

## Shrink Film Concept...

*Shrink film or shrink wrap, as its frequently referred to in the packaging industry, is a thin film, manufactured from a plastic-based material, generally used to wrap up a wide variety of products with diverse shapes, sizes and weights, bringing distinction and sales appeal to the products, due to its high level of transparency and clarity.*



## Manufacturing...

During the manufacturing process, the plastic-based material is manipulated to produce a continuous slim film which is then tightly wound onto layered cardboard rolls or cores. There are two ways in which to wind shrink-wrap onto a core: Singlewound and Centerfold. **Singlewound (SW)** means that the shrink-wrap is wound onto a core in a single layer. **Centerfold (CF)** implies to the shrink-wrap is folded in the center

before it is wound on a core in a double layer.

The shrink-wrap rolls are produced in various lengths, from 1,100 to 17,500 linear feet and widths, from 3 to 70 inches.

The shrink-wrap also comes in diverse thickness, which is commonly referred to as a gauge. A higher gauge means a thicker shrink-wrap, but a thicker shrink-wrap does not all the time mean that it is stronger!

## Shrink-Wrapping Process...

Shrink-wrapping process involves using a shrink-wrap roll with shrink-wrap equipment. The equipment can be as simple as a hand-held, single bar sealer, an industrial-grade blow dryer, or a sophisticated semi-automatic or fully-automatic machine. In every case, two split pieces of equipment are necessary for the shrink packaging route - one to wrap and seal the shrink film around the product and a second to heat, enlarge, and shrink the film around the packaged

product. In most packaging operations, heating, expanding and shrinking is usually accomplished with shrink tunnel. The package size, the packaging speed, film and seal types, and automation requirements, are aspects that decide which shrink packaging system will convene your particular and exclusive needs. Time, temperature and pressure are the three most critical elements affecting the seal quality.

## Shrink Packaging Process....

### Wrap & Seal



Product is wrapped in shrink film and sealed by a shrink packaging machine.

### Heat & Expand



Packaged product enters a shrink tunnel attached to the shrink packaging machine. The tunnel applies heat and expands the film.

### Shrink & Ship



Air is then naturally released through tiny perforations in the film and the film wraps tightly around the product, ready for distribution.

## Shrink Film Categories...

The shrink film market consists of two basic categories; the polyvinyl chlorides (PVC) and the polyolefins. The polyolefin consist of film made from polyethylene or polyethylene and polypropylene copolymer resins. Most of GTI's shrink films are polyolefins. PVC shrink films receive their properties from additives, which are primary plasticizers.

### Polyolefin Films

- Polyolefin films provide superior optical properties, very important attributes for retail appeal.
- During Shrinking Process, Polyolefin films need an air evacuation hole or multiple perforations.
- Polyolefin films must be exposed to the correct temperature for the correct amount of time for proper shrinkage to occur.
- Polyolefin films meet FDA requirement for direct food contact.



### PVC Films

- PVC films are temperature sensitive. Develop a tendency to shatter and split at cold temperatures, and "shrink back" when exposed to high temperatures over a period of time.
- During the Shrinking Process, PVC film does not need "artificially created" air escape holes, due the make-up of PVC; the seal typically is full of small pinholes.
- PVC films require only heat in order to cut seal and cut.
- When run on a sealing system, build-up of carbon char will occur, and will need to be cleaned from sealing head; otherwise the carbon will interfere with the sealing process.
- PVC films do not meet FDA requirement for direct food contact.

## GTI's Polyolefin Shrink Film Product Line....

There are a variety of shrink film style and brands, each one designed with special attributes to meet up with the wide-ranging machine and packaging demands of the marketplace. GTI's Polyolefin line consists of six different shrink films:

FUNCTION	GRADE & THICKNESS	ROLL LENGTH (FEET)	FEATURES
<b>Standard</b>	<b>BX</b> 50-60-75-100 gauge	50 Ga.- SW 10,500 ft. 50 Ga.- CF 5,250 ft.	3-layer polyolefin shrink film recommended for HFFS machines, static sealing and multipacking applications.
		60 Ga.- SW 8,750 ft. 60 Ga.- CF 4,375 ft.	
		75 Ga.- SW 7,000 ft. 75 Ga.- CF 3,500 ft.	
		100 Ga.- SW 5,250 ft. 100 Ga.- CF 2,625 ft.	
		100 Ga.- SW 5,250 ft. 100 Ga.- CF 2,625 ft.	
<b>High Performance</b>	<b>BY</b> 50-60-75-100 gauge	50 Ga.- SW 10,500 ft. 50 Ga.- CF 5,250 ft.	5-layer polyolefin shrink film with high percent shrinkage and fast sealing properties for higher productivity and yield.
		60 Ga.- SW 8,750 ft. 60 Ga.- CF 4,375 ft.	
		75 Ga.- SW 7,000 ft. 75 Ga.- CF 3,500 ft.	
		100 Ga.- SW 5,250 ft. 100 Ga.- CF 2,625 ft.	
		100 Ga.- SW 5,250 ft. 100 Ga.- CF 2,625 ft.	
<b>Tough and Versatile</b>	<b>BZ</b> 60-75-100 gauge	60 Ga.- SW 8,750 ft. 60 Ga.- CF 4,375 ft.	Cross-linked polyolefin shrink film with enhanced toughness and a broad operating window that is compatible with a wide range of machines and applications.
		75 Ga.- SW 7,000 ft. 75 Ga.- CF 3,500 ft.	
		100 Ga.- SW 5,250 ft. 100 Ga.- CF 2,625 ft.	
		100 Ga.- SW 5,250 ft. 100 Ga.- CF 2,625 ft.	
<b>High Efficiency</b>	<b>BHE</b> 44 gauge	44 Ga.- SW 11,660 ft. 44 Ga.- CF 5,830 ft.	Enriched polyolefin formulation designed for high-speed applications and very high yield.
<b>High Yield / Low Gauge</b>	<b>BLG</b> 45 gauge	45 Ga.- SW 11,660 ft. 45 Ga.- CF 5,830 ft.	Cross-linked technology in a high yield, low gauge shrink film that provides material savings and production efficiencies while delivering exceptional shelf appeal.
<b>Soft Shrink</b>	<b>BRN</b> 60 gauge	60 Ga.- SW 8,750 ft. 60 Ga.- CF 4,375 ft.	Soft shrink polyolefin film with high gloss and clarity that provides excellent retail characteristics.



GTI Industries, Inc.

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