

Sustainable Packaging of Nutraceuticals

The Future of the Nutraceutical Market and Checklist for Long-Term Success



Market Trends for Nutraceuticals

Nutraceuticals is a term used to describe a variety of products derived from food sources with extra health benefits in addition to the basic nutritional value found in foods. These products are made from natural sources (plants, fruits, vegetables, and animal products) and promote general well-being as well as prevent illnesses.

Often nutraceutical ingredients such as vitamins and minerals are added into functional foods and beverages to enhance their nutritional value. Based on the type of product, nutraceuticals are segmented into functional food, functional beverages, dietary supplements, personal care, and pharmaceuticals - whereby dietary supplements is the largest market segment globally.⁽¹⁻⁴⁾ Furthermore, dry and liquid forms can be clearly distinguished, with the dry form accounting for the largest share in the global nutraceutical market due to easier handling and transportation, longer shelf-life, and higher stability.

Caused by pill fatigue in consumers, it is expected that in some regions, such as the EU, alternative delivery systems will grow stronger in the next couple of years. New delivery systems that include soft chews, gummy bears, and chewing gums will steadily emerge. These new forms will not only bring new packaging trends and new fill and seal machine concepts to the market but will also move away from rigid containers and PVC-containing blisters to more sustainable packaging solutions and new packaging styles such as pouches and stick packs.^(1, 3, 4)

Types of Nutraceuticals



DIETARY SUPPLEMENTS

vitamins, minerals, herbs, amino acids, enzymes, and other ingredients. Can come in a variety of forms such as gummies, powders, tablets or capsules.

FUNCTIONAL BEVERAGES

drinks and beverages that contain bioactive compounds and nutrients such as plant extracts, antioxidants, fatty acids, fiber, probiotics, and prebiotics. Examples include energy drinks, sport drinks, fortified juices, dairy, and dairy-alternative beverages.

FUNCTIONAL FOOD







PERSONAL CARE

integration of nutraceuticals in personal care products such as creams, lotions, and makeup.

Mordor Intelligence – Nutraceuticals Market – Growth, Trends, Covid-19 Impact, and Forecasts (2021–2026) I 2021 The Insight Partners – Nutraceuticals Market 2027 by Type, Application I 2019 Blue Weave Consulting and Research Pvt. Ltd. – Global Nutraceutical Ingredients Market Growing Steadily I 2021 Unleashed – The Nutraceutical Industry in 2021: Top Trends and Projections I 2020

The Global Nutraceutical Market Value of OTC Health Care

Today, nutraceuticals are part of consumers' daily diet across different generations and the market is steadily growing year by year, with a projected volume of 358.5 billion dollars by 2027.(4)

The recent boom is mainly caused by the pandemic, with an explosive increase in the market growth rate.⁽⁴⁻⁶⁾

Reasons for Growth of Nutraceuticals

A number of changes have taken place on the nutraceutical market over the past few years: the increased demand for convenience, the desire to live a healthy and balanced life, the rise in chronic and noncommunicable diseases, increasing health care costs, and the COVID-19 pandemic are the main drivers of the nutraceutical market around the world.(3, 6-8)

Consumers ranging from baby boomers to generation X and millennials are all paying more attention to their diet.

Around 30% of consumers in 2018 use nutraceuticals to improve general wellness followed by digestive health (~25%) and performance in sports and daily life (~25%).⁽²⁾

In addition, today's consumers are more educated about the impact of dietary choices on their own health, on environmental sustainability, sourcing, and social responsibility. As a consequence, they are paying closer attention not only to the ingredients of nutraceuticals itself but also where the products and ingredients come from and how they are packaged.(3, 6-8)



Global Market Value: Vitamins and Dietary Supplements (in € bn)⁽⁶⁾

84	100	104	108	113
2015	2020	2021	2022	2023

Market Value and Growth Rates: Vitamins and Dietary Supplements of Selected Regions (2021)⁽⁶⁾





The Insight Partners – Nutraceuticals Market 2027 by Type, Application I 2019 Blue Weave Consulting and Research Pvt. Ltd. – Global Nutraceutical Ingredients Market Growing Steadily I 2021

Unleashed – The Nutraceutical Industry in 2021: Top Trends and Projections I 2020 Global Data – Top Trends in Healthcare and OTC Products 2018 I 2018

G. Pigden (GLG Insights) – The Nutraceuticals Market is Booming. Will It Last? I 2020 Global Data – TrendSights Analysis: Guided Health – Guiding proactive consumers toward their personal health and wellbeing goals I 2017

PwC Deals – Vitamins & Dietary Supplements Market Trends – Overview I 2021 B. Donner (TricorBraun) – Using Smart Packaging Strategy to Break Through the Nutraceutical Noise

of purchasing decisions are affected by the environmental impact 90% want sustainability labelling on packaging reach for the cardboard packaging for the same product European **52%** Consumers perceive paper and cardboard as the most environmentally friendly would switch to more packaging solution sustainable retailers 68% 64% show an increased environmental are of the opinion that retailers and consciousness

Growing Environmental Awareness and Strategies to Stand Out on the Shelf

Today, consumers' environmental awareness, especially with regard to plastic waste, is higher than ever before: newspaper headlines are dominated by the topics climate change and plastic waste. In addition, consumers are now more active and more influential. For OEMs, brand owners, and retailers, this means that they must address topics such as sustainability, new packaging concepts, recyclability, and the use of sustainable materials.

A total of 81 % of European consumers say they would opt for cardboard or paper packaging for the same product and would even switch to retailers who proactively encourage suppliers to provide more environmental friendly packaging.⁽¹⁰⁾ This shows how important the topic of sustainability is. Euromonitor International's recent Sustainability Survey 2019 shows that 66% of nutraceutical industry professionals believe that sustainability is critical to success in the highly competitive nutraceutical market.(11)

In a highly fragmented market such as the nutraceutical market, it is not easy to stand out on the shelf. Besides a suitable marketing message, the right product paired with a sustainable but functional packaging is essential today.

brand companies are not doing enough

In order to choose the right packaging, the following five topics need to be addressed as a minimum:

- 1 Differentiate your product from other products
- 2 Consider functional preferences of consumers
- 3 Address the relevant regulatory compliance requirements
- 4 Fulfill consumer expectations and provide convenience
- 5 Consider environmental awareness of consumers



Consumers That Always/Often Check Nutritional Labeling for the Following Products⁽⁹⁾

⁹ Global Data – TrendSights Analysis: Guided Health – Guiding proactive consumers toward their personal health and wellbeing goals I 2017
 ¹⁰ MM Karton – Unfolded – A paper about cartonboard I 2019
 ¹¹ Nutraceutical Business Review – Zero-waste future for nutraceuticals I 2020
 ¹² EcoFocus Trend Survey – 2020 Food and Beverage sustainable packaging trends I 2019

Sustainable Packaging: From Reduce, Reuse, Recycle to Circular Economy

For decades, packaging has been driven by product protection, costs, and marketing as well as aspects of convenience.

Very effective barrier layers, such as aluminum, have been used to ensure the best water vapor and oxygen protection. PET layers have enabled a good heat stability for efficient sealing processes and PA has ensured puncture resistance. PS has been the perfect material for thermoforming and heat-sensitive products. Typical packaging materials consist of multiple layers of materials with different characteristics.⁽¹³⁾ The packaging material landscape is now changing: some materials will disappear completely and get replaced by more sustainable alternatives (e.g. PS or PVC) while others might be reduced to specific applications (e.g. PET for bottles) mainly driven by legislation and consumers' environmental awareness.

Current efforts primarily focus on reducing or recycling plastics that otherwise would be disposed.⁽¹⁴⁾ In an effort to produce less waste, packaging material producers and brand owners are either using less material (downgauging of packaging films) or reducing complexity of packaging film structures to ensure recyclability.(15)

The waste hierarchy offers guidance regarding the impact and target of packaging and packaging waste. Avoidance of unnecessary material has been the main focus, with reusability being a common feature in beverage packaging and some areas of logistics packaging. While avoidance and reusability is mainly material-independent, recycling plays a crucial role in the circular economy and the ability to keep materials in the loop as well as in the making of new packaging or other products. The lower two points of the pyramid are to be prevented. Materials should only be thermally recovered if there is no further opportunity to make use of it. Disposal is the least preferred end-of-life option due to its negative impact on the environment.(16)



Circular economy - from waste streams to value streams

The circular economy focuses on reusing goods and materials as much as possible. The goal is to enable modularization and reuse of components or materials economically. For the food and consumer goods industry, the main focus is on making all packaging recyclable and removing critical materials that hinder the recycling process. This comes with its own set of challenges, namely the fact that product protection cannot be compromised as the main value lies in the product and not in the packaging. New barrier layers that are recyclable, heat-stable, and tough are required.

Even on the technology side, improvements have to be made: the packaging process needs to be enhanced to use sustainable materials effectively and efficiently and the sorting and recycling technology needs to be optimized to include the recycling of small packaging pieces (20 x 20 mm) and the use of complex structures (e.g. using chemical recycling).(17)

Compared to the average paper packaging recycling rate in the EU of 85% in 2017, the average plastic recycling rate of 29% in 2018 is quite low.(18, 19)

¹³ J. Dixon (ILS Institute) – Packaging Materials: 9. Multilayer packaging for food and beverages I 2011

 ¹⁴ Packaging Digest - 5 Sustainable Packaging Trends to Look Out for in 2020 1 2020
 ¹⁵ Packaging Insights - Top Packaging Trends 2020: Communicating The Language of Environmental Sustainability" I 2020

¹⁶ C. Bonten – Kunststofftechnik: Einführung und Grundlagen I 2014 ¹⁷ CEFLEX – A circular economy for flexible packaging I 2021

¹⁸ KPMG – The green deal: a game changer for the waste management and plastics industries I 2021
¹⁹ Two Sides – Packaging Preferences 2020 I 2020

Blister-Meets-Paper: Syntegon's New Paper-Based Blisters for Nutraceuticals

Syntegon's vision is to develop intelligent and sustainable solutions for everyone. We see it as our responsibility to deliver technology that can process the most environmentally friendly materials as efficiently as possible while using as few resources as possible. We support our customers on the path to a sustainable future with material testing, machine applications, innovative packaging designed to meet the requirements of products, transport modes, and regional

circumstances." Michael Grosse, CEO Syntegon

Driven by this vision, we are focusing on the development of new sustainable packaging concepts and packaging machines. One of these technologies is our TPU1000 for a fully automated production of shaped paper pods, which uses the exquisite stretchability of specifically designed papers, such as BillerudKorsnäs FibreForm® paper to create unique, eye-catching portion packs (called shaped paper pods) with as little plastic as possible.

Shaping the Future of Nutraceuticals with Paper Pods

Our award-winning paper-forming technology makes it possible – conventional plastic blister packaging is now easily replaced by a paper blister that is recyclable and protects the valuable ingredients of the product at the same time. The paper blister is formed by Syntegon's special paper-forming technology using formable paper from BillerudKorsnäs (FibreForm®), which is refined by our partner Huhtamaki, in order to produce paper for nutraceutical and pharmaceutical applications.

Blister-Meets-Paper is a new and innovative push-through packaging concept: it replaces plastic blisters with an environmentally friendly alternative.

Sustainable and Safe Blister Packaging

While paper-based packaging offers advantages in terms of sustainability, it requires additional barrier layers to adequately protect the product. In addition, the tablets and capsules have to be pushed out of the blisters without being damaged. This challenge addresses both the material and the geometry of the packaging. The combination of Syntegon's TPU 1000 form, fill and seal machine for paper packaging, the 3D formable FibreForm[®] paper from BillerudKorsnäs, and the sealable barrier coating from Huhtamaki make paper forming with the required geometry for tablets possible. Easy push-through offered by a special processed cover film marketed as Huhtamaki Push Tab Paper ensures convenience for the consumer. The heat-sealable and thermoformable layer of the blister's cover and the base material not only makes the paper blister packaging's barrier properties comparable to classic blister packaging made of mono-PVC or aluminum, it also ensures product protection.

Sustainable Eye-Catcher at the Point of Sale

The Blister-Meets-Paper concept attracts attention on the shelf – not only thanks to its sustainable material but also because of its numerous design options. The paper blisters can be printed on both sides and an embossed brand logo can be applied to the top. A euro hole can be punched in the upper area of the blister to avoid outer carton packages, thereby saving large quantities of packaging material. The opportunities for a successful product presentation that emphasizes the environmental friendliness of the product are numerous. Manufacturers can also add Braille to the blisters or print a QR code for traceability and further customer interaction. The joint cooperation between Huhtamaki and Syntegon resulted in an all-around packaging concept for nutraceuticals that supports consumers in taking care of both their health and the environment.



B SUSTAINABILITY a WINNER 2021 A

Upon launch, Blister-Meets-Paper has already been awarded: it is the winner of the German Packaging Award 2021 in the category "Sustainability".

The Secret Formula of Blister-Meets-Paper

(Paper + Functional Coating) Engineering Expertise * Passion for Sustainability

How to Make the Switch: A Checklist and Step-by-Step Approach

When designing sustainable packaging for nutraceuticals, the main functionalities of packaging have to be taken into account: product protection, consumer requirements, distribution, and recycling. Exploring these functionalities with regard to volume, variance, variety, and visibility need to be considered in order to make the switch.



PRODUCT PROTECTION

- What shelf life is required for your product?
- Are you willing to reduce the shelf life?
- Are you able to perform accelerated shelf-life testing?
- What are the barrier requirements the packaging material needs to fulfil?
- □ Which shape needs to be realized?
- □ What kind of embossing is needed?
- What do retailers/consumers expect in terms of packaging functionality?
- What product do you want to pack?



VOLUME, VARIANCE, VARIETY, AND VISIBILITY

- What output do you want to achieve?
- Is your demand seasonal or is your annual volume stable?
- Do you intend to process different products, formats, and shapes along the same lines?
- How do you want to position your product in the market?
- How do you want to position your organization/operation in the market?



CONSUMER REQUIREMENTS

- How will your product be displayed at the point of sale?
- How do you want to communicate with your consumer (regarding nutritional information, instructions on how to use, store, recycle, and dispose packaging, etc.)?



DISTRIBUTION

- What packaging dimension is required?
- Which shape and geometry needs to be realized?



RECYCLING

- What kind of recycling streams exist in your target country?
- What is the legal framework that regulates packaging in your target country?



CHOOSE AN EXPERIENCED PARTNER – FROM AN IDEA TO A PRODUCT ON THE SHELF

- Partner up early on with specialists who share their expertise throughout the supply chain
- Develop and customize your packaging concept to match your product's needs (design, functionality, barrier properties)
- Benefit from a holistic line competence for your encapsulation and tablet compression process
- Use prototypes for packaging tests and validation and the application of your corporate design
- Choose trusted technology providers and experienced material partners



The Nutraceutical Consumer Market in Words



61 % Share of consumers who think that nutrient-rich foods have a positive impact on their health in Europe

79% Share of consumers who think that nutrient-rich foods have a positive impact on their health in Latin America

> Share of consumers who think that nutrient-rich foods have a positive impact on their health worldwide

42% Consumers who actively seek products that improve their health

75% 90% 48%

65%

Share of consumers who agree that artificial additives and preservatives are harmful to their health

Share of consumers who find products that have been fortified with added nutrients appealing

Share of consumers who claim that they are confused about health claims on packaging made by brands

19% Consumers who use digital tools to seek health advice

90% **69%**

of global consumers find products that are naturally high in nutrients appealing

of global consumers find products that have been fortified with added nutrients appealing





www.syntegon.com/blister-meets-paper

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