

## **Food safety: Keeping damaging influences out**

**Packaging is indispensable to ensure the shelf life of food products. It protects the product from damaging influences and prevents the development of microbes that are harmful to health. Nowadays, modern food packaging ensures a high degree of safety for consumers. Thanks to a combination of optimum packaging material, preservation and durable sealing, ideally tailored processes are available to food manufacturers. The most important suppliers of this technology will be showcasing their innovations once again at FachPack 2018.**

### **Protection inside and out**

The primary task of food packaging is to protect foodstuffs. It is intended to stop products from drying out and prevent the development of microbes. However, light, oxygen, steam, dirt and extraneous odours are also harmful to food. In this context, the barrier effect is particularly important. It is determined by the technological properties of the packaging material and in the case of film packaging is always adapted to the requirements of the product and the production process. Currently, companies and research establishments are looking at how the thickness of these composite films can be reduced. For example, a research project being undertaken by the Fraunhofer Institute for Process Engineering and Packaging (IVV) aims to reduce the packaging requirement through thinner films without impairing their protective function ([Source: Fraunhofer Institut](#)). When choosing the right barrier effect and combination of suitable polymers, manufacturers draw on their extensive experience and new developments. They will be providing comprehensive information on these topics at FachPack in September 2018.

Composite film packaging contains barrier films that do not just protect the product from oxygenation but are also indispensable for modified atmosphere packing (MAP) because they prevent the egress of inert gases like nitrogen or CO<sup>2</sup> from the packaging. The use of MAP extends the life of the products by days, if not weeks in some cases, during which time they

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are available to the consumer. A cited benefit is that as a result, sales figures increase with every additional day. In recent years, many renowned companies have proven that MAP leads to successful product sales and larger market shares ([Source: Linde Group](#)). North America continues to be the largest market for MAP packaging, followed by the Asia-Pacific region and Europe. According to a survey by DecisionDatabase Deutschland, the market in Europe exhibits the largest growth in this area ([Source: Decision Databases](#)).

### **Underrated classic**

To the present day, the traditional solution offering the best barrier effect is still the tin can. Hermetically sealed and aseptically packed, its stability protects the contents from damage. The German Food Can Initiative counters preconceptions about cans being heavy and difficult to open by pointing out that many suppliers meanwhile provide cans with pull tabs and peel-back lids to meet the demand for greater convenience. It is also reported that manufacturers have been able to constantly reduce the weight of tin cans ([Source: Verband Metallverpackungen](#)). Through the use of screw or crown caps, tin plate is being combined with the benefits of glass containers. Glass containers are popular above all for acidic contents, milk products or baby food, because glass does not react with the contents and therefore does not release any undesirable substances. Thanks to these benefits glass has a permanent place in the packaging of certain product groups. The German organisation Action Forum Glass Packaging says that around 26 percent of glass containers produced is later used for packaging foodstuffs. To find out which packaging German consumers prefer for pickled preserves, the Action Forum Glass Packaging commissioned market research institute GfK to conduct a survey. GfK asked a representative sample of the German population: “You are standing in front of the supermarket shelf: Which type of packaging do you choose for preserved vegetables e.g. like red cabbage or sauerkraut?” 60.9 percent of respondents stated that they preferred glass packaging for pickled vegetables ([Source: Aktionsforum Glasverpackung](#)). On opening a glass jar the consumer knows that the contents are safe if the lid makes the popping noise caused by the vacuum in the jar. As long as the vacuum is intact the food is safe.

### **Safe in a vacuum**

To vacuum-seal plastic packaging the air is extracted from the food packing and therefore hinders the growth of microbes. Since a damaged vacuum can easily be seen on the packaging, any spoiled goods are quickly identified. The vacuum machines used for this process are available in different sizes and for various applications – from vacuum equipment for single packages, such as those used by butchers or commercial kitchens, to automated conveyor-belted vacuum packers for large food manufacturers.

The HPP process (high pressure processing) for extending the shelf life of vacuum-packed foodstuffs is increasingly being used. The benefit of this process is that it deactivates pathogenic microorganisms but does not damage the food. The effectiveness of HPP for packed meat products has been investigated, for example, in a project in collaboration with the German Agricultural Society's Committee for Food Technology ([Source: DLG](#)).

### **Welding and sealing**

No matter how good the materials and processes to extend shelf life are, what is really important is that the packaging stays sealed. This is why sealing and welding technology plays a role that should not be underestimated. Depending on requirement, the user can choose from three common processes. The two most commonly used sealing methods are heat sealing, in which the films are connected with one another or a food tray, and cold sealing, in which the materials are glued together. The latter is recommended above all for packing sensitive foodstuffs that could be affected by possible heat build-up. A third method for heat sealing packaging is modern ultrasound technology. This relatively recent application offers advantages particularly for sealing viscous foods, ready-to-eat salads or ready-to-use chopped vegetables in bags. Ultrasonic welding does not need any adhesives or solvents whatsoever to join plastics with one another. For manufacturers therefore, this process offers benefits, particularly against the background of the now stricter EU Directive No. 10/2011 that refers specifically to “multi-layer materials and items in plastic that are joined using adhesives” ([Source: EUR-Lex](#)). Manufacturers of ultrasonic sealing technology argue that this solution meets the current requirements of Industrie 4.0, because it can be readily integrated into packaging machines and ensures high cycle rates. With regard to food safety, this option is popular as it can tightly seal capsules,

drinks cartons, bags or clamshell packaging despite product residues and moisture in the seam area.

### **About FachPack**

FachPack is the European trade fair for packaging, processing and technology. With its extensive range of products and services relating to the packaging process chain for industrial and consumer goods, the event will be held in a compact three-day programme running from 25 to 27 September 2018. FachPack is fresher, stronger and has a higher profile with its new brand identity “Tomorrow begins when you create it”. It will be just as solution-oriented, specific, reliable and pragmatic as ever. With a unique portfolio made up of packaging materials, packaging accessories, packaging materials, labelling and marking technology, peripheral packaging machinery and equipment, packaging printing and finishing, intra-logistics and packaging logistics and services for the packaging industry, FachPack is the meeting place for the European packaging market. It draws trade visitors from all packaging-intensive sectors: food and beverages, pharmaceuticals and medical technology, cosmetics, chemicals, automotive and other consumer and industrial goods.

**[www.fachpack.de](http://www.fachpack.de)**

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