GLOBAL ACTIVE, SMART AND INTELLIGENT PACKAGING MARKET BY PRODUCTS, APPLICATIONS, TRENDS AND FORECASTS (2010 – 2015)
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EXECUTIVE SUMMARY

➤ MARKET OVERVIEW

This market research report categorizes the global market for advance packaging technology used in food and beverage industry by technologies, applications and geography. The study is based on primary and secondary research, and analyzes the market based on technological developments, end users, patents filed and new developments. The report also studies and analyses trends and opportunities affecting market growth.

➤ MARKET SCENARIO

Global advanced packaging technology market is witnessing a high growth because of the increase in demand for convenience foods such as ready to cook meals and so on, stricter food safety regulations, and demand for sustainable packaging. Growing health awareness among consumers, food wastage and manufacturers concern for longer shelf life of the food products and supply chain inefficiencies are other factors fuelling the growth of the market. Further, the consumer confidence for packaged food, organized food safety regulations, threat from bioterrorism and increased applications in ready to eat meals and frozen foods have created a huge opportunity for advanced packaging technology market. In 2010, the active and intelligent packaging technology holds the highest growth rate, estimated at a CAGR of xx% and xx% respectively. Modified atmosphere technology accounts for the largest share (approximately xx%) of the total market in advanced packaging technology. The global advanced packaging technology is estimated to grow at a CAGR of xx% in the next five years from 2010 to 2015.

The major players in the advanced packaging technology market are Multisorb Technologies (U.S.), Sealed Air Corporation (U.S.), Ball Corporation (U.S.), Amcor limited (Australia), Timestrip PLC (U.K.), Sysco Corporation (U.S.), Paksense Incorporated (U.S.), Eastman Chemical Company and M&G USA Corporation. These players have launched new products in
active and intelligent packaging technology as a part of their major strategy. The Eastman Chemical Company filed a majority of patents (around xx%) between 2005 and 2010.

➢ EMERGING TECHNOLOGIES

The active packaging technology market is being driven by the increase in demand of oxygen scavengers segment and moisture absorbers. These particular segments account for a major share in active packaging market and are estimated to grow at a CAGR of xx%. Due to the increased usage of PET bottles, the oxygen scavengers market is expected to grow at a CAGR of xx%, while the market for moisture absorbers is estimated to grow at xx% in the next five years. The intelligent packaging market is being driven by an increase in usage of time temperature, and freshness indicators, which form a major share in the intelligent packaging technology in 2010. The freshness indicator market is estimated to grow at a CAGR of xx% and time temperature indicator is expected to grow at a CAGR of xx% for the period from 2010 to 2015.

The emerging technology in the market is nanotechnology. Nanomaterials have various applications both in active and intelligent packaging. In active packaging, the nanostructures which can enhance the vapor permeability of plastics are used. They have various applications such as fruits and vegetables packaging.

The nanosensors categorized under intelligent packaging can help in detecting pathogens, toxins and chemicals. With nanosensors incorporated inside the packaging, the consumer can easily know the status of food inside, which means these sensors, can inform the consumers about the food’s freshness level and nutrition status.
FIGURE 1

MARKET SNAPSHOT

Advanced packaging  Growing markets  Emerging trends

Active packaging  Oxygen scavengers  Nanostructures

Moisture absorbers  Time temperature indicators  •Nanosensors

Intelligent packaging  Freshness indicators  •DNA Biochips

Source: MarketsandMarkets
1 SUMMARY

The global market for advanced packaging technology for food and beverage is estimated to be worth $xx billion in 2010 and is expected to grow at a CAGR of xx% from 2010 to 2015. The global advanced packaging technology for F&B market is segmented into three technologies:

- Modified atmosphere packaging
- Active packaging
- Intelligent packaging

Modified atmosphere packaging technology holds the maximum share of approximately xx% of the global advanced packaging market in 2010. This particular technology was commercialized in 1980s. Since this technology was adopted in the early stage and has a relatively low cost, it is still widely used by food and beverage manufacturers in various packaging applications like sea food, poultry and meat.

But intelligent packaging has a higher demand due to increase in consumer demand for safe and quality packaged food, and manufacturers demand to monitor products throughout the supply chain. The global market for intelligent packaging is estimated to be worth $xx billion in 2010 and expected to grow at a CAGR of xx% from 2010 to 2015. The time temperature indicator, which helps the manufacturers in monitoring storage conditions and achieve supply chain efficiencies and freshness identifies the level of freshness of packaged food at point of sales have been driving the market for intelligent packaging.

The other segment, active packaging technology is the second largest growing segment. It is estimated to be worth $xx billion in 2010 and expected to grow at a CAGR of xx% from 2010 to 2015. The growing consumer awareness about dietary requirements, environment concerns, retailers and manufacturers concern for longer shelf life has been the encouraging factor for food and beverage manufacturers to adopt active packaging technology to enhance the quality of packaged food for a longer period.
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<tbody>
<tr>
<td>Active packaging</td>
<td>xx</td>
<td>xx</td>
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<tr>
<td>Modified atmosphere</td>
<td>xx</td>
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<td>packaging</td>
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<td>Intelligent packaging</td>
<td>xx</td>
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<td>Total</td>
<td>xx</td>
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Source: MarketsandMarkets

The global advance packaging technology market for food and beverage is expected to grow from $xx million in 2010 to $xx million in 2015 at an estimated CAGR of xx% from 2010 to 2015. The modified atmosphere packaging (MAP) has the biggest share approximately xx% in advanced packaging technology as compared to other advanced packaging technologies such as active and intelligent packaging. This is mainly because of the early commercialization of MAP compared to other packaging technologies. However, the market is expected to grow at a slower rate because MAP is not a substitute of temperature control and the right mix of gases used in MAP packages is an issue. The active and intelligent packaging will grow at a faster rate with a CAGR of xx% and xx% from 2010 to 2015 respectively.
1.1 GLOBAL ADVANCED PACKAGING TECHNOLOGY MARKET

Food and beverage packaging is the most important segment and has the largest share in global advanced packaging market. Currently, the advanced packaging technology market for food and beverage is in the initial stage of development and has a share of approximately xx% of global conventional F&B packaging market. Others represent the conventional packaging market which includes flexible packaging, packaging machinery, equipments and packaging containers.

The market is expected to grow tremendously in the near future due to increasing environmental issues such as food wastage and economic concerns such as raw material cost, food testing cost etc. Advanced packaging will ensure quality of packaged food and reduce the cost of testing the products at every stage of the value chain. From the demand side;
consumers changing consumption habits which include consuming food in smaller portions, along with the desire for healthy and nutritious food is driving the global advanced packaging market for food and beverage. On the other hand, F&B manufactures are also concerned about the waste and spoilage of food items all through the supply chain and shorter shelf life; that further encourages the development of advanced packaging products. Some of the players such as Multisorb Technologies (U.S.), Sealed Air Corporation (U.S.), Ball Corporation (U.S.), Sysco Corporation (U.S.) and Constar International (U.S.) are continuously focusing on launching new products such as Multisorb technology’s has launched TranSorb that has moisture absorbing mechanism to enhance penetration of advanced food and beverage packaging products.

1.1.1 DRIVERS

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<tr>
<td>Convenience and demand for fresh packaged food</td>
<td>High</td>
<td>High</td>
<td>High</td>
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<tr>
<td>Health concerns</td>
<td>High</td>
<td>High</td>
<td>High</td>
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<tr>
<td>Manufacturers concerns for longer shelf life</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
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<tr>
<td>Demand for sustainable packaging</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
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Source: MarketsandMarkets
1.1.1.1 *Increasing demand for fresh and quality packaged food*

Due to the on-the-go lifestyle, consumers have shifted their focus from traditional buying of raw food to packaged food. The packaged food product category consists of frozen food, ready-to-eat meals, etc. To ensure quality of the packaged food, consumers are also looking for other attributes like visual appeal, nutrition value, smell, and good taste. Active packaging technology avoids oxidation of food products and reduces usage of additives while maintaining the product quality.

Few examples of the companies, which launched convenience packaging using advanced packaging technology in different food categories, are given below:

In August 2010, ConAgra Foods launched a new line of entrees in the microwavable frozen meals segment.

In May 2010, McCain Foods India Pvt. Ltd. introduced three new varieties of Frozen Snacks in India.

In August 2009, Nestle launched a new line of scoopable frozen dairy desserts specially targeted at the hispanic/latino families, which constitute around xx million population of U.S.

Lack of storage space and changing consumer demographics such as increase in single working population and smaller households have increased the demand for smaller packages of food and beverages. The following table shows proportion of single households in different geographies.
1.1.1.2  Manufacturers’ concerns for longer shelf life

Food and beverage manufacturers and food processing companies are extremely concerned about wastage and spoilage of food products during transportation. Active packaging prevents microbial growth and keeps the food fresh for a longer period of time. Oxygen scavenger and modified atmosphere packaging (MAP) reduces oxygen content down to xx% or less and extend shelf-life of the food products.

For example, by removing oxygen through active packaging, meat product quality is retained for up to xx days, as compared to xx days with older preservation methods. Acetaldehyde, decomposed from Polyethylene terephthlate (PET) during its molding process, gives an undesirable odor to packaged water stored in PET bottles. Acetaldehyde scavengers lower the acetaldehyde content to an almost undetectable level. Therefore, it helps food and beverage
manufacturers to maintain better inventory through longer shelf rotation, flexibility in production scheduling, and minimize expiration losses due to distribution delays.

1.1.2 RERAINTS

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<tr>
<th>RESTRAINTS</th>
<th>IMPACT</th>
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<tbody>
<tr>
<td>Increased testing costs of food</td>
<td>High</td>
</tr>
<tr>
<td>Harmful effects of packaging</td>
<td>High</td>
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<tr>
<td>materials</td>
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Source: MarketsandMarkets

1.1.2.1 Increased testing costs

As per the European regulation (EC) 1935/2004 packaging companies will have to ensure the use of good quality packaging material as it comes directly in contact with the food. Therefore, it is mandatory for the packaging manufacturers to carry out an extensive toxicological analysis test. The cost incurred for the test is around $xx-$xx (£xx-xx). If the migration exceeds xx ppb (parts per billion), it is around $xx-$xx (£xx-xx) and if less than xx ppb, it would be around $xx-$xx (£xx-xx.)

1.1.2.2 Harmful effects of packaging materials on human body

The chemical compounds used to make packaging materials may have possible side effects on the human body. For example, bisphenol-A used in plastic food containers is being linked to breast cancer and miscarriages. Moreover, the advanced packaging materials used in packaging are one of the major concerns related to health of consumers such as increasing cholesterol level.
The toxic glue used for food packaging labels has an adverse affect on health. The toxic glue chemical found in the glue of packaging labels used for food packaging especially contaminates the supermarket foods which includes the packages of fresh meat, vegetables and sauces. The chemical can likely cause infertility in women, cancer, immune system disorders and even neurological problems. Therefore, using harmful chemicals in food packaging can create a negative perception in the mind of consumer and can act as a restraint for the consumer going for packaged food.

1.1.3 OPPORTUNITIES

1.1.3.1 Consumers gaining confidence on food safety

Consumers are concerned about the ingredients present in the packaged food and prefer to purchase healthy and nutritious food. According to recent survey (2010) done by Deloitte with xx consumers in U.S. on different parameters such as before buying reading about the ingredients in packaged food, understandability of the ingredients and so on.
FIGURE 4

AVAILABILITY AND CLARITY OF INFORMATION FOR CONSUMERS

Source: Deloitte: 2010 Consumer Food Safety Survey, MarketsandMarkets

The above graph shows that percentage of the consumers feels they have enough information about the food has increased to xx% in 2010 from xx% in 2008. Also the consumer awareness on understating of food ingredients has increased from xx% in 2008 to xx% in 2010. This shows that in 2010 consumers are highly concerned on food safety information as compared to 2008. This will further add to the growth of advanced packaging especially intelligent packaging which includes freshness labels and time temperature indicators. Advance packaging ensures that Consumer will have better information such as storage conditions, freshness status and so on about the packaged food.
1.2 BEMIS COMPANY, INC.

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Fax: 1-555-123-4567
Website: www.bemis.com

1.2.1 OVERVIEW

Bemis was established in the year 1858 in Missouri, U.S. It has major geographical presence in U.S., Canada, Mexico, South America, Europe, and Asia. As on 2009, it had xx manufacturing facilities in xx countries. In the 2009, the company generated net sales of $xx billion which was a decrease by xx% as compare to the sales generated in 2008 (xx billion). Approximately two-third of the company’s revenue was contributed by its food industry, xx% by flexible packaging segment and xx% by pressure sensitive materials segment. In 2010. It had approximately xx employees worldwide.

1.2.2 PRODUCT PORTFOLIO

Bemis’ product category consists of flexible packaging and pressure sensitive materials. In flexible packaging, the company offers packaging solutions to food and beverage manufacturers that include frozen and pet food, and coffee products. It also provides multilayer flexible polymer film structures and laminates for food, medical, and personal care products, as well as non-food applications utilizing vacuum or modified atmosphere packaging. Other products of Bemis include blown and cast stretch films, carton sealing tapes, custom thermoformed and injection molded plastic packaging, multiwall paper bags, printed paper roll stock and bag closing materials in packaging of food.
1.2.3 STRATEGY

Bemis has adopted the strategy of organic growth. It is continuously developing new products catering to the consumer demands for safe and healthy packaged foods and addressing concerns regarding environment sustainability. It also follows the path of inorganic growth in order to gain technological expertise and increase its geographical presence; mainly by acquisition of strategically chosen companies. Continuous development, research and innovation in its product category, has made Bemis one of the largest packaging solution providers in flexible packaging in North and South America.

1.2.4 DEVELOPMENTS

<table>
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<tr>
<th>Date</th>
<th>Approach</th>
<th>Description</th>
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<tbody>
<tr>
<td>July 2010</td>
<td>New product development</td>
<td>Bemis introduced FreshCase film which extends the shelf life of packaged food products especially packaged beef. It offers vacuum packaging to reduce food wastage during the distribution cycle and inventory management. Packaging with FreshCase film requires lesser packaging materials thereby making it efficient for retail shelf space and reduces shipping costs.</td>
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<tr>
<td>March 2010</td>
<td>Acquisition</td>
<td>Bemis acquired the American operations of Alcan Packaging to expand its product portfolio in flexible packaging business in food and beverage segment, to expand its geographical presence to 84 manufacturing facilities in U.S., and share its technological capabilities and manufacturing expertise with Alcan Packaging.</td>
</tr>
<tr>
<td>March 2009</td>
<td>New product development</td>
<td>Bemis introduced bMET metallized sealant films, a new packaging film for food. bMET films provide hermetic polyethylene seals and the barrier equivalent to</td>
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<tr>
<td>November 2008</td>
<td>New product development</td>
<td>Bemis developed Eco-Tite shrink bags for meat and cheese processors. The multilayer Eco-Tite structure has durable outer layer and ethylene vinyl alcohol EVOH layer which provides superior barrier for oxygen. It also uses xx%-xx% less packaging material as compared to traditional packaging bags and ensures environment sustainability of food processors.</td>
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<td>metallized OPET in a single film. The films have characteristics like oxygen barrier, moisture barrier, stiffness and seal characteristics and are compatible with any flexible packaging format.</td>
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Source: MarketsandMarkets
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