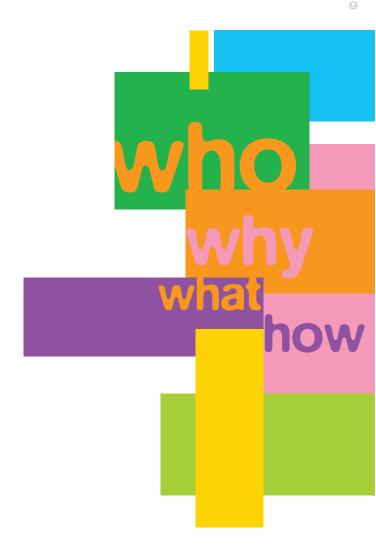
nutributter® nutriset





Who is this booklet intended for?

This document is addressed to **logisticians**, **procurement and program officers** working in country/regional offices or headquarters of national/international organizations, donor agencies or ministries.

Why such a booklet?

The objectives of this booklet are to provide humanitarian and social stakeholders with all the necessary information about Nutributter® to successfully procure and integrate this product into their nutrition programs.

What is the trigger?

With the recent finalization of the new packaging design of Nutributter®, this booklet presents the added value of the strip as a training tool. It aims to support understanding and use of Nutributter® among caregivers, field staff and main stakeholders involved in the humanitarian supply chain.

How is it structured?

First part of the booklet focuses on **general information** about Nutributter® such as product specifications, logistics and quality standards. The chapters "Backgroung of product development" and "Scientific evidence supporting its use" give an outline of **product's purpose and justification**. Finally, it describes the **new design of the packaging as a training tool and answers "Frequently Asked Questions."**

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1. Nutributter[®], towards prevention of malnutrition

nutributter®

is a lipid-based nutrient supplement (LNS) for children 6-24 months used to promote infant growth and motor development¹ and prevent malnutrition.

INGREDIENTS

- Peanut, vegetable fat, sugar, dry skimmed milk powder, whey, maltodextrin, vitamin and mineral complex, emulsifier: lecithin. May contain traces of soy.
- Nutributter® does not contain any product of animal origin, except dairy products.

RECOMMENDED DOSAGE, DURATION & USE

- 20 g per day / Supplementation is recommended for at least 4 months.
 Length of supplementation is context specific.
- Nutributter® does not require any prior cooking or dilution and does not need
 to be refrigerated. Simply open the package and eat the content or mix it into the child's
 complementary food after it has been cooked and is no longer steaming hot.
- Nutributter[®] should not be shared with older children in the household.
- In Malaria endemic areas, it is recommended to divide the 20 g dose over the day (10 g in the morning 10 gin the evening), in order to avoid a single large dose of iron.
- Nutributter® is a supplement and does not replace breastfeeding or varied and nutritious complementary foods. Children 6-24 months receiving Nutributter® should continue to be breastfed and to receive their usual complementary foods.

Amount pe	r Serving]			
Calories	110				
Protein	2.6g				
Fat	7g				
Vitamins					
Vitamin A (0.4	µg)	Vitamin C (30mg)			
Vitamin B1 (0.	3mg)	Vitamin B2 (0.4mg)			
Vitamin B6 (0.	3mg)	Vitamin B12 (0.5µg)			
Niacin (4mg)		Pantothenic acid (1.8mg)			
Folic Acid (80 _l	ng)				
Minerals					
Calcium (100r	ng)	Phosphorus (82mg)			
Potassium (15	2mg)	Magnesium (16mg)			
Zinc (4mg)		Copper (0.2mg)			
Iron (9mg)		lodine (90µg)			
Selenium (10	ıg)	Manganese (0.08mg)			

¹ Adu-Afarwuah, S., Lartey, A., Brown, K. H., Zlotkin, S., Briend, A. and Dewey, K. G. (2007), Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: effects on growth and motor development, Am J Clin Nutr, 86: 412-20.

CONSERVATION AND STORAGE

- The shelf life is 18 months. See "best before date" stamped on each sachet.
- It is recommended to keep the product in a cool and dry place at a temperature below 86°F (30°C).
- It is recommended not to stack the pallets.

LOGISTIC CONSIDERATIONS

→ The content of 1 carton allows the supplementation of 3 children for 6 months (2 cartons: 9 children for 4 months)

Unit	Carton	Pallet by sea	Pallet by air	
Content	546 sachets per carton 78 strips per carton	64 cartons	48 cartons	
Net weight / unit	10.92 kg	698,88 kg	524.16 kg	
Gross weight / unit	11.95 kg	787.80 kg	596.60 kg	
Dimensions unit	ns unit 38.5 x 29 x 20.8 cm		80 x 120 x 141 cm	

→ Loading capacity for sea shipment

	Loading in Bulk			Loading on pallets					
	Cartons	Net Weight (kg)	Gross Weight (kg)	Volume (cbm)	Pallets	Cartons	Net Weight (kg)	Gross Weight (kg)	Volume (cbm)
20' FCL	1 100	12 012	13 145	23.546	11	704	7 687.68	8 665.80	19.16
40' FCL	1 700	18 564	20 315	39.479	25	1 600	17 472	19 695	43.54

2. Quality considerations

The Quality Management System set up by Nutriset is based on International standards (ISO 22 000:2005) and Recommendations of Codex Alimentarius (HACCP method). Nutriset products comply with the Recommended International Code of Hygienic Practice for Foods for Infants and Children of the Codex Alimentarius Standard CAC/RCP 21-1979.

Raw materials and packaging

All added mineral salts and vitamins included in Nutributter® are on the Advisory List of nutrient Compounds for Use in Foods for Infants and young Children of the Codex Alimentarius Standard CAC/GL10-1979.

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

Packaging material for sachet has a food contact grade, according to European Regulation 1935/2004, 27th October 2004.

Quality Control

A Quality Control Plan is defined for Nutributter®, taking into account analyses and tests of raw material/packaging and finished product.

- Bacteriological analyses (Total count plate, E-Coli, Staphylococcus aureus, Anaerobic sulfitoreductor, Salmmonella, Yeast, Moulds, Listeria, Cronobacter Sakazakii...)
- Chemical analyses (Proteins, Lipids, Chlorides, vitamin C...)
- Physical analyses (odour, colour, taste...)
- Checks on production line (leaks, printing...)

Traceability

The Quality management system makes possible to guarantee the upstream and downstream traceability of Nutributter®:

- Starting from a finished product, we can find the batches of raw materials used, as well as the data relating to the production (equipment used, production operators...)
- Starting from a batch of raw materials, it is possible to identify the batches of manufactured finished products and their destination

Certificates

Nutriset can supply various documents related to a particular batch.

- Certificate of analyses: summarizes the results of analyses which allow the release of the batch. Methods of analyses are described.
- Certificate of conformity: clarifies the criteria and specifications related to the product.
- Health and non-radioactivity certificates: from the information communicated by the raw material suppliers, Nutriset can issue Health and non-radioactivity certificates.
- Others certificates can be provided upon request (Non-GMO certificate, certificate of origin...)

Stability, shelf life

Nutributter® takes advantage of the Nutriset Research works, performed on products from the "Plumpy®range" (Plumpy'nut®, Plumpy'doz®), in order to guarantee the physico-chemical and thus nutritional stability.

Thanks to the findings we got from several stability studies performed on products from "Plumpy® range" (Plumpy'nut®, Plumpy'doz® and Supplementary Plumpy®), specific vitamins and minerals premix has been formulated. The content of each element has been defined according to its possible decrease during the storage and to respect Nutributter® specifications.

Nutributter® ingredients include technological additives that guarantee the physical stability of the product (no oil separation), and then its organoleptic and nutritional properties during the storage.

Sachets are sealed under nitrogen atmosphere, to limit oxidation reaction.

3. Background of product development

The formula of Nutributter® was developed for a study in Ghana "Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: effects on growth and motor development." ²

Ideally, children are **exclusively breastfed until 6 months** and should continue to receive **breast milk until 24 months** of age.

Breastmilk for infants as for young children remains an important **source of nutrients** that are of higher quality than those delivered by complementary foods³. It provides **half of the daily energy** of an infant **until 1 year** of age and a **third of the energy in his second year** of life.

From the age of 6 months the energy and nutrient requirements of infants start to exceed the contribution from breastmilk. **Complementary foods become increasingly important** to meet their daily nutritional requirements ⁴.

If complementary foods are not introduced timely in this age group (too early or too late) or if they are given in an inappropriate way (too diluted, too small quantity, and not frequent enough), the growth and development of the child can be impaired. Unfortunately, families in developing countries are not always able to provide their children with adequate complementary food that covers all their nutrient requirements.

It is during this important period of growth and development that children in developing countries are most at risk of undernutrition⁵.

- ² Adu-Afarwuah, S., Lartey, A., Brown, K. H., Zlotkin, S., Briend, A. and Dewey, K. G. (2007), Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: effects on growth and motor development, Am J Clin Nutr, 86: 412-20.
- ³ Black RE et al. Incidence and aetiology of infantile diarrhoea and major routes of transmission in Huascar, Peru. *American Journal of Epidemiology*, 1989, 129:785–799.
- ⁴Dewey K and Brown K. Update on technical issues concerning complementary feeding of young children in developing countries and implications for intervention programs. *Food and Nutrition Bulletin*, 2003, 24:5–28.
- ⁵ Shrimpton R et al. Worldwide timing of growth faltering: implications for nutritional interventions. *Pediatrics*, 2001; 107(5):e75.

Underweight peaks in **children 6-24 months**. During this food diversification period they are especially **vulnerable** because they become more **exposed to infectious diseases** and require nutrient and energy-dense complementary foods that cover all their nutrient requirements (including main vitamins and minerals and essential fatty acids such as Alpha-Linolenic Acid (ALA) and Linoleic Acid (LA)⁶.

In many environments the right to adequate nutrition and access to safe nutritious foods is not a reality. Following the global commitment to enable children to benefit from the highest attainable standard of health, Nutriset is engaged to contribute to improving infant and young child feeding practices by making safe and nutritious foods available.

Child malnutrition is a result of **several interrelated factors**. These factors can be defined as **direct** (food intake and disease), **underlying** (access to food, health care services, maternal and child care practices, as well as water, sanitation and hygiene) and **basic** (resources: environment, technology, people). Making nutrient supplements accessible, especially when availability of nutritious complementary food is restricted, is one response to tackle the underlying causes of child malnutrition.

The nutrient supplement Nutributter® is one potent option to improve the nutritional value of complementary food.

Nutributter® is a **complementary food supplement** that has been tailored to the needs of infants aged from **6 to 12 months** old and is suitable for young children **until 24 months** of age. A 20g daily dose provides the **vitamins**, **minerals** and **essential fatty acids** that are lacking in the complementary food given to the child in addition to breastmilk after the first 6 months of life.

Nutributter® promotes a child's growth and motor and cognitive development. It prevents long-term nutritional deficiencies (chronic malnutrition) which can have irreversible negative effects and thereby contributes to the prevention of any kind of malnutrition.

⁶ Dewey KG, Adu-Afarwuah S. Systematic review 58. of the efficacy and effectiveness of complemen-tary feeding interventions in developing countries. Maternal and Child Nutrition, 2008, 4(s1):24–85. ⁷ WHO, Fifty-Fifth World Health Assembly, Infant and young child nutrition – Global strategy on infant and young child feeding, April 2002

⁸ The State of the World's Children 1998

⁹ Complementary Food Supplements to achieve Micronutrient Adequacy for infants and young children. Extract. P. Nestel, A. Briend, B. de Benoist, E. Deckeer, E. Ferguson, O. Fontaine, A. Micardi and R. Nalubola.

Journal of Pediatric Gastroenterology and Nutrition 36:346-328, March 2003.

4. Scientific evidences supporting its use

Adu-Afarwuah, S., Lartey, A., Brown, K. H., Zlotkin, S., Briend, A. and Dewey, K. G. (2007), Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: effects on growth and motor development, Am J Clin Nutr, 86: 412-20.

http://www.ajcn.org/cgi/content/abstract/86/2/412

Study objective: To test the hypothesis that multiple micronutrients added to home-prepared complementary foods would increase growth, and that the effect would be greatest in the presence of added energy from fat.

Conclusion: All three supplements had positive effects on motor milestone acquisition by 12 months compared with the NI group, but only Nutributter® impacted growth.

Adu-Afarwuah, S., Lartey, A., Brown, K. H., Zlotkin, S., Briend, A. and Dewey, K. G. (2008), Home fortification of complementary foods with micronutrient supplements is well accepted and has positive effects on infant iron status in Ghana, Am J Clin Nutr, 87: 929-38.

http://www.ncbi.nlm.nih.gov/pubmed/18400716

Study objective: To compare the efficacy and acceptability of Sprinkles (SP), crushable Nutritabs (NT), and fat-based Nutributter® (NB; 108 kcal/d), which provide 6, 16, and 19 vitamins and minerals, respectively, when used for home fortification of complementary foods.

Conclusion: All 3 options for home fortification of complementary foods are effective for reducing the prevalence of iron deficiency in such populations.

5. Nutributter[®]... a message for everyone!

How to improve the understanding and utilization of ready-to-use food supplement aiming to prevent malnutrition in young children? Nutriset's ACCESS department has developed a targeting communication strategy to address this challenge. The first outcome of this commitment is the new informative packaging specially designed for Nutributter[®].

Over the last few years Nutriset has been actively seeking feedback from the field to create a packaging design that will facilitate the targeting communication for Nutributter® and thereby support the correct understanding and utilization of Nutributter® by mothers and caretakers.

Inputs and feedback from three main stakeholder were incorporated into the packaging design in order to have an harmonized message: **mothers or caretakers** who are in charge of feeding the child with Nutributter[®], **health agents** who distribute the product within the health system and **national and international organizations**, who use the product in their nutrition programs.

The following key messages directly related to the product Nutributter® were identified as important to facilitate the correct utilization of the product:

- How to get full benefit ?
 One sachet per day, per child (No sharing)
- Who is the product for ?

 Children from 6 to 24 months old
- How to use the product?
 - As a supplement and not a substitute for breastfeeding or complementary foods
 - Mixed into complementary food or eaten directly from the sachet

In 2009, Nutriset embarked on a project to support the communication of these messages to the target group in an easy and understandable way, taking into consideration levels of literacy, language diversity, as well as cultural and social values.

Four field qualitative studies were put into place and conducted in Niger, Djibouti, Ethiopia, and Ghana, from which two major studies have been focusing on Nutributter[®]. These qualitative studies were conducted in collaboration with humanitarian stakeholders and local production partners to reach final users of the product.

Another important consideration was to ensure that the messages directly related to the product were in line with general infant and young child feeding messages such as those promoted by the **Essential Nutrition Actions (ENA)** approach¹ or by the consortium of organizations that launched the Fact of Life booklet²:

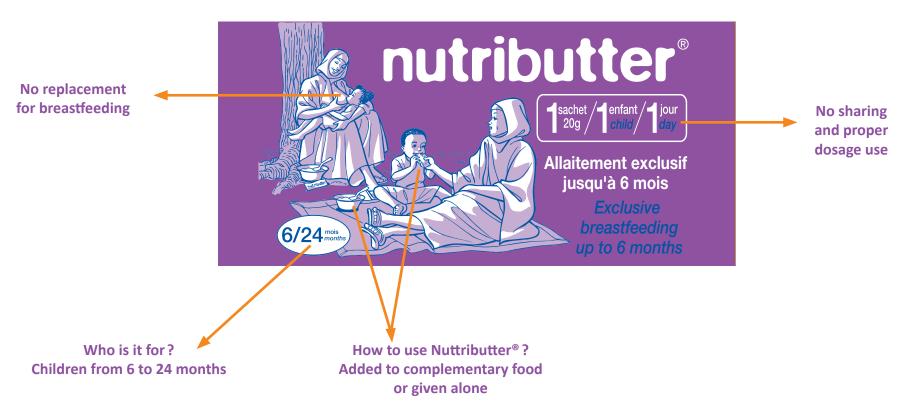
- Exclusive breastfeeding for the first 6 months of life
- Continued breastfeeding together with healthy complementary feeding for children from 6 - 24 months
- Increase the amount and density of food as the child gets older and use a separate bowl for each child
- Ensure the child has a variety of food including energy-dense foods and fortified foods.

¹ http://www.basics.org/documents/pdf/ENA.pdf ² FACT of LIFE: Facts for Life has been developed as a vital resource for those who need it most. It delivers essential information on how to prevent child and maternal deaths, diseases, injuries and violence. http:// www.factsforlifeglobal.org

The package: a tool to pass the message

The new Nutributter® package is a tool to pass messages to those who will handle the product and who will enable its correct utilization thereby ensuring its full nutritional benefit. Ideally during the distribution of the product by the health workers, users will be explained the **4 main messages** by using all the elements included in the sachet.

HOW TO ADDRESS THE MESSAGES?



Strip of seven sachets

Since Nutributter® is often supplied through weekly, monthly or quarterly distributions, product is grouped in strips of seven sachets corresponding to a weekly ration for the child.















Seven colour

In many distribution contexts where there is no one single common language or time representation, the 7 colors of the strip assist the distributors to emphasize the daily use of one sachet, a different color each day.

Colourful packages can also help to attract the attention of young children and make them accept and consume the product more easily.

Typography



sachet enfant jour child day

The message regarding dosage and frequency of product has been simplified to make it easier to remember.

It is emphasizing the no sharing behavior.





The 6/24 is to indicate the age bracket of the target group: Children from 6 to 24 months old.

The use of this indication of age groups has been seen on children's products in the countries where qualitative data collection was carried out.





Allaitement exclusif jusqu'à 6 mois

Exclusive breastfeeding up to 6 months

Allaitement recommandé jusqu'à 24 mois Breastfeeding recommended up to 24 months The message on the front emphasizes proper breastfeeding.

" Exclusive breastfeeding up to 6 months "

" Breastfeeding recommended up to 24 months "

How to use the product



The 6 images depict a daily scene in different cultures and communities demonstrating how the product can be consumed.





RECOMMENDED PRACTICES: Breastfeeding & Daily food intake



Breastfeeding images are also repeted across the strip to insist on good practice: exclusive breastfeeding the first 6 months of life and recommended up to 24 months.



Images with a bowl and a Nutributter® sachet next to it underlines the complementarities of the product with the daily food intake.

Educational messages

Ideally the main messages related to the product are explained to the mother or care taker at the distribution point. Each sachet has an educational message:

- Mothers and caretakers we worked with being from multilingual backgrounds, we have prioritized visual images over text on the front.
- Messages on the back are to assist the members of the distribution team who can read English or French, e.g. the health agents, to communicate the recommended use of the product as well as related nutrition messages to mothers and caretakers.

Six different messages support the images illustrated on the front of the sachet



Nutributter® fortifie l'aliment de complément dès l'âge de 6 mois.

Nutributter is a complementary food fortificant to use from the age of 6 months.

PREVENTION

Fab / Prod - N° Lot / Batch - A consommer de préférence avant / Best Before:



Allaitement recommandé jusqu'à 24 mois, exclusif jusqu'à 6 mois.

Breastfeeding recommended up to 24 months, exclusive up to 6 months.

PREVENTION

Fab / Prod - N° Lot / Batch - A consommer de préférence avant / Best Before:



1 Nutributter* par enfant et par jour.

1 Nutributter* per child per day.

PREVENTION

Fab / Prod - N° Lot / Batch - A consommer de préférence avant / Best Before:



Pour un bénéfice nutritionnel complet, ne pas partager Nutributter.º

To get the full nutritional benefit, do not share Nutributter.°

PREVENTION

Fab / Prod - N° Lot / Batch - A consommer de préférence avant / Best Before:



Nutributter[®]peut être mélangé dans l'aliment de complément après cuisson.

Nutributter® can be mixed with complementary food after cooking.

PREVENTION

Fab / Prod - N° Lot / Batch - A consommer de préférence avant / Best Before:



Nutributter[®] est destiné aux enfants de 6 à 24 mois.

Nutributter[®] is for children from 6 to 24 months.

PREVENTION

Fab / Prod - N° Lot / Batch - A consommer de préférence avant / Best Before:

Technical and legal information

All technical and legal information is indicated on the back of the sachet such as product registration and composition, but also provides storage instructions and expirity date of the product.

Product classification

PREVENTION

The green colour symbol refers to a Nutriset product used for the prevention of malnutrition. The colour code indicates the link between product and nutritional status. It is intended to help nutritionists and humanitarian workers involved in nutritional programmes to quickly classify the product.

Carton leaflet

In each carton, the leaflet "Nutributter"... a message for everyone" describes how the Nutributter strip can be used as an education tool by community and health workers as well as other tutors.



6. Frequently Asked Questions (FAQ)

What does LNS mean?

Lipid-based Nutrient Supplements (LNS) refers to a family of **products** designed to **deliver nutrients** to vulnerable people. They are considered "lipid-based" because the majority of the **energy provided** by these products is **from lipids** (fats). All LNS provide a range of **vitamins and minerals**, but unlike most other multiple micronutrient supplements, LNS also provide **energy**, **protein**, and **essential fatty acids** (EFA). LNS formulations and doses can be tailored to meet the nutrient **needs of specific groups** (for example, children under 2 years of age) and to **fit in particular programmatic contexts** (for example, preventive or therapeutic programs, emergency programs).

What does cognitive and motor development mean?

Cognitive development: The development of **human intelligence** and the **ability to acquire knowledge**. Motor development: **Acquisition of sequences of movements** that produce a smooth, efficient action in order to **master a particular task**.

Why Nutributter® has to be used between 6 and 24 months and what happen if the consumption is extended?

National nutrition strategies often target nutrition programs to children 6-24 months to intervene during this window of opportunity to improve the nutrition and development of a child. If stunting is not reversed before the age of 24 months, **damages on the child development** potentials are said to be less likely reversible.

Underweight peaks in children 6-24 months. During this food diversification period they are **especially vulnerable** because they become more exposed to infectious diseases, and require nutrient and energy-dense complementary foods that cover all their nutrient requirements (including main vitamins and minerals, and essential fatty acids).

Nutributter® will only partly cover the micronutrient requirements of older children.

How is Nutributter® prepared and consumed?

Nutributter® can be **mixed with the child's usual food** or it can be eaten **directly out of the sachet**. Nutributter® should be mixed with the child's food only after it has been cooked and is no longer steaming hot to avoid any loss of thermolabile vitamins. The food should not be reheated once Nutributter® has been added to it. The caretaker should make sure that the child eats all the food that has been mixed with Nutributter®. This preparation enables supplementation and simultaneous promotion of varied and nutritious complementary food.

Why is it so important to eat the 20g daily recommended dose?

One sachet of Nutributter® corresponds to the daily needs of essential nutrients for one child. Nutributter® should not be shared with other people in the family, because otherwise the target infant/child will not get the necessary amount of minerals, vitamins, and essential fatty acids.

Which International Standards does the product comply with?

The product complies with the Recommended International Code of Hygienic Practice for Foods for Infants and Children of the Codex Alimentarius Standard CAC/RCP 21-1979. Nutributter® also complies with the Codex Alimentarius 'Guidelines on Formulated supplementary Foods for older infants and young children CAC/GL 08-1991.

All added mineral salts and vitamins are on the Advisory List of Mineral Salts and Vitamin Compounds for Use in Foods for Infants and Children of the Codex Alimentarius Standard CAC/GL10-1979.

What is the recommended duration for Nutributter® supplementation?

The supplementation is **necessary** for the **period during which the child receives nutritionally inadequate complementary food (for instance, lack of products of animal source, fruits, and/or vegetable) that does not provide the child with all the required nutrients in quality and quantity. During the Ghana study¹¹, supplementation was provided over a period of 6 months with very positive outcomes.**

¹¹ Adu-Afarwuah, S., Lartey, A., Brown, K. H., Zlotkin, S., Briend, A. and Dewey, K. G. (2007), Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: effects on growth and motor development, Am J Clin Nutr, 86: 412-20.

What is the problem in malaria endemic areas?

In malaria-endemic area, it is **recommended to split the 20g sachet into two servings** (10g in the morning, 10g at night) in order to **spread the dose of iron** over the day thereby **reducing the risk of "free" iron in the blood** that could **amplify infections**.

Recommended website to check malaria endemic areas:

http://www.rollbackmalaria.org/endemiccountries.html

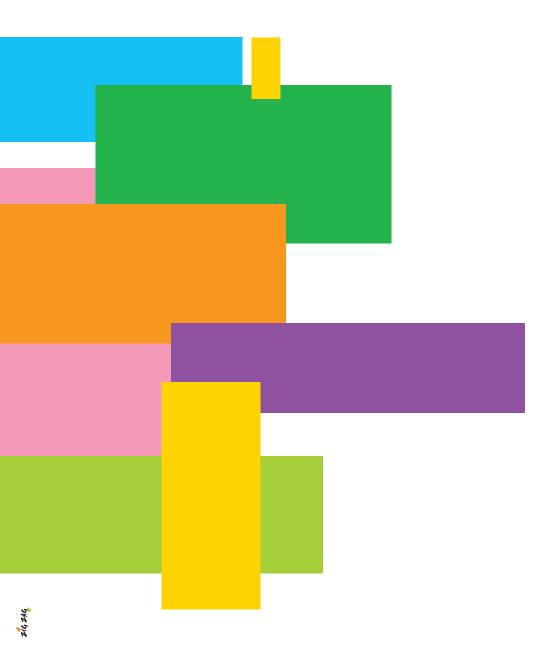
http://www.who.int/malaria/publications/country-profiles/2009/en/index.html

What is the difference with Plumpy'doz?

PlumpyDoz® is a Ready-to-Use Supplementary Food (RUSF) targeted at children 6-36 months that supplements the nutritional value of the child's food intake in terms of nutrients and energy (250kcal/day). Aiming to contribute to the reduction of the incidence of acute malnutrition, PlumpyDoz is adequate during at-risk periods e.g. in food insecure areas, especially the lean season when food becomes scarce, the meals provided to the child can be insufficient not only in quality (not providing all required nutrients) but also in quantity (not providing the needed caloric energy and the required amount of nutrients).

Nutributter® is a **complementary food supplement** that provides **essential nutrients**, such as vitamins, minerals and essential fatty acids that are lacking in the complementary food given to the child in addition to breastmilk after the first 6 months of life.

Though both products target infants and young children, Plumpy'doz is more adapted to hot spots of malnutrition, where acute malnutrition is most prevalent. One daily dose of Plumpy'doz for instance provides nearly 2.5 times more calories than one daily dose of Nutributter®.



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