

Closure & Liner Guide

Closures play an important role in packaging. There are many factors to consider, such as, the styling and overall product brand, how the product will be dispensed, and whether the package needs extra protection. The experts at Pipeline Packaging will guide you through testing your closure with both the package and product to ensure they are compatible.

Cap Types



Threaded Caps

This closure has spiral threads to match the top of the container. The threaded cap twists onto the neck and closes the appropriate object. It is a customizable piece that can fit the customer's wants/needs.



Lug Caps

One of the most popular metal closures in the world. The cap comes in either a flat or button top. The button top releases pressure in the container if opened which creates longer shelf life for the product. This closure is opened by a small counterclockwise turn.



Child Resistant Caps (CRC)

These closures are required for certain objects. For example, most over the counter drugs. A person must press down and then twist counterclockwise to open it. This makes it difficult for a child to open, while not making it difficult for adults to use. CRC closures come in many different sizes and shapes.



Snap Caps

A closure that works very well for food and/or beauty application products. The cap snaps into place on a ridge that is lifted or concaved. The closure will come off completely, which allows the product to flow out smoothly. Once closed, the product is securely sealed inside the container.



Induction Lined Caps

Induction liners have multiple layers: foil, pulpboard, wax, and a polymer coating. The layers create a hermetic seal after going through an induction machine, during which the heated foil melts both wax and polymer. Induction lined caps require an induction sealing machine to be applied. If the liner is off, the product has been tampered with.



Brush Caps

This closure is unique, due to the brush attached to the cap. The cap has grooves in it to tighten on the top of the container. The brush is used for precision spreading of a product. The cap seals the product securely, so it doesn't dry out.

Dispensing Caps



Flip Top Spout Caps

To release the liquid within the bottle, users need to flip the small dispensing opening to an upright position. To close, a small push downward seals the cap and makes it level with the cap to prevent leakage.



Pumps

Pumps enable consumers to distribute an even film of highly viscous product, such as lotion to an object. Push down on the top of the pump to dispense the product.



Sprayers

This closure applies a balanced amount of product to a surface. The two types of sprayers available are trigger and pushdown. Pulling the trigger or applying pressure down on the pushdown sprays the product.



Push/Pull Caps

Push/Pull Caps are those most commonly found on dishwashing detergent bottles. Pulling the cap upward creates an opening for the product to dispense. After use, a simple downward push on the cap itself closes it.



Twist Top Caps

This closure opens and closes through a twisting motion. Turning the cap counter clockwise opens the closure, while turning clockwise seals it. These caps are very common with condiments.



Glass Dropper Caps

The cap is a rubber bulb, found at the top of the dropper. Applying and discharging pressure to the cap will pull liquid into the dropper. Once full, applying pressure to the cap allows the product to be placed in a precise location, one drop at a time.



Snap Top Caps

A hinge is connected to the top and bottom of the closure. Once the top is lifted, the closure has a small opening in the middle. This allows the product to be distributed. The top can be snapped back in place to securely close the container. These closures are great for food condiments and toiletries items.



Dropper Caps & Plugs

The dropper cap's plug is created to decrease the size of the bottle's opening like a small funnel. These plugs come in two different styles: controlled or streaming. The caps are unlined and cover the dropper tips; they then screw into the top of the bottle.



Disc Top Caps

Delivering pressure to the closure, on the end often labeled "press", will pop the opening and allow the product to flow out. Pressing down on the opposite end of the cap will push the opening back down. This seals the container from distributing the product. The closure is designed to stay on the container throughout the product's life cycle.

Choosing Liner Types

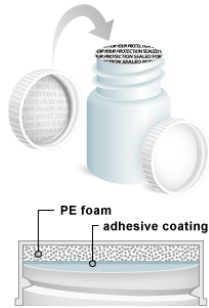
Selecting a liner is an important part of cap selection. Products such as foods, chemicals or consumer products may require specialized liners. Specific liner materials may be used for moisture barriers, chemical resistance, consumer safety, or preventing leakage. Which cap liner you choose may also influence the cost of your finished product; be sure to always test your product with the liner to ensure compatibility. Below are common types of liners.



| Liner | Description | Benefits | Disadvantages | Common Uses |
|---------------------------------|--|--|--|---|
| <p>3-Ply Foam (F217)</p> | <p>A three-ply liner is a general-purpose liner, made of compressible polyethylene foam. These do not create a seal and are often used for leak prevention. F217 is a name brand and is often interchangeable with the foam liner.</p> | <ul style="list-style-type: none"> • Taste and odor resistant • Low moisture transmission rate • Compatible with metal, plastic, or glass containers | <ul style="list-style-type: none"> • Does not create an airtight seal | <ul style="list-style-type: none"> • Household products • Food & liquor • Cosmetics • Pharmaceuticals |
| <p>Polyethylene Foam</p> | <p>General purpose liner made of compressible polyethylene foam that does not create a seal. Often used to prevent leaking.</p> | <ul style="list-style-type: none"> • Compatible with metal, plastic, or glass containers • Economical • Can be used to take up room on the top of the cap when the thread of the neck is not high enough to achieve a tight closure | <ul style="list-style-type: none"> • Fair to poor resistance against hydrocarbon solvents. • It is not advised to use these with paints, lighter fluid, adhesives, or polishes • Does not create an airtight seal | <ul style="list-style-type: none"> • Household products • General purpose liner • Water-based products |

| Liner | Description | Benefits | Disadvantages | Common Uses |
|-------|-------------|----------|---------------|-------------|
|-------|-------------|----------|---------------|-------------|

Pressure Sensitive (PS 22)



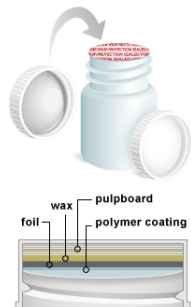
A pressure sensitive foam liner with one adhesive side that sticks to the container with the pressure used to stick on to the rim of the container. When the closure is removed, the pressure sensitive liner remains on the top of the container. They are typically white on each side. These can come printed on one side with "Sealed for your protection" or can come unprinted.

- Seal provides an extra level of protection that preserves the freshness of non-perishable dry products
- You do not need secondary equipment to make the seal, only regular torque application

- Does not work well with liquids
- Recommended shelf life of 6 months.
- For maximum storage life, store in a temperature range between 60 and 80 degrees, with relative humidity at 40-60%, and no direct exposure to sunlight
- These are not tamper evident seals

- Thick liquids
- Dry products
- Powders

Induction



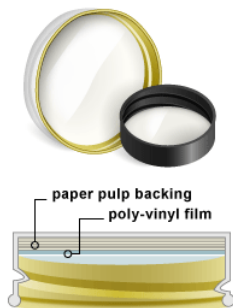
They can be made with layers of pulpboard, wax and foil. These liners are applied to the container with the use of an induction sealing machine. When the liner is heated, the wax melts to the container creating an airtight, hermetic seal. These can come printed with a message (such as sealed for your protection) or plain.

- Provides tamper evident seal
- Once the liner is removed, it cannot be reapplied to the container
- Creates an airtight, hermetic seal to help prevent leakage
- There are different types of induction liners (oils are on compatible with certain liners) so additional testing is needed

- Induction lined caps must be applied using an induction sealing machine
- The liner needs to be compatible with the resin of the container
- Not recommended for metal caps or glass
- There is variation within heat seal liners, so heat seal liners must be tested with the product and container

- Food & liquor
- Liquid products
- Pharmaceuticals

Poly Vinyl



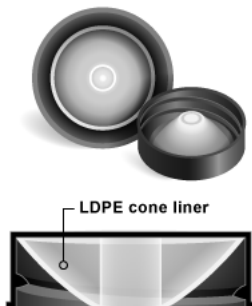
Liner is made of a thin, vinyl coating applied to high density polyethylene coated paper that is laminated to pulp board.

- Good chemical resistance
- Works well with both oil and water-based products
- Perfect for general use

- Not recommended for active hydrocarbons or bleaches
- Best for cold fill

- Alcohol
- Mild acids
- Powders
- Cold fill applications

Polyseal™



An LDPE cone liner that creates a wedge type seal across the top of the container providing a leak proof seal for liquid products, virtually eliminating leakage, evaporation, and contamination.

- Cone liners are stress crack resistant
- Form an exceptionally tight seal and offer a good chemical barrier

- Not generally paired with plastic containers

- Harsh chemicals
- Liquid products
- Essential oils

Liner

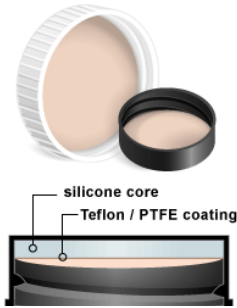
Description

Benefits

Disadvantages

Common Uses

Teflon® PTFE



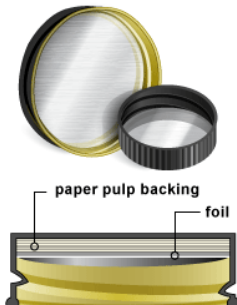
A Teflon faced liner will maintain the base liner's sealing properties while adding chemical resistance.

- Ideal for withstanding volatile solvents, sensitive compounds, and corrosive chemicals that would degrade other liner materials
- Sterilizable, heat resistant, non-contaminating, reusable/cleanable

- Expensive

- Harsh, high purity chemicals
- Acids
- Alkalis
- Oils
- Solvents

Foil



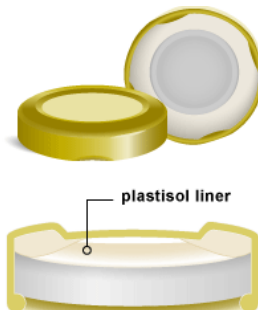
A polyester film laminated to aluminum foil and bonded to pulp board.

- Odor and taste resistant
- Good resistance to hydrocarbons, chlorinated hydrocarbons, oils, ketones, alcohols, and grease
- Excellent for food applications

- Does not work well with acids or alkalis

- Alcohols
- Oils
- Ketones
- Food applications

Plastisol



A plastisol liner is part of a cap. A plastic gasket lines a metal cap, which creates an airtight seal when heated and then cooled. Plastisol liner is effective only when the temperature of bottle is at 140 degrees when applied, causing the liner to soften and form a hermetic seal around glass container.

- When first opening the container, a popping noise indicates that the tamper evident seal has been broken
- The airtight, hermetic seal prevents leakage and helps to extend the shelf life of the product
- Plastisol lined caps are a great choice for high temperature applications

- Must be used with containers that can withstand heat.

- Food applications with hot fill items (jams, preserves, sauces)
- Canning