



Wasa Sandwich Cheese&Chives

Environmental Product Declaration



The first EPD process certified in the Food industries



Barilla
The Italian Food Company. Since 1877.



REGISTRATION NUMBER

S-P-05109

CPC CODE

234 BAKERY PRODUCTS
PCR 2012:06 VER. 3.0
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PUBLICATION DATE

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REVISION

1
(1st edition)

VALID UNTIL

2026/11/21

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 WASA

Founded in 1919 Wasa is the largest crispbread baker in the world. Using only a few simple ingredients the crispbreads are baked to deliver a distinctive crunch. Wasa has 2 bakeries, in Filipstad (Sweden) and Celle (Germany) and the products are sold in over 40 markets all over the world. Since 2018 Wasa is reducing, calculating and compensating its remaining emissions from field to shelf making it a 100% carbon compensated brand.

In 1999 Wasa became part of the Barilla Group.

Read more at www.wasa.com

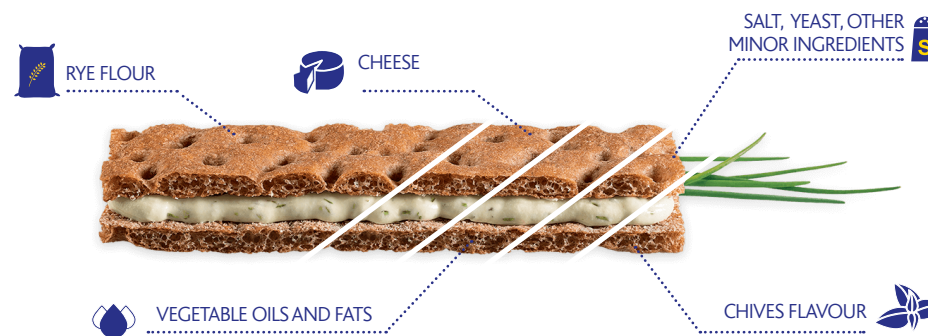
PLANT AND PROCESS

Sanwich Cheese and Chives is baked in the Celle plant where a typical bakery process takes place. The raw materials included in the crispbread's recipe are mixed together into dough and baked in specific ovens. Following baking, the Cheese and Chives cream is added to two crispbreads.

The products are packaged and shipped to distribution centres for market entry. Sandwich Cheese and Chives comes into 37 g and 111 g packaging format; it is distributed mainly in Europe and it is ready for consumption.

More info on www.wasa.com.

THE PRODUCT



NUTRITIONAL INFORMATION (per 100 g)		
Energy	kJ	1 885
	kcal	451
Fats <i>of which saturated</i>	grams	21 7.5
	grams	49.5 3.0
Carbohydrates <i>of which sugars</i>	grams	12
Fibres	grams	10
Proteins	grams	1.13
Salt	grams	

2. Barilla group



Passion for quality, continuous pursuit of excellent recipes and ability to combine tradition and innovation are the fundamental ingredients that have allowed a small shop of bread and pasta, opened in 1877 in Parma, to become an international player in the market of pasta, ready-to-eat sauces, baked goods and crispy breads.

The Group operates in over 100 countries through its brands, which have become the icon of excellence in the food sector, and with 30 production sites, which every year contribute to the production of over 2,099,000 tonnes of products.

With its brands - Barilla, Mulino Bianco, Pan di Stelle, Gran Cereale, Harrys, Pavesi, Wasa, Filiz, Yemina e Vesta, Misko, Voiello, Cucina Barilla, Catelli, Lancia, Tolerant and Pasta Evangelists – promotes a tasty, joyful and healthy diet, inspired by the Mediterranean diet and the Italian lifestyle.

Further information on www.barillagroup.com

Pasta & Bakery Facilities



Good for You, Good for the Planet



In order to make a concrete contribution to global challenges, over the years, Barilla has developed a thought enclosed in the Good for You, Good for the Planet Mission that guides, step by step and offers people good, safe, nutritionally balanced food, coming from responsible supply chains.

GOOD FOOD means taste, pleasure and a daily gesture of love for the people themselves.

HEALTHY FOOD means selected raw materials and balanced nutritional profiles to support healthy lifestyles.

FOOD SOURCED FROM RESPONSIBLE SUPPLY CHAINS means seeking the best ingredients to guarantee excellent quality, respectful of people, animals and the environment.

A commitment “from field to fork”, which has led to the development of initiatives in the various stages of the supply chain and for which all Barilla Group brands contribute through projects aiming to improve the nutritional profile of products, reinforce the sustainability of the production and supply chains and provide transparent communication to consumers.

WASA A 100% CO₂ COMPENSATED BRAND

The Wasa brand has embarked on a path that has led to the achievement of **100% carbon compensation**, in line with its core values - love of Nature. Progressiveness and promoting a **healthy lifestyle** for present and future generations.

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 Wasa brand and products.



WE MEASURE

All the greenhouse gas emissions arising from Wasa brand activities (from field to shelf) are identified and measured, related to a baseline year (2017).

WE REDUCE

Some measures are taken to reduce the greenhouse gases emissions, like Energy Saving Programs. Green Logistic Projects and purchasing renewable electricity (100% from hydropower sources).

WE COMPENSATE

To compensate the remaining emissions, WASA has chosen to contribute to certified VCS projects. The VCS Program is the world's most widely used voluntary GHG program. Projects developed under the VCS Program must follow a rigorous assessment process in order to be certified. To know more about the projects see www.wasa.com/global/sustainability



3. Environmental performance calculation



The Environmental performance of the product 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 the retailer.

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 **111 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



INGREDIENTS PRODUCTIONS

CEREAL

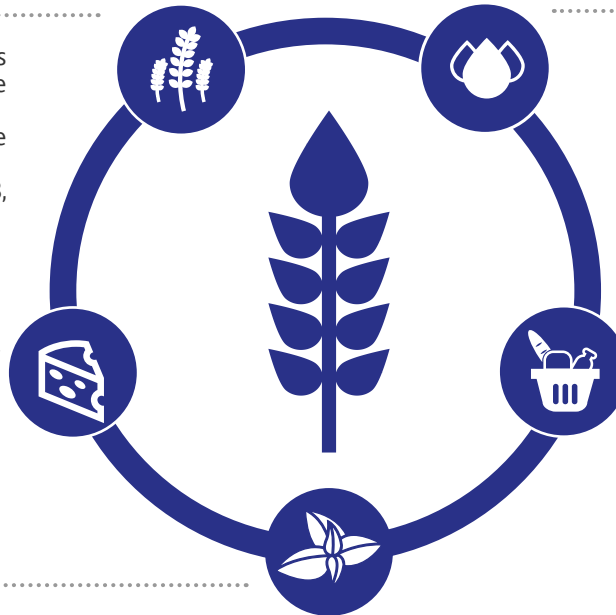
Cereal cultivation performances are calculated on the basis of primary data, yield, energy consumption and fertiliser use for each cereal collected from farms. Cultivation region is Germany and Sweden, percentages are related to year 2020. Cultivation yield is calculated as average of years 2018, 2019 and 2020.

CHEESE POWDER

Ingredients composition of cheese powder comes from primary data. Environmental performances of cheese powders' ingredients production come from secondary data (World Food LCA Database, Ecoinvent 3, Agrifootprint).

CHIVES

Environmental performances associated to chives cultivation come from international databases.



VEGETABLE FAT

Data for shea oil come from secondary data (Agribalyse database and Mekonnen and Hoekstra 2010) for cultivation; the extraction and refinery data come from Agribalyse database. Data for rapeseed oil come from secondary data (collected from Agrifootprint database) for rapeseed cultivation and the refinery data come from literature (Schneider & Finkbeiner, 2013).

OTHER INGREDIENTS

Data from LCA databases are used for other material in the recipe (yeast, salt and flavours).



5. Packaging and auxiliary materials production



PRIMARY PACKAGING

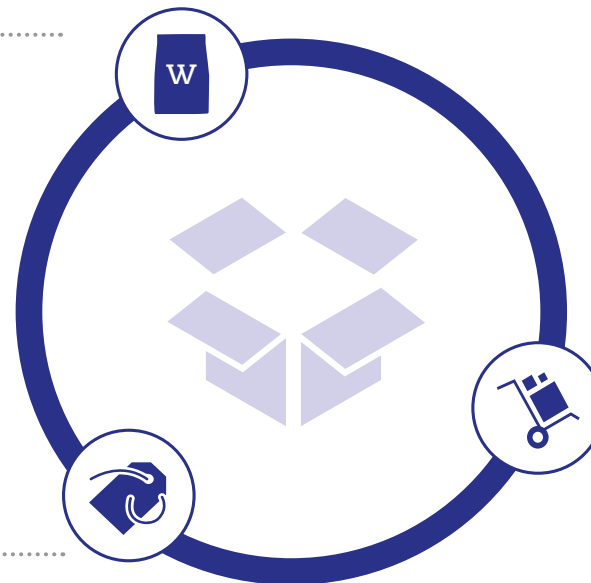
Packaging environmental performances are calculated using the 111 g format (the one with highest environmental impact) and reported per packaging used for 1 kg of product.

The primary packaging consists in a plastic film enveloping three separated couples of sandwiches and a plastic label.

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

AUXILIARY MATERIALS PRODUCTION

Auxiliary materials environmental performances are evaluated by using primary data from plant, during 2020 year. Secondary data (Ecoinvent) are used for environmental aspects associated to materials production.



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



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 paperboard trays, used for the distribution and exposition of the product, and a plastic extensible film. Trays are made mainly by recycled cardboard carton (pre and post consumer). The data used have been collected by LCA database (mainly Ecoinvent).

6. Sandwich Cheese&Chives 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. Celle plant is considered in the analysis.

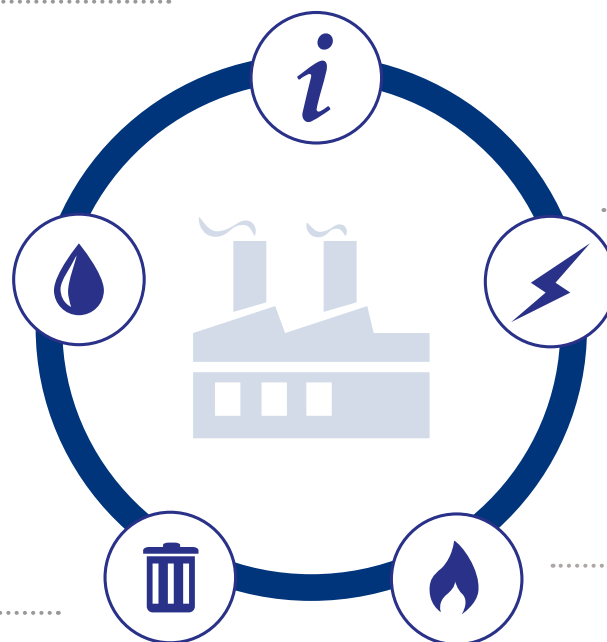
WATER

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 2020.

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 2020.

SANDWICH CHEESE&CHIVES PRODUCTION



ELECTRICITY

Total plant electricity has been divided using mass allocation (the plant produces other products beyond Sandwich Cheese&Chives). Barilla, through the GO certification system (Guaranty of origin market), buys energy from hydroelectric and wind renewable resources as to cover the entire WASA production. Filipstad plant has 100% electric oven for its bakery production. Data are referred to 2020.

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 2020.

7. Distribution



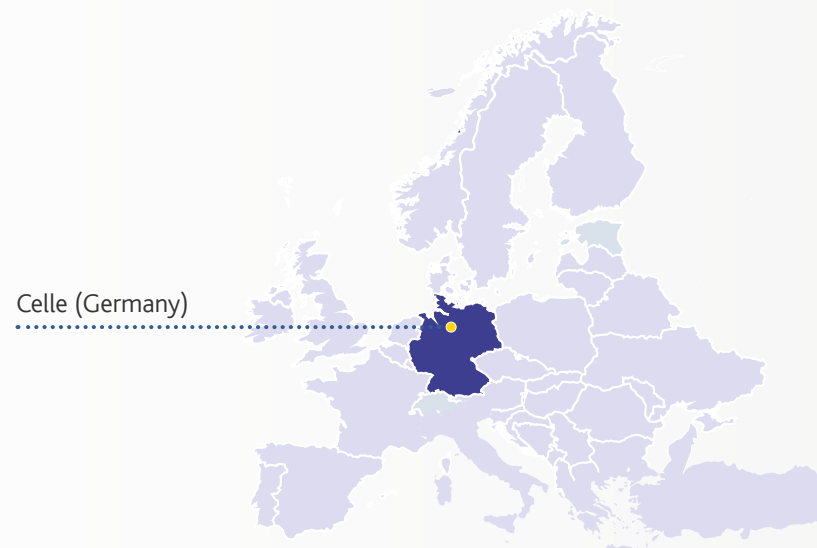
DISTRIBUTION

Sandwich Cheese&Chives is produced in Celle (Germany) and mostly distributed in Germany (29%), Sweden (20%), Netherlands (23%) and Norway (12%). Distribution performance was calculated considering the transport for about 777 km by truck, 281 km by ship and 328 km by train.

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 paper board and plastic film, reference Eurostat 2018.



SANDWICH CHEESE&CHIVES



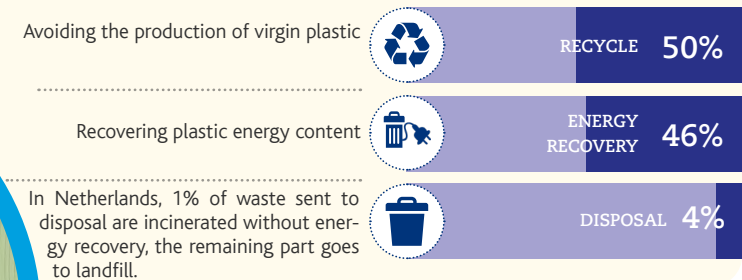
8. Packaging end of life



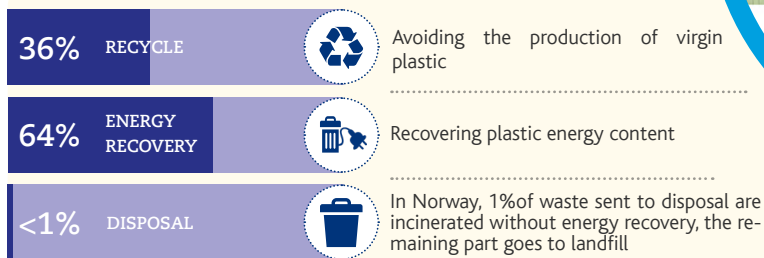
SWEDEN



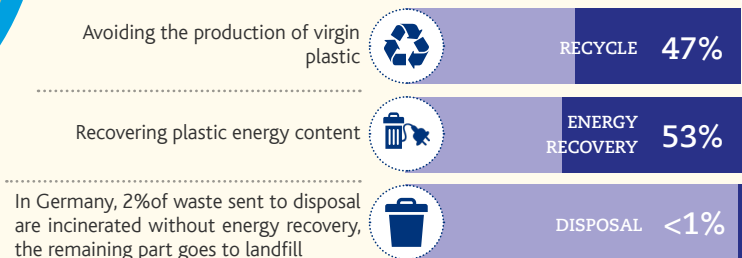
NETHERLANDS



NORWAY















GERMANY



Primary packaging is 100% recyclable in separated plastic collection. Sandwich Cheese&Chives distribution involves more than 5 countries; here the packaging end-of-life scenarios are related to Germany, Sweden, Netherlands and Norway as example.













Reference: Eurostat report 2017

9. Environmental results

 USE OF RESOURCES data referred to 1 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	1.75E+01	6.91E-01	5.79E+00	2.70E-02	3.86E-05	2.41E+01
	Used as raw materials*	0.00E+00	2.62E-01	0.00E+00	0.00E+00	0.00E+00	2.62E-01
	Total	1.75E+01	9.53E-01	5.79E+00	2.70E-02	3.86E-05	2.43E+01
PRIMARY ENERGY RESOURCES - NON RENEWABLE data in MJ	Used as energy carrier	1.44E+01	5.25E+00	4.94E+00	2.09E+00	2.31E-03	2.67E+01
	Used as raw materials	1.14E-04	1.16E+00	0.00E+00	0.00E+00	0.00E+00	1.16E+00
	Total	1.44E+01	6.41E+00	4.94E+00	2.09E+00	2.31E-03	2.79E+01
Secondary Material (g)		0.00E+00	1.47E+02	0.00E+00	0.00E+00	0.00E+00	1.47E+02
Renewable secondary fuels (MJ. net calorific power)		0.00E+00	8.75E-02	0.00E+00	0.00E+00	0.00E+00	8.75E-02
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)		4.07E+01	2.23E+00	2.15E+00	1.71E-01	8.93E-04	4.53E+01
 OUTPUT FLOWS data referred to 1 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	2.28E-01	0.00E+00	0.00E+00	2.28E-01
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)		1.47E+01	2.62E+01	1.87E+02	1.22E+02	1.85E+01	3.68E+02
Materials for energy recovery (g)		0.00E+00	0.00E+00	1.13E+01	1.42E+01	1.52E+01	4.07E+01
Exported energy, electricity (MJ)		0.00E+00	0.00E+00	0.00E+00	1.21E-04	1.10E-04	2.31E-04
Exported energy, thermal (MJ)		0.00E+00	0.00E+00	0.00E+00	2.53E-04	2.30E-04	4.83E-04

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

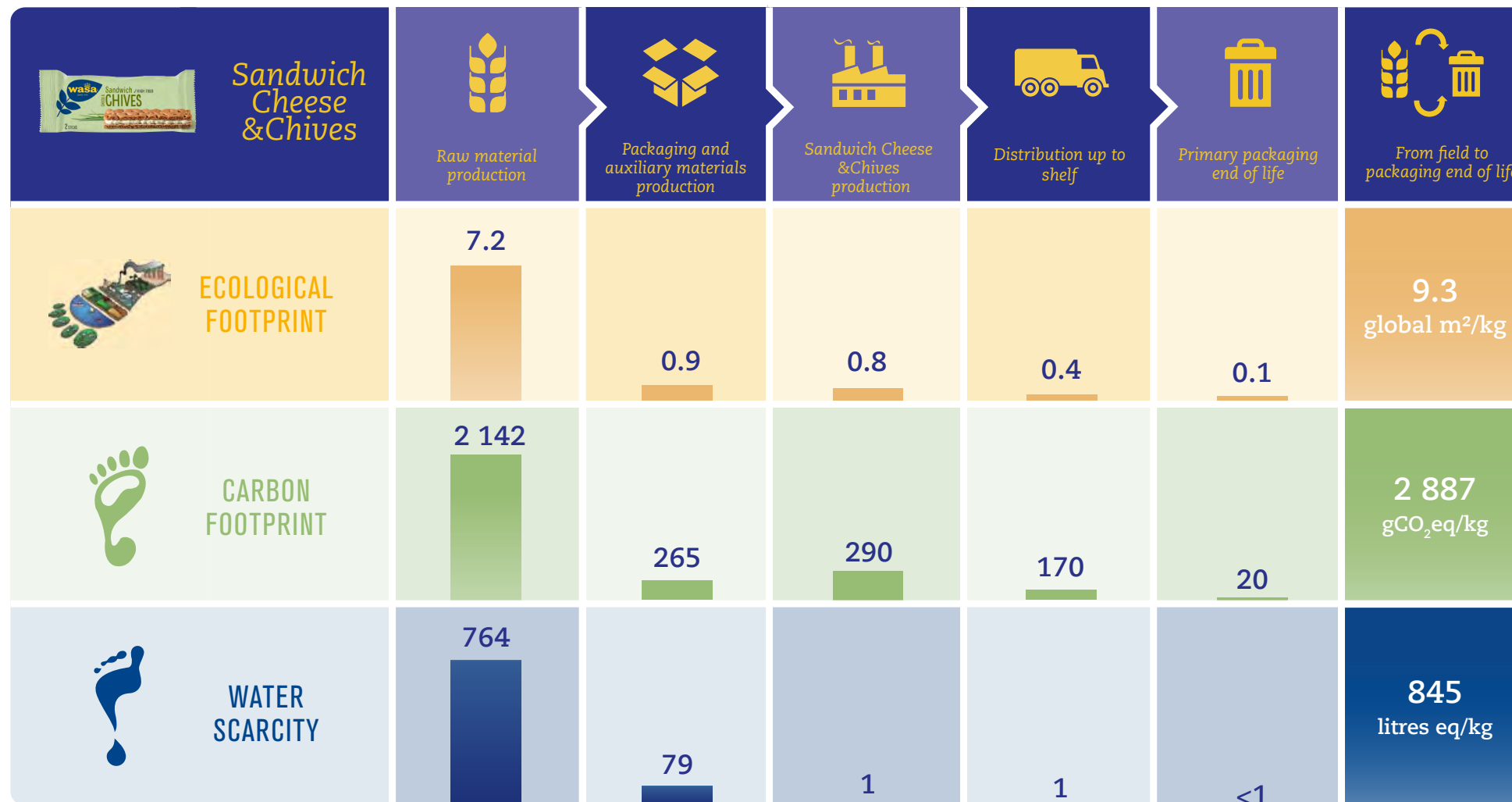
*The biomasses transformed into the product are not considered.

 POTENTIAL ENVIRONMENTAL IMPACTS data referred to 1 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	1.33E+03	2.59E+02	2.90E+02	1.44E+02	2.03E+01	2.05E+03
	Biogenic	4.55E+02	5.47E-01	2.60E-01	2.52E+01	6.10E-04	4.81E+02
	Land use and land transformation	3.55E+02	4.54E+00	3.75E-03	1.69E-02	3.95E-05	3.60E+02
	Total	2.14E+03	2.65E+02	2.90E+02	1.70E+02	2.03E+01	2.89E+03
Acidification Potential - g SO ₂ eq.		2.98E+01	9.16E-01	4.72E-01	5.52E-01	2.62E-03	3.17E+01
Eutrophication Potential - g PO ₄ ³⁻ eq.		1.45E+01	2.52E-01	7.37E-02	8.95E-02	7.29E-04	1.49E+01
Photochemical Oxidant Formation Potential - gNMVOC eq		7.91E+00	8.53E-01	5.37E-01	6.30E-01	3.73E-03	9.94E+00
Abiotic Depletion Potential - Elements g Sb eq.		1.54E-03	7.15E-05	3.33E-06	6.33E-06	6.89E-08	1.62E-03
Abiotic Depletion Potential - Fossil fuels - MJ. net calorific value		1.18E+01	5.99E+00	4.92E+00	2.01E+00	2.27E-03	2.47E+01
Water scarcity potential. m ³ eq.		7.64E-01	7.89E-02	6.00E-04	1.45E-03	2.78E-05	8.45E-01
 WASTE PRODUCTION* data referred to 1 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 (g)		2.02E-03	3.11E-03	0.00E+00	0.00E+00	0.00E+00	5.1E-03
Non-Hazardous waste disposed (g)		9.91E+00	1.99E+01	0.00E+00	0.00E+00	0.00E+00	3.0E+01
Radioactive waste disposed (g)		5.69E-01	4.05E-01	5.28E-02	1.53E-01	7.05E-05	1.2E+00

The biogenic contribution to Global Warming Potential refers only to biogenic methane.
 The contribution given by biogenic CO₂ is equal to zero, since the absorbed amount is equal to the emitted biogenic CO₂ within the reference 100 years period.

*Zero values indicate that – even if some waste are produced and disposed – their impact is evaluated within the system boundaries.

PRODUCT ENVIRONMENTAL PERFORMANCES



10. 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);
- PCR 2012:06 CPC 234: Bakery Products; ver. 3.0 of 20/01/2020;
- Schneider L., Finkbeiner M. “Life cycle assessment of EU oilseed crushing and vegetable oil refining” 2013, Technische Universität Berlin - Report commissioned by FEDIOL;
- Mekonnen. M.M. and Hoekstra. A.Y. “The green, blue and grey water footprint of crops and derived crop products” 2010, Value of Water Research Report Series No. 47. UNESCO-IHE. Delft, the Netherlands;
- Eurostat database for waste management, latest version (2018).



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 PROCESS CERTIFICATION

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

- 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
- No

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



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



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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Technical support and graphic design: Life Cycle Engineering SpA - Italy www.lcengineering.eu



11. 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 (CO₂-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

WATER SCARCITY

Water scarcity measures the available water remaining per unit of surface in a given watershed relative to the world average, after human and aquatic ecosystem demands have been met. This method builds on the assumption that the potential to deprive another user of water is directly proportional to the amount of water consumed and inversely proportional to the available water remaining per unit of surface and time in a region (watershed).

www.wulca-waterlca.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 SO₂, NO_x and NH₃. 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 PO₄⁻-equivalent.

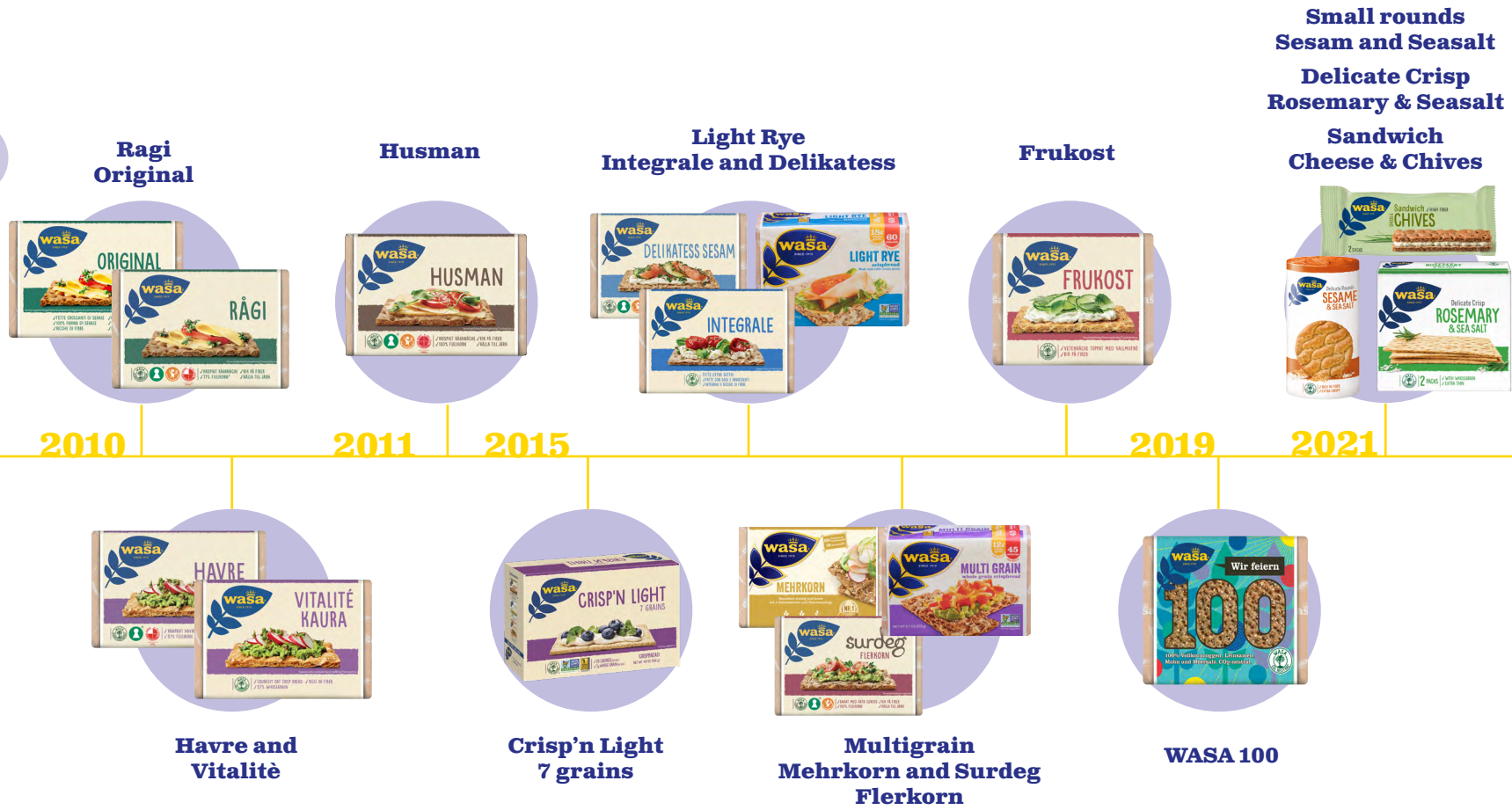
PHOTOCHEMICAL OXIDANT FORMATION POTENTIAL (POFP)

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 VOCs equivalent (g NMVOC - equivalent).

WASA Brand EPDs

17
Wasa products covered by EPD

The year of the first EPD publication is reported



The number of products covered by EPD could vary on the base of the date of publication

