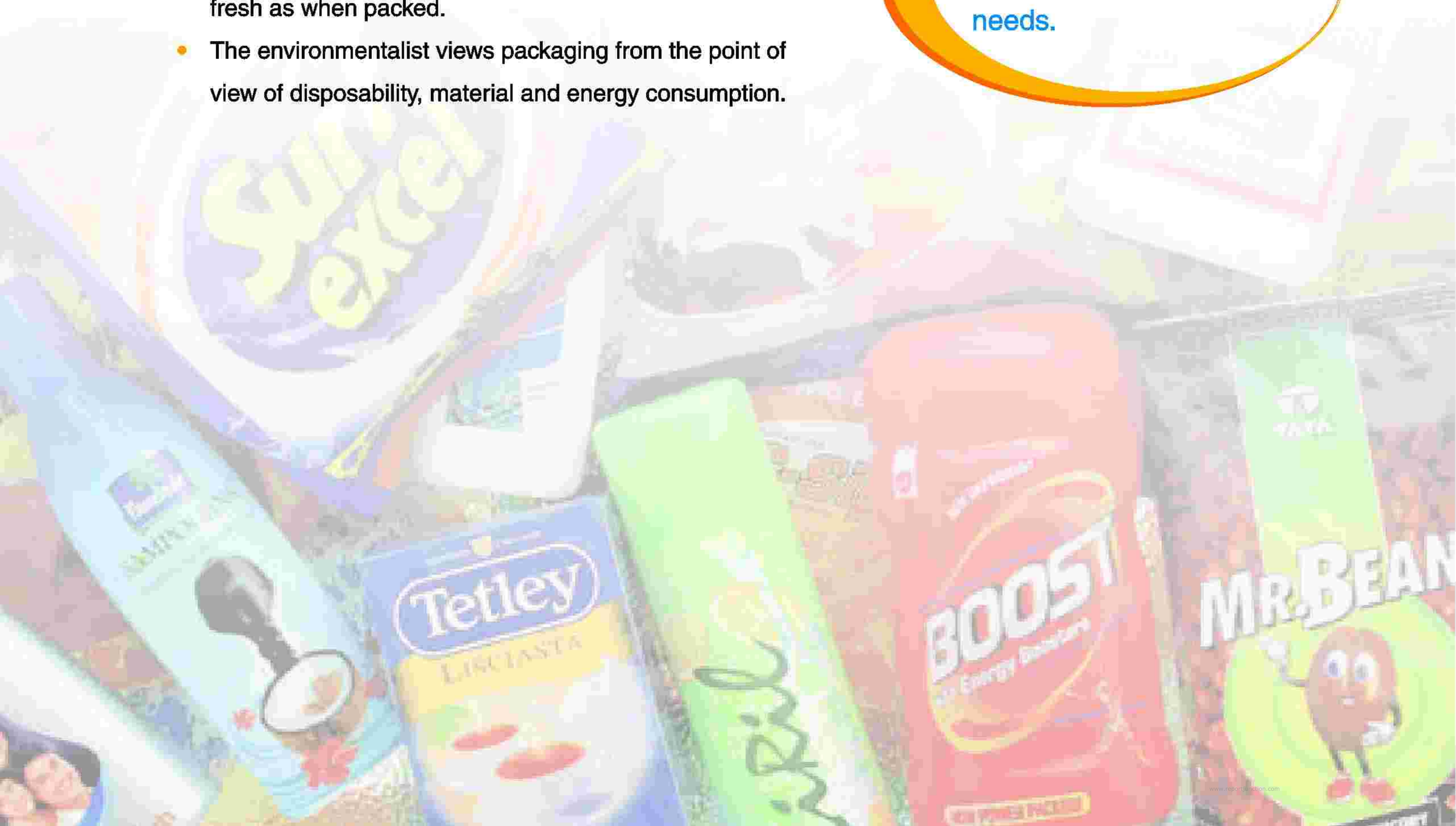


Packaging means different things to different people.

- The marketing man is concerned about the attractiveness and presentation value to the consumer.
- The production man thinks in terms of plant running efficiencies.
- The technologist evaluates the interaction of product, package, machine and the environment, ensuring that the product is well protected from the aggressive forces (like oxygen, moisture, UV) of the environment.
- The logistics group looks for efficient use of warehouse space, suitability for all handling operations and ease of distribution.
- The consumer is attracted by package differentiation, ease of opening and is keen that the product reaches her as fresh as when packed.
- The environmentalist views packaging from the point of view of disposability, material and energy consumption.

A good package must strive to satisfy everyone's needs.



PPL Total packaging solutions

Nature provides abundant resources for man's needs in the form of ready to eat packaged food like fruits, vegetables, nuts, etc. Our inspiration for speciality packaging comes from the beauty that nature has created all around us; be it an ethereal pearl, or the solid coconut, protecting tender coconut water, the walnut and the flexible packaging of nature like oranges, sweet limes...

In fact, nature's flexible packaging leads us to concepts like easy openability (oranges, litchees) and easy peel (bananas). However, most of these resources provided by nature have a very low useful life and hence the need for packaging either in processed, semi processed or raw form.



Packaging is the first handshake a brand has with the consumer

Flexible Packaging

When primitive man thought of packaging, leaves and animal skin came to his mind. Packaging has come a long way since then. Today when we talk about a flexible pack, it is a laminate, or in other words, a combination of layers of polymers, metal foil and paper, which are bonded together using sophisticated adhesives.

The layers are specifically chosen depending on the product to be packed, whether it is a solid, powder, liquid or a mixture of these, does it form lumps in the presence of moisture, does it deteriorate due to the oxygen present in the atmosphere, does it require U.V. protection, and a host of other product characteristics. Some of the other parameters that need to be considered in designing a laminate are the shelf life requirement in the market place, the packaging machine to be used, speed of packing lines and issues of logistics.

Thus we have laminates that can be designed to package everything from processed food to automobile components, and from fruit juice to condoms, and protect them from environmental conditions. It is theoretically possible to produce an infinite number of combinations using different flexible packaging materials. We must therefore custom design every laminate. The customising process optimises design for achieving product protection, product filling, productivity, brand image promotion and overall cost effectiveness.

Consider a typical laminate for a pack of Instant Coffee. It has a high quality, thin polymer film surface for good printing characteristics. Beneath, the polymer layer is reinforced by a layer of metal foil, which provides a barrier against the attack of moisture and oxygen from the environment. It also does not allow the aroma of the coffee to escape from the pack. Finally, the innermost layer is a special grade of polyethylene that is in direct contact with the coffee and has good heat sealing properties. All these layers are bonded together by speciality adhesives. Each laminate is product specific. Thus a laminate that is ideal to pack instant coffee would be quite unsuitable for a bar of soap.

The advantages of flexible packaging over conventional forms of packaging range from basics like protecting products from the external environment to unusual advantages like creating markets where they did not exist. In fact flexible packaging continues to give marketers a continuously flexible price point option, from a full month's usage pack of tea, dairy whitener, detergent, etc to the now famous Re.1 packs of instant coffee, soft drink concentrate powders and biscuits, and the highly penetrative 50 paise shampoo packs.



Considering the flexibility of flexible packaging in meeting complex marketing issues, it continues to be a great fit in providing optimal packaging for various products.

The real power of flexible packaging is in its inherent principle of source reduction, that is, using a lesser amount of material for packing a given quantity of product, when compared to earlier forms of packaging. Some other advantages of flexible packaging are high-speed packing, savings in inventory space and transportation cost, reduced energy requirement, optimal print area for shelf throw and including informative text matter.

Flexible packaging in India had humble beginnings in the thirties, with products like pastry cup crimps, paper straws, milk bottle caps, laundry bags, etc, all firsts introduced by PPL that were major innovations of their time.

In fact throughout our history, PPL has been the pioneer in India of most new forms of flexible packaging, gravure printing, the flexible pouch, battery labels, certified barrier metallising, registered cold seal and hotmelt laminates to name just a few.

The evidence is overwhelming that a good package can make a good product sell better. Therefore, many successful marketers wisely pay as much attention to their packaging as to any other single factor in their manufacturing and marketing programme.

Flexible Packaging is a continuously evolving area of technology. And when we dream, again nature inspires us - ultra thin edible packaging - as in apples, grapes, pears... the final frontier!



And while doing all this, flexible packaging retains the aesthetic power to attract consumers to brands more importantly, makes it all possible cost effectively.

At times, we are faced with the argument that flexible packaging solutions are easier to find than what PPL makes them out to be. Yes there are shortcuts. The kind of shortcuts that end up with oil leaking out of pouches on the shelf, or potato wafers going soggy, or soft drink concentrates caking up, or poor graphics. PPL does not recommend these solutions. Because the downside risk is too heavy.

Labelling Technologies

In the late eighties, we were exploring opportunities of significant growth through introduction of new technologies, which could utilise the base platform of our knowledge and experience in flexible packaging. We concluded that there was one area of packaging where a wide gap existed between international offerings and what was available in India and we quickly moved in to fill this gap.

This gave birth to PPL's Labelling Business Division in the early nineties. The basic philosophy for this new business group was to bridge the product gap between international and domestic offerings by introducing various types of premium labelling.

While a major opportunity had been identified, it was a bold foray into new products and new markets. At that time, the typical label prevalent amongst high end FMCG brands cost 10 to 15 paise whereas, our offerings were atleast 5 times that value. Despite this seemingly higher cost, our customers found significant value in upgrading to such newer forms of labelling.

PPL offers a range of labelling options to help customers create the right package that constantly advertises their product.

Shrink Sleeves

A Shrink Sleeve is made of a glossy full printed polymer film. The label is placed such that it encircles the container and when the combination is subjected to controlled heat, the label shrinks to become an integral part of the package. Shrink Sleeves are used with a wide variety of containers like glass, plastic, metal and composite cans. Shrink Sleeves blend themselves well to high quality printing and the biggest advantage that this labelling type offers is all around the container, 360-degree coverage of the design.



Heat Transfer Labels

Heat transfer labels are made by printing on a special paper using wax and lacquers. This printing is then transferred on to a container using controlled heat and pressure.

Heat transfer labels are used with a variety of polymer based containers. The heat transfer label can be applied to almost any container, with reference to shape and size, and the advantage of this labelling type is the high quality graphic content coupled with a "no label look" which enhances shelf impact.

Pressure Sensitive Labels

A pressure sensitive label is like a complex custom designed sticker. The top layer is either paper or film - film may be used when transparency is required - which is printed with multi colour graphics. Below the printed layer is an adhesive followed by a second layer of either paper or film. During usage, the printed layer is released from the other layer and applied on to the container with a controlled pressure application. The adhesive is activated by pressure and the label gets glued on to the container in a high speed label application equipment.



Metallised Paper Labels

In this case a metal coating is applied on to a speciality paper for excellent gloss and a true metallic look. The label is then stuck on to the container using external glue. It is a popular labelling option in applications like beer bottles where the pack requires to be refrigerated, in many cases the label requires to withstand cooling by contact with ice. On the other hand, it requires to get easily removed when the bottle needs to be recycled.

The eye-catching look of the label also makes it an effective marketing tool in the food industry where children are likely to influence the buying decision.



Wrap Around Labels

Wrap Around labels are made of a polymer material like oriented polypropylene, which is printed with attractive graphics.

Wrap Around labels are suitable for plastic bottles, glass containers, metal cans and composite containers. These labels are popular in the soft drinks industry where very high application speeds are required.



Specialised Cartons

PPL added specialised cartons to its portfolio towards the end of the last century. The range includes lined cartons, where a flexible pouch is glued on to the inside of the carton. Lined cartons can be used for a variety of products from powders to liquids. To provide relative protection and security in a cost effective manner, we also did work in the area of Espresso cartons. Over a period, we have concentrated on value added products, in many cases combining our flexibles technologies with cartons technologies. One major break through was the development of a specialised lined carton alongwith systems packaging for lube oils.



Holographic Packaging

Holograms give a visual appearance of a 3 dimensional image by providing depth to a design. They also have a rainbow colour throw effect. These features make holograms an important tool to provide security against duplication as well as to provide eye catching aesthetic appeal. When holograms are fused with packaging technologies, they open up an

exciting variety of designing possibilities.

Holograms are preferred for all branding applications where it is either important to provide high security or to give the consumer an interactive

medium to view variable images or just simply to provide spectacular differentiation.

PPL is probably the only company worldwide that offers a complete holographic solution. We have successfully integrated holograms across our packaging technologies namely flexibles, labels and specialised cartons.



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Packaging Machine Division

In the early nineties, as the market became more and more specialised, we recognised that it was important to provide not only the right packaging material but also a good quality packing machine. The focus was on designing equipment solutions and material solutions both optimally suited to one another. The start up of our Packaging Machines Division (PMD) in 1993 heralded a new dimension in our “total solutions” concept.

Today our PMD plays an active role in providing systems solutions, to reduce infrastructure costs, improve logistics and greatly reduce “concept to market” lead times. Some of the equipment solutions offered by our Packaging Machines Division are as follows:

- Shrink Tunnels
- Sleeve Application Machinery
- Heat Transfer Applicators
- Specialised Cartons Packing Machines

Shrink Tunnels

A Shrink Tunnel is required to produce a high quality shrink labeled container. The selection of a shrink tunnel, like the determination of a sleeve specification, is of prime importance. Tunnels need to provide precise temperature control and have the facility to direct heat accurately. A wide range of highly flexible hot air and radiation tunnels are available for hand application, and to complement application equipment.



PPL has been in the complex world of designing and producing packaging solutions for over fifty years. It is perhaps this experience that places us in a unique position to understand packaging problems and find optimum solutions for them.

Shrink Sleeve Applicator

PPL offers a range of shrink sleeve application machinery. Machines are designed to position sleeves accurately and consistently, time after time. The choice of application machine is dependent on the output speeds, container and stability requirements. With prospects of output speeds of up to 240 containers per minute, our machines are designed to facilitate rapid tool change and maximize operator output.

Heat Transfer Applicator

A modern heat transfer system for decorating plastic containers includes both the decorative labels and decorating machines. The gravure printed graphics are delivered in roll form and transferred to the plastic container by the fully automatic decorating machine.

Specialised Carton Packing Machines

Ceka packing machines are used for packing pre-lined cartons. They guarantee a simple, efficient and a reliable packaging system. Ceka machines are ideal for packing products that require high barrier protection, in cartons.

One of the greatest strengths of PPL is the total solutions support provided by our Packaging Machine Division to all our main line business groups namely flexibles, labels and specialised cartons.



HUHTAMAKI
TAKING PACKAGING FURTHER



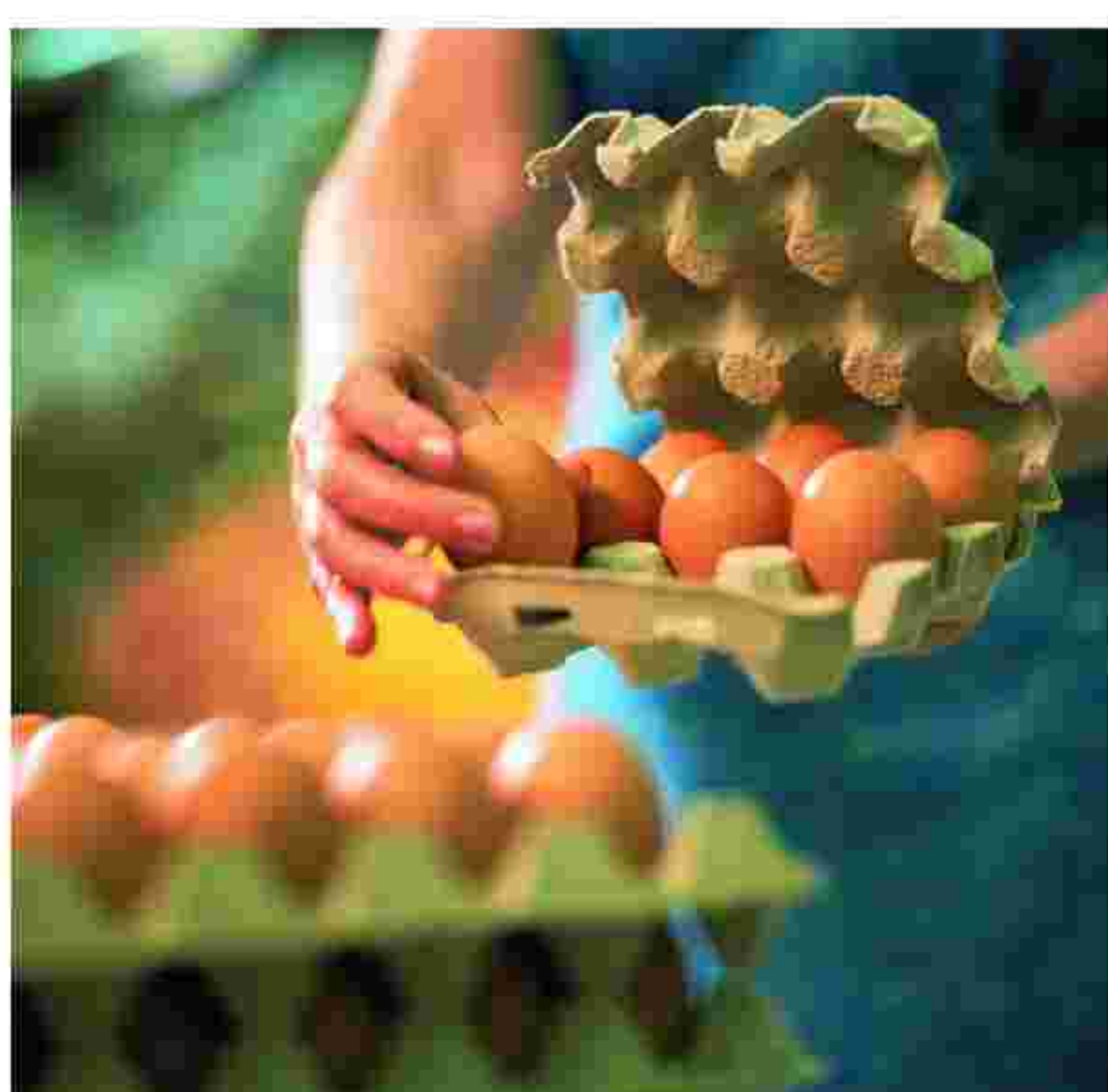
Further - a single word that captures our aspirations. As one of the world's premier providers of rigid and flexible packaging solutions for consumer products, we take packaging further: in functional and technical properties, as vehicles for branding and marketing, as comprehensive packaging systems, within the environmental dimension, to new markets...

Apart from its original task - protecting perishable products and ensuring their safe journey from producer to end-user packaging today has many other roles. One of them is becoming more important all the time: brand-building. With the power of traditional advertising waning, the buying decisions for foods and other fast-moving consumer goods are increasingly taken on impulse. As the first handshake between the product and the consumer, packaging is the most powerful tool for instant brand identification, product differentiation and in-store promotion. Our background as a consumer products company has given us deep insight into branding and consumer behavior, and we take it further through our own research activity.

Already the world leader in rigid, thin-walled plastic and paper packaging as well as in molded fiber products, we also want to go further as a company and as the 16,000 motivated Huhtamaki employees behind it.

Established in 1920, Huhtamaki has become a pure packaging company through a process of strategic change and corporate transactions, starting twenty years ago and culminating towards the end of the 1990s.

We combine a long industry experience and innovation track record with an unrivalled range of rigid and flexible packaging technologies as well as a truly global network comprising more than 70 factories and additional sales units in 36 countries.



In 2002, Huhtamaki's net sales amounted to EUR 2.2 billion, with half of that from Europe, a third from the Americas and the rest from Asia-Oceania-Africa.

Huhtamäki Oyj has its head office in Espoo, Finland, and is listed on the Helsinki Exchanges since 1960. The company produced its best-ever financial results in 2002.



Our values in *action*

We treat our world with respect

- We care about our people, place and planet
- We welcome diversity and recognize it as a source of innovation
- We encourage people to speak up, question and progress new ideas

We know our business

- We seek to understand our customers and consumers
- We strive for open and active communications, honest feedback and a world view
- We learn from everything we do

We like to get it done

- We have high aspirations
- We trust and empower individuals to get on with their job
- We are inspired by the entrepreneurial spirit of our founder Heikki Huhtamäki

