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Ref: Skin/Blister/Die Cutting Machinery & SurlyIn Film 101

SKIN/BLISTER/DIE CUTTING MACHINERY

Skin or Blister packaging - Method of packaging by which thin, clear plastic is shrunk by vacuum onto an object backed by printed card. Here are some skin basics....

- The product is placed on the bottom film or the pre-made tray
- After evacuation the top film which has specific skinning properties wraps around the contour of the product and seals to the bottom film or the pre-made tray
- Attractive presentation and maximum shelf life
- Enables vertical and hanging presentation
- The perfectly contoured upper film displays high-quality products to their best advantage
- Use of films with barrier properties extends the product shelf life and minimizes leakage
- Easy opening options
- Wide choice of packaging materials including glossy and metallized surfaces
- Secures products in place

Die cutting is a manufacturing process used to generate large numbers of the same shape from a material such as wood, plastic, metal, or fabric. The die cut shapes are sometimes called "blanks," because they are usually finished and decorated before being sold. The process is widely used on an assortment of materials all over the world, and many manufactured products contain several die cut components, often assembled together in a series of steps to create a finished product.

Sharp specially shaped blades are used in die cutting. The blade is bent into the desired shape and mounted to a strong backing. The result is known as a die. The material being cut is placed on a flat surface with a supportive backing, and the die is pressed onto the material to cut it. Depending on what is being made, a single die might cut one piece of material, or it might be designed to slice through multiple layers, generating a stack of blanks.

Many consumers find it helpful to consider a cookie cutter when thinking about die cutting. The cookie cutter is a type of die which is capable of cutting out a potentially infinite amount of blanks. Each blank will be exactly the same shape and size, meaning that the blanks can be cooked uniformly together and decorated at will for individuality. The alternative is cutting out each cookie by hand, a painstaking process which would result in irregular final products.

Creating dies is meticulous work. The die must be designed so that it efficiently cuts the desired material with minimal waste. Most factories which use die cutting as part of their manufacturing process have techniques for recycling material left over from die cutting, but they want to avoid excess if possible. Often, multiple dies are fitted together on one mount, nestled with each other for maximum efficiency. Material left over from the die cutting process may be melted down and reused, or reworked into other components.

Common examples of die cut items include keys, paper products, and flat plastic pieces which can be snapped together. Die cutting is limited, because it can only really be used to produce flat objects. For more dimensional shapes, other manufacturing techniques such as molds need to be employed. Dies can also range widely in size from cookie cutters to massive machines designed to cut out ship components. With large dies, it is important to observe safety precautions while die cutting, as an industrial die designed to slice through metal can also remove a limb without difficulty.

SURLYN FILMS

Surlyn packaging resins - are made from ethylene acid copolymers, in which the acid groups are partially neutralized with either zinc or sodium ions. The acid in the polymer gives polarity and reduces crystallinity. The ionic bonding between the polymer chains gives outstanding melt strength, toughness, and clarity.

The combination of properties available in Surlyn resins is unique among polymers, and especially well suited to packaging applications. The resins are available for use in conventional extrusion/coextrusion blown film, cast film, and extrusion coating equipment designed to process polyethylene resins.

Benefits in Packaging Applications. - The combination of outstanding properties of Surlyn make it the cost-effective choice in a wide variety of packaging applications, including:

1. Meat, seafood, poultry, and cheese packaging — the outstanding heat seal, hot tack, and seal through contamination properties of Surlyn® can dramatically reduce leakers both off-machine and in-store.
2. Snack packaging — the low-temperature sealing and outstanding hot tack of Surlyn® allow rates on high-speed equipment to increase by as much as 300%.
3. Skin packaging/stretch pak — the clarity, drawability, and toughness of Surlyn® make it a perfect choice for retail carded display packaging.
4. Personal and health care packaging — outstanding sealing properties, toughness, and abrasion resistance allow packaging made with Surlyn to give reliable, leak-free seals that ensure package integrity.
5. Liquid packaging — seal through contamination and oil resistance give liquid packages made with Surlyn a dramatic reduction in leakers.

Property Advantages of Surlyn /Packaging Benefits

Hot tack — the highest hot tack strength and broadest hot tack range of any sealant

higher packaging line speeds

reduced seal failures and leakers

Sealing performance — low sealing temperatures and the widest sealing temperature range available

faster sealing with less dwell time

higher packaging line speeds

tolerates temperature variations in real-world equipment

Formability — excellent formability/deep draw for evenly distributed film that resists pinholing

fewer leakers due to cracks/pinholes in thin film areas

Clarity — crystal clear film

gives packages a high-gloss, "premium" image

Seal through contamination — highly effective at sealing through all types of contamination

fewer failures at the packaging machine

reduced in-store leakers

Oil/grease resistance — excellent barrier for oily or greasy products

fewer failures at the packaging machine

reduced in-store leakers

Converters and end users are asking more from their packaging resins than ever before. Higher quality standards, downgauging pressures, and more demanding applications continuously challenge the performance of packaging resins: Surlyn meets the challenge. Materials of construction used in the processing of Surlyn resins should be corrosion-resistant. Stainless steels and duplex chrome or nickel are recommended for surfaces in contact with the molten resins.