



The Italian Food Company. Since 1877.

BARILLA'S PRINCIPLES OF SUSTAINABLE PACKAGING

Packaging plays a fundamental role in food companies, as they protect the product, guarantee its conservation over time and make it possible to consume it in a place other than that of production.

Barilla has always paid close attention to its packaging, both in the design phase of new solutions and in the constant improvement of the packages already developed.

Barilla's first guidelines for packaging design date back to 1997.

Over the years, the Principles of Barilla's Sustainable Packaging have been issued and kept constantly updated, aligning them with available technological innovations, knowledge and market trends.

The **principles of Barilla's Sustainable Packaging** are as follows:

- 1) Reduce the amount of packaging materials
- 2) Use paper and cardboard from responsibly managed forests
- 3) Use materials from renewable resources, not in competition with the food chain
- 4) Promote reuse models
- 5) Use recyclable packaging and promote recycling technologies
- 6) Use recycled material when safe for the food contained
- 7) Evaluate packaging choices using LCA

1) REDUCE THE QUANTITY OF PACKAGING MATERIALS

To reduce and contain environmental impacts, it is necessary to minimize the amount of packaging used while still guaranteeing the necessary level of safety, hygiene and acceptability both for the packaged product and for the consumer along the entire distribution chain, using all the technological levers and innovations on materials proposed by the markets.

In fact, the minimization of the packaging must not hinder the total guarantee of:

- a. PROTECTION of the product during the shelf-life in terms of:
 - Mechanical resistance
 - Barrier: to atmospheric humidity, light, UV radiation, oxygen, gases in order to preserve the organoleptic characteristics of the product over time
 - Stability: resistance to water, light, chemicals and maintenance of the intrinsic aromas of the product
- b. HYGIENICITY: absence of odors, flavors and non-toxicity.
- c. MACHINABILITY: in order to ensure their use on the packaging lines. To this end, it is necessary to continuously evaluate the packaging technologies used to improve production efficiency by contributing to the reduction of waste and production inefficiencies.

- d. **AESTHETICS:** in order to guarantee a perfect graphic rendering of the printed material.
- e. **CONVENIENCE:** the material must be able to be used on an industrial scale and therefore be replicable at an appropriate price for the marketing of the asset.

The reduction of the quantity of materials can be achieved through three possible approaches:

- I. Minimization of the quantity of material per sales unit, both by reducing thicknesses and by using more efficient materials, if available
- II. Optimization of transport packaging, to achieve maximum load saturation
- III. Elimination of packaging components not strictly necessary for the protection and conservation of the products during their useful life.

2) USE PAPER AND CARDBOARD FROM RESPONSIBLY MANAGED FORESTS

To minimize the environmental impact in the paper and cardboard supply chain, Barilla has chosen to use fiber materials from responsibly managed supply chains, certified through the most universally widespread and recognized schemes, which guarantee sustainable forest management, based on environmental protection, respect for cultural rights and traditions, promotion of the economic sustainability of forestry activities.

3) USE MATERIALS FROM RENEWABLE SOURCES, NOT IN COMPETITION WITH THE FOOD CHAIN

Barilla will use materials, to produce its packaging, which come from renewable sources, but which are not in competition with food chains, such as: trees, agricultural product waste and everything that will be available in the future.

For paper and cardboard, the goal is easily achievable, the raw materials already come from renewable sources other than those linked to the food supply chain.

For plastics, we will look for innovative materials capable of maintaining the same performances as current ones, in terms of food protection, efficiency of the packaging lines and processability.

4) PROMOTE REUSE MODELS

Packaging reuse solutions, as well as bulk sales solutions, will be implemented where this is possible without posing a risk to product quality and safety.

Collaborations with companies, retailers and startups will be evaluated to achieve this goal in the selected sales channels.

5) USE RECYCLABLE MATERIALS AND PROMOTE RECYCLING TECHNOLOGIES

In the design of the packaging, only materials that are designed for recycling will be used, according to the most widespread technologies:

- mono-material packaging (glass, metal, monopolymer plastic) is widely accepted by all recycling systems;
- packaging made of predominantly paper materials will be evaluated with reference to the technologies developed and disseminated.

The promotion of new recycling technologies will see us actively engaged in the evaluation and testing of solutions that will be proposed on the market.

6) USE RECYCLED MATERIAL WHEN SAFE FOR THE FOOD CONTAINED

Whenever possible, in compliance with the legal restrictions on food safety, the use of material from recycled sources will be implemented.

This will include all materials, from glass to paper and corrugated cardboard to plastics, which can be obtained with different recycling technologies, including chemical recycling.

7) EVALUATE PACKAGING CHOICES USING LCA

Life Cycle Assessment (LCA) is a methodology with which the environmental impacts that are generated along a production chain are studied and quantified, starting from the production of raw materials to the disposal of final products. The rules for carrying out an LCA analysis are defined by the International Technical Standards ISO (International Standard Organization) 14040 and 14044. Barilla has made this tool an easy and "smart" system thanks to the creation of the LCA Pack Design Tool: a calculation that, in a quick and effective way, allows to verify the environmental performances and to compare alternative packaging solutions during the design phase of the new packages. The tool is used when there are significant packaging changes compared to the reference category; when the entire category changes, an in-depth study is carried out.

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