

Reducing costs and increasing efficiency

With rising interest in saving costs, the packaging industry in India has begun using lightweight packaging materials, which not only help in reducing the logistics cost but also help companies in achieving sustainability. Avani Jain looks at the current trends and lightweight packaging solutions adopted by companies in this segment.

Logistics is a critical component relevant across all sectors, and it has to be optimally managed for smooth functioning of production and distribution. With rising competition, it has become even more important to enhance the efficiency of the system in increasing manufacturers' competitiveness. Given India's fledgling status in infrastructure development, packaging innovations are a crucial value addition to the progress and prosperity of the logistics industry.

Lightweight packaging

Environmental regulations in the last few years have increased the importance of

efficient packaging and logistics systems. Issues such as the energy and cost required for producing and transporting packaging as well as the pollution created during package manufacturing and use is worrying every company in the segment. This has led companies to rethink their strategies, the result of which is lightweight packaging solutions. These solutions offer more than one benefit including reduction in logistics costs. Sunil Jain, President, Rajoo Engineers Ltd, notes, "Reducing film and wall thickness has become the new trend in the packaging segment. Today, packaging companies are rigorously working towards source reduction in basic raw materials

through developing technology and machines that support it. This in turn is helping in reducing the logistics costs to a very large extent."

Lightweight packaging means consumption of lesser amount of raw material to make the product, which reduces the cost of materials and transportation and also lessens the waste & energy demand. Lightweight packaging materials help in reducing logistics cost, as their usage in packaging directly means lighter loads or fewer lorries needed to ship the same amount of products, helping to reduce transportation energy, fossil fuel consumption, decrease emissions and lower shipping costs.

Flexible packaging offers large energy savings per year in manufacturing and transportation. The potential for reducing petroleum use by reducing package weight in transport is impressive. Lighter packages can reduce carbon dioxide emission during transportation by as much as 12 per cent. If the same packaging were re-usable rather than single use, another 16 per cent reduction in carbon dioxide emission can be expected. Thus, lightweight packaging helps in saving the environment and reducing the logistics cost to a large extent.

This calls for designing optimised pack styles that suit industry-specific requirements. While the focus should be on reducing packing gram/unit, safety margins should be incorporated by taking into account the transportation difficulty, road conditions, weather and handling capabilities. In emerging countries such as India, infrastructure for smooth logistics operations is still developing. Unitisation not only reduces the consumption of



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packing material but also eases handling and prevents pilferage.

Lightweighting

Lightweighting can be achieved by using low-density materials, by developing novel multi-layer thin film or foamed sandwich structures. Ketan Bhatt, Owner, Drashti Packaging, says, "Various lightweight packaging materials are available in the market today. Some major products that enable manufacturers to create sustainable packaging include low-thickness polyester films, low-thickness metallised polyester films, biaxially oriented polypropylene films and multi-layer polyethylene films. Further, new specialty films offer an opportunity for reducing packaging weight and transportation & logistics costs."

Earlier, companies used to over-engineer the films because the product should remain safe during transportation. However, today, with new technologies available, companies are shifting to lightweight packaging solutions. Flexible pouches, such as sachets, are replacing Polyethylene Terephthalate (PET) bottles, which use lesser amount of fuel and lead to reduced greenhouse gas emission during transportation. Further, these sachets are easy to handle and prove cost-effective to customers as well. Thus, by carefully testing different packaging materials, manufacturers and distributors of goods can determine the exact amount of packaging needed to protect an item or items without creating unnecessary waste, thereby reducing logistics costs.

Metallised films are used in some applications instead of aluminium foil. These metallised films are light in weight, and the cost of raw materials used to manufacture them is also very low. These films are exported to foreign markets as well. "With growing awareness about reducing packaging costs, lightweight flexible packaging is outperforming conventional methods of packaging, as it weighs less than many other types of rigid packaging, eg PET and glass containers, and incurs lower transportation & logistics costs," notes Bhatt.

Further, successful exploitation of bio-based lightweight packaging materials can help reduce transportation costs and contribute to a reduction in landfill requirements & carbon dioxide emissions. Analysis of the properties of the novel bio-based polymers indicates that these can be stiffer or with higher elongation than conventional plastics used in packaging. This suggests that reduction in the weight of food packaging is possible by developing ultra-thin materials reinforced with fibres/microfibrils or by using foamed sandwich materials.

Thus, in an integrated packaging model, the number of products per trade unit or logistics unit can be optimised to reduce the overall packaging materials used. The packaging logistics approach involves reviewing packaging as an integral part of the logistics costs. Reduction in yield losses, optimisation at design stages etc are some of the initiatives that companies are taking these days.

Future trends

Effective logistics management can overcome the disadvantages in the short term, while providing cutting-edge competitiveness in the long term. This can be compensated by innovations in packaging technology to adapt to the transient changes in Indian infrastructure. Thus, packaging forms a crucial necessity for every sector. Packaging has a significant impact on the efficiency of logistics systems and activities such as manufacturing, distribution, storage and handling throughout the supply chain.

In an era of rising energy & overall costs and scarce resources, companies need to work towards packaging that adds value to end-products, conserves the environment and reduces logistics costs. Thus, to achieve the goal of reducing logistics costs and the amount of materials used for packaging, companies can adopt lightweighting, which means that less fuel is needed to ship the packaging to companies and, in turn, to stores or retail consumers. ■

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