Life Cycle Analysis | RUTF

Presentation of the item

Ready-to-Use Therapeutic Food

- Lifespan: N/A
- Mass: 92 grams
- Key ingredients: Peanut paste, milk powder, sugar, oil

Functional unit

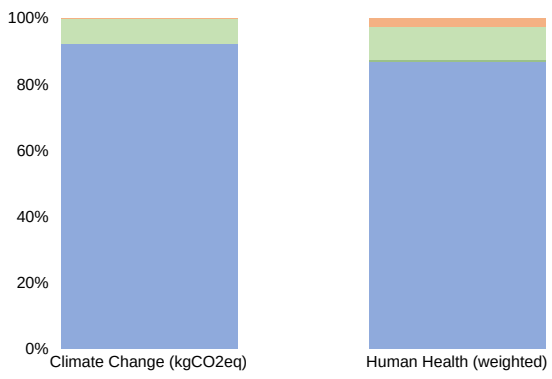
1 portion of 92 grams

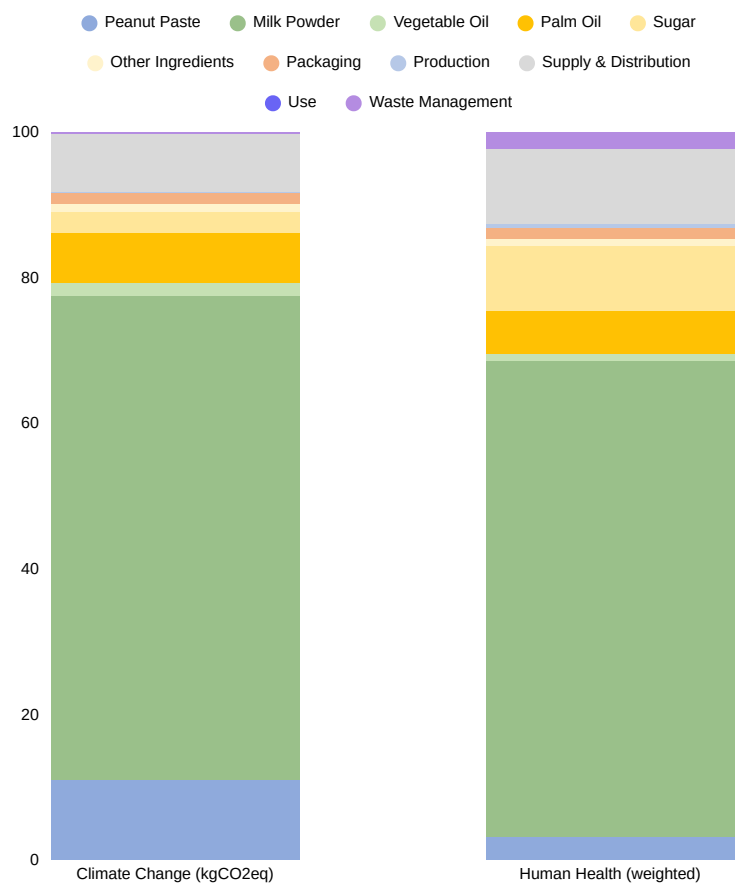
Item	Portion	Reference Flows
RUTF 92g	1	1

Baseline | Assumptions

Product manufactured in France. Milk-based ingredients produced in France, peanuts and vegetable oils imported from Argentina and Malaysia and shipped from Normandy by sea to Sahelian region, open-burning disposal of the packaging.

Results of the analysis





Stage	$kgCO_2e$ Baseline
Raw Material	0.58
Production	0.001
Transportation	0.04
Use	0
End-of-Life	0.001

Stage	Human Health Baseline
Raw Material	4.54E-05
Production	3.19E-07
Transportation	5.31E-06
Use	0
End-of-Life	1.19E-06

Variations (% from baseline figures presented above)

To produce RUTF locally

Product produced locally in Niger. Computation made by considering importation of dairy products from France and peanuts from South America. Local production of other ingredients. Local distribution of the item.

Variation	
$kgCO_2e$	Human Health
-0.7%	-2.6%

To use milk from pasture-raised cows instead of an average one

Computation made by considering a pasture-based milk impact factor from Ecoinvent (produced in South-Africa) instead of the average impact factor used for milk.

Variation	
$kgCO_2e$	Human Health
-11.5%	+3.9%

Conclusion

The environmental impact of RUTF **is largely concentrated in its raw materials, particularly the milk powder**, which is the only animal-based ingredient in the recipe. Despite proposed decarbonisation strategies, such as relocating production or sourcing more sustainable milk, **the expected impact reduction remains low** based on the available data. Any further changes to the recipe, i.e. reducing the milk-based content or potential alternatives to milk or other ingredients, were not analysed as part of this study. Such changes would require more in-depth analyses, incl. clinical trials, as well as WHO (World Health Organization) approval.

Emission factors

The values displayed here are not per functional unit but per item. These values can be used to calculate a carbon footprint of an organisation.

Name	GHG Protocol Categories	gCO_2e/sachet (92g)
Cradle-to-grave	N/A	581
Cradle-to-gate	3.1 Purchased Goods	546
Distribution freight	3.4 and/or 3.9 Transportation	34
Use phase	3.11 Use of distributed product	0
End-of life	3.12 End of life of distributed product	1

Note: The calculations are based on impact factors from the ecoinvent 3.11 database. Several of these factors were recently updated, resulting in lower environmental impacts for certain raw materials. As a result, the current findings may differ from those of previous analyses.

Bibliography

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About this project

Designing methodologies and performing life cycle analyses of high-impact items to build a GHG emission factor and environmental impact database adapted to the humanitarian sector with the goal of identifying key strategies to reduce environmental impacts.

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