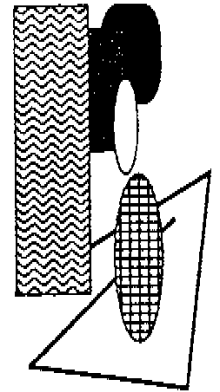


# The Present Status and Future Challenge of Packaging



by Robert J. Bockerman, President  
Conatech Consulting Group, Inc.

**W**e live in a fantastic world of packaging. Most of our food, drugs, clothing and items of daily sustenance come to us packaged in a wide and diverse variety of shapes, forms and configurations using endless types of materials including glass, plastic, paper, cloth and metal substrates representing raw materials from all parts of the world.

Packaging enters our lives in many ways, some as direct influences and others in more subtle, indirect ways. No matter how it touches us as individuals and in the choices we make daily, the influence of packaging on our lives cannot be debated.

## The Packaging Industry

The packaging industry includes a large number of companies engaged in the manufacturing of materials such as plastics, flexible films, foil, rolls of paper stock, metal tin plate and wood flat sheet. Other businesses distribute the actual packages including glass and plastic bottles, paper and corrugated cartons, plastic and paper bags and metal containers. Still other companies, in addition to those who buy the packages for product use, perform special services relating to packaging, including contract manufacturing, graphics, aerosol can filling and strip packaging, as well as blister and shrink film packaging.

Packaging, as you can surmise, is an exceedingly complex industry; it calls for the successful performance of a series of detailed functions, all of which are interrelated. A failure in any one of these functions could destroy the general utility of a package containing a product for distribution to the marketplace. Unless the packaged product arrives at its final destination in a usable form, the functions of material conversion, manufacturing/packaging systems and distribution are wasted.

The demands of this complex industry must be met with a minimum of cost, confusion and wasted time. Before we can discuss the future implications that packaging will bring to our society, we must think about the fundamental concepts of the reasons for packaging.

## The Need for Packaging

The reasons for packaging are almost as diverse as the different types of packages. This article will highlight a few examples that demonstrate the need for packaging.

Packaging is important from the standpoint of brand identification for a particular manufacturer, the advertising function by the media in communicating with the consumer, and information on the

product and its price. It has proven to be one of the major tools necessary for the development of marketing strategies and sound tactics in the movement of a product to the consumer. The opening of new market directions, the extension of a product's shelf-life and the multiple selling of closely related products have all combined to create an extremely strong need for packaging.

The increased diversification of products is partially the result of packaging and package engineering. Some of these new products could not have been offered to the marketplace without the necessary packaging technologies perfected to enclose, protect and present the product. Packaging, therefore, has become a key function in competitive strategy to produce the finest product in the best package at the least cost to the consumer.

Packaging helps retailers in that it offers protection to the product and effectively increases shelf-life. Numerous food and drug products would be at the mercy of the elements if it were not for the various packaging technologies available to protect the product from heat, light, moisture, microbes and continual environmental contamination. The "pickle and cracker barrels" days are long gone and product sanitation has improved greatly.

Packaging creates an entity of product/package that fits splendidly into the present self-service retailing concept. The consumer, whether in the food market, drugstore, hardware or clothing store is free to select products from a multitude and make an informed decision based on aesthetics, label information and price through comparative shopping.

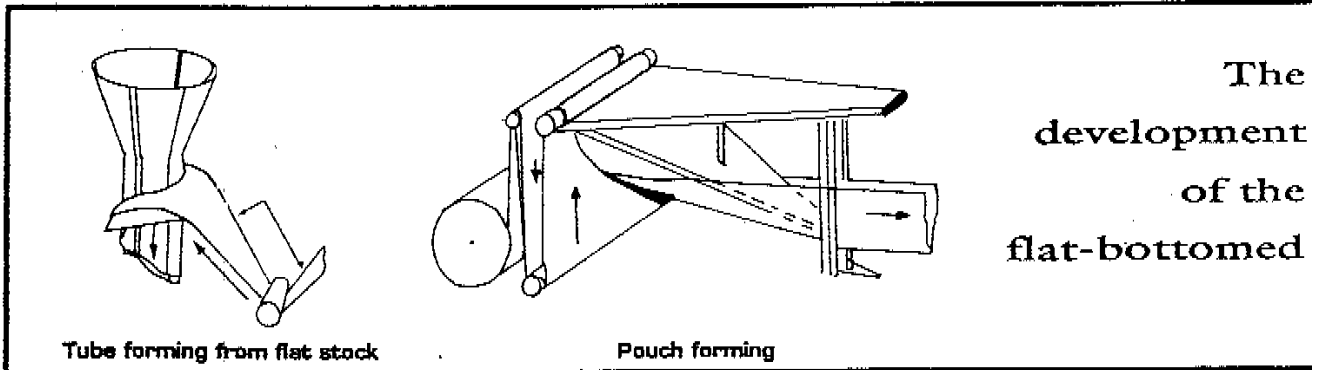
Retailers also benefit from packaging because it creates a much more efficient environment for inventory control procedures, display and distribution of products and an analysis of which products are selling versus those at a standstill. Pilfering of small items is minimized through the use of unit packaging, thereby cutting retailer losses.

Blister packages and shrink packages that totally enclose the product offer protection to the product and to the consumer from possible injury due to sharp objects, corrosive products and other means of possible injury. This type of packaging is an entirely new concept in the movement of products from the manufacturer to the consumer, resulting in maximum efficiency in less time, reducing cost and retaining product quality. Integrity of the product and package should be foremost in the manufacturer's mind as it is in the mind of the consumer.

*(Continued on next page)*

Packaging provides cleaner and more attractive product units through the use of improved graphics, colors, unique designs, see-through containers and the use of various materials to enhance the product. These visual devices excite and entice the consumer to

of new products. Freeze-dried food products, new household appliances and complicated communication equipment will require innovative concepts in protective packaging. Packaging, therefore, will become a crucial factor in the success or failure of these products.



purchase one brand of product over another, and also stimulates impulse buying.

Packaging and package engineering have created a new concept of "convenience" for the consumer. This convenience could be thought of in various modes of merchandising that extend to the large diversity of products, sizes, configurations and the availability and accessibility of products for almost every individual consumer preference.

Product manufacturers benefit from the increased confidence that consumers have in their products. This confidence is based in large part on packaging combined with advertising, merchandising and other marketing concepts. Packaging increases the quantity of a product sold per customer and speeds up store sales through mass distribution techniques developed in the movement of goods from the manufacturer to the consumer. While packaging is costly, it has proven to be one of the major factors in reducing the overall cost of mass distribution for the product manufacturer.

### The Future of Packaging

Future implications of packaging must take into account that the young adults of today are quite different from those of the past. They are quite vocal with their opinions on many topics and will have a decided impact on packaging practices. When they reach adulthood these consumers will demand improved and more sophisticated packaging, creating a demand for new technologies.

As more discretionary income becomes available to this new generation of the consuming public, undoubtedly there will be more emphasis placed on non-essential services and less emphasis placed on necessities. This affluent society will dictate packaging trends as well as the continued proliferation

The importance of an attractive, fully functional and convenient package, designed for the specific product, cannot be overestimated.

With the product proliferation, stores will continue to run out of space for the many products available to the consumer. Each year, proportionately more new products reach the market at an accelerated rate. This leads to a highly competitive situation that has a direct effect on the marketing and packaging of products. As competition increases for the shelf-space spot, manufacturers will have to resort to superior packaging to gain reasonable assurance of new product success.

The future need for standardization of product, package, material handling and warehousing is a real possibility. There is continual pressure from government agencies to limit or decrease the multiple sizes of an available given product. The degree of standardization by industries for sizes, containers and packaging components would surely produce a decided cost savings, as well as making it easier for consumers to comparison shop by limiting the number of sizes available. Standardization is a debatable topic; opponents cite the lack of free enterprise when sizes are regulated, while supporters argue that it would reduce the warehouse space required for storing large, diverse-sized containers and packaging material volumes.

As new technologies evolve in the areas of electronics and space exploration, a host of new products are being created that are complex and extremely fragile. New types of protective packaging are being developed so that these products can be brought to the marketplace exhibiting high quality and integrity. Transistor components, computer parts, electronic panel boards, rocket parts and even food packets for outer space travel require special protective packaging commonly referred to

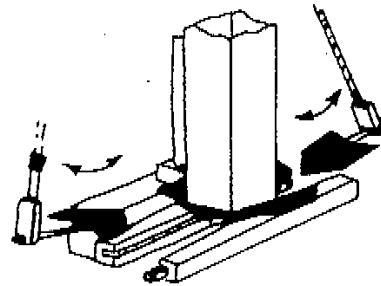
as "electronic packaging." The innovations that are being created with the advent of these products will also lend themselves to

... a host of new products have been created which are complex and extremely fragile.

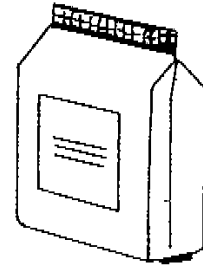
ordinary consumer products that need protection for special uses. The increased speed in the material handling and movement of goods results in greater stresses and strains on the package. The faster speeds of product movement cause more swaying of vehicles result-

utmost to gain and hold the confidence of the consumer. This will be accomplished by the manufacturer's attention to the small details which must be checked to produce a high integrity product and package.

## paper bag through package engineering.



Flat bottom bag shaper mechanism



Flat bottom pouch

ing in shocks and vibrations of increased magnitude. With the increased use of automation in material handling, the need for more sophisticated and complex packaging to protect high-tech products becomes more important. The desire for speed, the maintenance of smaller inventories and the elimination of warehousing will lead to the greater use of air freight. This mode of transportation will more than likely require new types of packaging for the protection of the product. Smaller quantities shipped at more frequent intervals will have a decided effect on the retail package as well as on the shipping container. Automated warehouses may be potentially hazardous to the package due to the use of inclined chutes and fast moving belts. All this must be considered when package engineers design the packages of the future.

It is predicted that there will be more automated supermarkets. Various ideas and concepts have been projected for the future and with this trend, some packaging problems are sure to arise. Packaging for these automated stores will require entirely new concepts. New graphics and colors will be needed that will be quite different from what we have today. The predicted new systems that will automatically select, assemble and bag individual orders may cause packaging problems.

Along with the automated supermarket, there will be an increase in vending of pre-packaged items. Packaging for this type of merchandising must be more standardized than it is today. The products in this system will require a much higher degree of protection and, as more products are added to the vending list, packaging problems will increase greatly.

It is predicted that an increasing number of products in the future will be packaged in the form of aerosols. This applies to food and pharmaceutical products as well as to industrial and hardware items. Aerosols are convenient, ready and easy to use, require no product preparation and dispense the correct amount. The product remains uncontaminated because the aerosol container is airtight, keeping foreign matter out and keeping product deterioration, contamination and odor pickup to a minimum. The new consumer will be more than willing to pay extra for the convenience of these containers.

## Conclusion

In conclusion, package development, package engineering and the creation of new technologies will provide the consumer with a high quality, low cost product. It is the duty of the manufacturer to do his

Packaging has become an important factor linking the functions of manufacturing, processing, marketing and distribution. Great effort must be expended to maintain this sequence of functions and for the entire scope of the industry to succeed.

The pressing need for continued research into the need for package engineering, better containers, improved products, more reliable packaging techniques and more efficient distribution methods cannot be stressed too strongly. Packaging is an essential element of our industrial society. Without adequate packaging, life as we know it would be difficult to the point of complete unavailability of most of our necessities as well as those conveniences that we are used to having at our fingertips. □

## References

1. Harold J. Raphael, Ph.D., "Packaging: A Scientific Marketing Tool," Westport, CT: The AVI Publishing Company, Inc., 1975.
2. Burton T. Spottiswoode, "Food Industry Packaging Presentation," 1986.
3. Richard Rothenberger, Ph.D., "Packaging for Convenience Foods - Current Products Trends in Microwavable Foods," Microwave Symposium, 1987.
4. Robert F. Testin, Ph.D. and Peter J. Vergano, Sc.D., "Packaging in America in the 1990s," Clemson, SC, 1990.
5. Robert Pesselman, "Packaging...New Materials, Concerns and Regulations," Hazleton, WI, Food Science Newsletter, 1990.
6. Mike Penanich, "Countdown 2000, Is Your Company Ready?" *Prepared Foods*, March, 1990.
7. Robert J. Bockerman, "Environmentally Conscientious Packaging: Theory and Practice," Columbia, MO, Annual Missouri Waste Management Conference, July, 1990.

*Robert J. Bockerman is owner and president of Conatuck Consulting Group, Inc., Chesterfield since 1985. He was formerly director of technical services for Overlock Howe Consulting Group. He is a member of the packaging advisory committee, University of Missouri-Rolla School of Engineering Management and has taught classes on package engineering as UMR and on food toxicology and sanitation at the University of Missouri-Columbia.*