Extra Moelleux Nature

Environmental Product Declaration

The first EPD process certified in the Food industries

Harrys

Barilla
The Italian Food Company. Since 1877.

EPD®
ENVIRONMENTAL PRODUCT DECLARATION

REGISTRATION NUMBER
S-P-00328

CPC CODE
234 BAKERY PRODUCTS
PCR 2012:06 VER. 3.0
20/01/2020

PUBLICATION DATE
2012/12/12

REVISION
5 of 2020/06/30

VALID UNTIL
2025/06/29

PROGRAMME
The International EPD® System
www.environdec.com

PROGRAMME OPERATOR
EPD International AB

This EPD has been developed in conformity to ISO 14025. An EPD should provide current information and may be updated if conditions change. The stated validity is, therefore, subject to the continued registration and publication at www.environdec.com.

1. Brand and product

THE BRAND HARRYS

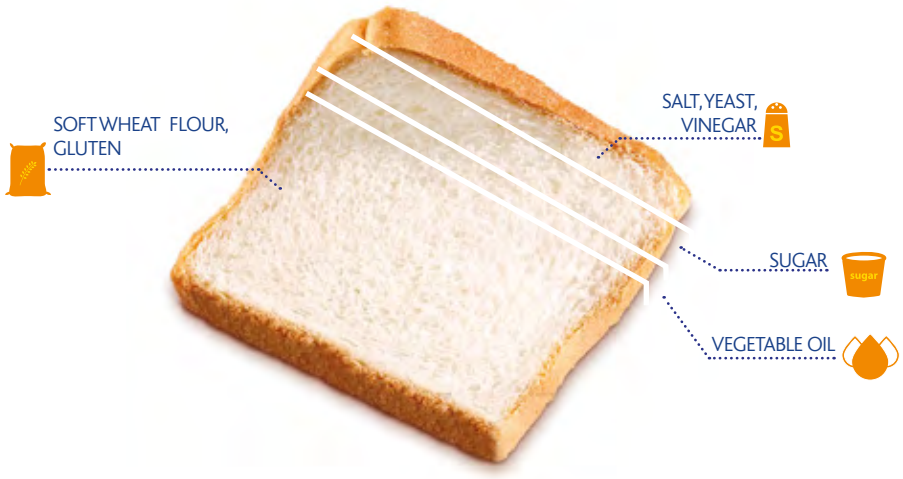
The Brand Harrys, established in 1970, offers a varied range of bakery products, Soft Breads and Viennoiseries, for joyful and easy consumption both at home and away, in everyday family life.

PLANT AND PROCESS

Extra Moelleux Nature is produced in France at Châteauroux (La Malterie plant) where a typical bakery process takes place.
The process steps involved in the manufacture are: mixing of the ingredients, to form a dough which will be divided and rounded, dough molding and proofing, pieces baking in a specific oven, cooling and cutting in slices.
Extra Moelleux Nature is packed into 280, 500 and 750 g and it is ready for consumption.

More info on *www.harrys.fr*

THE PRODUCT

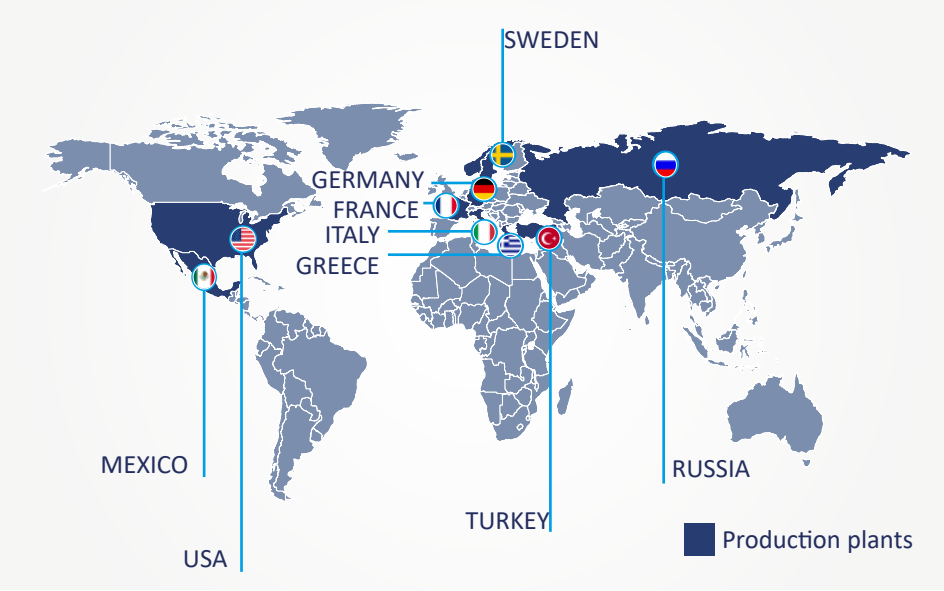


NUTRITIONAL INFORMATION (per 100 g)		
Energy	kcal kJ	276 1 162
Fats *of which saturated*	grams	5.2 *0.5*
Carbohydrates *of which sugars*	grams	46.1 *6.5*
Fibres	grams	6
Proteins	grams	8.1
Salt	grams	1.18

2. Barilla group

Founded in Parma in 1877 from a bakery and pasta-making store, Barilla is now one of Italy's biggest food groups, world leader on the pasta market and number one in ready-to-use sauces in mainland Europe, bakery products in Italy and crispbreads in the Scandinavian countries. The Barilla Group has 28 production sites (14 in Italy and 14 abroad) and exports to more than 100 countries.
Every year, its plants produce about 1,800,000 tons of food products, enjoyed by consumers all over the world, under the Barilla, Mulino Bianco, Harrys, Pavesi, Wasa, Filiz, Yemina and Vesta, Misko, Voiello, Gran Cereali, Pan di Stelle and Academia Barilla brands.

Further information on www.barillagroup.com



Good for You. Good for the Planet

When he opened his store in 1877, Pietro Barilla's overriding aim was to make good food. Today, that principle has become Barilla's corporate mission: "Good for You, Good for the Planet".

GOOD FOR YOU *means: continuously improving the nutritional profile of existing products and launching new products that are tasty, safe and contribute to a balanced diet; and promoting healthy lifestyles and sustainable diet inspired by the Italian lifestyle and Mediterranean Diet.*

GOOD FOR THE PLANET *means: improving the efficiency of production processes in order to reduce greenhouse gas emissions and water consumption; and promoting more sustainable agricultural and farming practices for all of the Group's strategic supply chains.*

Harrys: a CO_2 Compensated Brand

Harrys brand has embarked on a path that has led to the achievement of **100% carbon compensation**, in line with its core values - quality, unique softness and local and responsible engagement.

The path includes three steps: **measure. reduce and compensate**. The path was certified by DNV-GL following the International Standard PAS 2060.

This certification covers both Harrys brand and products.

For more information, please visit:

www.harrys.fr/moelleux-responsable/co2-compense

WE MEASURE

All the greenhouse gas emissions arising from Harrys brand activities (from field to shelf) **are identified and measured**, related to a baseline year (2018).

WE REDUCE

Some measures are taken to reduce the greenhouse gases emissions, like Energy Saving Programs, Charte Harrys project for a more sustainable soft wheat farming and purchasing **renewable electricity** (100% from hydropower sources).

WE COMPENSATE

To compensate the remaining emissions, Harrys has chosen to contribute to the protection of a rainforest and support solar energy use through projects labelled by the **Verified Carbon Standard** (VCS) and the **Climate Community and Biodiversity Alliance Standard** (CCBA). Projects developed under these programs must follow a rigorous assessment process in order to be certified. Harrys has chosen to contribute to the protection of rainforest in Brasil and support solar energy in India.

Harrys CO_2 compensation project

Floresta de Portel

Brazilian forest is one of the richest ecosystems in the world and is now threatened.

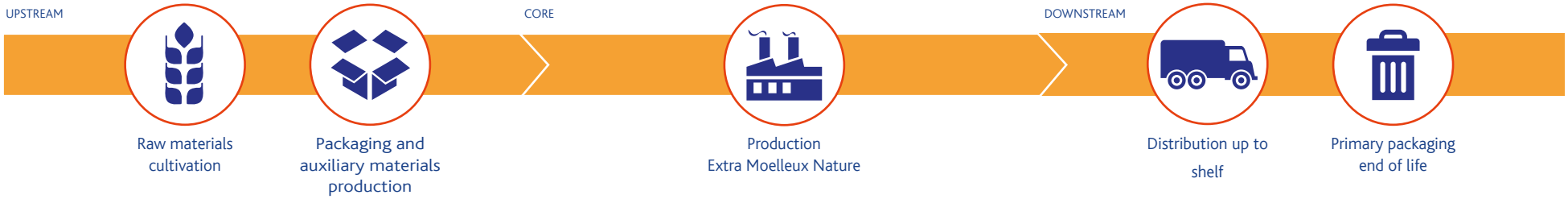
The Floresta de Portel projects aims at protecting and preserving this fragile environment.

100% CO_2 compensé

Solar India

The aim of this project is to supply renewable solar energy in India, by installing photovoltaic panels in Telangana and Maharashtra states.

3. Environmental performance calculation



The Environmental performance of Extra Moelleux Nature was calculated using the LCA (life cycle analysis) methodology, including the entire production chain, starting from the cultivation of the raw materials until the delivery of the finished product to distribution platforms.
The study was conducted following the specific product rules published for the EPD System: "CPC code 234 – Bakery products".
The contribution to the environmental impacts brought by generic data is less than 10% in all impact categories.

DECLARED UNIT

Data are referred to **1 kg** of product plus the related packaging (the packaging is referred to the **500 grams** format, reported to 1 kg of product).

SYSTEM BOUNDARIES

The processes constituting the analyzed system were organized according to following three successive phases, in compliance with the EPD system's requirements.

4. Raw materials production

SOFT WHEAT FLOUR AND BRAN AND OTHER CEREALS

Cereal cultivation performances are calculated on the basis of primary data, yield, energy consumption and fertiliser use for each cereal, collected from farms.
Cultivation region is France, cultivation yield is calculated as average of years 2016, 2017 and 2018.

INGREDIENTS PRODUCTION

VEGETABLE OILS

Data for sunflower oil cultivation come from secondary data (collected from Agrifootprint database), the extraction and refinery data come from literature (Nilsson et al.. 2010).
Data for rapeseed oil cultivation come from secondary data (collected from Agrifootprint database) and the refinery data come from literature (Schmidt 2007).

OTHER INGREDIENTS

Data related to sugar production are primary and come from Barilla suppliers.
Data from LCA databases are used for other material in the recipe (yeast, salt and vinegar).

5. Packaging production

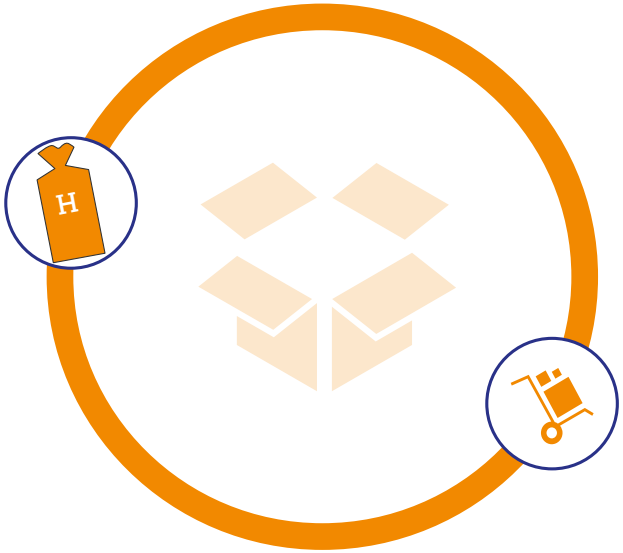
PACKAGING PRODUCTION

PRIMARY PACKAGING

Packaging environmental performances are calculated using the 500 g format, the most sold one, and reported per packaging used for 1 kg of product.

The primary packaging consists in a plastic film sac with a plastic based closure clip.

Primary data (from packaging unit) are used for packaging amount and packaging materials production; data about packaging production process come from Barilla LCA database.



Since 2004, Barilla designs new packaging with the"LCA packaging design tool". It allows the assessment of the environmental impacts of the packaging solutions already during the design phase.

PACKAGING FOR TRANSPORT

The packaging for transport consists in cardboard boxes (american box), used for the distribution of the product, and a plastic extensible film. Boxes are made mainly by recycled cardboard carton (pre and post consumer).
The data used have been collected by LCA database (mainly Ecoinvent).

Packaging used for Harrys products is 100% designed for recycle.

Auxiliary materials environmental performances are evaluated by using primary data from plant, during 2019 year. Secondary data (Ecoinvent) are used for environmental aspects associated to materials production.

6. Extra Moelleux Nature production

GENERAL INFORMATION

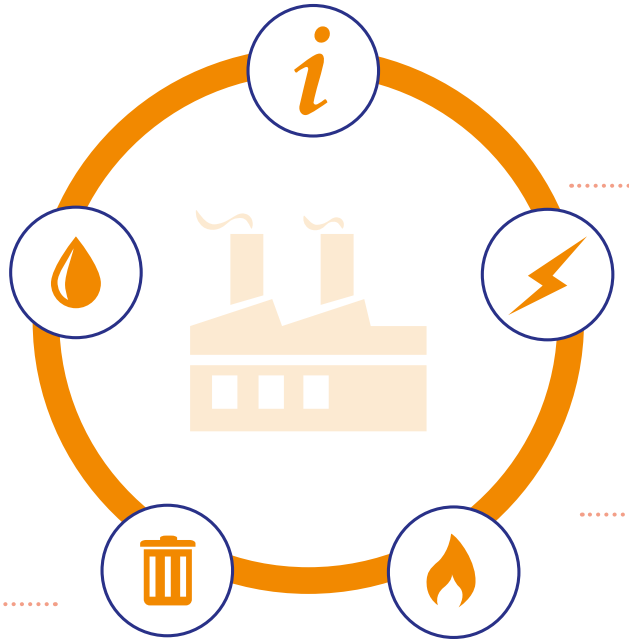
The environmental performances related to the production process are evaluated considering as primary data the energy and the water consumption and the waste production. Secondary data (mainly Ecoinvent) are used for the environmental aspects related to the production of energy and water.
The plant considered in the analysis is La Malterie.

WATER

The water consumption is evaluated using primary data. The overall value is attributed to the product using the mass allocation procedure.
Plant water consumption includes also the water amount needed for dough preparation: this amount is included both in plant consumption and product recipe following a precautionary approach.
Data are referred to year 2019.

WASTE

The primary data are collected by the plant registrations. The overall value is attributed to the product using the mass allocation procedure.
Data are referred to year 2019.



EXTRA MOELLEUX NATURE PRODUCTION

ELECTRICITY

Total plants electricity has been divided using mass allocation (plants produce other products beyond Extra Moelleux Nature).
Barilla, through the GO certification system (Guaranty of origin market), buys energy from hydroelectric renewable resources as to cover the entire Harrys production.
Data are referred to 2019.

NATURAL GAS

The natural gas consumption is evaluated using primary data. The overall value is attributed to the product using the mass allocation procedure.
Data are referred to year 2019.

7. Distribution

DISTRIBUTION

Extra Moelleux Nature is produced in the French plants of La Malterie and it is sold mainly in France.

Distribution performance were calculated considering the transport by truck in France and Belgium for about 533 km.

All transport stage from plant to retailer are included.

The product does not need any particular storage condition (such as refrigeration).

The impacts related to the disposal of the packaging for transport have been calculated considering the scenario for paperboard and plastic for distribution in France (reference: Eurostat 2017).

8. Packaging end of life

In the French context, plastic film from differentiated urban waste are usually sent to:

Avoiding the production of virgin plastic. — RECYCLE 27%

Recovering plastic energy content — ENERGY RECOVERY 43%

In France, 25%of waste sent to disposal are incinerated without energy recovery, the remaining part goes to landfill — DISPOSAL 30%

In the French context, plastic closure clips from differentiated urban waste are usually sent to:

Avoiding the production of virgin plastic. — RECYCLE 27%

Recovering plastic energy content — ENERGY RECOVERY 43%

In France, 25%of waste sent to disposal are incinerated without energy recovery, the remaining part goes to landfill — DISPOSAL 30%

French scenario is reported as the most representative one (it represent the highest part of distribution, 97%).

* Data elaborated from Eurostat database, reference year 2017

9. Environmental results

USE OF RESOURCES data referred to1 kg of product		UPSTREAM		CORE	DOWNSTREAM		TOTAL
		Raw material production	*Packaging and auxiliary materials production*	*Production*	*Distribution up to shelf*	*Primary packaging end of life*	
PRIMARY ENERGY RESOURCES - RENEWABLE data in MJ	Used as energy carrier	8.47E-01	1.93E+00	1.84E+00	2.97E-03	1.17E-05	**4.62E+00**
	Used as raw materials*	0.00E+00	1.59E-01	0.00E+00	0.00E+00	0.00E+00	**1.59E-01**
	Total	**8.47E-01**	**2.09E+00**	**1.84E+00**	**2.97E-03**	**1.17E-05**	**4,78E+00**
PRIMARY ENERGY RESOURCES - NON RENEWABLE data in MJ	Used as energy carrier	4.06E+00	2.83E+00	1.95E+00	1.13E+00	1.10E-03	**9.98E+00**
	Used as raw materials	0.00E+00	7.59E-01	0.00E+00	0.00E+00	0.00E+00	**7,59E-01**
	Total	**4.06E+00**	**3.59E+00**	**1.95E+00**	**1.13E+00**	**1.10E-03**	**1,07E+01**
Secondary Material (g)		0.00E+00	7.61E+01	0.00E+00	0.00E+00	0.00E+00	**7.61E+01**
Renewable secondary fuels (MJ. net calorific power)		0.00E+00	0.00E+00	0.00E-00	0.00E+00	0.00E+00	**0,00E+00**
Non-renewable secondary fuels (MJ. net calorific power)		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0,00E+00**
Net use of fresh water (liters)		4.15E+01	1.93E+00	7.64E-01	5.56E-02	2.75E-03	**6.91E+00**

OUTPUT FLOWS data referret to1 kg of product	UPSTREAM		CORE	DOWNSTREAM		TOTAL
	Raw material production	*Packaging and auxiliary materials production*	*Production*	*Distribution up to shelf*	*Primary packaging end of life*	
Waste to animal feed or similar (g)	0,00E+00	0,00E+00	2.38E+02	0,00E+00	0,00E+00	**2.38E+02**
Components for reuse (g)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
Materials for recycling (g)	4.25E-01	6.31E+02	8.90E+00	9,00E+01	4,70E+00	**1.04E+02**
Materials for energy recovery (g)	0,00E+00	0,00E+00	0,00E+00	9.40E-04	7.61E-03	**8.55E-03**
Exported energy. electricity (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**
Exported energy. thermal (MJ)	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	**0,00E+00**

Secondary energy resources and recovered energy flows do not show relevant contributions.

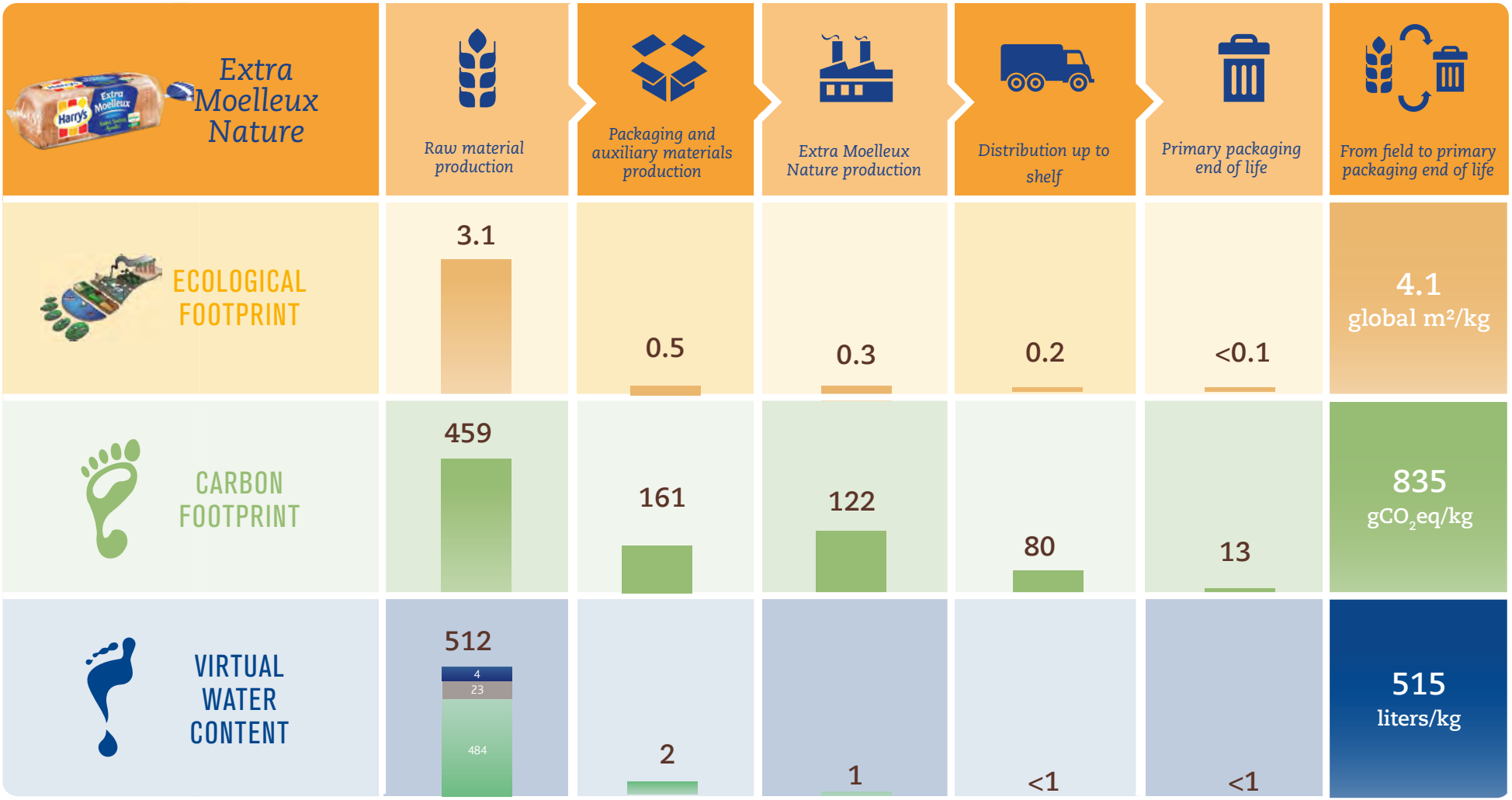
**The biomasses transformed into the product are not considered.*

POTENTIAL ENVIRONMENTAL IMPACTS data referret to1 kg of product		UPSTREAM		CORE	DOWNSTREAM		TOTAL
		Raw material production	*Packaging and auxiliary materials production*	*Production*	*Distribution up to shelf*	*Primary packaging end of life*	
GLOBAL WARMING POTENTIAL - GWP ($g\ CO_2$ eq)	Fossil	3.99E+02	1.59E+02	1.22E+02	7.92E+01	1.30E+01	**7.73E+02**
	Biogenic	1.50E+01	4.99E-02	2.32E-02	7.53E-01	1.49E-03	**1.58E+01**
	Land use and land transformation	4.51E+01	1.43E+00	8.19E-04	1.48E-03	1.18E-05	**4.65E+01**
	Total	**4.59E+02**	**1.61E+02**	**1.22E+02**	**8.00E+01**	**1.30E+01**	**8.35E+02**
Acidification Potential - g SO_2 eq.		8.31E+00	5.88E-01	2.03E-01	3.31E-01	1.46E-03	**9.43E+00**
Eutrophication Potential - g PO_4^{---} eq.		5.33E+00	1.22E-01	3.27E-02	5.29E-02	4.19E-04	**5.53E+00**
Photochemical Oxidant Formation Potential - gNMVOC eq		1.20E+00	4.20E-01	2.41E-01	3.89E-01	2.05E-03	**2.25E+00**
Abiotic Depletion Potential - Elements g Sb eq.		6.43E-04	1.96E-05	2.00E-07	1.61E-07	1.69E-08	**6.63E-04**
Abiotic Depletion Potential - Fossil fuels - MJ, net calorific value		3.35E+00	3.20E+00	1.93E+00	1.13E+00	1.08E-03	**9.59E+00**
Water scarcity potential, m3 eq.		4.66E+00	3.78E+00	1.08E-01	2.31E-03	1.42E-05	**4.35E+00**

WASTE PRODUCTION data referret to1 kg of product	UPSTREAM		CORE	DOWNSTREAM		TOTAL
	Raw material production	*Packaging and auxiliary materials production*	*Production*	*Distribution up to shelf*	*Primary packaging end of life*	
Hazardous waste disposed*	3.97E-03	1,67E+00	2.00E-02	0,00E+00	0,00E+00	**1.7E+00**
Non-Hazardous waste disposed*	3.81E+00	2.37E+01	2.39E+02	6.50E-01	5.13E+00	**2.7E+02**
Radioactive waste disposed	6.92E-01	2.67E-01	4.08E-02	4.12E-02	2.32E-05	**1.0E+00**

The biogenic contribution to Global Warming Potential refers only to biogenic methane.
The contribution given by biogenic CO_2 is equal to zero, since the absorbed amount is equal to the emitted biogenic CO_2 within the reference 100 years period.

** Only flows coming from processes under direct Barilla control were considered, flows generated by secondary data were excluded.*


Extra Moelleux Nature
Raw material production
Packaging and auxiliary materials production
Extra Moelleux Nature production
Distribution up to shelf
Primary packaging end of life
From field to primary packaging end of life
ECOLOGICAL FOOTPRINT
3.1
0.5
0.3
0.2
<0.1
4.1
global m²/kg
CARBON FOOTPRINT
459
161
122
80
13
835
gCO2eq/kg
VIRTUAL WATER CONTENT
512
4
23
484
2
1
<1
<1
515
liters/kg

10. Differeces versus previous versions of EPD

The differences versus previous EPD versions are due mainly to the use of updated emission factors for the energy mixes, updated yields for soft wheat cultivation calculated as average value of the last three available years for every region and modification of the distribution scenario. Moreover, new charachterization factors and indicators were introduced, as a consequence of GPI update to 3.01 version.

11. Additional information

REFERENCES

- International EPD Consortium, General Programme Instructions (EPD), ver. 3.01 of 18/09/2019;
- WWF, Global Footprint Network, Zoological Society of London, Living Planet Report 2008, WWF (2008);
- Arjen Y. Hoekstra, Ashok K. Chapagain, Maite M. Aldaya, Mesfin M. Mekonnen; Water Footprint The Water Footprint Manual 2011, Waterfootprint Network;
- PCR 2012:06 CPC 234: Bakery Products; ver. 3.0 of 20/01/2020;
- Nilsson K., Flysjö A., Davis J., Sim S., Unger N., Bell S. "Comparative life cycle assessment of margarine and butter consumed in the UK, Germany and France" 2010, Int J Life Cycle Ass vol. 15 num. 9 p 916-926;
- Schmidt J.H. Life Cycle Assessment of rapeseed oil and palm oil 2010, International Journal of LCA 15 pp.183-197.
- Eurostat database for waste management, latest version (2017)

Environmental declarations published within the same product category, though originating from different programs. may not be comparable. This declaration and further information in regards are available at www.environdec.com

As EPD owner, Barilla has the sole ownership, liability and responsibility for the EPD.

EPD PROCESS CERTIFICATION

Product category Rules (PCR) review conducted by:
Technical Committee of the International EPD® system.
Chair Filippo Sessa
Contact via info@environdec.com

Program operator:
EPD International AB
Box 210 60, SE-100 31 Stockholm, Sweden
info@environdec.com

EPD®
ENVIRONMENTAL PRODUCT DECLARATION

EPD PROCESS CERTIFICATION

Independent verification of the declaration and data, according to ISO 14025:

- [x] EPD process verification
- [ ] EPD verification- Third party verifier

PROCESS INTERNAL VERIFICATION

Procedure for follow-up of data during EPD validity involves third part verifier:

- [ ] Yes
- [x] No

Third party verifier: **Bureau Veritas Certification Sweden AB,** Accredited by: **SWEDAC**

BUREAU VERITAS

Process internal verifier: **Ugo Pretato,** Approved by: **The International EPD® System**

STUDIOFIESCHI & SOCI

CONTACTS

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For additional information relative to the activities of the Barilla Group or in regards to this environmental declaration, please contact:
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Barilla
The Italian Food Company. Since 1877.

Technical support and grafic design: **Life Cycle Engineering srl - Italy www.lcengineering.eu**

LCE

Barilla
The Italian Food Company. Since 1877.

12. Glossary

ECOLOGICAL FOOTPRINT

The ecological footprint measures the area of biologically productive land and water required to provide the resources used and absorb the carbon dioxide waste generated along the entire life cycle. It is measured in standard units called global hectares (gha).

www.globalfootprint.org

CARBON FOOTPRINT

A product carbon footprint is the total amount of greenhouse gases produced along the entire life cycle. It is expressed in equivalent mass of carbon dioxide (CO_2-eq).
In agriculture a significant contribution is given by the emission of nitrous oxide (N2O) due to the fertilizers use. It is also known as Global Warming Potential (GWP).

www.ipcc.ch

VIRTUAL WATER CONTENT

The virtual water content is the water both direct and indirect required to manufacture a product along its entire life cycle. Water footprint is defined as green water (evapotranspiration of water from plants). as blue water (directly used fresh surface and groundwater) and as grey water (the volume of water that is required to dilute pollutants so that the quality of the water remains above agreed quality standards).

www.waterfootprint.org

ACIDIFICATION (AP)

It is a phenomenon for which precipitation is unusually acidic, meaning that it has substandard levels of pH. It can have harmful effects on plants, aquatic animals and infrastructure. Acid rain is caused by emissions of SO_2. NO_x and NH_3. The acidification potential is measured in mass of sulphur dioxide equivalent (SO2-eq).

EUTROPHICATION (EP)

It is an abnormal proliferation of vegetation in the aquatic ecosystems caused by the addition of nutrients into rivers. lakes or ocean. which determinates a lack of oxygen. The eutrophication potential is mainly influenced by emission into water of phosphates and nitrates. It is expressed in mass of $PO_{4^{--}}$equivalent.

PHOTOCHEMICAL OXIDANT FORMATION POTENTIAL (POFP)

Production of compounds that, under the light effect, are able to promote an oxidation reaction leading to ozone production in the troposphere.
The indicator is mainly influenced by VOCs (Volatile organic compounds) is usually expressed in mass of ethylene equivalent (g NMVOC - equivalent).