Meds & Food For Kids

# plumpy nut®
## medika mamba


*Plumpy'Nut® is part of a range of products patented by IRD / NUTRISET*

Plumpy'Nut® is a Ready-to-Use food, **especially designed for the nutritional rehabilitation of severely acute malnourished children**.

Plumpy'Nut® corresponds to the definition of "**RUTF**" (**Ready-to-Use Therapeutic Food**) that can be found in scientific literature related to the treatment of severe acute malnutrition.

## *Product concept and target population*

### Target population

**Plumpy'Nut®** was initially designed for the **treatment of severe acute malnutrition in children (from 6 months of age)**.
Plumpy'Nut® is also suitable for **adults suffering from severe acute malnutrition**.

Plumpy'Nut® can also be used for the treatment of moderate acute malnutrition, in the event other products particularly adapted are not available.

Plumpy'Nut® should not be given to people who are not allergic to cow milk and to peanuts.

### Use context

The invention of **Plumpy'Nut®** revolutionized the management of severe acute malnutrition by making **home treatment/ ambulatory or outpatient care** possible for severely malnourished children **with an appetite** and **without medical complications**. (*see references (3), (4), (5) and (6) at the end of the document*)

Even though Plumpy'Nut® can be used without surveillance, it should be emphasized that the vulnerable condition of the severely malnourished children treated with Plumpy'Nut® requires a **health practitioner's prescription and regular medical check-ups** (weekly).

During the first years of life, children living in developing countries are most at risk of undernutrition. Children suffering from severe acute malnutrition are at risk of death or severe impairment of growth and psychological development. That's why it is crucial to correct the nutritional status in these young age groups as soon as possible.

## Product benefit

**Children who fall under the cut-off for severe acute malnutrition** (using Mid Upper Arm Circumference, Weight/Height ratio, and/or nutritional oedema) **need to receive an adapted diet that allows them to regain a normal nutritional status**. The diet particularly needs to account for a malnourished child's elevated nutrient and energy requirements for catch-up growth. (*see reference (1) and (2) at the end of the document*)

Plumpy'Nut® was developed as an alternative to F100 therapeutic milk providing the same mean nutritional value, but without the same use constraints.
A lipid-based nutritional supplement with a high vitamin and mineral content, such as **Plumpy'Nut®**, **is well-adapted to the needs of severe acute malnourished children**.

Plumpy'Nut® can **be safely used and stored outside the rehabilitation center, enabling home treatment**. (*see the "Storage" paragraph page 5* )

# *Recommendations for use*

## Preparation

Plumpy'Nut® can be used directly, as it is, without prior preparation.

## Use

Plumpy'Nut® can be eaten directly from the sachet without prior cooking or dilution with water. The sachet can easily be opened by tearing off one corner of the sachet.

Plumpy'Nut® can be eaten by a child on his/her own, without having to be helped by his/her mother or anyone else.

It is recommended to have water suitable for drinking always available for the child when Plumpy'Nut® is used.

After opening, the sachet can be used through the day.

Severely malnourished children are treated under medical supervision. Medical supervision can be provided as inpatient or outpatient care. Severely malnourished children treated with Plumpy'Nut® should receive regular check-ups by a health practitioner, during which they can also receive their next ration of Plumpy'Nut®.

## Recommended dosage

| | From 6 months of age<br>Severe acute malnutrition | Moderate acute malnutrition |
|---|---|---|
| Dosage *<br>Equivalent kcal / kg body weight/ day | 200 kcal / kg body weight / day until the targeted weight is reached<br>*That is about 3 sachets per day for a severe acute malnourished child weighting 7 kg* | 75 kcal / kg body weight / day until the targeted weight is reached<br>*That is about 1 sachet per day for a moderate acute malnourished child weighting 7 kg* |

** Refer to the WHO protocole (WHO 1999, see reference (1) at the end of the document) or the national protocole for severe and moderate acute malnutrition, to see quantities to be given according to the body weight, and the daily meal frequency.*

**Plumpy'Nut® is not adapted for well-nourished children nor adults.**

**Plumpy'Nut® use should be limited to the treatment of acute malnutrition.**

**Plumpy'Nut® does not replace breastfeeding.**

**Breastfeeding is recommanded for at least 24 months, and exclusively for the first 6 months of age.**

## *Ingredients*

Sugar, non-hydrogenated vegetable fat (palm, soy), peanuts, skimmed milk powder, whey powder, vitamin and mineral complex, cocoa, stabilizer: hydrogenated vegetable fat, emulsifier: mono and diglycerides.

Note : trans fatty acids < 3% of total fatty acids.

Plumpy'Nut® complies with the nutritional composition recommended by the document « Community-based management of severe acute malnutrition » (*see reference (2) at the end of the document*).

Plumpy'Nut® does not contain any ingredients of animal origin, except dairy products. It may contain traces of soy.

## Mean nutritional value

| | For 100g of Plumpy'Nut® | | For 92 g (serving size) | | For 100g of Plumpy'Nut® | | For 92 g (serving size) |
|---|---|---|---|---|---|---|---|
| | Min | Max | | | Min | Max | |
| Energy | 520 kcal | 550 kcal | 500 kcal | Selenium | 20 µg | 40 µg | 27.6 µg |
| Proteins (% of total energy) | 10% of energy | 12% of energy | 10% of energy (=11,6 g) | Sodium | - | 290 mg | < 267 mg |
| % of milk proteins | 50 % of total proteins | - | > 50 % of total proteins | Vitamin A | 800 µg | 1100 µg | 840 µg |
| Lipids (% of total energy) | 45% of energy | 60% of energy | 56% of energy (= 29,5 g) | Vitamin D | 15 µg | 20 µg | 15 µg |
| Fatty acid n-6 (% of total energy ) | 3% of energy | 10% of energy | ≈ 7 % | Vitamin E | 20 mg | 40 mg | 18,4 mg |
| Fatty acid n-3 (% of total energy ) | 0,3% of energy | 2,5% of energy | ≈ 0,7 % | Vitamin C | 50 mg | 132 mg | 49 mg |
| Moisture | - | 2,5 g max | 2,3 g max | Vitamin B1 | 0,5 mg | 1,5 mg | 0,55 mg |
| Calcium | 300 mg | 500 mg | 276 mg | Vitamin B2 | 1,6 mg | 3,0 mg | 1,66 mg |
| Phosphorus | 300 mg | 500 mg | 276 mg | Vitamin B6 | 0,6 mg | 0,9 mg | 0,55 mg |
| Potassium | 1100 mg | 1400 mg | 1022 mg | Vitamin B12 | 1,6 µg | 3,0 µg | 1.7 µg |
| Magnesium | 80 mg | 100 mg | 84,6 mg | Vitamin K | 15 µg | 30 µg | 19,3 µg |
| Zinc | 11 mg | 14 mg | 12,9 mg | Biotin | 60 µg | 90 µg | 60 µg |
| Copper | 1,4 mg | 1,8 mg | 1,6 mg | Folic acid | 200 µg | 400 µg | 193 µg |
| Iron | 10 mg | 14 mg | 10,6 mg | Pantothenic acid | 3 mg | 6 mg | 2,85 mg |
| Iodine | 70 µg | 140 µg | 92 µg | Niacin | 5 mg | 9 mg | 4,88 mg |

## Quality standards

Plumpy'Nut® complies with the microbiological criteria recommended by the document « Community-based management of severe acute malnutrition » (*see reference (2) at the end of the document*) and/or the « Arrêté du 1 juillet 1976 relatif aux aliments destinés aux nourrissons et aux enfants en bas âge, version consolidée au 26 février 2005 » from French regulations.

Plumpy'Nut® complies with the "Guidelines for Formulated Supplementary Foods for Older Infants and Young Children" of the *Codex Alimentarius* CAC/GL 08-1991.

All added mineral salts and vitamins included in Plumpy'Nut® are on the "Advisory Lists of Nutrient Compounds for Use in Foods for Special Dietary Uses intended for Infants and Young Children" of the *Codex Alimentarius* Standard CAC/GL 10-1979 (amended 1983, 1991, 2009).

All raw materials are "food grade" in compliance with general recommendations of *Codex Alimentarius* (STAN 200-1995, STAN 207-1999, STAN 212-1999).

Plumpy'Nut® is packaged under protective atmosphere in order to optimize the product's shelf life, and sachets are air and humidity tight.

Packaging material of the sachet is suitable for food contact according to European Regulation 1935/2004, 27th October 2004.

# Logistical information

## Best Before date

Best before date (« BB ») is **24 months** from the manufacturing date stated on each sachet.

After opening, the sachet can be used through the day.

## Storage

It is recommended to keep the product in a dry and cool place, at a temperature below 30°C (86°F).

Plumpy'Nut® is a ready-to-use paste that does not need to be mixed with water, and that doesn't allow bacterial proliferation because of its low water activity ($a_w$) (*see reference (6) at the end of document*). Plumpy'Nut® can therefore be safely used and stored outside the rehabilitation center, enabling home treatment.

It is recommended not to stack the pallets.

The shipping cartons are designed to withstand long transport times. Their size was chosen to optimize the various possible kinds of shipment.

## Serving size unit

92g sachet providing 500kcal.

## Loading plan

| | CARTONS |
|---|---|
| Unit | 150 sachets of 92 g |
| Net Weight / unit | 13,8 kg |
| Estimated Gross Weight / unit | 14,7 kg |
| Dimensions / unit | 38,5 x 29 x 20,8 cm |

**Sea transport :**

| | Pallet | Loaded 20' container | Loaded 40' container |
|---|---|---|---|
| Unit | 64 cartons | 11 pallets (704 cartons) | 25 pallets (1700 cartons) |
| Net Weight / unit | 883,2 kg | 9 715,2 kg | 23 460 kg |
| Estimated Gross Weight / unit (with pallet) | 960,8 kg | 10 568,8 kg | 25 490 kg |
| Dimensions / unit | 80 x 120 x 183 cm | 19,156 m3 | 45,858 m3 |

**Air transport :**

| | Pallet | Loaded lorry |
|---|---|---|
| Unit | 48 cartons | 33 pallets (1 584 cartons) |
| Net Weight / unit | 662,4 kg | 21 859,2 kg |
| Estimated Gross Weight / unit (with pallet) | 725,6 kg | 23 944,8 kg |
| Dimensions / unit | 80 x 120 x 141 cm | 44,289 m3 |

## Programming information

A carton of Plumpy'Nut® can treat a severely acutely malnourished child (weighting 7kg) for 7 weeks.*

** This estimation is only meant to provide guidance for stock management. It is not intended to be used for ration calculation and does not take into account appetite or other criteria that are linked to the individual.*

## Local Production

Since 2005, Nutriset has developed a worldwide network of local producers (the PlumpyField network) in order to facilitate access and availability of quality-controlled nutritional products in areas with a high prevalence of malnutrition. These partners produce products of the Nutriset range and apply the same quality assurance system to ensure that the products produced locally meet the same quality standards and nutritional specifications.
Plumpy'Nut® is available from the following PlumpyField partners:

- In **Burkina-Faso** by **InnoFaso**, based in Ouagadougou
  Razack.sanoussi@innofaso.com, Omar.coulibaly@innofaso.com,
  Mr. Abdourazackou SANOUSSI and Mr. Omar COULIBALY
  (*available from the 2nd half-year of 2012*)
- In the **USA** by **EDESIA**, based in Providence
  info@edesiallc.org, Mrs. Navyn SALEM
- In **Ethiopia** by **Hilina Enriched Foods, P.L.C** based in Addis Abeba
  hbelete@hilinafoods.com, Mrs. Hilina BELETE.
- In **Haiti** by **Meds & Food For Kids**, based in Cap-Haïtien
  pwolff@mfkhaiti.org, Mrs. Patricia WOLFF
- In **India** by **NutriVita Foods**, based in Pune
  hemantp@nutrivita.in, Mr. Hemant PHATAK.
- In **Madagascar** by **JB / Tanjaka Food**, based in Antananarivo
  rivo.rajaonarison@basan.mg, Mr. Andriamiarinarivo RAJAONARISON.
- In **Mozambique** by **JAM** (Joint Aid Management), based in Beira
  bernard.kayitano@jamint.com, Mr. Bernard KAYITANO
- In **Niger** by the **Société de Transformation Alimentaire** (STA), based in Niamey
  direction@sta.ne, Mr. Ismaël BARMOU
- In **Uganda** by **Reco Industries**, based in Kasese
  brian@reco-industries.com, Mr. Brian RWABWOGO
  (*available from the 2nd half-year of 2012*)
- In **Dominican Republic** by **Vitaset**, based in Saint Domingue
  jleurent@vitaset.com.do, Mr. Jean-Lin LEURENT.
- In **Sudan** by **SAMIL**, based in Khartoum
  hishamyagoub@usa.net, Mr. Hisham S. YAGOUB
- In **Tanzania** by **Power Foods Industries Ltd**, based in Dar Es Salaam
  sgoujard.powerfoods@gmail.com, Mr. Simon GOUJARD

*Last updated: on the 30th of March 2012*

## References


(1) *WHO, 1999 "Management of severe malnutrition: a manual for physicians and other senior health workers"*

(2) *Community-based management of severe acute malnutrition, A Joint Statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund, May 2007*


Many field and laboratory trials have been conducted by researchers, either independently or in partnership with Nutriset. Some of these study results have been published in leading medical journals.

- Studies have shown that Plumpy'Nut® provided as home-based treatment enables a severely malnourished child to rapidly regain a normal body weight:


(3) *0utpatients care for severely malnourished children in emergency relief programmes: a retrospective cohort study. S.Collins, K. Sadler, The Lancet, vol 360 December 7, 2002.*

(4) *Home based therapy for severe malnutrition with ready-to-use food. Manary MJ, Ndkeha MJ, Ashorn P, Maleta K, Briend A. Arch Dis Child. 2004; 89: 557-61.*

*(5) Home-based therapy for oedematous malnutrition with ready-to-use therapeutic food. Ciliberto MA. P. Acta Paediatr. 2006 Aug;95(8):1012-5.*

(6) *Ready-to-Use therapeutic food for treatment of marasmus. A. Briend et al. The Lancet, vol. 353, May1999.*


- Weight gain obtained with Plumpy'Nut® are higher than those obtained with F-100 therapeutic milk in the nutritional rehabilitation phase of severely malnourished children in feeding centers:


(7) *Comparison of the efficacy of solid ready-to-use and a liquid, milk-based diet for the rehabilitation of severely malnourished children: a randomised trial. El Hadji Issakha Diop, Nicole Idohou Dossou, Marie Madeleine Ndoour, André Briend, Salimata Wade. Am J Clin Nutr 2003;78:302-7.*

(8) *Ciliberto MA, Sandige H, Ndekha MJ, Ashorn P, Briend P, Ciliberto HM, Manary MJ. A comparison of home-based therapy with ready-to-use therapeutic food with standard therapy in the treatment of malnourished Malawian children: a controlled, clinical effectiveness trial. Am J Clin Nutr 2005; 81: 864-70.*