

# FRUIT FROM THE TAP

## BAG IN BOX IS AN ALTERNATIVE TYPE OF PACKAGING FOR FRUIT JUICES

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*The fruit and vegetable juice business is booming. Global Industry Analyst, a market research company predicts that the global market will grow by 64.46 billion litres by 2015. Every European drank about 22.4 litres of fruit juice in the year 2010 and the Americans even managed up to 27.3 litres. In comparison to the rest of Europe, Germany leads the way with a market share of 28 percent. For the private consumer, over 49 percent of fruit juice is bottled in disposable bottles and 41.5 percent in carton packages. This is what the institute for consumer research in Germany determined in the year 2010. Meanwhile in the field of gastronomy and the retail sector, Bag-in-Box (BiB) containers represent an interesting bottling alternative which is continuously being refined. A flourishing trade has meanwhile developed around this type of packaging with products, tools and services. The type of packaging isn't really that new, but is increasingly being appreciated by manufacturers of juice. Bag-in-Box also offers a lot of potential in regard to beverage marketing. Especially developed BiB dispensers are an exciting supplier tool.*

The BiB bottling trend comes from Australia and started back in the 70s – initially with wine containers. Bag-in-Box means just that – “a bag in a box” – and describes the packaging principle: in simple terms, the beverage manufacturers just fill the wines into tubes which are equipped with a dispensing valve. A carton of corrugated cardboard serves as the outer packaging and stabilises the bag. This allows the wine to be easily drawn from the tap. Bag-in-Box is a true success story in the Australian wine industry: today retail businesses “down under” sell over half of their products in containers. The BiB market share is also growing in Europe. In Norway it is already 33 percent while Sweden lists the biggest growth rate with 8 percent. In France the Bag-in-Box wine market has reached a share of 4 percent. Rising interest in Bag-in-Box can also be seen in Germany: whereas 36.4 million litres from the entire beverage market were bottled Bag-in-Box in the year 2003, the volume increased to 85.5 million litres in the year 2008 (Source: Gesellschaft für Verpackungsmittelforschung GVM).

### HOW THE JUICE GETS INTO THE TUBE

Fully and semi-automatic units (manual insertion of the bags) are used to fill fruit juice or other liquids into the tube containers or so called inliners (material e.g. polyethylene or EVOH as a barrier plastic for oxygen). During the bottling process, a pump conveys the juice into the containers through a filling valve which is attached to the tubes. In simple terms, this process is carried out in three steps. First the tubes are vacuumed, then the filling process takes place with the aid of a pressure pump and finally the connecting piece is sealed. Optionally an additional nitrogen injection is carried out, which prevents the intrusion of oxygen. Depending on the choice of bottling machine, an inductive quantity measurement is carried out during filling. The possible size of the tubes ranges from two litres for household use to 1000 litres.

The connecting piece used for filling can be equipped with various caps immediately or at a later point. These play a key role for further use. Taps are usually attached when bottling for the private sector and retail sales. The Bag-in-Box packages are practical, allowing ready to drink fruit juices to be comfortably obtained at home. In the case of larger volumes, e.g. about 10 litres intended for use in professional dispensers, so called tube fittings are attached. These are clamping hoses which, in the course of further use, are hermetically sealed from the packaging to the tap of the dispenser and then after every tapping process. Oxygen and germs have no chance of reaching the juice. Usually the bags are encased, as are those meant for use in the private sector, with recyclable outer packaging of corrugated cardboard. The filled bags or inliners can be mechanically inserted into the folded box with a so-called loader. The bags almost completely fill the boxes and provide the necessary stability during transport or space-saving storage.

### PROMISING MARKET POTENTIAL FOR BAG-IN-BOX

Based on fruit juice consumption, the market potential for Bag-in-Box is huge. While fruit juice consumption did drop slightly in the EU by 1.2 percent to 11.26 billion litres

in 2009, in part because of the strained economic situation (Source: Aktueller Marktbericht 2010, A.I.J.N.), consumption remains at a high level. Within the EU, Germans still drink the most juice, followed by the French, the British, the Spanish and the Polish. 60 percent of fruit juice, fruit nectar and similar are bottled from carton packages. They currently dominate the market. The demand for environmentally friendly Bag-in-Box packaging has increased noticeably in the past few years. According to the company Liquiwell, a leading system supplier for Bag-in-Box packaging, the annual growth rate in Germany lies between 10 and 15 percent. "Around 15 million Bag-in-Box filling bags for fruit juices are produced in Germany per year. Liquiwell supplies about one third of these", says sales manager Bernd Wallner regarding these absolute figures. He is convinced that there is still a lot of potential for further growth. "We believe that the Bag-in-Box packaging principle will assert itself more and more in the coming years."

### THE BAG-IN-BOX TREND IS THE MOTHER OF INVENTION

The supplier industry meanwhile offers a multitude of interesting products, services and tools for Bag-in-Box bottling. This includes a variety of filling bags in different sizes and with a differing material quality, creatively designed folding boxes and labels. But extensive tapping accessories and bottling units are also offered in different versions. A particularly exciting Bag-in-Box business area, because it is complex and growing quickly, is the fruit juice Bag-in-Box dispenser. It simultaneously serves as a refrigerator and tap unit, and was designed for selling and serving by service staff as well as for self-service by the consumer. One of the first companies which promoted the development of the modern Bag-in-Box dispensers with innovative ideas was the German company Gastro-Cool. The secret to success consisted in connecting the cooling and dispensing functionality with beverage marketing at the point of drink consumption.



Fig. 1: Semi-automatic filling stations – here the model Liquiwell Filler BiB Italy – pump fruit juice into the tubes. An inductive fluid measurement ensures – depending on the volume of the bag – an optimal filling. (© Liquiwell)



Fig. 2: Three Bag-in-Box fruit juice packages with a size of up to 10 litres fit into the Gastro-Cool Bag-in-Box refrigerator. With individual branding by the beverage manufacturer, the dispensers are also suitable as perfect marketing tools with a promotional effect at the point of drink consumption. (© Gastro-Cool)

### BIB COOLING – COMFORTABLE AND SERVICE-ORIENTED

Gastro-Cool developed an innovative, compact dispenser for juices and milk (size 78 x 47 x 42 cm, volume 64 litres net) especially for the dispensing of Bag-in-Box fruit juices in hotels (breakfast buffets), pubs and restaurants as well as cafes, canteens or schools, allowing comfortable and quick serving. Three taps installed next to each other make it possible to offer orange, apple and grape juice from one machine.

The interior of the unit fits up to three 10-litre Bag-in-Box containers placed next to each other. They are connected to the taps by special food-safe tubes, also called tube fittings or clamping hoses, from which the service staff or maybe hotel guests can draw their juice at the breakfast buffet. After every dispensing process, the clamping hoses are hermetically sealed thanks to the sophisticated mechanism. The head of Gastro-Cool, Christian Macher, states



Fig. 3: Fruit and vegetable juices flow directly into the glass from three taps. The beverages flow through food-safe tube connections without additives – following gravity – through the taps from top to bottom. (© Gastro-Cool)

that "No air can penetrate the vacuum packing and therefore germs cannot reach the juice. As a result, even after opening the juice container, maintaining freshness for up to three months is no problem. Time enough for every drop of juice to actually end up in the glass of the guest. There are no perishable leftovers." The packaging leaves very little waste. Similar to a balloon that loses air, only a thin outer layer remains.

A second model range of the Bag-in-Box refrigerators offers additional cooling comfort (cooling range between 0 and 18 degrees), where three different fruit juices can be cooled in one machine at different temperatures. The secret of the cooling appliance is as ingenious as it is simple, because Gastro-Cool follows the most basic physical laws when developing the machines. As the compact Bag-in-Box packages are stored above each other in the machines and the cooling temperature decreases from high to low, three different cooling zones are created and the juice flows from the tap at three different temperatures.

**"FORM FOLLOWS FUNCTION"**

The role of the silent salesperson which the carton-wrap around packaging plays in the supermarket is assumed by BiB cooling appliances in gastronomy. By request, the sidewalls of the dispenser can be furnished with, for example, the logo of the beverage manufacturer and serve as an effective marketing tool. "This effectively establishes a brand presence at the point of drink consumption, realises promotional advertising and possibly generates additional turnover," Christian Macher points out. "Apart from being just a service tool, the BiB refrigerator also becomes an efficient marketing tool."



Fig. 4: Compact and comfortable for commercial use or at home: the compact Gastro-Cool Bag-in-Box cooling unit is suitable for bag sizes with a capacity of up to three litres. Depending on the optimal drinking temperature, the juices can be cooled at 8 or 18 degrees. (© Gastro-Cool)

Creative beverage manufacturers can also score points in the B2B segment with the BiB refrigerator and use the machines as a valuable tool for customer retention. It offers beverage manufacturers the opportunity to provide loyal customers in the field of gastronomy with a machine free of charge and to effectively promote their beverages at the point of sale.

The example of the Bag-in Box cooling dispenser demonstrates: the possible uses for the Bag-in-Box are very diverse. Based on a growing fruit juice market, it is up to the creative offers of the supplier industry to use every opportunity for improvement, especially in the fruit juice segment.

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