

MRE HISTORY

MREs (Meals Ready to Eat) were born on Earth, but grew up on Apollo flights to the moon, in Skylab floating workshops and on every U.S. Space Shuttle flight from Enterprise to Atlantis. In the 1970s retort pouches (the popular name for thermo stabilized, laminated food pouches named after the retort cooker) were put to their first real test by the U.S. Space Program. The Program was looking for delicious, easy to prepare, "normal" food that wouldn't increase human stress the way that freezes dried food and "toothpaste tube food" did. More than any other technology, retort pouches have satisfied the Program's needs. And so, over 20 years ago, retort pouches found a home at NASA, where all their unusual characteristics were much appreciated and they have been successfully feeding astronauts in flight and on the moon ever since.

THE HISTORY OF THE MRE

In the 1980s the U.S. military research labs, which had hatched the pouch technology in the first place, took the lead in its use and development. They enabled the U.S. Military to upgrade its entire field ration program to retort pouches, from the earlier, less workable technologies of canning and freeze drying. Over the past 10 years these high tech research labs have continually upgraded the taste and nutritional profile of the meals. Over the past 10 years our military has depended on MREs for its field ration requirements. Tens of millions of MRE "full meals" have been produced and eaten. They have gone to Grenada, to the war on drugs, to fight forest fires in Alaska, and to feed the troops in "Desert Shield" and Desert Storm.

MRE CONTENTS/COMPONENTS

There are 13 basic menus in the typical case of MREs.

Menu #1

Pork with rice in barbecue sauce
 Applesauce Freeze
 Jelly Crackers
 Cocoa beverage powder
 Sugar-free beverage base
 Accessory packet, B

Menu #2

Corned beef hash
 dehydrated fruit 1/
 Jelly
 Crackers
 Oatmeal cookie bar
 Cocoa beverage powder Sugar-free
 beverage base
 Accessory packet, B

Menu #3

Chicken stew
 Wet pack fruit 2/
 Peanut Butter
 Crackers
 Candy 3/
 Beverage base, powdered
 Accessory packet, A

Menu #4

Omelet with ham
 Potatoes au gratin
 Jelly
 Crackers
 Candy 3/
 Oatmeal cookie bar
 Cocoa beverage powder
 Sugar-free beverage base
 Accessory packet, A

Menu #5

Spaghetti with meat and sauce
 Pound cake 4/
 Cheese spread
 Crackers
 Peanut butter
 Candy 3/
 Cocoa beverage powder
 Sugar-free beverage base
 Accessory packet, A

Menu #6

Frankfurters, beef
 Potato-sticks
 Freeze-dehydrated fruit 1/
 Crackers
 Candy 3/
 Cocoa beverage powder
 Sugar-free beverage base
 Accessory packet, A

Menu #7

Beef stew
 Pound cake 4/
 Peanut butter
 Beverage base, powdered
 Crackers
 Cocoa beverage powder
 Accessory packet, A

Menu #8

Ham slice
 Potatoes au gratin
 Brownie, chocolate covered
 Crackers
 Cheese spread
 Cocoa beverage powder
 Beverage base, powdered
 Accessory packet, A

Menu #9

Pork chow mein
 Chow mein noodles
 Freeze-dehydrated fruit 1/
 Peanut butter
 Crackers
 Cookie, chocolate covered
 Beverage base, powdered
 Accessory packet, A

Menu #10

Tuna with noodles
 Pound cake 4/
 Jelly
 Crackers
 Candy 3/
 Beverage base, powdered
 Accessory packet, A Menu #11
 Chicken and rice
 Cheese spread
 Crackers
 Candy 3/

Menu #11 Chicken and rice
 Cheese spread
 Crackers
 Candy 3/
 Cookie, chocolate covered
 Beverage base, powdered
 Accessory packet, A

Menu #12
 Escalloped potatoes with ham
 Applesauce
 Brownie, chocolate covered
 Cheese spread
 Crackers
 Cocoa beverage powder base
 Sugar-free beverage Accessory packet, A

Menu #13
 Red beans and rice
 Crackers
 Brownie
 Coffee
 Jello
 Accessory packet, A
 Salt, Pepper, Fork

Accessory Packet A: Coffee, cream, sugar, Tabasco sauce, chewing gum

Accessory Packet B: Coffee, cream, sugar, Tabasco sauce, chewing gum, candy (vanilla caramels or Tootsie Roll)

Candy is either Charms or M&Ms All menus include Hot Sauce, Spoon and Flameless Heater

To rehydrate the beverages in each meal would require 18 - 20 fluid oz. (532-591 ml) of water.

1/ At least three of the four different kinds of freeze-dehydrated fruit (fruit mix, peaches, pears, strawberries) shall be distributed in each shipping container.

2/ Type III, IV, or V of MIL-F-44067.

3/ Each shipping container shall have six menus with candy packed directly into the menu bag, outside of the accessory packet. Regarding candy, three of the six menus contain packages of chocolate disks, two of the six menus contain heat stable chocolate bars, and one of the menus contains a package of fruit tablets.

4/ Types VII, VIII, IX, X, and XI shall be in equal quantities in each shipping container. However, not more than two meal bags in any shipping container shall contain the same type of cake.

Menus subject to change without notification.

POUCH AND HEATER CONSTRUCTION

The big breakthrough was the pouch. Its three special layers allow the food to be sealed and then cooked (opposite from other food processing methods) and never exposed to the air again until opened. Thus, the food is actually sterilized in the pouch and then blocked from future contamination. The result is the almost unbelievable shelf life and food which retains its natural moisture and juice (i.e. it is not freeze dried or dehydrated). Here Is the breakdown of the breakthrough pouch:

OUTERLAYER: A tough polyester film which provides protection for the middle layer and Is an excellent printing surface.

MIDDLE LAYER: The key to the pouch's shelf stability, aluminum foil, the most effective and economical barrier to moisture, light and oxygen. The result: No refrigeration or freezing will ever be required.

INNER LAYER: Next to the food product is a very special polypropylene film. It Is compatible with the widest variety of foods so that no "canned" or other unwanted taste is added to the food. It also ensures an exceptionally strong heat seal.

There are water activated heaters designed to warm up MREs prior to consumption. Here's a little on their composition and functionality. From MIL-R-44398 (Flameless Ration Heater) :

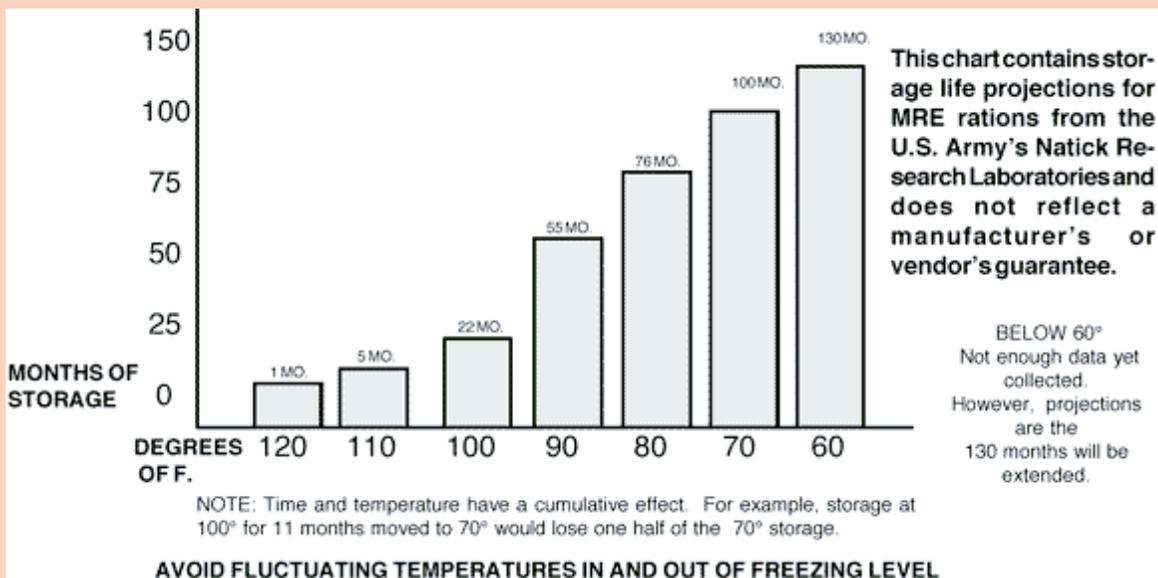
3.3 DESIGN OF HEATER PAD. The heater pad shall consist of a supercorroding Mg-Fe alloy powder and an electrolyte together with flow and wetting agents dispersed throughout a porous matrix formed from polymeric powders. The magnesium and iron function as anode and cathode, respectively. The electrolyte is activated by the addition of water which initiates a rapid corrosion of the magnesium particles within the matrix. The products of the chemical reaction are heat, magnesium hydroxide, and gaseous hydrogen.

The MRE spoons are made of polystyrene. References: MIL-M-44074 (Meal, Ready To Eat, Individual, Assembly of) and L-F-560 (Fork, Knife, and Spoon, Picnic).

SHELF LIFE AND STORAGE/TEMPERATURE CHART MRE SHELF LIFE

A main concern in the development and testing of rations for our armed forces has always been shelf life. An amazing amount of research has been done in the development of the retort pouch and the MRE to determine the exact length of time and the exact conditions under which it is safe to store the entrees and side dishes. The main thing we have to work with is the shelf life chart (shown below) compiled by the Army's Natick Research labs. This gives a very good overview and summary of all the findings gathered from all the testing of MRE products. However, it leaves many questions unanswered. Here are additional facts and observations that have been gathered about MRE shelf life:

- 1) The Shelf life ratings shown in the chart above were determined by taste panels, panels of "average" people, mostly office personnel at the Natick labs. Their opinions were combined to determine when a particular component or, in this case, the entire MRE ration, was no longer acceptable.
- 2) The Shelf life determinations were made solely on the basis of taste, as it was discovered that acceptable nutritional content and basic product safety would extend way beyond the point where taste degradation would occur. This means that the MRE would be safe and give a high degree of food value long after the official expiration of the products as determined by taste.
- 3) MRE pouches have been tested and redesigned where necessary according to standards much more strict than for commercial food. They must be able to stand up to abuse tests such as obstacle course traversals in field clothing pockets, storage outdoors anywhere in the world, shipping under extremely rough circumstances (such as by half track over rocky terrain), 100% survival of parachute drops, 75% survival of free-fall air drops, severe repetitive vibration (1 hour at 1 G vibration), 7,920 individual pouch drops from 20 inches, and individual pouches being subjected to a static load of 200 lbs for 3 minutes.
- 4) Freezing an MRE retort pouch does not destroy the food inside, but repeated freezing increases the chances that the stretching and stressing of the pouch will cause a break in a layer of the laminated pouch. These pouches are made to withstand 1,000 flexes, but repetitive freezing does increase the failure rate by a small fraction of a percent.



BELOW 60 degrees Not enough data yet collected. However, projections are that the 130 months will be surpassed. This chart contains storage life projections for MRE rations from the U.S. Army's Natick Research Laboratories and does not reflect a manufacturer's or vendor's guarantee.

NOTE: Time and temperature have a cumulative effect. For example, storage at 100 degrees for 11 months moved to 70 degrees would lose one half of the 70 degree storage.

MRE MYTHS

Q) Is it true that MREs are laced with Saltpetre and will make me impotent?

A) This is a silly urban myth and should not be perpetuated. If you have any question of this, I will pass your address on to my girlfriend who will attest to the fact that on weekends of MRE meals my habits (wink wink nudge nudge) are not altered in the least. On the other hand MRE meals are chock full of Alum and eating too many will make your head shrink just like in the classic Warner Brothers cartoons.

Q) Will MRE meals constipate me?

A) It depends. MREs are low in moisture content. They do not constipate me, but different folks respond differently. If you maintain your normal fluid intake while consuming MREs you should have no problems. I know of folks that add water to their regular MRE entres to stretch them a bit and add more moisture. I do not do this but if others like it I say "cool".

DIETARY CONSIDERATIONS/NUTRITION CHART

Vegetarian MREs - I know of only one vegetarian MRE, Red beans and rice, crackers, Brownie, Coffee, Jello.

Kosher MREs - Any information on this would be appreciated.

RECIPES

Here are a few MRE recipes:

CHEESY HAM & POTATOES 1- 8 oz. Escalloped Potatoes w/ham 1- 5 oz. Potatoes Au Gratin Tobasco Sauce Pepper Combine Escalloped Potatoes w/ham and Potatoes Au Gratin. Heat in microwave safe bowl for 2 minutes stir and heat 1 1/2 minutes longer; over open fire heat in skillet until hot. Serve.

SPAGHETTI MEATBALLS 1- 8 oz. Spaghetti w/meat Sauce 1- 8 oz. Meatballs, Beef & Rice Combine Spaghetti w/meat Sauce and Meatballs Beef & Rice. Heat microwave safe bowl for 2 minutes, stir and continue to heat for 1 1/2 minutes; or heat over open fire in a skillet until hot. Serve.

HAM Omelet w/CHEESE 1 - 6 oz. Omelet w/ham 1-1.5 oz. Cheese Spread Heat Omelet w/ham in microwave safe bowl for 2 minutes; or heat over open fire in skillet until hot. Mix in cheese spread. Add Tobasco, Salt and Pepper for seasoning.

HAM CASSEROLE 1 - 4.5 oz. Ham Slice 1-1.5 oz. Cheese Spread 1-1.5 oz. Freeze-Dried Pasta Reconstitute pasta in water heat until tender. Cut Ham Slice into chunks heat in microwave safe bowl until hot; or heat in skillet over open fire until hot. Combine Pasta, Ham chunks and Cheese Spread. Add Pepper for seasoning.

CHOCOLATE ICING 1-1.5 oz. Cocoa 1- Non-Dairy Creamer 1 Sugar Mix Cocoa, Creamer and Sugar. Stir in small amounts of water until desired consistency is achieved. Spread icing over pound cakes crackers or nut cakes.

MOUSSE PUDDING 1-1.5 oz. Cocoa 1 - Non-Dairy Creamer Mix Cocoa and Creamer together. Slowly add water to get desired consistency. Serve.

STRAWBERRY SHORTCAKE Crackers, crumbled as much as you can get them. Creamer Strawberry pack Water Mix to a nice paste, let it sit a few minutes, then eat.

How to Heat MREs.

U. S. soldiers and thousands of Emergency Relief workers around the world have been forced to eat MREs cold. They weren't intended to be eaten cold exactly, but one of their great advantages is that they can be.

MREs have served their purpose well with no reheating in personal emergencies, family emergencies, and city or state emergencies (earthquakes, toxic spills, hurricanes, tornadoes, blizzards, floods, etc.).

In most situations, however, there is time and opportunity to heat this food. Here are the best ways:

- 1) Boiling for 3-5 min. - take the pouch from outer carton and place it in clean boiling water heated from available sources: fire, heating tabs, or stoves.
- 2) Placing next to a non-liquid heat source: radiator, engine block, or even the human body. Be careful of burning or melting the pouch if the heat source is too hot.
- 3) Placing in a chemical heater. There are a couple kinds of civilian market heaters for retort pouches. One of these, Zestotherm, has even been adapted to Olive Drab format for military use and officially called the "MRE Heater".
- 4) Microwave 2-3 min. after removing from the pouch. The pouch contains an aluminum, non-microwaveable layer which gives the pouch such a long shelf life.

DATE CODING

Each MRE product is date coded with a series of numbers. The numbers include the production year, and the day produced in addition to a lot number extension. Look for a number stamped on the package that looks like 7055A B02A. Look at the first digit of the number 7055. The "7" stand for the last digit of the year, 1997. If you are buying from a disreputable dealer, it could also stand for 1986. Ask your dealer for clarification. The following three numbers "055" represents the 55th day of the year, or February 25th. The full breakdown of the date code would be February 25, 1997. The "B02A" is the lot number which can be ignored.

If no date or date code appears for a product and the company where the purchase was made sells only fresh and current MREs, mark each meal with the date of purchase OR mark the meal 7 years into the future. Whichever method you use, make sure you stick to the same one throughout your stored food purchases. This applies to canned good, medicines, dried foods, everything. If stored at the proper temperature, you'll have approximately 7 years' shelf life from date of purchase. If the company where you purchase MREs sells product made 2 years prior, note that date on your box and subtract two years from your pencilled-in expiration date. Example: If it is June 20, 1998 and the MRE source sells products 2 years old (which usually means they'll give you a better price), date your box with a permanent marker "Expire June 20, 2005".



MRE Sources

1st Army Surplus, Inc.
Mail All Checks Payable To: 1st Army Supply Inc. 18W664 Roosevelt Rd.
Lombard, IL 60148 Phone: 800-499-7380

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