



SHRINK WRAP GUIDELINES



CONTENTS

- [1 INTRODUCTION TO SHRINK PACKAGING](#)
- [2 The Uses of Shrink Film](#)
- [3 Wrapping & Sealing](#)
- [4 Applying heat](#)
- [5 PVC versus POLYOLEFIN](#)
 - [5.1 ADVANTAGES OF PVC](#)
 - [5.2 ADVANTAGES OF POLYOLEFIN](#)
 - [5.3 SYTEC 307 Multi-Layer Shrink Film](#)
 - [5.4 SYTEC 701 Cross linked Polyolefin Shrink Film](#)
 - [5.5 SYTEC MVP Cross Linked, Soft Shrink Polyolefin Film](#)
 - [5.6 PV RAN PVC \(Poly Vinyl Chloride\) Shrink Film](#)
- [6 POLYOLEFIN SHRINK FILM COMPARISON CHART](#)
- [7 PVC Shrink Film Comparison Chart](#)
- [8 Standard Roll Lengths](#)
- [9 TROUBLESHOOTING GUIDE FOR SHRINK WRAP MACHINERY](#)
- [10 SHRINK FILM MARKETS](#)
- [11 SHRINK FILM SIZING CHARTS](#)
 - [11.1 FILM WIDTH FORMULA](#)
 - [11.2 Cut-Off Formula \(Bag Length\)](#)



1 INTRODUCTION TO SHRINK PACKAGING

Shrink packaging is a relatively simple concept and procedure, using different types of shrink film for effectively displaying and protecting a variety of products. Shrink films have been oriented (stretched) during the manufacturing process. They therefore shrink upon being heated during the wrapping process. The type of shrink film to be used is determined by the type of equipment used and by the needs of the customer.

2 THE USES OF SHRINK FILM

Shrink film, is clear, thin, low cost plastic sheeting (film). Usually found in roll stock. Used for protection, product enhancement and for protecting packages from being opened prior to purchase

- ◆ Provide a see-through over wrap for a clear sparkling display
- ◆ Used to bundle multiple products together
- ◆ Reduces cost of product packaging

The shrink process typically involves two steps:

- ◆ **Wrapping & Sealing** the product
- ◆ **Applying Heat** to firmly tighten (shrink) the film around the product.



3 WRAPPING & SEALING

The most popular wrapping and sealing machine is the “L” bar sealer. The name derives from the fact that the sealing bar is in the shape of a backward “L” - . The L-Bar sealer which comes in a variety of sizes, and with a variety of options, trim and seal the film with each down stroke or cycle of the sealing bar. By using a center folded film, side seals of the package are simultaneously formed, producing a fully sealed individual bag around each product - ready to be heated and shrink-wrapped.

4 APPLYING HEAT

The most common method of applying heat is a hot air circulating chamber, with a conveyor to move the product, otherwise known as the heat tunnel. Products travel through the tunnel, and are exposed to heat for only a few seconds. While traveling through the tunnel, shrinkage occurs. Since this only takes a few seconds, only the shrink film will be affected by the heat, not the product. Occasionally heat guns are used for applying heat and shrinkage.



5 PVC VERSUS POLYOLEFIN

5.1 ADVANTAGES OF PVC

- ◆ Higher clarity
- ◆ Low heat required to shrink (200-275 F) vs. Polyolefin (300-375 F)
- ◆ Can easily use heat gun or a small, less expensive tunnel, to shrink
- ◆ Available in lower and preferential shrink forces
- ◆ Strong and flexible film
- ◆ It's "idiot proof"
- ◆ Since it shrinks so quickly, it is also very good on very high speed Applications

5.2 ADVANTAGES OF POLYOLEFIN

- ◆ Sytec Sytec 307, Sytec 701 or MVP
- ◆ Food grade film
- ◆ Does not require cool storage as does PVC
- ◆ No smell, and no smoke when sealing.
- ◆ Not as corrosive as PVC. Creates less build up of material on machine sealing wires. No need to use Teflon curtains over sealing wire like PVC needs.

5.3 SYTEC 307 Multi-Layer Shrink Film

- ◆ This film will replace Cryovac, films on most machines without any adjustments to the equipment.
- ◆ It's especially a good film to run on flat applications, competing with such films as Cryovac's MPD (Their higher priced film) and with Vanguard films.



SHRINK WRAP FAQ

5.4 SYTEC 701 Cross linked Polyolefin Shrink Film

- ◆ This film is cross-linked (irradiated). This gives it, it's extraordinary strength, strong and durable seals, excellent shrinkage and abuse resistance.
- ◆ The 701 is also available in 45Gauge.
- ◆ The 701 is best suited for high-speed automatic machines.
- ◆ The 701 60ga is irradiated in-line, whereas the other 701 formulations are irradiated off-line. The 60ga thus has a bit of a yellowish tinge on the edge. This process also improves the 60ga sealing and shrinking range
- ◆ 701 is also available in anti-fog formulations.

5.5 SYTEC MVP Cross Linked, Soft Shrink Polyolefin Film

- ◆ This film is cross-linked (irradiated). As well as having extraordinary strength, the film is able to conform to unusual shapes, as well as low shrink force on flexible products, when applied correctly.
- ◆ MVP has a broader sealing range than any of our films.
- ◆ MVP usually shrinks at lower temperatures than other films.
- ◆ It works well on all kinds of sealing systems.
- ◆ While it is a bit more expensive than our other films, it also is the most versatile of our films.
- ◆ Available in 45, 60, 75, and 100 gauge at present.



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5.6 PV RAN PVC (Poly Vinyl Chloride) Shrink Film

- ◆ PVC shrink films are used for their high clarity, gloss, low haze and their ability to shrink at a lower temperature.
- ◆ PV RAN is the only shrink film on the market with a variable shrink. In other words, with the capability of being produced to shrink at different percentages in the machine, and transverse direction.
- ◆ PV RAN shrink film has several advantages over other PVC shrink films on the market today.
 1. The high density of our film compared to Reynolon, is more machine-able and less likely to block.
 2. Besides being less susceptible to blocking, the higher density of our film also makes it less likely to shrink on the roll in humid or hot warehouse conditions.
 3. Our pricing is very competitive in the marketplace.



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6 POLYOLEFIN SHRINK FILM COMPARISON CHART

Competitor's Shrink Film	Our Equivalent
Cryovac - D955, MPD, and others	SYTEC 307S / 701
Cryovac - D940	SYTEC MVP
Cryovac - LD935	SYTEC MVP
Clysar (Bemis) HP, LLP	SYTEC 701
Clysar LE	SYTEC MVP
Clysar VEZ, VHZ	SYTEC 701 45GA, MVP45GA, 307S 50GA
Excell Film XL PLUS	SYTEC 701
LG	SYTEC MVP
Vanguard (Okura) #501 / #503	SYTEC 307S
AEP Flxtite-AP-1/AP	SYTEC 307S
Flexar (Gunze film)	
Bollore BX	SYTEC 307S
Bollore BY & BZ	SYTEC 701/MVP
Bollore BLG	SYTEC 701 OR MVP 45GA
Bollore BRN	SYTEC MVP
Super Shrink (Traco - UT)	SYTEC 307S/701
OPTI 92	SYTEC 701
OPTI 110	SYTEC 307S
OPTI 200	SYTEC 701 / MVP



SHRINK WRAP FAQ

7 PVC SHRINK FILM COMPARISON CHART

Competitor's Shrink Film	Our Equivalent
Reynolon (Alcoa) 5044, 5022, 5011	PVCLEAR1 & 2 PV RAN - PVC Shrink film
VCF, Nippon	This is a cast PVC, and currently we have no correlative

This cross- reference table is good to use as a general tool.

- ◆ It would however be a good idea to call and check about any particular film.
- ◆ There may be other considerations that need to be taken into account before offering an equivalent. Some of these are:
 1. Package shape,
 2. Package size,
 3. Unsupported film areas,
 4. Type of machinery, etc.

8 STANDARD ROLL LENGTHS

Film type	45 Gauge	60 Gauge	75 Gauge	100 Gauge	150 Gauge
POLYOLEFIN					
701	5,830	4,375	3,500'	2,620'	1,750'
307S	N/A	4,375	3,500	2,620	1,750
MVP	5,830	4,375	3,500	2,620	N/A
PVC	N/A	2,500'	2,000	1,500'	1,000'

- The above are lengths for center folded film.
- Lengths are double for flat film.
- Both 307S and 701 are available in 125 gauge also



SHRINK WRAP FAQ

10 SHRINK FILM MARKETS

MARKET TYPES	MARKET SHARE
TOYS, GAMES, SPORTING GOODS Dolls, Crafts and Hobby kits, Games, Puzzles, Models, Archery equipment, Paint sets, Fishing rods, Skin diving equipment, etc.	9%
PRINTING AND PAPER PRODUCTS Gift-wrap, Books, Business forms, Tickets, Greeting cards, Loose-leaf binders, scrap books, Albums, Wallpaper, Stationary, etc.	29%
PACKAGED FOODS Baked goods, Ice cream, Pizza, Meat patties, Sweet goods, Candy, Frozen fish and shrimp, Breaded meats, Gift sets (Cheese, Jellies, etc.), Taco shells, Butter/Margarine, Aseptic packs, Citrus, Flour, Vegetables, etc.	31%
HARDWARE AND HOUSEWARES Kitchen cutlery, Cutting boards, Drill sets, Tools, Shutters, Ash trays, Cookware, Clocks, Plastic ware, Glasses, Electric house ware, Serving and Buffet product, Buttons, Linens, etc	9%
ELECTRONICS PC boards, Computers, Calculators, Watches, Cellular Phones, Audio & videotapes.	5%



SHRINK WRAP FAQ

MARKET TYPES	MARKET SHARE
PHARMACEUTICALS Medical supplies, Disposables, OTC Preparation, Over the counter medications, along with drug store Products like shampoo & make-up.	3%
TEXTILES Linen, Towel sets, Yarns, Cordage, Hosiery	5%
INDUSTRIAL PARTS Oil & air filters, Wiper blades, Hubcaps, etc.	3%
MISCELANEOUS	6%



SHRINK WRAP FAQ

11 SHRINK FILM SIZING CHARTS

11.1 FILM WIDTH FORMULA

	Package Height	Formula
Manual & Semi-automatic L Bar Sealers	0 – 2.5 inches	$W + H + 2$ inches
	2.5 – 4.5 inches	$W + H + 2.5$ inches
	4.5 +	$W + H + 3$ inches
Automatic L Bar Sealers	0 – 3 inches	$W + H + 4$ inches
	3 – 6 inches	$W + H + 4.5$ inches
	6 inches +	$W + H + 5 - 6$ inches

11.2 Cut-Off Formula (Bag Length)

Package Height	Formula
0 – 2.5 inches	$L + H + 1$ inch
2.5 – 4.5 inches	$L + H + 2.5$ inches
4.5 + inches	$L + H + 4$ inches

UNITS PER ROLL	COST PER UNIT
$\frac{\text{ROLL LENGTH (ft) x 12}}{\text{Bag length (Inches)}}$	$\frac{\text{Cost Per Roll}}{\text{Units Per Roll}}$