MRE INFORMATION

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

<table>
<thead>
<tr>
<th>Menu #1</th>
<th>Menu #5</th>
<th>Menu #8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pork with rice in barbecue sauce</td>
<td>Spaghetti with meat and sauce</td>
<td>Ham slice</td>
</tr>
<tr>
<td>Applesauce Freeze</td>
<td>Pound cake 4/</td>
<td>Potatoes au gratin</td>
</tr>
<tr>
<td>Jelly Crackers</td>
<td>Cheese spread</td>
<td>Brownie, chocolate covered</td>
</tr>
<tr>
<td>Cocoa beverage powder</td>
<td>Crackers</td>
<td>Crackers</td>
</tr>
<tr>
<td>Sugar-free beverage base</td>
<td>Peanut butter</td>
<td>Cheese spread</td>
</tr>
<tr>
<td>Accessory packet, B</td>
<td>Cocoa beverage powder</td>
<td>Cocoa beverage powder</td>
</tr>
<tr>
<td></td>
<td>Sugar-free beverage base</td>
<td>Beverage base, powdered</td>
</tr>
<tr>
<td></td>
<td>Accessory packet, A</td>
<td>Accessory packet, A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu #2</th>
<th>Menu #6</th>
<th>Menu #9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corned beef hash</td>
<td>Frankfurters, beef</td>
<td>Pork chow mein</td>
</tr>
<tr>
<td>dehydrated fruit 1/</td>
<td>Potato-sticks</td>
<td>Chow mein noodles</td>
</tr>
<tr>
<td>Jelly Crackers</td>
<td>Freeze-dehydrated fruit 1/</td>
<td>Freeze-dehydrated fruit 1/</td>
</tr>
<tr>
<td>Oatmeal cookie bar</td>
<td>Crackers</td>
<td>Crackers</td>
</tr>
<tr>
<td>Cocoa beverage powder</td>
<td>Candy 3/</td>
<td>Cookie, chocolate covered</td>
</tr>
<tr>
<td>Sugar-free beverage base</td>
<td>Cocoa beverage powder</td>
<td>Beverage base, powdered</td>
</tr>
<tr>
<td>Accessory packet, B</td>
<td>Sugar-free beverage base</td>
<td>Accessory packet, A</td>
</tr>
<tr>
<td></td>
<td>Accessory packet, A</td>
<td>Accessory packet, A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu #3</th>
<th>Menu #7</th>
<th>Menu #10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken stew</td>
<td>Beef stew</td>
<td>Tuna with noodles</td>
</tr>
<tr>
<td>Wet pack fruit 2/</td>
<td>Pound cake 4/</td>
<td>Pound cake 4/</td>
</tr>
<tr>
<td>Peanut Butter Crackers</td>
<td>Peanut butter</td>
<td>Jelly</td>
</tr>
<tr>
<td>Crackers</td>
<td>Beverage base, powdered</td>
<td>Crackers</td>
</tr>
<tr>
<td>Candy 3/</td>
<td>Crackers</td>
<td>Candy 3/</td>
</tr>
<tr>
<td>Beverage base, powdered Accessory packet, A</td>
<td>Cocoa beverage powder</td>
<td>Beverage base, powdered</td>
</tr>
<tr>
<td></td>
<td>Accessory packet, A</td>
<td>Accessory packet, A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu #4</th>
<th>Menu #11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omelet with ham</td>
<td>Chicken and rice</td>
</tr>
<tr>
<td>Potatoes au gratin</td>
<td>Cheese spread</td>
</tr>
<tr>
<td>Jelly Crackers</td>
<td>Crackers</td>
</tr>
<tr>
<td>Candy 3/</td>
<td>Candy 3/</td>
</tr>
<tr>
<td>Oatmeal cookie bar</td>
<td>Cocoa beverage powder</td>
</tr>
<tr>
<td>Cocoa beverage powder</td>
<td>Sugar-free beverage base</td>
</tr>
<tr>
<td>Sugar-free beverage base</td>
<td>Accessory packet, A</td>
</tr>
<tr>
<td></td>
<td>Chicken and rice</td>
</tr>
<tr>
<td></td>
<td>Cheese spread</td>
</tr>
<tr>
<td></td>
<td>Crackers</td>
</tr>
<tr>
<td></td>
<td>Candy 3/</td>
</tr>
</tbody>
</table>
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).
MRE INFORMATION

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° for 11 months moved to 70° would lose one half of the 70° storage.

Below 60° 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 entrees 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/CH E ESE 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 CASSE R OLE 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

B&A Products
Rte 1 Box 100
Bunch, OK 74931-9705
Phone (918) 696-5998
Fax (918) 696-5999

AlpineAire Foods has introduced a new line of Self Heating Meals

Ballistica Maximus Corp.
Phone: 727-528-2893 or 727-528-8849
Email: TroopGear@aol.com
U.S. Dept. of Defense and GSA Approved Contractor, very competitive prices

Conquest International Corporation
Contact: Ned Colburn
1109 SW 8th Street Plainville, Kansas 67663
Phone: 785-434-2483 Fax: 785-434-2736
E-Mail: cicks@ruraltel.net
Great source of Heater Meals, good selection.

Emergency Essentials
352 S Commerce Loop
Orem, UT 84058.
1-800-999-1863

Emergency Preparedness Service
5511 - 6th Avenue. South
Seattle, WA 98108 206-762-0889
206-762-1040 FAX
Out of area 1-888-626-0889

Epicenter Supplies, LLC
384 Wallis St. #2 Eugene, OR 97402 Phone: (541) 684-0717 Voice Fax: (541) 338-9050
bjnelson@TheEpicenter.com
Great selection of MREs and Heater Meals

Excalibur Enterprises
P.O. Box 1242
Largo, Florida 33779-1242
Phone/Fax: (727)545-9587
Email: excal02@aol.com
Stand and premium MRE

Fords MTM LLC
Salmon, ID 83467
Phone: 208 - 756-8449 Fax: 208 - 756-8462
1-877-367-3925 US Toll-free
208-756-8449 Outside the US
Email: casper@fords-mtm.com
Fords MTM LLC  
Salmon, ID 83467  
Phone: 208-756-8449 Fax: 208-756-8462  
1-877-367-3925 US Toll-free  
208-756-8449 Outside the US  
E-Mail: casper@fords-mtm.com

MREs  
Business Hours: 9am-5pm, Mon - Fri.

Heater Meals and Heater Meals Plus Store Locations  
1-800-503-4483 US Toll-Free  
info@heatermeals.com

IMS-PLUS  
Mail:  
616 Franklin Avenue Edwardsville, Illinois 62025-2435  
USA Phone: (618) 655-0383  
Fax: (618) 655-0385, 24 hours a day, 365 days a year.  
1-888-242-6895 US Toll-Free, Tuesday through Friday 9 a.m. to 5 p.m., Saturday 9 a.m. to 2 p.m. (CST)

Long Life Food Depot  
P.O. Box 8081 Richmond, Indiana 47374 Orders: 1-800-601-2833 765-939-0110  
Fax: 765-939-0065 E-mail: sales@longlifefood.com  
Numerous selections of MREs

Meyers Custom Supply  
P.O. Box 212  
Cassel, CA 96016  
1-800-451-6105  
Fax: 1-530-335-4320  
Sell both Wornick and Sopakco brand MREs

My Own Meals, Inc. (Kosher Halal MREs) 400 Lake Cook Road, Suite 107  
PO Box 334  
Deerfield, IL 60015  
Phone: 847-948-1118  
Fax: 847-948-0468  
Email: myownmeals@worldnet.att.net - or sales@myownmeals.com  
12 different entrees to choose from

Outdoor Gear Plus  
23 N. Weber Rd., Suite C-4  
Deer Park, WA 99006  
Office Phone: (509) 276-1208  
1-888-405-1900 US Toll-Free for order only  
Fax: (509) 276-1347  
SALES@OUTDOORGEARPLUS.COM  
Hours: 9:00 AM TO 6:00 PM Mon - Fri.  
Sell Heater Meals