

Packaging Education

Current Status and its Prospects

Today, the subject 'Packaging' is recognised as a blend of science, technology, art and management. Although its usage in some form has been in existence for centuries, but the growth in its usage has increased rapidly in the second half of the twentieth century, mainly in the industrialised and developed countries and more recently, in the developing countries.

The term 'Packaging' is perceived differently by different people although the main objective and goal remains the same. In the current market scenario, there are three major points that exist in the triangular situation i.e. the consumer, point of purchase (POP) and the product manufacturer. The product manufacturer at source aims at excellence in product quality and design along with maximum value addition, all from within the organisation; but the POP differs considerably in character since this ranges from simple vendors

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to sophisticated departmental stores and super markets.

The major objective of the product manufacturer is to increase sales. The upper bracket strengthens their cliental against the traditional typical vendor and small time stores. They also desire desisting any in-house processing or packaging and concentrate

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on product sales rather than product processing or production.

The perception of a consumer is to get a product as original or natural as possible; the consumer, his or her demand is only to get good quality, a psychological and use satisfaction. In fact, the value of any product is assessed or reflected through the ultimate happiness of the consumer. This is purely the quality aspect which is, of course, subjective in nature.

In recent days, importance of packaging function is becoming widely recognised in the industry and this is being followed due to the growing awareness of the importance of packaging education and training.

Need for Packaging Education

Today, packaging education has become essential for all the stack holders in any business model. Technical knowledge in packaging is required for all the major players involved in the chain of business i.e. raw material suppliers, converters, machinery suppliers and also by the user industry.

It is no longer possible for the seller of packaging materials, so called 'converters', just to take a purchase order. It is quite essential for converters or package manufacturers to understand the technical aspects of materials required for packaging of a particular type of commodity. For example, if the product is a liquid of either food, pharmaceutical or cosmetics, the packaging supplier needs to understand the nature of the product and its compatibility with the package. It implies that mere supplying a plastic bottle or plastic pouch for the liquid product may not fulfill the requirement.

Packaging material suppliers need to understand the nature of the product which needs to be packed, its shelf-life, design aspect of packaging, which should be consumer friendly and also the selected packaging material should be in compliance with the environmental regulation. Hence, minimum knowledge of packaging has become necessary for the packaging material supplier. As an alternative material, the supplier may also think about a glass bottle, but the converter needs to be aware about the latest trends and developments of glass packaging which would be able to meet all the requirements of the liquid product and hence satisfy his customer. In addition, packaging material suppliers should also have in-depth knowledge of the materials being supplied.

Glass bottles need to be assessed on their behaviour during the filling operation and also during storage, handling and transportation. Hence, knowledge of packaging science and technology is essential. Similarly, packaging machinery suppliers need to have knowledge of packaging engineering in terms of design of the packaging machinery and its functional properties with higher productivity and minimum wastage so that unit cost of the product is reduced.

In addition, the equipment manufacturer should have in-depth knowledge about the operational limitations with respect to individual type of packaging materials. For example, plastic laminates having either 3 or 4 layer, where the sealant layer becomes very critical. In most cases where plastic laminates are subjected to form-fill and seal machine (FFS) to make small sachet or pouch, there could be a probability of leakage unless the



seal integrity is perfect in nature. In most cases, though the seal could look perfect, yet there would be leakage unless the contact layer of the laminate is perfect in terms of good seal strength property. On account of this reason, the packaging machinery supplier has to have sufficient knowledge on, 'Packaging' in terms of structure of the laminate and also regarding their performance in order to convince the customer.

In addition, the most important partner in the entire chain of packaging operation is the packaging user who really knows the requirements of packaging. The person involved in the purchase of the packaging material i.e. the user of the packaging material has to have in-depth knowledge about packaging in terms of the type of availability of alternative packaging materials, their characteristics, behaviour, functional properties etc. In addition, the user industry should also have sufficient knowledge regarding cost aspects for selection of the right type of packaging material with higher functional properties and with optimum cost.

This clearly indicates that all the stack holders in the entire chain of packaging operation should have sufficient knowledge of packaging. The importance of training and education for the packaging industry is as summarised here.

Packaging Material Suppliers

- ▮ Packaging material manufacturers must have knowledge of the packaging equipment requirements, else innovative developments on the materials can be useless since the materials may not be suitable for existing packaging equipments.
- ▮ Packaging material manufacturers must also have wide knowledge of their end-use materials and trends. Unsatisfactory packages for a particular product will not lead to repeat sales.

Packaging Machinery Suppliers

Packaging machinery suppliers must keep abreast of advances in packaging materials in order to take advantage of new materials.

Packaging User Industries

- ▮ Rapid growth of new packaging materials makes it essential to be well informed of their properties in order to obtain better package performance at the same cost or the same package performance at lower costs.
- ▮ New developments in packaging equipment must be assessed. In addition to the possibility of faster filling speeds or lower packaging costs through new filling equipment, there are often developments in the packaging plant that need to be considered.
- ▮ Knowledge of packaging economics is essential to fully assess advances in both, materials and equipments.

In addition, in recent days, use of polymeric materials and their applications in packaging has superseded as compared to other alternative packaging materials like metal and glass containers. But, at the same time, these materials are required to be assessed thoroughly prior to putting them for application in packaging, especially in food, pharmaceuticals and cosmetic items, because polymeric materials have got certain limitations in terms of their compatibility with food products and also for barrier properties. Due to this fact, polymeric raw material suppliers also have to have sufficient knowledge about the rheological properties of raw materials prior to converting them into finished products.

Considering this background, packaging education



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has become an essential requirement for all stakeholders who are dealing with packaging business.

Packaging Education: Current Scenario

The World Packaging Organisation (WPO) is a non-profit, non-government, International Federation of National Packaging Institutes and Associations, Regional Packaging Federation and other interested parties including corporate and trade associations.

WPO was founded on 6th September, 1968 in Tokyo with eight members, but today, their organisation comprises of 52 Member Countries, of which, only few countries have got either private or Government Institutes for conducting training and educational programmes. Training programmes are mostly of short duration,

Table 1: Important Institutes in the USA

Institute	Educational Programme(s) Offered
School of Packaging Michigan State University, USA	Under Graduate (BS), Master Degree (MS) and Ph.D in Packaging
Rochester Institute of Technology	Under Graduate (BS), Master Degree (MS) Programme
University of Florida, USA	Under Graduate (BS)
Clemson University South Caroline, USA	Under Graduate (BS)
Virginia University, USA	BS Programme in Packaging
Indiana State University	BS in Packaging Engineering
Rutgers University	BS in Packaging Engineering
San Jose State University	BS in Nutritional Science Concentration in Packaging and MS in Packaging
University of Florida	BS Programme in Packaging
University of Wisconsin	BS Programme in Packaging

whereas educational programmes are of either one year or six months duration for diploma programmes.

Education and skill development hold the key to the local packaging industry. As China, India and other Asian countries emerge to cost effective packaging producers, local packagers have become exposed to a new market. Among the 52 Member Countries of WPO, only in the United States of America (USA), few Universities offer Under-Graduate and Graduate Programmes in Packaging. Important Institutes are as given in Table 1.

In addition, there are a number of European Countries who also offer Certificate and Diploma Programme in Packaging. The South African Institute of Packaging also offers Certificate Programme. In Asia, there are few Institutes namely,

- Indian Institute of Packaging, India
- Korean Institute of Packaging, Seoul, South Korea
- Sri Lanka Packaging Institute, Colombo, Sri Lanka
- Philippines Institute of Packaging, Manila, Philippines

All the four Institutes offer training and educational programme in Packaging. However, among all, the Indian Institute of Packaging (IIP) is considered

to be largest Institute in the world which has been officially declared by WPO in terms of its infrastructural facilities. IIP offers series of training and educational programmes in packaging to upgrade the knowledge of packaging at the National and International level. Most importantly, the two years Post Graduate Diploma Programme (PGDP) being conducted by the Indian Institute of Packaging is well accepted by Indian as well as Overseas companies.

Future Prospects

Despite of having different courses offered by many private and Government Institutes in the field of packaging, there is always a shortage of packaging professionals. According to a WPO report, this is a general complaint on significant lack of qualified professionals and the situation would be even worse when the well experienced experts would retire in the next 10 years. However, the good news is that many institutions in the packaging industry are now becoming aware of the situation and beginning to put more efforts in creating and implementing packaging educational programmes. A number of institutions like IIP – India, AIP – Australia, IOPP – USA, IOM3 – UK

and APO – South Africa are taking great initiatives, with the support of WPO, to push packaging educational programmes in order to create a huge base of packaging professionals who would be available across the globe. In addition to the Vocational and Diploma Programmes, IIP is also striving hard to introduce the Degree Programme in Packaging Technology and Applied Management Sciences (PTAMS) which will have more engineering and management components to meet the requirements of the Packaging Converting industry. This will further create a pool of packaging professionals.

Conclusion

The subject 'Packaging' is no more considered as a common sense subject. It is now well recognised as a combination of Science, Arts, Technology, Engineering and a Management subject. Time is not far that this specialised subject will be more popular by way of introducing more Under Graduate, Post Graduate and Research Programmers under an independent University which has become an urgent need for the country for the growth and promotion of packaging technology.

Technical knowledge in packaging is required for all the major players involved in the chain of business i.e. raw material suppliers, converters, machinery suppliers and also by the user industry.

