

# THREE reasons why co-extruded film is good. And ONE reason why it isn't.



In the last five years, multilayer co-extruded film has become increasingly popular in the PE film packaging world. More and more customers are specifying this type of film because they think they have to have it.

They're not wrong. Multilayer film offers plenty of benefits that can be leveraged across several industries. But there remain situations in which monolayer film is more appropriate. By demystifying the technology, customers will better understand what they need and why co-extruded films are an excellent option for many—but not all—applications.

As the name implies, co-extrusion is the process of extruding two or more materials simultaneously through a single, multilayered die. The materials' flow paths in the die are arranged such that each layer processes individually and merges at the die lip prior to cooling.

This process is more complex than the traditional method in which only one material—or one blend of several materials—is extruded through one die.



By Mark Lichtblau

## The benefits of co-extruded film

### 1 Increased properties and quality

The principal benefits are easily optimized properties and the overall quality of the multilayer film. Instead of limiting the film to one resin or one blend, manufacturers can use five different resins on five different layers of one film. By using each resin separately, customers gain 100 per cent of the benefits of each resin.

For example, tough resins with reduced contact clarity and haze can be slotted in layers two and four—between layers of good sealant, high-gloss raw materials—to achieve a strong, yet high-clarity film.



A five-layer film typically looks something like this:

Layer 1: Sealant layer (mLLDPE)

Layer 2: Basic LLDPE

Layer 3: High modulus (MW HDPE)

Layer 4: Basic LLDPE

Layer 5: Printing layer/ outside surface (LLDPE + LDPE)

## 2 Ideal for down-gauging

Because each layer performs to its full potential, manufacturers can optimize each resin and additive, and still achieve greater performance specifications at a thinner gauge. By reducing film thickness, customers can get more yield per roll and gain other efficiencies on their packaging lines, such as fewer roll changes and longer production runs.

## 3 Customizable recipes

There are literally thousands of resins, each with their own characteristics. Manufacturers can vary the combination of optimized resins to achieve different goals. In short, we can customize film. This is ideal for customers who have unique packaging requirements, and don't want an off-the-shelf film that only meets three out of five specifications.

Customization is also ideal for those who are interested in incorporating sustainability into their film packaging. Instead of typical petroleum-based resins, suppliers can substitute with use renewable-resource-based resins (such as sugar cane, corn stalks, wheat grain and sugar beet). PE films can also use post-consumer-

recycled (PCR) resins in some of their formulations, which are becoming more accessible.

## When co-extruded film doesn't make sense

Despite these benefits, there are applications in which monolayer film is still suitable. Basic packaging that has a LLDPE blend and LD blend—used for non-critical applications—process easily and consistently, and produce satisfactory film.

Discuss your needs with your film packaging supplier; they should be able suggest a customised solution for your specific application.

