A-20175E</a> , Type I, Size B Style (1) Class 3 Flavor a or c	All
Hand and Body Wipes, Pre-Moistened, Hand Wipe, Non-antibacterial Individually Wrapped, Single Pack	<a href="#">A-A-461C</a> Type I, Style 2 Packaging a	All
Matches, Safety Paper, 20 Splint Book	<a href="#">A-A-59489B</a> Type I, Class B	A
Salt, Table, Iodized, 4 Grams	<a href="#">NaCl Monograph</a>	All
Toilet Tissue, Institutional, Folded One Ply, Perforated, 4-1/2" by 4-1/2"	<a href="#">A-A-59594A</a> , Style II Type A, Class 1, Sheet Size b	All
Coffee, Soluble Spray Dried, Agglomerated or Freeze Dried, Regular	<a href="#">A-A-20184C</a> Type II or Type III, Style A	A, C
Creamer, Non-Dairy, Dry Regular, Plain/Unflavored	<a href="#">A-A-20043D</a> Style I, Flavor A	A, C
Sugar, White, Refined, and Sugar, Brown White (Refined) Granulated (fine or extra fine) Conventional, 1/7 Ounce	<a href="#">A-A-20135E</a> Type I Style A Agricultural Practice 1	A
Beverage Bases (Powdered) <u>1/</u> Sweetened with Non-Nutritive Sweetener, Lap or Fin Seal Pouch Lemonade, Not fortified Raspberry, Not fortified Cranberry Grape, Not fortified	<a href="#">A-A-20098F</a> Type III Design D Flavor 8, Formulation a Flavor 13, Formulation a Flavor 22, Formulation a	B
Sugar Substitutes, Non-Carbohydrate Sucralose, Granular Envelopes/Packets	<a href="#">A-A-20178C</a> Type IV, Style A Package 1	C

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, Fortified,  Lemon Lime  Accessory Packet A  Spoon  Flameless Ration Heater  Bag, Hot Beverage  Paperboard Sleeve</p>	<p><u>Menu #2</u>  Beef, Shredded, in Barbecue Sauce  Black Beans in a Seasoned Sauce  Cheese Spread, Cheddar, with Jalapeno  Peppers  Tortillas, Plain  Oatmeal Cookie, Plain  Beverage Powder, Carbohydrate, Fortified,  Orange  Barbecue Sauce  Accessory Packet C  Spoon  Flameless Ration Heater  Bag, Hot Beverage  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  Hot Sauce, Extra Hot 4x  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  Peanut Butter, Smooth  Snack Bread, Italian Bread Sticks  Fruit, Dried Whole Raisins, Seedless  Cocoa Beverage Powder, Milk Chocolate  Jelly, Grape  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, Chocolate  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  <del>Paperboard Insert Card (as applicable)</del>  Flameless Ration Heater  Paperboard Sleeve</p>	<p><u>Menu #6</u>  Beef Taco  Santa Fe Style Rice and Beans  Cheese Spread, Cheddar, Plain  Tortillas, Plain  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 Based Sauce  Potatoes, Mashed, Garlic  Fruit, Dried Cranberries, Sliced  Peanut Butter, Smooth  Snack Bread, White Wheat  Jam, Blackberry  Mint Candy, Rings, Peppermint  Drink Mix, Flavored Instant Cappuccino, Irish  Cream  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 C  Spoon  Flameless Ration Heater  Bag, Hot Beverage  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          Cheese Spread, Cheddar, Plain          Snack Bread, Multigrain          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          Spice, Crushed Red Pepper          Accessory Packet A          Spoon          Flameless Ration Heater          Bag, Hot Beverage          Paperboard Sleeve</p>
<p><u>Menu #11 Vegetarian</u>          Vegetable Crumbles with Pasta in Taco Style          Sauce          Fruit, Wet Pack, Applesauce, Carbohydrate          Enhanced          First Strike Bar, Apple-Cinnamon          Peanut Butter, Chunky/Crunchy          Crackers, Plain          Jalapeno Cashews          Drink Mix, Flavored Instant Cappuccino,          French Vanilla          Hot Sauce, Chili and Lime          Accessory Packet B          Spoon          Flameless Ration Heater          Paperboard Sleeve          Paperboard Insert Card (as applicable)</p>	<p><u>Menu #12 Vegetarian</u>          Elbow Macaroni in Tomato Sauce          Fruit, Wet Pack, Applesauce, with Mango and          Peach Puree          Peanut Butter, Smooth          Jam, Strawberry          Pretzels, Sticks, Plain          Snack Bread, Wheat          Chocolate Protein Drink Powder          Hot Sauce, Extra Hot 4x          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          Dessert Powder, Pudding, Vanilla          Peanut Spread, Smooth, Chocolate          Crackers, Plain          Trail Mix, Recovery          Beverage Powder, Carbohydrate Electrolyte,          Lemon Lime          Hot Sauce, Extra Hot 4x          Accessory Packet C          Spoon          Flameless Ration Heater          Bag, Hot Beverage          Paperboard Sleeve</p>	<p><u>Menu #14 Vegetarian</u>          Creamy Spinach Fettuccine (Egg Noodles,          Spinach and Mushrooms in a Cream Sauce)          First Strike Bar, Cran-Raspberry          Peanut Butter, Smooth          Crackers, Plain          Pretzels, Nuggets, Honey Mustard and Onion          Chocolate Protein Drink Powder          Spice, Crushed Red Pepper          Accessory Packet A          Spoon          Flameless Ration Heater          Bag, Hot Beverage          Paperboard Sleeve</p>
<p><u>Menu #15</u>          Mexican Style Chicken Stew          Fruit, Wet Pack, Mixed Fruit          Filled Pretzels, Cheddar Cheese          Cheese Spread, Cheddar, with Jalapeno          Peppers          Crackers, Plain          First Strike Bar, Chocolate          Cocoa Beverage Powder, Chocolate Hazelnut          Spice, Crushed Red Pepper          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 Rice,          Beans and Vegetables)          Trail Mix, Recovery          Filled Bakery Item, Cinnamon Bun          Tortillas, Plain          Cheese Spread, Cheddar, Plain          Hot Sauce, Extra Hot 4x          Beverage Powder, Carbohydrate, Fortified,          Orange          Accessory Packet C          Spoon          Flameless Ration Heater          Bag, Hot Beverage          Paperboard Sleeve</p>

TABLE III. Contents – Continued

<p><u>Menu #17</u>  Pork Sausage Patty, Maple Flavored  Muffin Top, Maple, <i>Trans</i> Fat Free  Peanut Butter, Smooth  Crackers, Plain  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  Muffin Top, Chocolate Banana Nut, <i>Trans</i> Fat  Free  Cheese Spread, Cheddar, Plain  Snack Bread, Wheat  Pan Coated Candy, Disks, Milk Chocolate,  Plain  Beverage Powder, Carbohydrate, Fortified,  Tropical Punch  Hot Sauce, Extra Hot 4x  Accessory Packet C  Spoon  Flameless Ration Heater  Bag, Hot Beverage  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>  Hash Brown Potatoes with Bacon, Peppers and  Onions  Granola with Milk and Blueberries  Filled Bakery Item, Apple Turnover  Cheese Spread, Cheddar, Plain  Crackers, Plain  Peanuts, Salted, Dry Roasted  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  Jam, Strawberry  Snack Bread, White Wheat  Sugar Cookies, Patriotic  Cocoa Beverage Powder, Milk Chocolate  Accessory Packet B  Spoon  Flameless Ration Heater  Paperboard Sleeve  Paperboard Insert Card (as applicable)</p>
<p><u>Menu #23</u>  Pizza Slice, Pepperoni  Cobbler, Cherry Blueberry  Cheese Spread, Cheddar, Jalapeno  Crackers, Vegetable  Oatmeal Cookie, Plain  Chocolate Protein Drink Powder  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  Apple Pieces in Spiced Sauce  Cake, Pound, <i>Trans</i> Fat Free, Applesauce  Meat Snack, Sticks, Teriyaki  Cheese Spread, Cheddar, Plain  Tortillas, Chipotle  Drink Mix, Flavored Instant Cappuccino,  Mocha  Accessory Packet B  Spoon  Flameless Ration Heater  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/m<sup>2</sup>/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. The meal bag shall be made from food grade, low density polyethylene (LDPE) tubing or tubing made from a blend of food grade, low density polyethylene (LDPE) and linear low density polyethylene (LLDPE). Additives may be used in order to improve sealability, peelability, tear resistance or other attributes provided all additives are approved for food 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 FED-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.

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

### **D-2 LABELING**

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

B. Meal bag. Each 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 V) 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 V.

TABLE IV. French Translation of Entrée Name

Entrée Name	French Translation
Beef Goulash (Beef with Brown Rice, Spinach, Carrots, Tomatoes and Smoked Paprika)	Goulash de boeuf (Boeuf avec riz brun, épinards, carottes, tomates et paprika fumé)
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 Based Sauce	Lanières de boeuf en sauce tomate
Beef Taco	Taco au bœuf
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 (Chicken with Rice, Beans and Vegetables)	Burrito de poulet bol
Chicken Chunks, White, Cooked	Dés de poulet
Chili and Macaroni	Chili et Macaroni
Chili with Beans	Chili aux haricots rouges
Creamy Spinach Fettuccine (Egg Noodles, Spinach, and Mushrooms in a Cream Sauce)	Fettucini aux épinards et champignons à la Creme
Elbow Macaroni in Tomato Sauce	Couquillettes a la sauce tomate
Hash Brown Potatoes with Bacon, Peppers and Onions	Potée de pommes de terres râpées au bacon, oignons et poivrons
Meatballs in Marinara Sauce	Boulettes de viande, sauce Marinara
Mexican Style Chicken Stew	Ragoût de poulet à la mexicaine
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
Vegetable Crumbles with Pasta in Taco Style Sauce	Crumbles de legumes et pâtes, sauce façon Taco

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 4, 5 or 6, 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 NSRDEC upon request). Menus 1-4 and 13-16 shall be printed in accordance with Macronutrients Graphics (Figure 4). Menus 6-8 and 17-20 shall be printed in accordance with Recovery Nutrition Graphics (Figure 5). Menus 9-12 and 22-24 shall be printed in accordance with Fortification Table Graphics (Figure 6).

### **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. [US Army Research, Development and Engineering Command; Natick Soldier Research, Development, and Engineering 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. In addition, if applicable, each unit load shall be provided with a Safety Data Sheet (SDS), in accordance with MIL-R-44398. The SDS shall be packaged and attached to one side of the unit load when applicable. A copy of the SDS shall be included with the shipping papers and a copy shall also be placed in the vehicle manifest.



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)

Warfighter Recommended, Warfighter Tested, Warfighter Approved

**SOPAKCO INC.**  
**MULLINS, SC 29574-1047**  
**U.S. GOVERNMENT PROPERTY**  
**COMMERCIAL RESALE IS UNLAWFUL**

**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

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

FIGURE 4. Example of Macronutrients Graphics for Paperboard Sleeve

# THE 5 R'S FOR OPTIMAL RECOVERY

<b>1 REPLENISH ENERGY STORES OFTEN</b>
<b>2 REPAIR MUSCLES</b>
<b>3 REPLACE FLUIDS AND ELECTROLYTES</b>
<b>4 REFUEL REGULARLY</b>
<b>5 REST AND RECOVER FOR THE NEXT MISSION</b>

## TIMING IS CRITICAL

EAT AND DRINK WITHIN 30-60 MINUTES AFTER PHYSICAL ACTIVITY

<b>YOUR RECOVERY MEAL</b>	CARBOHYDRATE ~ 80-120 grams
	PROTEIN ~15-25 grams of protein
	FLUIDS ~16-32 ounces
<b>GOOD MRE SOURCES</b>	Recovery Trail Mix and Pudding: 90 grams carbohydrate and 17grams protein
	Chocolate Protein Drink, Snack Bread and Cheese Spread: 84 grams carbohydrate and 19grams protein
	Chocolate Protein Drink, Peanut Butter and Crackers: 90 grams carbohydrate and 25 grams protein
<b>PLAN AHEAD, CARRY RATION COMPONENT(S) WITH YOU FOR QUICK RECOVERY</b>	

FIGURE 5. Example of Recovery Nutrition Graphics for Paperboard Sleeve

- Adding extra vitamins and minerals to foods maximizes performance.
- The “X” in the table below shows which vitamins and/or minerals have been added to each component. If you are unable to consume all components in your ration, choose the entrée, fortified ration components, and some of each component to obtain a balance of nutrients.

COMPONENT	VITAMINS										MINERALS		
	A	B1	B2	B3	B6	B12	C	D	E	Folic Acid	K	Calcium	Zinc
Chocolate Protein Drink							X	X					
Beverages/Pouches: Fruit							X						
Beverage, Sugar Free							X					X	
Cheese Spread	X							X				X	
Peanut Butter	X						X						
Crackers/Snack Bread												X	
Pudding								X					X
First Strike Bars		X	X	X	X	X	X	X	X	X	X		X

MRE menus are designed to meet the unique nutritional needs of Warfighters. For detailed nutrition on Combat Rations visit <http://prc-online.org/comrad/>

FIGURE 6. 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) Pouch material certification. The pouch material shall be tested for these characteristics. A Certificate of Conformance (CoC) may be accepted as evidence that the characteristics conform to the specified requirements.

<u>Requirement</u>	<u>Requirement paragraph</u>	<u>Test procedure</u>
Thickness of meal bag	D-1,A(3)	ASTM D2103 <u>1/</u>
Color of meal bag and subassembly/accessory packet	D-1,A(1) and D-1,A(3)	Visual evaluation and FED-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 VI. 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 VII (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 meal bag examination. The filled and sealed meal bags shall be inspected for the defects listed in table VIII. The lot size shall be expressed in bags. The sample unit shall be one bag. The inspection level shall be S-4 and the AQL, expressed in terms of defects per hundred units, shall be 2.5 for major defects and 4.0 for minor defects. A minimum of 50 samples shall be examined for critical defects. The finding of any critical defect shall be cause for rejection of the lot. The inspection sample shall contain a proportionate amount of each of the meals.

TABLE VII. Assembled meal bag defects

Category			Defect
<u>Critical</u>	<u>Major</u>	<u>Minor</u>	
1			Tear or hole or open seal in cheese spread.
2			Swollen cheese spread pouch or swollen pouch of thermostabilized item.
3			Tear or hole or puncture in thermostabilized pouch.
	101		Menu component missing or incorrect assortment for menu. <u>1/</u>
	102		Meal bag not clean or outer packaging of its contents not clean. <u>2/</u>
	103		Foreign odor.
	104		Labeling missing or incorrect or illegible.
	105		Swollen peanut butter or jelly or jam pouch.
	106		Tear or hole or open seal in component packages.
	107		Crushed or broken component. <u>3/</u>
	108		Broken spoon.
	109		Mints not packaged in barrier pouch.
	110		Bond strength of paperboard sleeve glue joint is not greater than fiber strength of paperboard sleeve. <u>4/</u>
	111		Dimensions of paperboard sleeve not as specified. <u>4</u>
		201	Tear or hole or open seal or split in meal bag.
		202	Tear or hole or open seal in subassembly/accessory packet.
		203	Inverted "V" shaped peel indicator missing or not located as specified.

TABLE VII. Assembled meal bag defects - Continued

Category		Defect
<u>Critical</u>	<u>Major</u>	<u>Minor</u>
		204 Labeling graphics of meal bag not correct.
		205 Labeling graphics of paperboard sleeve not correct.
		206 Color of paperboard sleeve or paperboard insert card not as specified. <u>4/</u>
		207 Paperboard sleeve does not form an open-ended carton when folded along the bottom score lines. <u>4/</u>
		208 Dimensions of paperboard insert card not as specified. <u>4/</u>

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

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

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

b. Localized dried product which affects less than 1/8 of the total surface area of one pouch face, or an aggregate of scattered dried product which affects less than 1/4 of the total surface area of one pouch face.

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

4/ 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 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 VI, footnote 2/) shall be considered a test failure. Any test failure shall be classified as a major defect and shall be cause for rejection of the lot.

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

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

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

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

#### E. Packing.

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

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/ Each missing meal is a defect.

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

### NON-GOVERNMENTAL STANDARDS

#### AMERICAN SOCIETY FOR QUALITY (ASQ) [www.asq.org](http://www.asq.org)

ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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#### ASTM INTERNATIONAL [www.astm.org](http://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	<a href="http://www.sae.org">www.sae.org</a>
SAE AMS-STD-595	Colors Used in Government Procurement