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# Active & Intelligent Packaging

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US Industry Study with Forecasts for **2011 & 2016**

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*Significant advances in demand are anticipated in the intelligent packaging segment, where the market will expand more than 30 percent per annum to \$165 million in 2011.*

## US demand to rise 13% annually through 2011

Demand for active and intelligent packaging in the US is projected to climb 13 percent annually to \$1.1 billion in 2011. Growth will be fueled by the development of new generations of products with improved performance at more cost-competitive prices, which will spur greater market acceptance for many product types.

## Intelligent packaging to be fastest growing type

Demand in the intelligent packaging segment will expand more than 30 percent per annum to \$165 million in 2011. Gains will be based on the emergence of lower cost time-temperature indicator (TTI) labels as well as the growing awareness of these products as critical tools in improving food safety and reducing losses in perishables along the supply chain. Demand for newer types of electronic TTIs that are integrated with radio frequency identification (RFID) tags will also propel gains. Increasing cost-competitiveness will support strong opportunities for other intelligent packaging, such as compliance monitoring packaging for pharmaceuticals, active pharmaceutical reminders, ripeness detecting labels and thermochromic labels.

Active packaging is projected to advance eleven percent per year to \$975 million in 2011, fueled by robust growth for gas scavengers based on changes in the



food product mix and increased cost-competitiveness driving expanded applications for oxygen scavengers. Moisture control packaging demand will rise more slowly due to the presence of mature products such as desiccants and purge control pads for meat. Still, prospects will benefit from pharmaceutical shipment growth and the use of more costly, higher performing products.

## Drug, beverage markets offer best growth prospects

Food and beverages are the two largest markets for active and intelligent packaging, accounting for a combined 72 percent of demand in 2006. Fastest gains are expected in pharmaceuticals

and beverages, with food uses also logging solid advances. Robust gains in the pharmaceutical market will be the result of product development activity leading to lower-cost compliance monitoring packaging for clinical trials and expanded usage of low-cost active reminders to boost adherence levels. Above-average growth in beverage applications will be based on technology advances and the greater cost-effectiveness of monolayer oxygen scavenging systems for single-serving polyethylene terephthalate (PET) bottles versus multilayer systems. Food applications will advance at nearly the industry average and will be driven by the need to maintain longer shelf life with processed foods and packaged fresh foods.



## Sample Text, Table & Chart

### PRODUCTS

#### Oxygen

Demand for oxygen scavengers in packaging is forecast at a robust 1.5 billion in 2011, a strong growth rate driven by segments and applications. Centrally packaged foods, such as soups, are anticipated to be major drivers and other types of oxygen scavengers will benefit from the longer shelf life for packaged perishable and processed foods. Increased prevalence of oxygen-sensitive pharmaceuticals. Solid prospects are also anticipated for oxygen scavenger resin systems for PET bottles, where the scavenger is incorporated directly into bottle resins. Moderating advances somewhat will be the increasing presence of lower-priced monolayer oxygen scavenger bottles, especially in juice and tea applications. Growth for integral oxygen scavengers such as those for bottles and film will also be held down by competition from passive barrier alternatives, such as multilayer barrier resin structures (including newer nanocomposite types) and aluminum foil or foil laminate packaging.

The relatively small pharmaceutical market will log above-average growth, while demand in the larger food and beverage markets will expand approximately in line with the overall average. Food applications will be aided by rapid growth for organic foods and case-ready meats, as such foods tend to be shipped over far distances due to packaging in central processing facilities. The use of oxygen absorbers provides increased distribution flexibility for such goods without the need for traditional preservatives. Food opportunities will also be driven by the shift away from trans fatty acids in packaged foods. While the elimination of trans fats improves the nutritional profile of many foods, foods that are made without trans fats can spoil or discolor more quickly than foods containing trans fats, a factor that will bode well for oxygen absorbers.

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**SAMPLE TEXT**

TABLE III-9

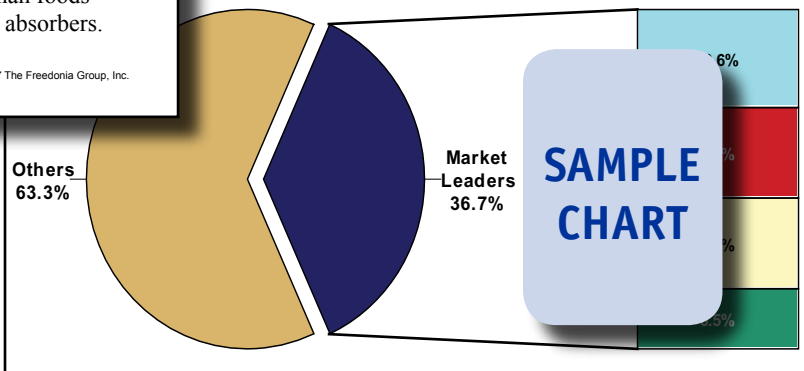
MOISTURE CONTROL PACKAGING DEMAND BY TYPE & MARKET (million dollars)

Item	1996	2001	2006	2011	2016
Total Active Packaging Demand % moisture control					
Moisture Control Packaging Demand					
By Type:					
Desiccants					
Other					
By Market:					
Food					
Pharmaceuticals					
Electronics					
Other					

**SAMPLE TABLE**

CHART V-1

INTELLIGENT PACKAGING MARKET SHARE, 2006 (\$615 million)



**SAMPLE CHART**

## Sample Profile, Table & Forecast

**TABLE IV-12**  
**ACTIVE & INTELLIGENT PACKAGING DEMAND IN PHARMACEUTICAL APPLICATIONS**  
 (million dollars)

Item	1996	2001	2006	2011	2016
Shipments (bil \$)*	9	10	11	12	15.0
\$ pkg/000\$ pharmaceutical	0	0	0	0	62
Active & Intelligent Pkg Demand					59
Moisture Control Packaging					10
Intelligent Packaging					52
Gas Scavengers					37
Other					50
% pharmaceuticals					1
Total Active & Intelligent Packaging					00

\* Includes shipments from Puerto Rico.

### COMPANY PROFILES

**ColorMatrix Corporation**  
 680 North Rocky River Drive  
 Berea, OH 44017  
 216-622-0100  
<http://www.comatrix.com>

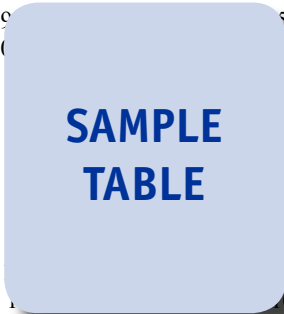
Annual Sales: (8/07)

Key Products: oxygen scavenging ad

ColorMatrix Corporation is a manufacturer of liquid colorants and additives for the thermoplastic extrusion and injection molding plastics industries. The privately held company has operations in North America, Latin America, Europe and the Asia/Pacific region. In July 2006, ColorMatrix was acquired by Audax Management Company LLC (Boston, Massachusetts), a private equity firm.

The Company is a participant in the US industry through the production of acetaldehyde scavenging additives for use in polyethylene terephthalate (PET) bottles, and the supply of an oxygen scavenging additive for PET bottles. ColorMatrix's acetaldehyde scavenging additives are sold under the TRIPLE A brand name. These additives react chemically with acetaldehyde, a byproduct of polyethylene processing that can cause off-tastes in beverages and other products packaged in PET containers. TRIPLE A acetaldehyde scavengers prevent acetaldehyde from migrating out of the PET structure, thereby suppressing off-tastes and increasing the shelf life of bottled products.

ColorMatrix is also involved in the active and intelligent packaging industry through a marketing and distribution agreement with the



**"Intelligent Packaging** -- Demand for intelligent packaging in pharmaceutical uses is projected to increase at a robust 42 percent per year from a very low base, reaching over \$45 million in 2011. Growth will be the result of product development activity leading to more cost-competitive compliance monitoring packaging products and expanded usage of low-cost active pharmaceutical reminders to boost adherence levels. Gains will also benefit from heightened demand for time-temperature indicators with vaccines. Moderating faster gains will be ..."  
 --Section IV, pg. 123



**OTHER STUDIES**

**Converted Flexible Packaging**

US converted flexible packaging demand will grow 4.2% annually through 2011. Gains will be driven in part by advantages over most rigid packaging and by developments in breathable and self-venting films and resealable features. Pouches will be the fastest growing type while bags remain the largest segment. This study analyzes the \$13.4 billion US converted flexible packaging industry, with forecasts for 2011 and 2016 by material, product and market. It also evaluates market share and profiles major players.  
 #2275 ..... 11/2007..... \$4600

**Stretch & Shrink Film**

US stretch and shrink film demand will grow 4.7% annually through 2011, driven in part by retail trends favoring shrink-wrapped multipacks and pallet wrap. Stretch and shrink film will grow at a similar pace, with stretch film remaining the larger segment. The dominant resin, LDPE, offers the best growth opportunities. This study analyzes the \$3.7 billion US stretch and shrink film industry, with forecasts for 2011 and 2016 by type, market and resin. It also evaluates market share and profiles major players.  
 #2254 ..... 10/2007..... \$4400

**Food Containers: Rigid & Flexible**

US food container demand will reach \$23.5 billion in 2011. Growth trends include heightened demand for more convenient foods and a shift toward value-added packaging. Plastic containers, and bags and pouches will log the fastest growth. Meat and dairy products and frozen specialties will lead gains by market. This study analyzes the 263 billion unit US food container industry, with forecasts given for 2011 and 2016 by product and market. It also evaluates company market share and profiles major players.  
 #2208 ..... 07/2007..... \$4500

**World Labels**

The global label market will grow 5.5% annually through 2011, driven by the diffusion of advanced logistics in developing areas and the development and penetration of smart radio frequency and value-added labels. The best gains will occur in emerging economies. This study analyzes the \$67 billion world label industry, with forecasts for 2011 and 2016 by label material, application method, printing technology, world region and for 21 major countries. It also evaluates market share and profiles major players.  
 #2219 ..... 06/2007..... \$5500

**Meat, Poultry & Seafood Packaging**

US demand for meat, poultry and seafood packaging will grow 4.2% annually through 2011. Smaller, more convenient packaging sizes and an increasing variety of items that are further processed will provide opportunities. Flexible packaging such as pouches and high barrier film will outpace rigid types. This study analyzes the \$6.6 billion US meat, poultry and seafood packaging industry to 2011 and 2016 by material, product, application and market. It also details market share and profiles major players.  
 #2176 ..... 03/2007..... \$4400

**About The Freedonia Group**

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