PACKMASTER WD

PACKMASTER CW

SUMMARY

EASY OPEN APPLICATION IN FLEXIBLE PACKAGING: BAGS AND SACKS

FLEXIBLE PACKAGING: BAGS AND SACKS

Flexible packages are the ones made from elastic—flexible materials which are easily formed after filling them with a product. The main material used in production is plastics (Figure 1). To the flexible packages belong films and flexible laminates used as wrapping of the product and the package. They are used in retail and institutional food and non-food as well as in industrial applications, retail, consumer storage and trash bags, bags, wraps, shrink, and stretch films. (Figure 2)

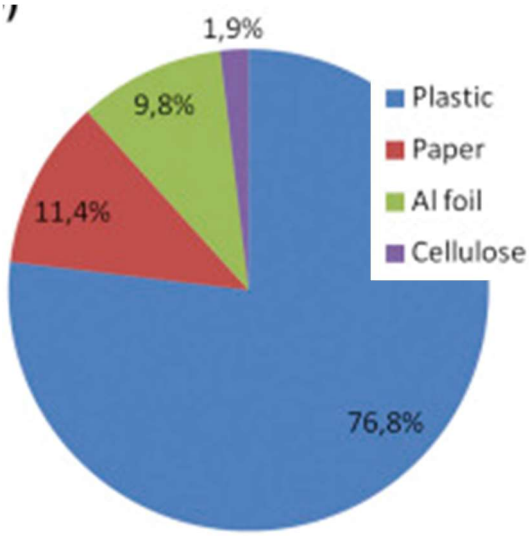


Figure 1: Types of materials used for flexible packaging.

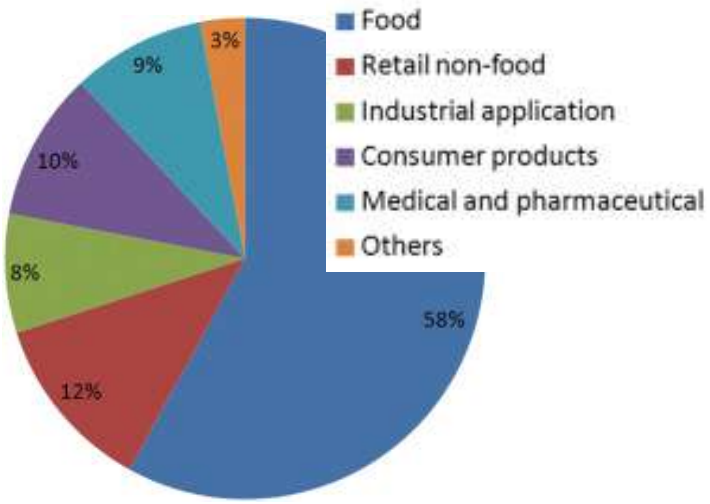


Figure 2: Areas of application of flexible packages.

The most numerous group of flexible packaging are bags and sacks-in 2014, they constituted 34% of the worldwide market of flexible packages. When producing bags, sacks, and pouches, two or more edges of the film or laminate are welded together in order to contain the product. The bags may also be welded from film or from a tubing. The laminates, in turn, are used to produce **stand-up pouch, retort pouch, pillow pouch, pouches with spouts, and so on**.

Figure 3: stand-up pouch or Doypacks

Figure 4: pillow pouch

Stand-up pouches, also called **Doypacks**, are welded bags with a well-formed bottom which allow it to stand. They are made from various laminates printed on the interlayer basis and their multicolor prints are very significant for marketing. Such packages are applied to pack not only drinks and juice, but also sauces, mayo, oils, or liquid soaps, as well as dry products such as coffee, tea, spices, dried fruit, nuts, and sweets.

Retort pouches are the type of pouches made from laminates, plastic films, and aluminum foils. They may be formed by welding from four sides (pillow pouch) or as a stand-up pouch with a bottom. Such packages are an alternative for metal cans and allow for packaging food and drinks in sterile processes. They are commonly used to pack ready-to-eat meals which may be eaten cold or may be heated in a package.

It is envisaged that a growth in bags and sacks sector will be increasing (Figure 5). They will be more and more meaningful for pet food packaging, for “ready-to-eat” meals and “case-ready meats.” What is more, flexible packaging will be an alternative for rigid ones in areas of packages for meat and poultry, snacks, “ready-to-eat,” pet food, and drinks.

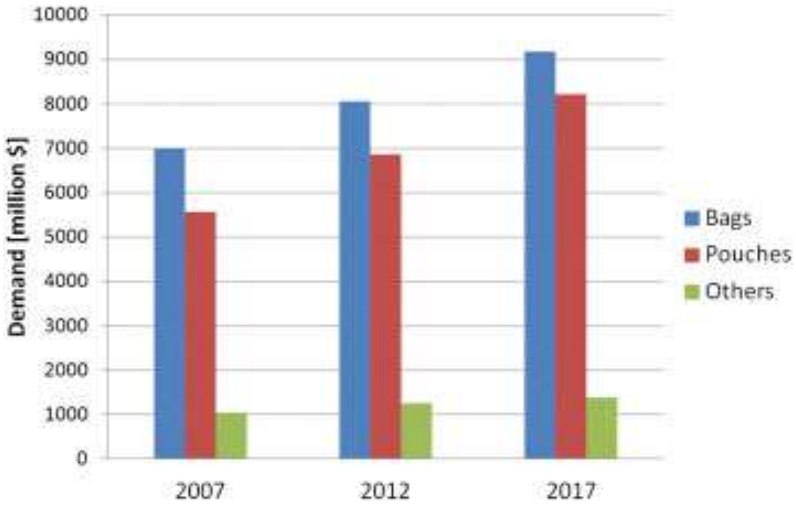


Figure 5: Converted flexible packaging demand in the United States (million $).

COMMONLY USED RESINS AND SUBSTRATES IN FLEXIBLE PACKAGING BAGS AND SACKS

1. RESIN AND SUBSTRATE FUNCTION

the basic purpose of a flexible package is to provide protection (including structural integrity, barrier, sealing, and adhesion) and promotion (which may include aesthetics, printability, and so on). In multilayer films, a specific combination of materials is selected to meet the functional requirements in the most economical manner. Often materials used in flexible packaging provide more than one function. For example, high density polyethylene (HDPE) in a cereal liner bag-in-box structure provides stiffness, puncture resistance, and moisture barrier. As more layers are incorporated into flexible packaging, the contribution of the each of the layers has become more specialized.

1.1 STRUCTURAL INTEGRITY

Stiff materials are generally used for structural integrity, such as paper, oriented polypropylene (OPP), or oriented polyester (OPET).

1.2 BARRIER

Moisture, oxygen, carbon dioxide, and light barrier are the four most common barrier needs in flexible packaging. Oil and grease barrier is another need for some applications. The amount of barrier required depends on the product being packaged and the shelf life requirements. **HDPE** and polypropylene (**PP**) are often the most cost-effective moisture barrier materials. **Aluminum foil** and **metallized film** are also used for moisture barrier. Polar polymers such as ethylene vinyl alcohol (**EVOH**), polyvinyl alcohol (**PVOH**), and **PVDC** provide an outstanding oxygen barrier performance. Aluminum foil and metallized film also provide an exceptional oxygen barrier.

1.3 SEALING

The sealant layer is the innermost layer of the flexible packaging structure. Its chief function is to provide a hermetic seal to keep the contents of the package in and contamination out. Therefore, polymers with low melting points generally make good sealants. As a class, the ethylene copolymers such as ethylene vinyl acetate (EVA) copolymer, low density polyethylene (LDPE), linear low density polyethylene (LLDPE), and ionomers have low melting points and provide low seal initiation temperature.

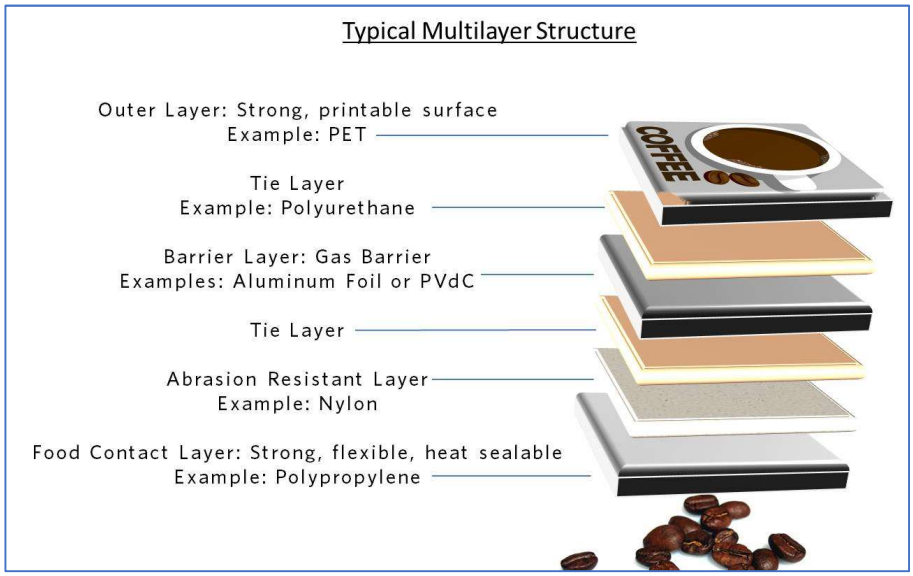


Figure 6: Typical Multilayer Structure

2. ADHESIVE LAMINATION

A flexible package may use more than one flexible material depending on the product, its storage and distribution experience, and its customer interaction requirements. Laminating materials together allows them to function as a complete packaging material. Generally flexible packaging can be visualized as having four operational layers: surface, bulk, barrier, and sealant. The surface carries printing and interacts with consumers and packaging machinery. Bulk layers add stiffness for shelf appeal and machining. Barrier layers prevent desirable product elements (e.g., flavor and aroma compounds) from escaping the package and prevent undesirable environmental factors (e.g., oxygen and moisture) from entering the package and harming the product. The sealant layer serves to close up the package and make it a container rather than a simple wrapper.

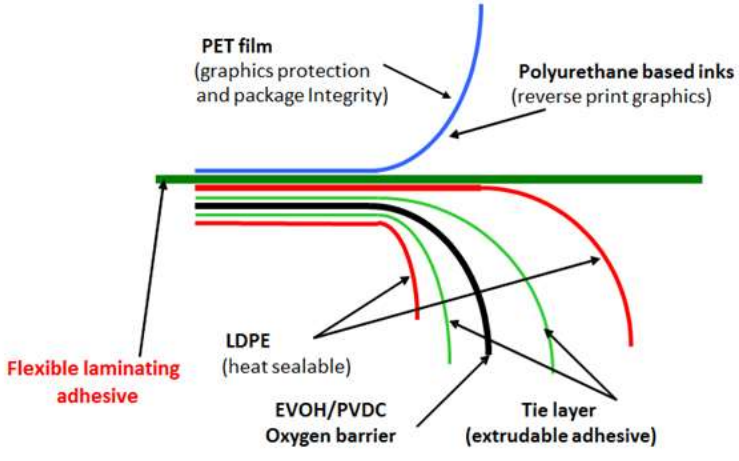


Figure 7: Adhesive in lamination of multilayer film structure

TYPICAL MATERIAL COMBINATIONS IN LAMINATED BAGS AND SACKS PACKAGING

WITH ALUMINIUM

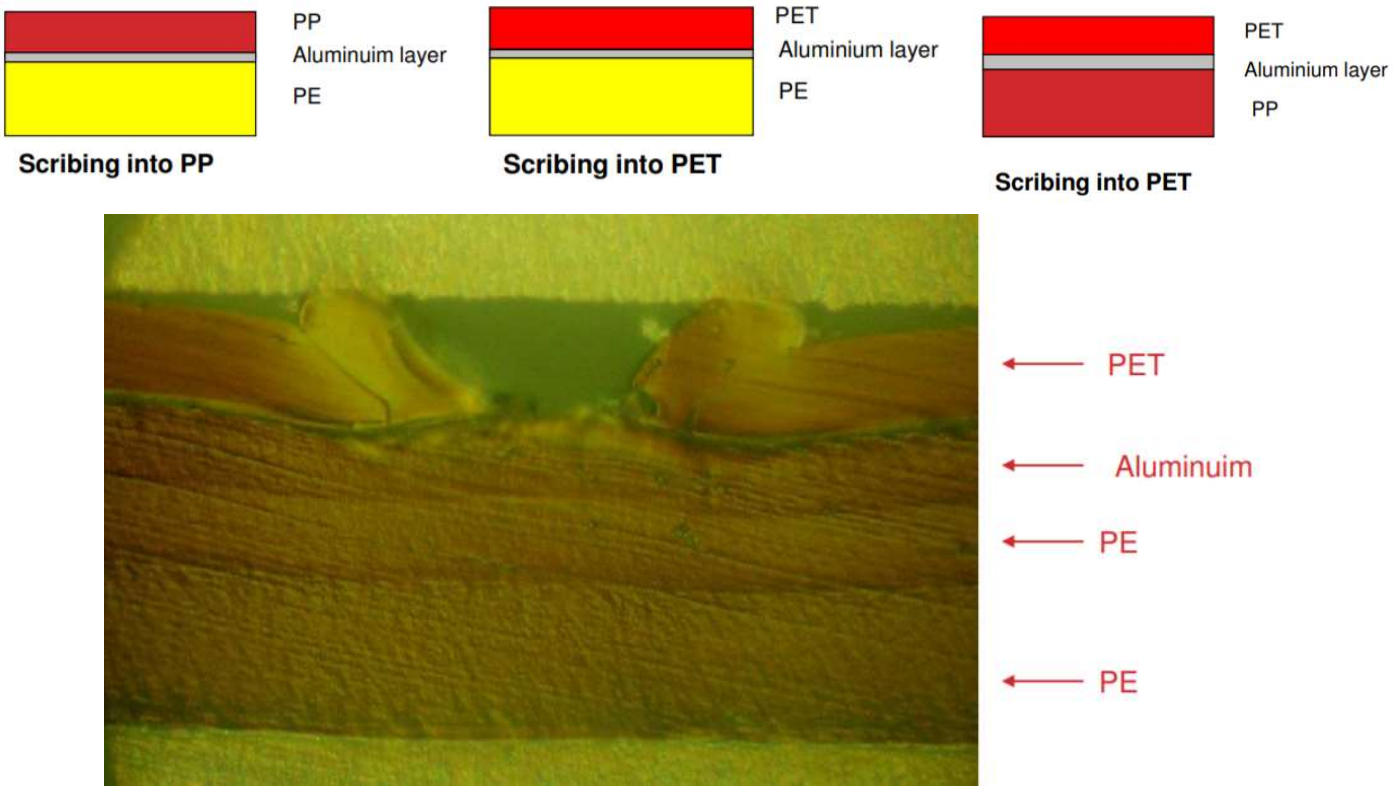


Figure 8: PET scoring by laser in multilayer film structure with Al

WITHOUT ALUMINIUM

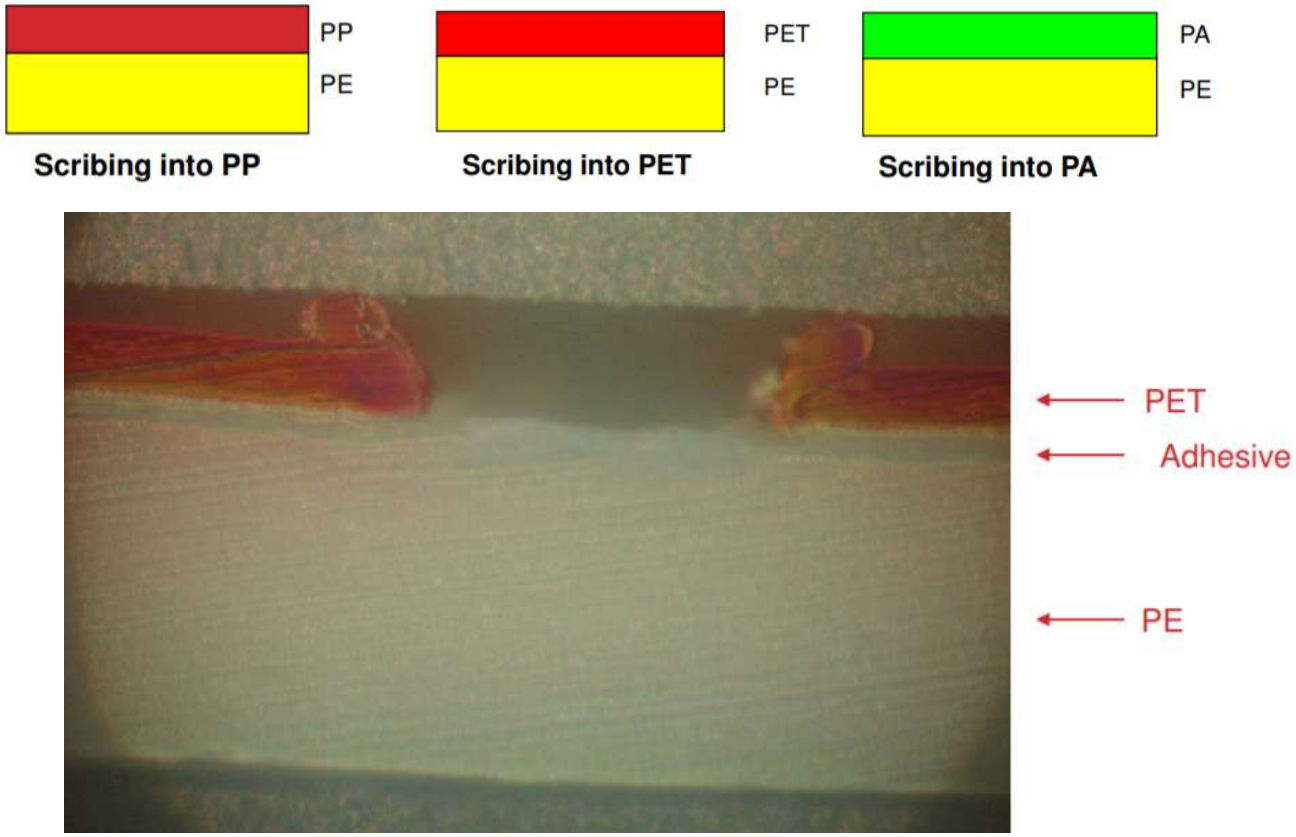


Figure 9: PET scoring by laser in multilayer film structure without Al

BAGS AND SACKS IN FLEXIBLE PACKAGING: TRENDS

Flexible packaging is getting more and more popular, with many reports saying it covers around ~19% of the entire packaging materials market at this point. Experts say this is largely due to constant advancements in materials and production possibilities. However, while advancements are part of the reason we also think the growth of flexibles is due to a change in trends and consumer desires. Below you will find 4 noticeable trends within the flexible packaging market. We personally think these are also big reasons for the continued growth of the flexible packaging market.

1. FLEXIBILITY

Flexibility is a big reason why we think flexibles will continue to grow more popular in 2019. Flexibles are structurally designed to be easy to use. For example resealable pouches or sachets with an easy-open laser. Pouches are very consumer friendly in general, with their adaptable shape making them easy to carry and store. Flexibles also use less material than rigid packaging to pack the same amount of product because they can shape around the product: many rigid packagings require you to 'pack air'. Together with their lighter weight they reduce transportation and ecommerce costs.

2. E-COMMERCE'S CONTINUED DOMINANCE

Not unsurprisingly, ecommerce is predicted to grow faster than ever in 2019. More then ever brands will have to stand out and this is going to affect their packaging designs. We expect packaging to become more personalized and to see more unusual packaging designs as time goes by: whether they have an innovative gimmick or are simply better looking.

3. ENVIRONMENTAL AWARENESS

Sustainable packaging has steadily become more important to consumers over the years—people are becoming overly conscious about their effect on our planet. Many brands are looking for solutions, be it through recyclability or biodegradability.

4. LESS IS MORE

Stripping packaging designs down to their essentials has been popular for a long time, particularly when minimalism was at the height of its popularity (2nd half of the 20th century). Even now the style is maintaining its relevance, and will continue to do so throughout 2019. Why? Because of it's greatest strength: its clarity. This can reward the brand with increased consumer trust and loyalty.

EASY OPEN ON BAGS AND SACKS BY LASER SCORING

The packaging industry has seen a rise in demand for features that add convenience and value to a package while maintaining the integrity of the product inside.

Laser-converting systems produce an accurate score with needed high speeds

The packaging industry has seen a rise in demand for features that add convenience and value to a package while maintaining the integrity of the product inside. With this increase, it becomes clear that packaging suppliers must adapt to the evolving needs of consumers by seeking out process solutions that deliver convenience and quality. Laser-scoring systems for flexible films deliver versatile value-added packaging features that enhance a product's ease of use without compromising the structural integrity of a flexible film.

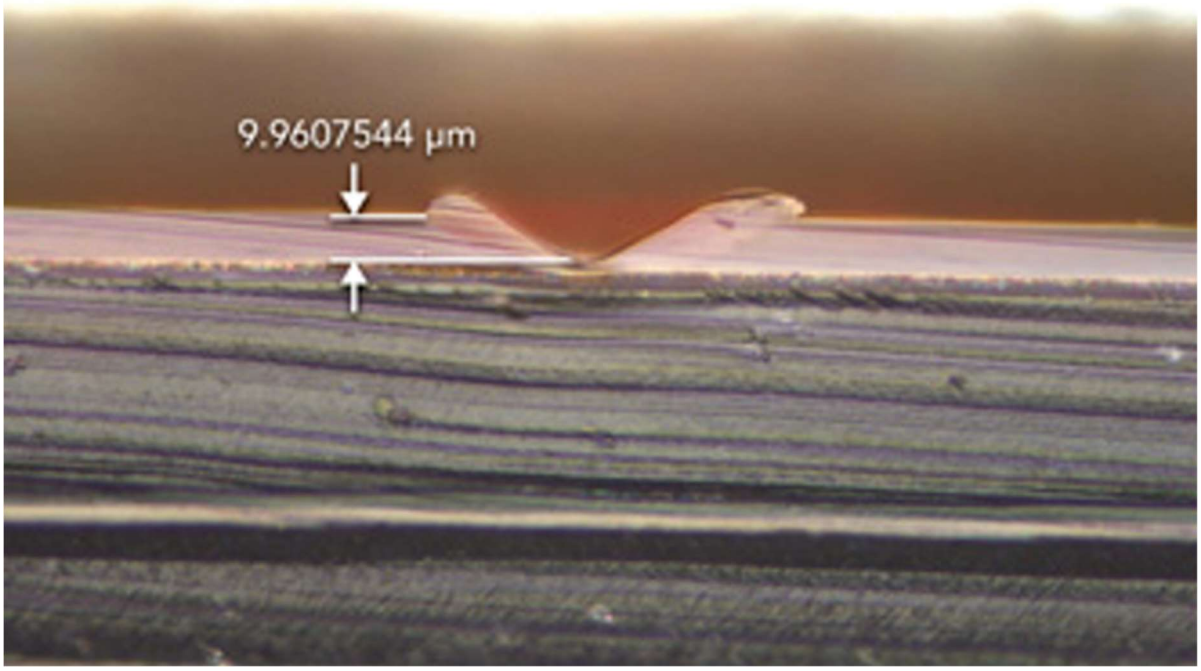


Figure 10: Laser scoring on PET

Laser scoring of flexible films is a non-contact, clean processing solution that eliminates the need for mechanical tooling or consumables. A fully digital workflow markedly reduces production downtime, as pattern or design modifications can be made instantaneously. Laser modules can easily be integrated into new material handling systems or can be retrofitted to existing systems on a production floor. These laser systems are capable of precise scoring processes that add accurate features not obtainable through mechanical methods.

Figure 11: Easy-Open

ADVANCEMENTS IN SCORING

Today's high-quality laser systems provide the ability to precisely and consistently score flexible films at controlled depths.

The key to this technology involves the advanced control software of a laser system, which constantly monitors and adjusts the laser's power to ensure a consistent score depth even at varying web speeds. Score lines are created by vaporizing specified areas of a flexible film, creating a narrow channel in the material for a tear to follow. A laser weakens specific layers of a material to produce score lines without compromising the barrier properties of a flexible film. A digital workflow provides versatility and the ability to instantly adjust to varying specifications and materials, without the need to replace tooling for different jobs. During the thermal process of laser scoring, vaporization and melting of the top layer(s) of flexible film occur as a result of the energy created by the laser beam. The taper, a V-shaped trough in the film, is created where material has been vaporized, thus generating the basis of a score line. The result is a precisely placed score line that will tear cleanly every time, providing the end user with a convenience feature that promotes brand quality.

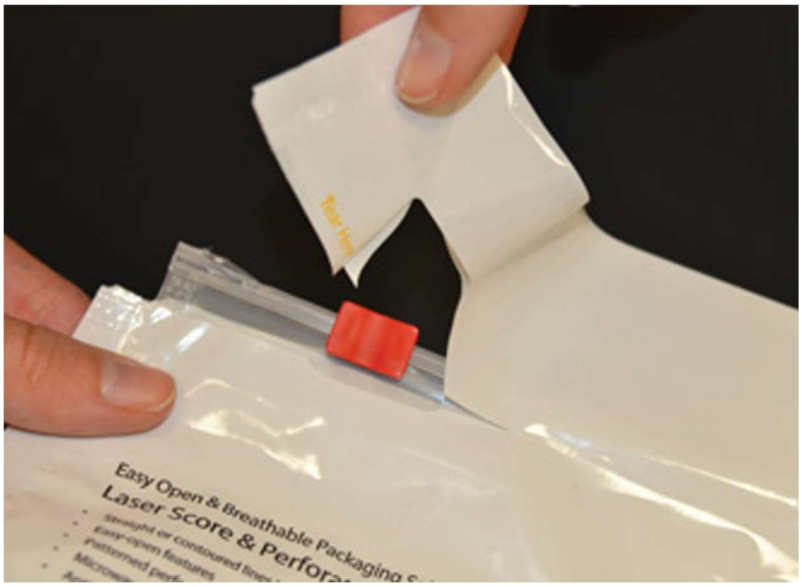


Figure 12: Contour laser-score line added to an easy-open zipper pouch.

LASER SOURCE AND MATERIAL SELECTION

Flexible materials best suited for laser processing are those with a narrow liquid-to-vapor temperature range. These include: polyester, polyethylene, polypropylene, PVDC barrier, polyolefin shrink films, nylon, and metalized films. Multilayer laminates are ideal for laser scoring, as one layer absorbs the laser beam energy for a precise score line while the laser beam transmits harmlessly through the other layer. Different materials absorb energy at varying rates and therefore vaporize at different temperatures.

THE DIGITAL ADVANTAGE

Applications for laser scoring are diverse and include easy-open tear strips for resealable standup pouches, pour spouts, microwavable packages, and peel-away windows. Advancements in laser-scoring technology no longer limit options simply to straight line, down-web processing, and thereby expand package design opportunities. For example, contour score lines (**Figure 10**) can be added to slider zipper pouches. When opened, the top material is discarded, leaving the sliding zipper exposed and allowing the consumer to more easily operate the slider and access the product inside.

While mechanical methods exist for scoring flexible materials, these options often yield an unreliable score line that unevenly tears and degrades a package without providing consumers an easy-open solution. Laser-converting systems produce a more accurate, functional score while matching the high speeds of today's manufacturing environments. An entirely digital workflow eliminates expensive machine downtime; production changeover is achieved simply by opening a new file. Laser-scoring systems deliver user-friendly and value-added features that protect the quality of the product inside.

SUMMARY: LASER-BASED EASY OPENING SOLUTION FOR BAGS AND SACKS PACKAGING

OVERVIEW

A laser perforated peel strip can be placed anywhere on the pack for opening of packs containing multiple products (for example bars, cubes etc.). Simply peel the strip up to open.

FEATURES

-Can be used on existing packing equipment without adjustments for a wide variety of pack styles stand-up pouches/flowpacks/stabilo seal pouches/doypack/stickpacks

CUSTOMER BENEFITS

-Excellent Seal Properties - Barrier properties of the pack remain unchanged
-Easy to Run - No reduction of speed on packing lines;

END CONSUMER BENEFITS

-Easy Opening - Controlled opening: the peel strip can be perforated anywhere along the pack
-Product Safety - Increased hygiene and product protection as contents stay within the pack
-Product Appeal - Premium look and feel as well as improved convenience
-Convenience - Easy access to product
-Perfect for sharing

EXAMPLE OF APPLICATIONS

FOOD

DAIRY & ICE CREAM

Cheese

CRISPS, SNACKS & NUTS

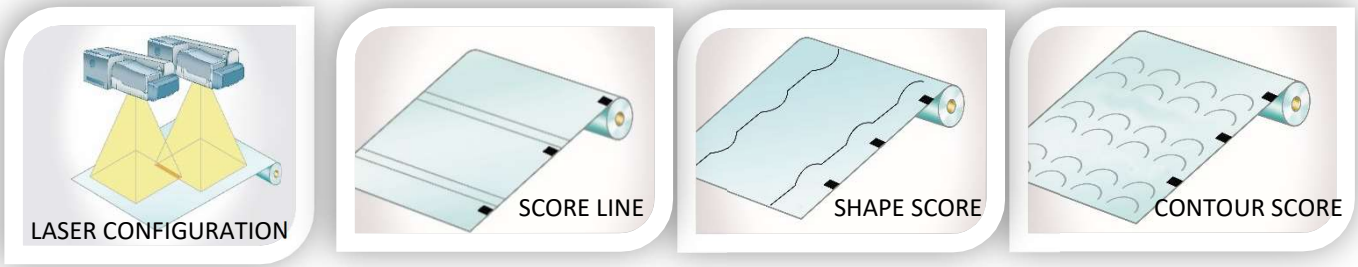
Savoury Snacks
Nuts & Dried Fruits
Crisps

CONFECTIONERY

Sugar Confectionery
Gum
Chocolate

SEI LASER - PACKMASTER: A UNIQUE SOLUTION FOR EASY OPENING ON BAGS AND SACKS PACKAGING

Figure 13: Packmaster Cross Web



NEW PACKMASTER VIDEO: https://www.youtube.com/watch?v=BV9V43Vssco

THE IMPORTANCE OF EASY-TO-OPEN PACKAGING

Surveys have revealed the consumer's annoyance and frustration with packages that are difficoult to open – vexation that customers rank above concerns about whether tha package is "smart", "innovative", or even "sustainable".
Easy opening technologies by laser system for flexible packaging can be used to create an integral opening of any size, shape or position on a pack.
We can find numerous benefits of this solution:

1. Replacing the tear tape strips, zips, or closures
2. Can be used in numerous laminated structures
3. Creative design with added value of an easy open
4. Enable re-closable solutions

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