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PACKAGING MARKET IN POLAND

RYNEK OPAKOWAŃ W POLSCE

Summary: Since the ancient times, packaging played an important role in human life. The people had to find the solutions in order to store the products such as cereal grains or food. Their task was additionally difficult due to the lack of technical novelties which are known nowadays. At present, the packages found in the shop shelves are much more functional and facilitate life of their users. They serve not only for a safe accumulation of foods and drinks but they have also become a marketing element or information carrier; their constructions have a great meaning in transport and storage. The contemporary packaging should be sufficiently innovative, attractive and distinctive as to focus the attention of the consumer. It has a great meaning due to the fact of incidence of a very big variety of goods on the market. Additionally, each package is expected to possess different forms and properties. We require something different from the packaging for food products; other elements are important for cosmetics, or for the users of medicine products or household chemicals.

Food industry, which needs packaging for food and drinks, is the vastest sector of packaging market in Poland. It causes that this sector embraces a wide spectrum of innovations, the task of which will be maintenance of the product's freshness. The successive branch of the discussed sector includes household packages; their producers compete in the ideas of more and more innovative, convenient and, first of all, safe packages. The cosmetic industry is more tolerant in respect of durability of the products but it is also developing and is focused on facilitation of use of the products by the customers. On the other hand, pharmaceutical industry is concentrated on safe packaging, being non-available for the children and protected from adulteration. The purpose of the present paper is to discuss the types and basic functions of the packaging in the particular industrial sectors as well as to show the direction of the development of the particular branches in the packaging sector. The approximate structure of packaging market in Poland was also described.

Keywords: types of packaging, functions of packaging, classification of packaging, packaging market, characteristics of packaging sector

Streszczenie: Opakowania już od czasów starożytnych pełniły ważną rolę w życiu człowieka. Ludzie musieli znaleźć rozwiązania, aby przechowywać produkty takie jak ziarna zbóż czy żywność. Ich zadanie było dodatkowo utrudnione ze względu na brak nowinek technicznych, które znane są obecnie. W dzisiejszych czasach opakowania na sklepowych półkach są o wiele bardziej funkcjonalne i coraz bardziej ułatwiają życie ich użytkownikom. Służą nie tylko do bezpiecznego gromadzenia jedzenia i picia, ale bywają też elementem marketingowym, nośnikiem informacji, a ich konstrukcje mają duże znaczenie przy transporcie i magazynowaniu. Obecne opakowanie powinno być wystarczająco innowacyjne, atrakcyjne oraz wyróżniające się, aby skupić na sobie uwagę konsumenta. Ma to ogromne znaczenie ze względu na fakt występowania tak wielkiej różnorodności towarów na rynku. Dodatkowo, od każdego opakowania oczekuje się innych aspektów i cech. Czego innego będzie się wymagać od opakowań dla produktów spożywczych, co inne będzie ważne dla kosmetyków, na czym innym zaś będą się skupiać odbiorcy opakowań leków czy chemii gospodarczej.

Przemysł spożywczy potrzebujący opakowań do żywności i napojów jest najbardziej rozległym sektorem rynku opakowaniowego w Polsce, co sprawia, że obecna w nim jest szeroka gama innowacji, których zadaniem będzie utrzymanie świeżości produktu. Kolejną gałęzią tej branży są opakowania gospodarcze i tu producenci również prześcigają się w pomysłach na coraz to bardziej innowacyjne, wygodne, a przede wszystkim bezpieczne opakowania. Przemysł kosmetyczny z kolei jest bardziej tolerancyjny w kwestii trwałości kosmetyku, ale również się rozwija i skupia się na ułatwianiu użytkownikom korzystania z produktów. Farmacja natomiast koncentruje się na opakowaniach bezpiecznych, niedostępnych dla dzieci oraz zabezpieczonych przed podrobieniem.

Celem niniejszego artykułu jest przedstawienie rodzajów i podstawowych funkcji opakowań w różnych gałęziach przemysłu, a także zaprezentowanie kierunków rozwoju poszczególnych sektorów branży opakowaniowej. Opisano w nim również przybliżoną strukturę rynku opakowaniowego w Polsce.

Słowa kluczowe: rodzaje opakowań, funkcje opakowań, klasyfikacja opakowań, rynek opakowaniowy, charakterystyka rynku opakowań

Types and functions of packaging

The contemporary market tempts the consumers with the products in diverse coloured packages, printed with the whole palette of colours, with more and more original shapes, closures etc. Such packages play often a meaningful role in the process of encouraging the customers to buy the products, packed in the mentioned materials. They play also many other functions which will be described below. To understand the essence of packaging, we should additionally consider their role and classify them respectively; it will be discussed in the further parts of the present paper.

The idea of package and its functions

According to the definition from Vocabulary of Polish Language (in Polish: Słownik Języka Polskiego, PWN) package is called everything which a given thing is wrapped in, sometimes together with the content [1]. Encyclopaedia of PWN (Polish Scientific Publishing House) describes it as an object (set of objects) or material protecting a product from a loss (caused by its destruction e.g. by insects, rodents, rain etc), theft and the change in its quality during transport, storage and exposure or use by the customer [1]. The packages have also their definition, submitted in PN-O-79000:97 Packaging. Terminology. Accord-

ing to the mentioned document, it is the article which ensures maintenance of a defined quality of the packaged products, their adaptation to transport and storage and exposition, as well it protects the environment from harmful impacts [5]. The packaging is not contained, therefore, in one definition; so, it may be concluded that it plays many functions.

Functions of packages may be classified as follows:

- Primary, connected with transport, protection and identification of the package's content;
- Secondary, such as logistics, marketing, ergonomics and ecology [3]

The basic aim of the package is ensuring the barrier between the product to be packed and the environment. It should be relatively resistant to mechanical factors, being understood as all types of shocks, strokes, overloads and loading etc. It is especially important function at transport of packages and their storage. The packed product should not be affected by any physico-chemical factors such as ambient temperature, air humidity, light, biological threats or gases present in the air and, in particular, oxygen and carbon dioxide. Otherwise, the quality of the product may be deteriorated what leads to its low yield, quicker deterioration i.e. wastage or even threat to health or life of it user. The package protects also the environment and the user from the product itself, inter alia, from corrosive, toxic and strongly odorous substances etc.

The successive significant function of packaging is to identify its contents. Apart from aesthetic impressions, a given package should contain basic information on the product which is found inside it. The mentioned information should be clearly submitted to the user of food product packages. The obligatory labelling is specified in the Regulation of the European Parliament and of the Council (EU) 1169/2011 of 25 October 2011 on the provision of food information to consumers [4]. It includes the following information:

- name of food;
- the constituents present in the food;
- data of durability or expiration date;
- the method of production or application, especially in the case when a lack of such information could cause improper proceeding with a food;
- the data, indentifying a natural person, legal person or organizational unit, not possessing the legal personality, which produces or packs the food products or introduced the food products to sale if the activity in this respect is registered at the territory of any Member State of the European Union, or at the territory of the member State of EFTA (European Free Trade Agreement), being the side of the Agreement of the European Economic Area (EEA), and the place or source of origin in the case when a lack of such information could mislead the consumer;
- net content or the number of pieces of the packed food;
- the storage conditions when the label on the packaging of the food contains information on the expiration date of the product, and in the case when the quality of the food is significantly dependent on the conditions of its storage;

- marking of production lot, understood as a defined quantity of food product, manufactured, processed or packaged practically under the same conditions;
- grade of the trade quality if it was established in the rules concerning particular requirements in respect of trade quality of agri-food products or their groups, or another discriminant of trade quality if the obligation to present the mentioned feature is resulting from the separate regulations.

As it is followed from the above presentation, there is a lot of such information.

Classification of packaging

The packaging market is differentiated in respect of the products which constitute the discussed branch. According to the definition, package is called everything, which a given thing is wrapped in. It may refer to the product covered with the brand tape in such a way that all its elements are connected together as well as to a beautiful pack of chocolates in a sophisticated box made of texture, with a complicated construction. It shows that the discussed products may be diversified very much. We may state that a simple and uniform classification, considering a single property of package is not possible.

One of the most important classifications of the packaging includes the following division:

- Unit package,
- Collective packaging
- Transport (outer) packaging

We call **unit package** as a package destined for a defined quantity of product, intended for retail sale. It plays a protective and informational-promoting function [5]. The **collective package** contains at least two unit packages and they are usually employed in transport and storage. Similar application is used in the case of **transport packages** which join collective packages in order to facilitate the handling processes. The discussed packages may constitute only wrapping but they may also reveal the specified construction. They may contain auxiliary elements such as grids, tapes, inserts or labels.

Another classification is connected with the **type of material** from which a package is made. The packages may be produced from the following materials:

• **uniform (homogenous) such as:**

- paper and cardboard;
- plastics,
- metal,
- glass,
- wood,
- ceramics,
- textiles.

• **multilayer, otherwise being called composite, obtained from the following materials:**

- metals,
- various plastics.

Together with the type of material from which a given package was produced, there is also the possibility to classify the dis-

cussed products due to a **stiffness** of material. We can distinguish the following packages:

- soft, made e.g. from textiles or paper;
- flexible, produced from film and from laminates;
- stiff, such as cardboard, wood, glass or made of harder plastics.

The packages may be also classified in respect of their **constructional form**. We may divide them as it follows:

- cardboard boxes,
- bottles,
- cases,
- packs,
- containers,
- cans,
- baskets,
- buckets,
- ampoules,
- small jars,
- tubes,
- bags,
- other ones, being present at the market.

Due to the fact that constructions of packaging are differentiated, we may also distinguish another division according to their **susceptibility to folding and unfolding**. Therefore, the package may be:

- stiff and not demountable,
- folded which may be unfolded without separation of its elements
- foldable as nest, where one package may be inserted into another one.

The packages may be also distinguished due to their special processes and functions and namely:

- with a modified atmosphere
- vacuum,
- heat-shrinkable,
- active.

Another classification of packages is as it follows:

- range of sale, i.e. domestic or export market,
- frequency of use, i.e. single-use or reusable,
- form of accounting, treated as sold or returnable,
- relation with a product, i.e. direct or indirect.

Packaging may be also divided according to their **destination**.

Food products have a different construction of packages as compared to packages for cosmetics. Pharmaceutical and industrial packaging has also different structure, form and material.

Packaging market

In order to describe the structure of the packaging market, we should, first of all, define the idea of "market" itself. From the economic viewpoint, the market includes the whole process of transactions of purchase and sale and the conditions under which the mentioned processes run [III]. The packaging market is measured by the value of the sold packages and is focused on the space where the settlement shops as well as the markets, trade

centres and similar objects are functioning together. It refers also to on-line dispatch of goods. Before it is found at the consumer, the packaging must pass the whole route of the supply chain. Hence, we can distinguish the ideas: "the user of packaging" and "the consumer". The first phrase refers to many persons who have the contact with a given package and the second idea is only a final element of the total way of the products – from the moment of its manufacture, packing until the meeting with the consumer. At the beginning, its first user is the producer of the package who introduced the packaging to circulation. The successive stages are as follows:

- passage through the logistics centres and big warehouses where the labelling of the product will be significant for the users of the packages,
- easiness of finding it out on the shelf;
- durability of the packaging;
- resistance to the transport conditions;
- adaptation to loading and unloading operations etc.

The successive point in the discussed process includes stores, small shops, bazaars and similar objects where the employees are able to evaluate the easiness of distributing the products on the shelves. It has to be assessed whether the packages have a simple construction, how much space they occupy on the shelf, whether are stable and so on. The employed persons may also notify the defects of packaging.

In the situation when the packed product is already found at the consumer, there is also the possibility to evaluate the package from all sides during its real use, that is:

- whether use of the package is convenient;
- whether it is readable, hermetic and aesthetic,
- whether it fits in the fridge etc.

During the recent period, there has arisen the question whether it is possible to use the packaging again and how it can be processed. It results from the ecological trends, care of the Planet and environment and also, from the respective legal regulations.

The contemporary packaging sector is oriented to care of environment, reduction of waste, increase of functionality of packaging and durability of the products, especially of foods. There are introduced more and more available innovative solutions which, for example, provide information on durability and freshness of the product inside the package.

Characteristics of packaging market

The market of packaging is developing in dependence on economic development and increase of the wealth of the society [2]. In the situation when the inhabitants of a given country are wealthy and can afford purchase of more goods, they buy and use more. Export of products abroad is the second factor, affecting the development of a given sector.

In Poland, a dynamic improvement of the packaging market situation occurred and the transformation of the system was carried out. The previous system was characterized by greyness, empty shelves; so, it was then more important for the people

that they could buy a given product at all than the fact whether it possessed any packaging. For example, nobody was surprised in the past when the meat or fish were packed in the newspapers. Fruits and vegetables were packed in woven bags and milk was delivered in the morning at the door in glass bottles; it was also sold in a foil bag. The packages such as cans or glass were reusable as they could be changed instead of other hardly available basic products. In Polish People's Republic there was no place for diversified, aesthetic packages, attracting the attention of the consumer. We may say that the packaging industry did not practically exist in the discussed period [IV]. The PEWEX (payment in foreign currency) shops were the exception – they sold the foreign goods which – in the contrary to the domestic products – were colourful and attractive. In 1989, after the transformation of the system and passage from the centrally planned economy into the market oriented one, production and sale of packaging increased very quickly. In 2018, according to the data of Polish Chamber of Packaging, the value of packaging market was equal to ca. 10.4 billion EUR i.e. more than 44 billion PLN. At present, production of packaging materials in Poland (according the studies of the Association of Employers of Cardboard Producers and Suppliers, ECMA) is increased by ca. 7% each year. According to the prognoses for 2020 – the average Pole used packages with the total value approximating 300 EUR annually [IV]. The forecasts and analyses show that value of packaging market in Poland in 29025 will reach 13 billion EUR, that is about 55 billion PLN and the consumption of packages, as calculated per one inhabitant will be equal to ca. 340 EUR. According to the data of the Main Statistical Office (GUS) about 8 thousand entities produced packaging in Poland in 2018. They were mainly small companies where no more than 10–15 persons were employed whereas the number of the persons employed in the total packaging industry was equal to ca. 230 thousand persons. Polish packaging market produces about 6 million tonnes of packages annually what gives ca. 157 kg per one inhabitant [VI].

According to the data of GUS of 2018, the total value of Polish packaging market amounted to 10.4 billion EUR, that is, 44.2 billion PLN; it was by 7% increased as compared to the previous year what is the result better than in the world market. The mentioned result was affected by the increase of consumption and export. In 2018, the experts of the Polish Chamber of Packaging forecasted a decline of the growth indicators in the packaging market. The data concerning the values of the packaging market are given in Tab. 1.

Table 1. Packaging market in Poland in the years 2017-2025 [V]

Year	2017	2018	2019	2020	2025
Total value of market [in billion EUR]	9.8	10.4	11.0	11.4	13.0
Consumption of packages per one inhabitant [EURO]	257.0	274.0	289.0	300.0	340.0

The packaging market is constantly dominated by plastic packages. They consist, in turn, of a half (more or less) of flexible packages such as bags, foils, laminates and of stiff packages, i.e. bottles and boxes. The plastic packaging market is divided into 4 segments shown in Fig. 1, together with their percentage participation and namely:

- flexible materials and packages, ca. 46%;
- thermoformed plastic packages, ca. 9.5%;
- packages, formed by the blow method, ca. 31%;
- packages formed by injection moulding, ca. 13% [1].

Presentation of the structure of plastic packaging market

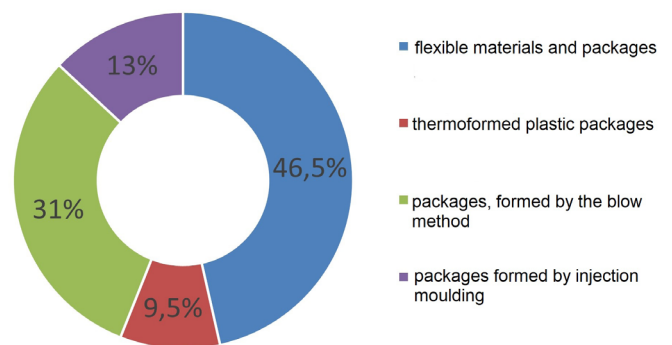


Fig. 1. Presentation of plastic packaging market [1]

According to the prognoses of Polish Chamber of Packaging of 2018, the packages made from paper and cardboard in 2025 will become equal to plastic packages in respect of the percentage participation. Production of plastic packaging will be decreasing and that one of paper and cardboard will be increased. It results, *inter alia*, from the ecological tendencies present at the market. On the other hand, metal packaging constituted 11.6%, glass packages – 9.8%, those made of wood and others – 5.6%. The structure of packaging market according to material used for its manufacture is given in Tab. 2.

Table 2. Structure of packaging market in Poland according to packaging material. Situation in 2018, prognoses for the years 2019–2025, in % [V]

Consumption [%]	Years			
	2018	2019	2020	2025
Plastics	37.8	37.5	37.3	37.0
Paper and cardboard	35.2	35.8	36.4	37.0
Metal	11.6	11.4	11.2	11.0
Glass	9.8	9.6	9.3	9.0
Wood and others	5.6	5.7	5.8	6.0

Tab. 3 illustrates the percentage distribution of packaging participation in the market according to their destination. The

packaging for food and drinks constitute almost 65%. The mentioned sector reveals, however, a declining tendency what is connected with the development of trade, consisting in the purchase of food “without packaging” such as loose grits, pastes, delicacies, fruits, vegetables, etc. The quality of drinking water has been recently improved, so more and more persons choose such solutions as jars and bottles with filter which allows drinking a tap water. The mentioned ecological trend causes, simultaneously, a decrease of demand on PET bottled water. More and more frequently, we begin to speak about recycling automatic machines present at Polish streets; the people bring their own boxes to milk bars and eating houses in order not to use the single-use packages from a given place. In the “bio” shops, we may – at the additional payment, of course – pour a squeezed juice directly to own bottles.

Table 3. Structure of packaging market in Poland according to destination of the package, Situation in 2018, prognoses for the years 2019–2025, in % [VI]

Participation[%]	Years			
	2018	2019	2020	2025
Destination of packages				
Food	48.0	47.8	47.5	46.0
Drinks	15.0	14.7	14.5	13.5
Industrial products	26.0	26.2	26.3	27.0
Pharmacy	6.0	6.2	6.4	7.5
Cosmetics	5.0	5.1	5.3	6.0

In 2020, the world market was subjected to enormous changes, as affected by coronavirus pandemic and the restrictions, employed in majority of the countries; it included closure of the particular sectors such as gastronomy or hotel industry. The sale of takeaway food has been increased; owing to this fact, the people could see the important role of packages. In connection with the above, the sales of packaging for food industry increased by ca. 10-12%, for pharmaceutical industry – by ca. 3% and for sector of cosmetics and personal hygiene agents such as antibacterial gels or surgeon masks – by ca. 2%. At the same time, as a result of restrictions and closing of shops, a decline in the sale of packaging for industrial goods, furniture, home devices by AGD, RTV, household chemicals etc., was recorded. Pandemic caused also popularization of on-line trade, therefore, there was increased the manufacture of cardboard packages in which the customers received their ordered goods. According to the studies of Mondi company and of Karmasin Research & Identity Institute [VII], almost 45% respondents increased their frequency of buying by Internet as compared to the stationary purchases. It is estimated that, in the future, 86% of new customers will take advantage of such form of trade. It was also revealed that apart from a durable package owing to which the consignment will not be damaged, 80% of the respondents were interested very much whether a given package was sustainable and environment-friendly; 57%

of the persons belonging to the mentioned above group would be ready to pay more for the delivery ensuring optimum protection of the contents, simplicity of service, and being produced from organic material. It is therefore estimated that production of packaging paper such as paper bags, or packages made from solid cardboard and corrugated cardboard was increased by 2% as compared to 2019 [VIII]. What is interesting, according to British NOA¹ Ltd company, in spite of the increased on-line sale during pandemic, the global demand on corrugated packaging, especially in gastronomic sector was decreased whereas it was increased for the suppliers of food and drinks who delivered the mentioned above products to retail trade [IX]. According to NOA report, production of corrugated packaging in Great Britain, and the USA decreased by 0.5%, in France and Italy – by 5 – 10% and in such countries as Mexico or Argentina, the decline of production reached two-digit percentage values. On the other hand, the producers of food and drinks recorded the increase of demand by 120%. Such discrepancies in similar sectors result, *inter alia*, from regional and culture differences at a given area.

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Article reviewed
Received: 15.02.2022 r./Accepted: 18.03.022 r.

¹ There is no expansion of this name