

Shrink Sleeve Packaging in 4 Easy Steps

Tips & Techniques for Making You and Your Product Look Good!

White Paper

Shrink sleeve labels provide an attractive, shelf-defining low cost way to sell your product and gain market share. There are a variety of issues to consider when beginning a shrink project.

In this white paper, we will outline tips and techniques that enable your product design and packaging teams to select the best way to approach the project to ensure success.



1. Sizing

Select the type of container to be labeled. If a label is to be automatically applied, the machine manufacturer will provide the size. If you are purchasing cut bands to hand-apply, the label supplier can provide the sizing.

The dimensions used in shrink sleeves are lay flat and cut height. In order to find the lay flat size, measure the container at its widest circumference. Once that measurement is made, a mathematical formula is used to determine the actual lay flat size. This will establish the appropriate size to fit over the container.

The cut height is determined by the position and placement of the label. Will the label encompass the entire container from the neck to the base? Alternatively, you may select a neckband or sleeve that only covers the middle of the container. Within the limitations of maximum shrink, the choice of placement and

coverage is the decision of the brand owner. The cut height can also be adjusted to go over the lid or cap of a container to incorporate tamper evidence. This may eliminate the need for a secondary tamper band or an induction seal.

2. Shrink Films

One of the most important decisions in a shrink sleeve project is the type of film to be used. Film choices are made based on percentage of shrink needed, desired finish (gloss/matte), end-user requirements, application considerations, and sustainability initiatives. Before choosing a film for a project, the label supplier needs to calculate the shrink percentage required to conform to the container. This is done by determining the smallest circumference in contrast to the widest circumference. This ratio is reported by the total percentage required to encompass the portion of the container to be labeled.



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In order to understand the choices in films, a variety of film options and their advantages and disadvantages are highlighted:

PVC (Polyvinyl Chloride) is one of the most widely used and least expensive shrink films.

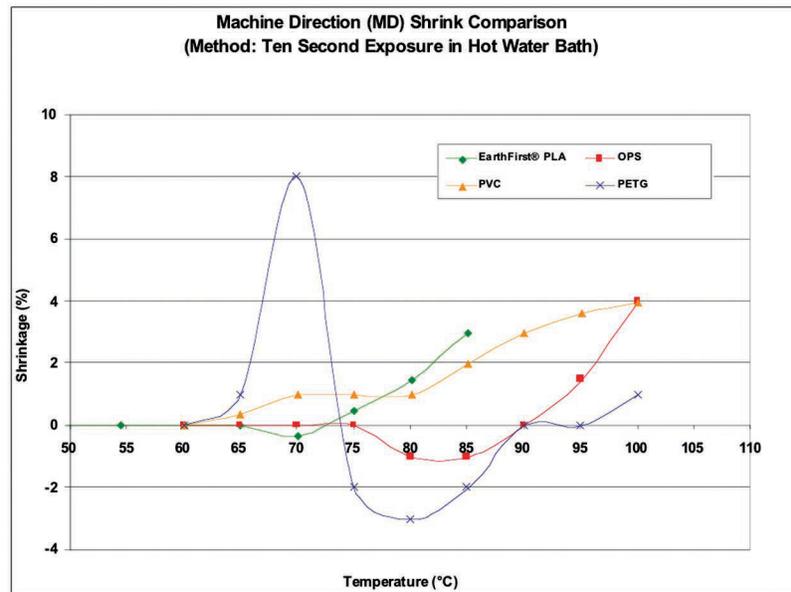
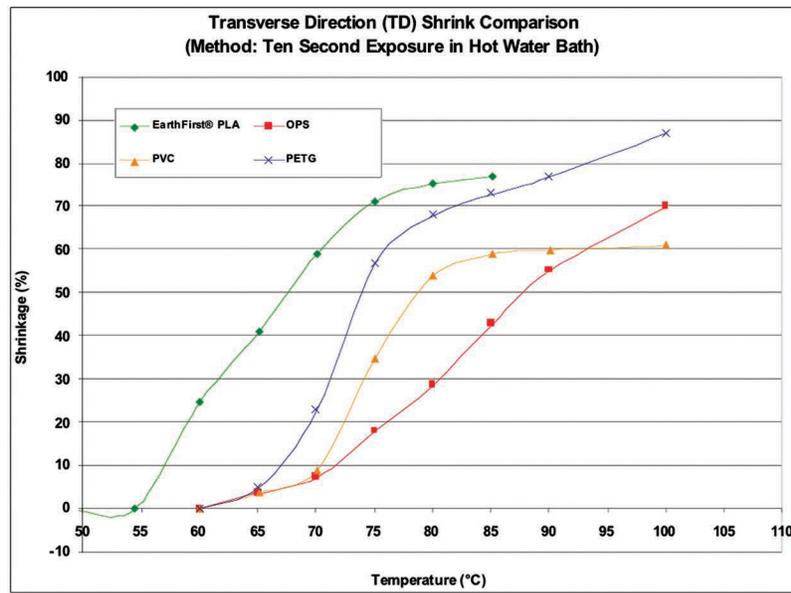
- Provides a glossy finish and up to 65% shrink
- Offers moderate chemical resistance
- Due to machine direction shrink properties, PVC has a tendency to “smile” or “frown”
- PVC cannot be used to fulfill sustainable requirements

Some bottle and container shapes lend themselves to “frowning” or “smiling”. This sagging effect occurs when film pulls down or up at either the bottom or top of the label. This unsightly occurrence can be eliminated by selecting the appropriate film choice.

Fortunately, there are new films that finish straighter than ever before, and in many cases, can eliminate the need for a puck system:

PETG and PETG LV (polyethylene terephthalate) films have found market acceptance in recent years. PETG LV is the newest shrink resin in the market offering (L) lower shrink force and a (V) versatile shrink curve.

- PETG & PETG LV can shrink up to 76% of its original size to encompass even the most intricate shapes, including containers with small necks and wide bases
- PETG has excellent chemical resistance and is the highest clarity film available
- The newest generation of PETG— PETG LV— provides growth in the machine direction in order to eliminate “smiling” and/or “frowning”
- PETG LV can reduce cut heights, resulting in decreased material usage
- PETG and PETG LV can be recycled, making them a sustainable film choice



OPS Film (oriented polystyrene) is a high clarity petroleum-based shrink film.

- Shrinks up to 70% its original size
- Softer than other shrink films— making it ideal for use in squeezable applications
- Experiences growth in the machine direction up to 3% under the proper conditions
- Exhibits marginal chemical resistance, and therefore should be fully tested



PLA film (polylactic acid) is a high clarity, bio-based film made from corn

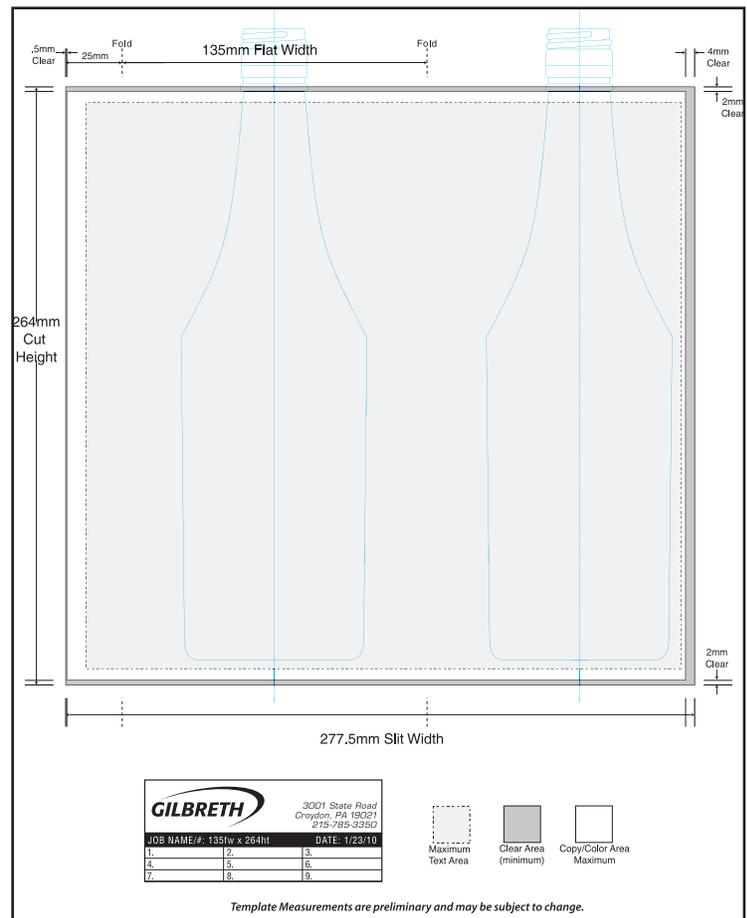
- Shrink percentage is up to 75%
- Offers minimal machine direction shrink, which can limit the “smiling” and “frowning” effects
- Exhibits moderate chemical resistance, and should be fully tested for product resistance
- 100% compostable, conforming to ASTM 6400
- Derived from an annually renewable resource
- PLA labels can be used to meet sustainability goals

Although the four most widely accepted shrink films used in sleeve labels today are mentioned, they are not the only choices. There are new specialties and hybrid films being introduced to the shrink market. There are films that combine the use of the PLA biopolymer with OPS and/or PETG. These films effectively reduce the amount of petroleum required while enhancing the properties of each film. Some of these newer shrink films offer varying degrees of environmental resistance properties or provide unique decorative finishes. The selection of standard, specialty or hybrid films can be explored once you know the parameters and goals for the project.

3. Templates

When designing a shrink sleeve label, it is best to determine the location of the seam within the label. Seam location is relevant to orientation, graphics placement and application equipment. Most suppliers have a standard seam location or will recommend one based on the application equipment or other capabilities.

A perforation can be added to the label to incorporate tamper-evidence or aid in ease of removal. This can be done by the label supplier or can be applied by application equipment.



(Initial/Basic Graphics Template)

The location and type of perforation is based on the function of the perforation. Labels can be perforated vertically, horizontally, or a combination of vertical and horizontal directions. The types of perforations and locations vary based on the ease of opening, end use, and the film type selected for the label.

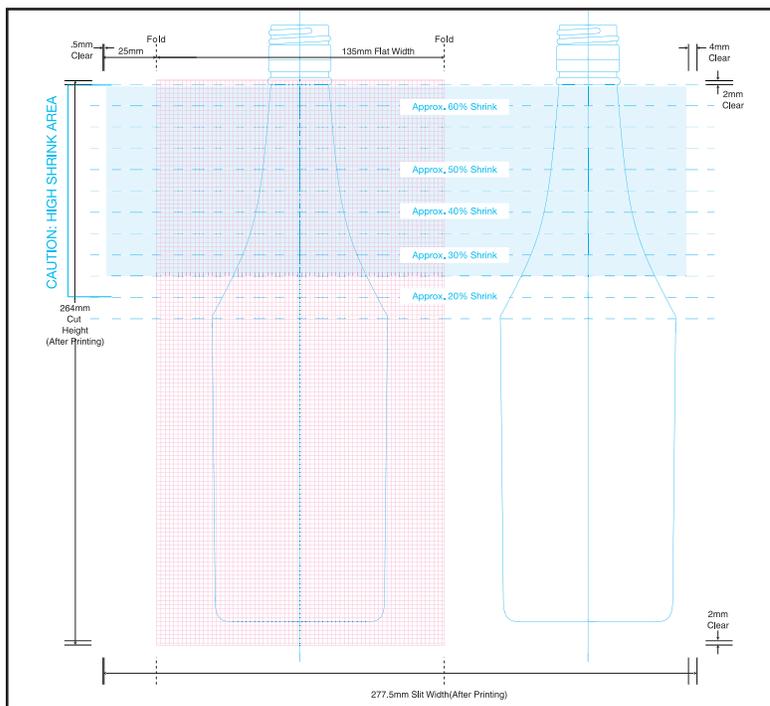
Once the lay flat, cut height, seam location, and perforations are selected, the label supplier can provide a size-appropriate template. As shown in the “Initial/Basic Graphics Template” illustration, the template is a basic layout onto which artwork can be inserted. The template will allow the brand owner to visualize the label concept in a flat space. The prepress department will use the template to set up the proper printing parameters, engravings, and artwork distortions.



4. Graphic Placement

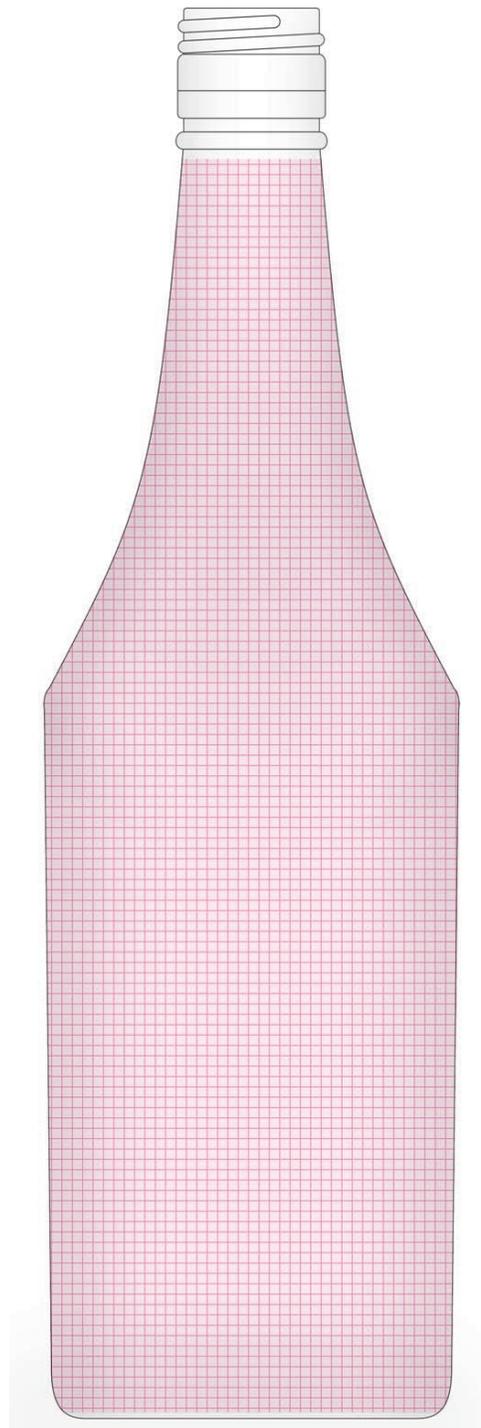
The label supplier will provide grid material in the proper size and substrate for use as a test to assure that application equipment and the heat tunnel are properly aligned and calibrated before final artwork is submitted for engraving. The grid allows the prepress department to see areas of high shrink, “no copy” sections or “hot spots” within the heat source or tunnel, and enables custom calculations to be made to achieve proper distortion.

In many containers, there are areas within the label that must shrink up to 60 to 70% of the original label size. As one may imagine, that is a considerable loss of graphic surface area. Graphics departments will often block these areas within the template to indicate that any artwork located in these spaces would be highly distorted. The customer is therefore encouraged to limit artwork and copy in these locations. There will also be areas where, due to mechanics of the shrink, seam location or fold, will be noted as “no copy” areas; all copy/text should be omitted from those particular areas in order to avoid non-legible text.



(Template displays varied shrink percentage used for pre-distortion of artwork)

Heat sources come in all shapes, sizes, lengths and temperature ranges. In order to present the best label possible, the tunnel/heat source should be fingerprinted. The fingerprinting process runs several grid labels consistently through the heat source at expected heat, temperature, and time parameters. The grid will highlight areas that are being hit hard by heat pockets. It can also show if shrink dwell time is appropriate by measuring machine direction loss.



(Grid material on container)



A final, critical prepress function examines artwork pre-distortion. The test grid sleeves used to fingerprint the heat source also determine the percentage of shrink in each square inch of the label. Designers use the grid sleeve as a tool to determine the right amount of pre-distortion required to approximate accurate visual images and text for engravings in order to achieve a perfect container-appropriate shrink.



(Test stretch pattern sleeve on container)



(Example of artwork prior to distortion)



(Example of artwork after distortion)

Conclusion

Every shrink sleeve project is unique. Choose the right materials that are sized right for the application. Film must be sized to fit the container correctly and the artwork must be appropriately distorted to support the shrink percentages and unique curves and contours of the container. Contact the shrink sleeve printer to answer questions that are more detailed. Many label suppliers provide a prototype mockup that will allow the customer to see how the actual label will appear on their product container prior to a full production run.

Consider all of these steps when beginning the shrink project and the result will be a package that not only looks great, but also establishes brand identity and increases market share.





(Examples of finished and applied labels)

Shrink Sleeves Give You More...

- More Impact,**
- More Sustainability,**
- More Savings.**

Gilbreth, a pioneer in shrink film printing for over 40 years, offers a broad range of shrink labels including full body sleeves, tamper-evident neckbands and specialty anti-counterfeit sleeve labels. Technical assistance is available to support specific applications.



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