

Combat Operational Rations or R2's (Ração Operacional de Combate), Emergency Operational Rations or R3's (Ração Operacional de Emergência) and, Training Operational Ration or RA's (Ração Operacional de Adestramento). Interesting fact, the word "*adestramento*" is more commonly used to describe animal training.

One of the requirements was that all the rations should have a shelf life of at least 24 months.

Ten different menus were also required, each of them was designated C followed by a number, "C" being the initial of the word "*cardápio*" that means menu in Portuguese. As a result rations can be identified by the code R(2,3 or A) – C(1-10).

C1 – Dried Meat with Pumpkins

C2 – Chicken with Legumes

C3 – Bovine Meat Stroganoff

C4 – Chicken Stroganoff

C5 – Feijoada

C6 – Bovine Meat Stew with Sauce

C7 – Meatballs in Sauce

C8 – White Beans with Sausage

C9 – Bovine Meat in Goulash Sauce

C10 – Chicken Cassoulet

1. Definitions

1.1. Training Operational Ration – it is a group of food and accessories provided to one military personnel, in order to supply him for a period of 6 hours, providing the necessary environment in a campaign. Can also be used in rescue situations and in the help in cases of disasters.

1.2. Combat Operational Rations (R2) – it is a group of food and accessories provided to one military personnel with the purpose of facing diverse situations for a period of 24 hours, when the situation don't allow the utilization of any other kind of food.

1.3. Emergency Operational Rations (R3) – it is a group of food and accessories provided to one military personnel with the purpose of facing diverse situations for a period of 12 hours, when the situation don't allow the utilization of any other kind of food.

2. Operational Ration

2.1. Training Ration

2.1.1. Composition

The average energetic value should vary from 800 to 1.200Kcal depending on the menu.

The training operational ration composes itself of basic foods, complementary items and accessories, namely:

2.1.2. Basic foods: compose the base of the main meal and, technologically, are thermo processed foods, ready for usage, sterilized on flexible laminated packaging.

Each "RA" (Training Ration) will be composed of 1 main meal, according to specified menus. Other menus may be developed if needed be and if approved by the Ministry of Defense (Ministério da Defesa [MD]).

When technically processed in their original packaging, without violation, and stored in dry and ventilated location, with temperatures oscillating between +25° up to +30° C (77° up to 86°F), the foods must preserve itself for a minimum period of 24 months, to be counted from the manufacturing date, maintaining its organoleptic characteristics.

The basic foods shall be packed in individual portions, with a weight variation ranging between 100 to 350g (3,53 to 12,35 Oz). The Packaging must be constituted of four layers, with the following specifications: polyester (12 microns); aluminium (9 to 12 microns); nylon (15 microns); and polypropylene (60 to 80 microns).

The food packaging must have perfect hermeticity, obtained by the sealing of its edges through thermal fusion of the polypropylene layer by application of heat, under determined pressure, in a determined amount of time.

Besides that, the packaging must present characteristics that comply with the official specifications of hygiene, conservations, confection, dimensions, resistance, etc.

The packaging must bring the following informations:

- Lot Nº NNN
- Manufactured in MM/YY
- Best before MM/YY
- Registry number on the competent organs (when applicable)
- Liquid weight in NN (in Kg)

2.1.3. Complementary items: intended to achieve full nutritional supply and are constituted of “*mandioca*” flour (cassava or manioc flour), “*rapadura*”(solidified brown sugar syrup), “*bananada*” (banana sweet in candy bar form) and “*goiabada*” (guava sweet in candy bar form). The alimentary safety of these products is based in the control of the proliferation of pathogenic microorganisms, mainly through the control of the “water activity”. Also in this case, though in a less critical manner, the primary packaging plays a important role in the conservation of the original conditions of the product; and

2.1.4. Accessory items: intended to provide adequate conditions for the consumption of the other items. They are: portable stove (1 unit); combustible gel (1 unit); box of matches (1 unit); electrolyte replenisher (1 55g unit); multi-purpose paper (6 folded units); plastic spoon (1 unit) and usage instruction sheet.

The Stove must be mountable (“assembleable”) portable and flexible, containing, in a separate recipient, hydrated ethylic alcohol gel. Must carry in the usage instruction sheet, schematic drawings indicating the assembly process. Dimensions: height 3 to 4 cm (1,18-1,57in); diameter 5 to 8 cm (1,96-3,14); thickness 0,20 to 0,50mm (0,007-0,01in); minimum resistance of 10 bends on each bending edge; capacity to withstand, at least, 1 kg (35,3Oz) of weight.

The combustible gel (fuel gel) must be packed in a plastic packaging constituted of materials that do not react with the composition of the fuel, assuring the integrity of the content for, at least, 24 months. Must, also, have the following characteristics: easy handling; burn without leaving residue; non-toxic; anti-hygroscopic; have anti-oxidation treatment; to be not explosive; to light without leaving smoke or soot; good security level (spontaneous combustion); composed of ethanol and stabilizer; resistance to 1 burning operation, without compromising the structure of the stove, burn time of at least 10 minutes and expiration date of 24 months from the fabrication date.

**BRAZILIAN ARMY
INDIVIDUAL OPERATIONAL RATION
6 HOUR RATION**

Usage instruction

Military!

The food in this packet was specially developed for use during survival, it will be of benefit even when water availability is limited.

When consumed entirely by one man in one day, will keep his efficiency for survival, was totally balanced; thus, consume it all, avoiding exchanging the food components in the package. Remember that, although it is made to be pleasant to all, its main finality is to feed in a balanced manner.

This ration is constituted of basic aliments for ready consumption, on flexible pouches; of complementary accessories, intended to the heating and consumption utilized in your meal.

Constitution: main meal and accessories.

FOLLOW CORRECTLY THE CONSUMPTION INSTRUCTIONS CONTAINED IN EACH
PACKAGING.

ACCESSORIES: discardable stove and combustible gel (fuel gel), matchbox,
multipurpose paper, plastic spoon and electrolyte replenisher.

The stove is intended to the heating in "*bain-marie*" of the basic food pouches.

The fuel has enough combustion capacity for the preparation of all meals and
complements.

FOLLOW CORRECTLY THE USAGE INSTRUCTIONS CONTAINED ON THE PACKAGES.

THE REST OF THE NON-CONSUMED FOOD MUST BE BARRIED.

WHEN NAPKINS BECOME IMPROPER TO CONSUMPTION. (Yeah, it does feel like there's
something missing)

2.1.5. Assembly

The complete Training Ration for 06 (six) hours must be packed in a polyethylene bag, in the olive green or “*mate green*” (*mate* as in *mate* herb) color, with 235X335mm (9,25X13,18in) in width and length respectively and thickness of 0,20mm (0,0078in). The superior extremity of the packaging must be thermo welded when of your closing.

Each bag of the “RA” (Training Ration, by now I’m pretty sure you know what “RA” mean;) must bring printed, in one of the faces, with legible characters, in a location that is prominent and of easy visualization, the following informations:

- BRAZILIAN ARMY
- TRAINING RATION – 6 HOURS
- MENU (1,2,3,4,5 ... 11)
- BEST BEFORE MM/YY

In the other face must be printed, with legible characters in a location that is prominent and, of easy visualization, the following writing:

- LUNCH and ACCESSORIES
- COMPOSITION (of the meal and accessories)

2.1.6. Stowage of the rations

The Training Rations (RA) must be stowed, for storage and transportation purposes, in corrugated cardboard boxes, with capacity for 24 (twenty-four) rations, with the following dimensions: 600mm, width 530mm and height 280mm, thickness of 6mm (23,62X20,86X11,02X0,23in). The boxes must have double wave and contain honeycombs, of 12 units for the placements of two rations in each unit.

The superior and inferior flaps of each box must be united with adhesive tape with 7,0cm of width.

Each box with group of complete rations must be marked on the two surfaces of larger area, with legible characters, in a location that is prominent and of easy visualization, the following informations:

- BRAZILIAN ARMY
- TRAINING RATION – 6 HOURS
- PARCEL WITH 24 UNITS
- MENU (1,2,3,4,5 ... 11)
- LIQUID WEIGHT OF THE PARCEL (in Kg)
- MAXIMUM STACKING
- MANUFACTURED IN MM/YY
- BEST BEFORE MM/YY

Mandatorily the packaging must present:

Cleanliness, resistance, good state of conservation and hygiene, characteristics that insure the commercial qualities of the product; and characteristics that comply with the official specifications of confection, dimensions and stowage.

2.1.7. Menus of the Training Ration

2.1.7.1. Menu 1 (C1) – Dried Meat with Pumpkins

C1	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Dried meat with punpkin	1	350	
	Rice	1	250	
	Manioc flour	1	40	
	<i>"Rapadura"</i>	1	25	
Accessories	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	832	800 to 1200

2.1.7.2. Menu 2 (C2) – Chicken with legumes

C2	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Chicken with legumes	1	350	
	Rice	1	250	
	Manioc flour	1	40	
	<i>"Rapadura"</i>	1	25	
Accessories	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	832	800 to 1200

2.1.7.2. Menu 3 (C3) – Bovine meat strogonoff

C3	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Bovine meat Strogonoff	1	350	
	Rice	1	250	
	Manioc flour	1	40	
	<i>"Rapadura"</i>	1	25	
Accessories	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	832	800 to 1200

2.1.7.2. Menu 4 (C4) – Chicken strogonoff

C4	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Chicken Strogonoff	1	350	
	Rice	1	250	
	Manioc flour	1	40	
	<i>"Bananada"</i>	1	30	
Accessories	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	837	800 to 1200

2.1.7.2. Menu 5 (C5) – “Feijoada”

C5	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	"Feijoada"	1	350	
	Rice	1	250	
	Manioc flour	1	40	
	"Rapadura"	1	25	
Accessories	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	832	800 to 1200

2.1.7.2. Menu 6 (C6) – Bovine meat stew with sauce

C6	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Bovine meat stew with sauce	1	350	
	Rice	1	250	
	Manioc flour	1	40	
Accessories	"Rapadura"	1	25	
	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
		Total	10	832

2.1.7.2. Menu 7 (C7) – White beans with sausage

C7	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Meatballs with sauce	1	350	
	Rice	1	250	
	Manioc flour	1	40	
	<i>"Rapadura"</i>	1	25	
Accessories	Eletronic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	832	800 to 1200

2.1.7.2. Menu 8 (C8) – Bovine meat with Goulash sauce

C8	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	White beans with sausage	1	350	
	Rice	1	250	
	Manioc flour	1	40	
Accessories	<i>"Rapadura"</i>	1	25	
	Eletronic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
		Total	10	832

2.1.7.2. Menu 9 (C9) – Chicken cassoulet

C9	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Bovine meat with Goulash sauce	1	350	
	Rice	1	250	
	Manioc flour	1	40	
Accessories	<i>"Bananada"</i>	1	30	
	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	837	800 to 1200

2.1.7.2. Menu 10 (C10) – Chicken with legumes

C10	Item	Quantity of packages (un)	Total weight (g)	Energetic value (Kcal)
Lunch	Chicken Cassoulet	1	350	
	Rice	1	250	
	Manioc flour	1	40	
	<i>"Goiabada"</i>	1	30	
Accessories	Eletrolitic replenisher	1	55	
	Disposable stove	1	50	
	Combustible gel	1	30	
	Match box	1	20	
	Kit spoon	1	2	
	Multi-purpose paper - 6 sheets	1	10	
	Total	10	837	800 to 1200

2.2. Operational Combat Ration (R2)

2.2.1. Composition

The average energetic value should vary from 3.000 to 3.600Kcal depending on the menu.

The operational combat ration composes itself of basic foods, complementary items and accessories, namely:

2.2.2. Basic foods: compose the base of the main meal and, technologically, are thermo processed foods, ready for usage, sterilized on flexible laminated packaging.

Each unit of the "R2" (Operational Combat Ration) will be composed of 4 (four) meals - breakfast, lunch, dinner and supper, according to specified menus. Other menus may be developed if needed and if approved by the Ministry of Defense (Ministério da Defesa [MD]).

When technically processed in their original packaging, without violation, and stored in dry and ventilated location, with temperatures oscillating between +25° up to +30° C (77° up to 86°F), the foods must preserve itself for a minimum period of 24 months, to be counted from the manufacturing date, maintaining its organoleptic characteristics.

The basic foods shall be packed in individual portions, with a weight variation ranging between 100 to 350g (3,53 to 12,35 Oz). The packaging must be constituted of four layers, with the following specifications: polyester (12 microns); aluminium (9 to 12 microns); nylon (15 microns); and polypropylene (60 to 80 microns).

The food packaging must have perfect hermeticity, obtained by the sealing of its edges through thermal fusion of the polypropylene layer by application of heat, under determined pressure, in a determined amount of time.

Besides that, the packaging must present characteristics that comply with the official specifications of hygiene, conservations, confection, dimensions, resistance, etc.

The packaging must bring the following informations:

- Lot Nº NNN
- Manufactured in MM/YY
- Best before MM/YY
- Liquid weight in NN (in Kg)

2.2.3. Complementary items: intended to achieve full nutritional supply and are constituted of coffee with milk and sugar, dairy drink, instant coffee, fruit drink, refined sugar, cereal bar, jam, toast, “*mandioca*” flour (cassava or manioc flour), “*rapadura*”(solidified brown sugar syrup), “*bananada*” (banana sweet in candy bar form), “*goiabada*” (guava sweet in candy bar form), gum drops and electrolyte replenisher. The alimentary safety of these products bases in the control of the proliferation of pathogenic microorganisms, mainly through the control of the “water activity”. Also in this case, though in a less critical manner, the primary packaging plays an important role in the conservation of the original conditions of the product; and

2.2.4. Accessory items: intended to provide adequate conditions for the consumption of the other items. They are: portable stove (1 unit); combustible gel (1 unit); box of matches (1 unit); water purifier (1 blister with 5 tablets or “eye drop bottle”); electrolyte replenisher (1 55g [1,94Oz] unit); multi-purpose paper (6 folded units); plastic spoon (2 unit); plastic knife and fork (2 units each) and usage instruction sheet.

The stove must be mountable (“assembleable”) portable and flexible, containing, in a separate recipient, hydrated ethylic alcohol gel. Must carry in the usage instruction sheet, schematic drawings indicating the assembly process. Dimensions: height 3 to 4 cm (1,18-1,57in); diameter 5 to 8 cm (1,96-3,14); thickness 0,20 to 0,50mm (0,007-0,01in); minimum resistance of 10 bends on each bending edge; capacity to withstand, at least, 1 kg (35,3Oz) of weight.

The combustible gel (fuel gel) must be packed in a flexible tube packaging, with threaded lid, produced with laminated, constituted of materials that do not react with the composition of the fuel, assuring the integrity of the content for, at least, 24 months. Must, also, have the following characteristics: easy handling; burn without leaving residue; non-toxic; anti-hygroscopic; have anti-oxidation treatment; to be not explosive; to light without leaving smoke or soot; good security level (spontaneous combustion); composed of ethanol and stabilizer; resistance to 8 burning operation, without compromising the structure of the stove, burn time per dose (minimum of 10 minutes); total burn time (minimum of 80 minutes) and expiration date of 24 months from the fabrication date.

2.2.5. Assembly

The Ration R2 for 24 (twenty-four) hours must be packed in a polyethylene bag, in the olive green or “*mate green*”(mate as in *mate* herb) color, with 235X335mm (9,25X13,18in) in width and length respectively and thickness of 0,20mm (0,0078in). The superior extremity of the packaging must be thermal welded when of your closing.

Each bag of the “R2” must bring printed, in one of the faces, with legible characters, in a location that is prominent and of easy visualization, the following informations:

- BRAZILIAN ARMY
- COMBAT RATION R2 (24 HOURS)
- MENU (1,2,3,4,5 ... 11)
- BEST BEFORE MM/YY

In the interior of each bag of the complete Ration R2 must be contained the following components:

a) A polyethylene bag, , in the olive green or “*mate green*”(mate as in *mate* herb) color, with 230X335mm (9,06X13,18in) in width and length respectively and thickness of 0,10mm (0,0039in), that shall accommodate breakfast and lunch. In the bag must be printed, in one of the faces, with legible characters, in a location that is prominent and of easy visualization, the following information:

- BREAKFAST AND LUNCH
- COMPOSITION (list items)

b) A polyethylene bag, , in the olive green or “*mate green*”(mate as in *mate* herb) color, with 230X335mm (9,06X13,18in) in width and length respectively and thickness of 0,10mm (0,0039in), that shall accommodate dinner and supper. In the bag must be printed, in one of the faces, with legible characters, in a location that is prominent and of easy visualization, the following information:

- DINNER AND SUPPER
- COMPOSITION (list items)

C) A polyethylene bag, , in the olive green or “*mate green*”(mate as in *mate* herb) color, with 170X250mm (6,69X9,84in) in width and length respectively and thickness of 0,10mm (0,0039in), that shall accommodate accessories. In the bag must be printed, in one of the faces, with legible characters, in a location that is prominent and of easy visualization, the following information:

- ACCESSORIES
- COMPOSITION (list items)

2.2.6. Stowage of the rations

The Rations R2 must be stowed, for storage and transportation purposes, in corrugated cardboard boxes, with capacity for 12 (twelve) rations, with the following dimensions: 600mm, width 530mm and height 280mm, thickness of 6mm (23,62X20,86X11,02X0,23in). The boxes must have double wave and contain honeycombs, of 12 units for the placements of one rations in each unit.

The superior and inferior flaps of each box must be united with adhesive tape with 7,0cm (2,76in) of width.

Each box with group of complete rations must be marked on the two surfaces of larger area, with legible characters, in a location that is prominent and of easy visualization, the following informations:

- BRAZILIAN ARMY
- COMBAT RATION – R2
- PARCEL WITH 12 UNITS
- MENU (1,2,3,4,5 ... 11)
- LIQUID WEIGHT OF THE PARCEL (in Kg)
- MAXIMUM STACKING
- MANUFACTURED IN MM/YY
- BEST BEFORE MM/YY

Mandatorily the packaging must present:

Cleanliness, resistance, good state of conservation and hygiene, characteristics that insure the commercial qualities of the product; and characteristics that comply with the official specifications of confection, dimensions and stowage.