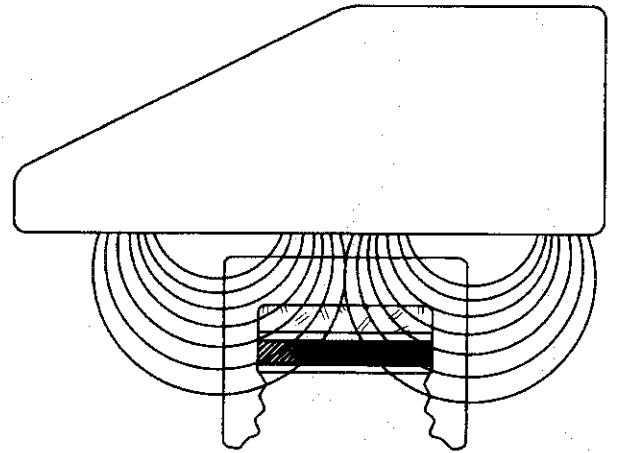
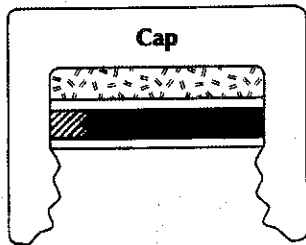


Understanding the Fundamentals of **INDUCTION SEALING**



THE INDUCTION SEALING PROCESS



An innerseal wafer is inserted into the cap by conventional lining equipment.

Induction sealing is a process that has been utilized for over 30 years, originally to prevent leakage of chemicals from the new plastic bottle and plastic cap package. The cap is supplied with the innerseal inserted, ready to load into the capper. The container is filled and capped in the standard packaging operation. The capped container is transferred down the conveyor line and passes underneath a conveyor mounted Lepel induction sealing head at line speeds up to 300 feet per minute. The sealing head is designed to inductively heat the foil layer of the innerseal structure evenly to prevent liner damage. The electromagnetic waves generated by the sealing head penetrate the cap and the aluminum foil layer as the container passes underneath. This is a

non-contact process. As the field penetrates the foil, it induces an electrical current flow in the foil causing it to heat very rapidly. Typically temperatures of 185°–350°F are required to activate the heat seal coating. The foil cools after leaving the induction field and the heat seal film bonds to the container finish leaving a hermetically sealed container. When the cap is removed, the aluminum foil remains bonded to the container finish.

The inductively bonded foil seal will eliminate product leakage, prevent tampering and adulteration, lengthen shelf life, prevent evaporation, and enhance customer confidence.

INNERSEAL MATERIALS

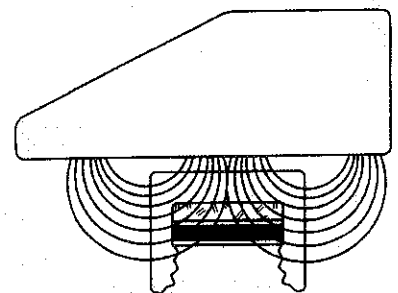
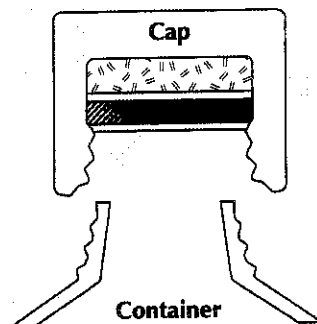
Innerseals are available in many variations to meet nearly any standard or customized packaging need. Modifications to suit the type of container, closure, and product are available. There is virtually no limit to the size of container finish they will seal.

Innerseals consist of specially treated aluminum foil bonded to various types of proprietary films for use with virtually any type of container or closure, HDPE, PE, PET, PETE, PETG, PVC, PP, BARREX, BARRIER,

STYRENE, and most thermoplastic containers as well as glass. They will provide tamper evident hermetic seals suitable for use with foods, drugs, beverages, alkalies, acids, oils, organic solvents, flammables, powders, pellets and many other products. They are particularly effective for products which must be kept free from contamination, oxidation, and moisture.

Innerseals meet requirements set by the Food and Drug Administration.

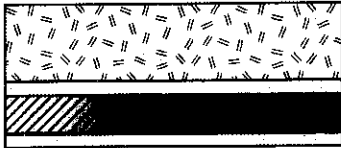
The container is filled and capped in a standard operation then passed beneath the sealing head on your conveyor.



INNERSEAL CROSS-SECTION

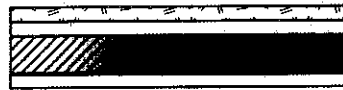
The induction liner is normally supplied to the closure manufacturer in coil strip form, similar to conventional lining materials. The foil innerseal is then die-cut and inserted into the closure with a die-cutting system by the closure manufacturer. Although available in a variety of forms, the innerseal is supplied in two structures, each with three basic parts:

- 1) an aluminum foil layer, generally .001" thick.
- 2) a heat sealable polymer film laminated to the foil, .001"–.002" thick.
- 3) a backing material of either paper, pulp, or foam bonded to the foil either permanently with adhesives or temporarily with wax varying from .006"–.035" thick.



- A pulp board backing
- A wax coating for temporary bond
- Aluminum foil
- A heat sealable film

Wax Bonded



- Paper or Foam
- Adhesive
- Aluminum foil
- A heat sealable film

Single Element

WHY INDUCTION SEALING? "THE REASONS"...

High Quality

To protect the purity of your products, you should choose the process, equipment and materials that provide reliable seals that are leakproof and tamperproof. The experience of many packagers has shown that this means induction sealing.

Low Cost

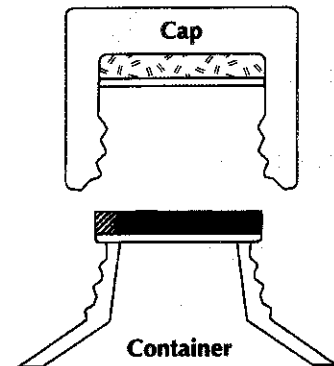
Induction Sealing equipment is far less costly, requires less maintenance and is much easier to install than other types of sealing equipment. The one-step sealing process itself is also low in cost; no extra handling or double operations—the capped containers merely pass underneath the induction sealing head without actual physical contact. The innerseal wafer combines the innerseal and a resealable cap liner for one-step insertion in the cap, resulting in a combined low cost.

Simplicity

There's nothing involved or complicated about setting up an induction sealing line. The newly designed Lepel Solid State Capsealing Generator may be remotely located, out of the way; the sealing head positioned over an existing conveyor or with its own conveyor. Output power can be varied, to fit varying production requirements.

Technical Services

Lepel has customer service and applications testing laboratories in Edgewood, NY; Brea, CA; Waukesha, WI; and Poole, England to verify your sealing application and assist in liner material recommendations and selections. We are equipped to test all elements of the induction sealing process including caps, containers, liners, products, and overall compatibilities. We would welcome your visit to our lab to demonstrate our equipment with your package and product.



After removing the cap, the foil remains bonded to the container finish.

MARKETS

Automotive
Chemical
Cosmetic
Dairy
Dental
Flammable
Food
Manufacturing
Medical
Petroleum
Pharmaceutical
Water

APPLICATIONS

Over the Counter Drugs
Milk
Bottled Water
Vegetable Oil
Peanut Butter
Vitamins
Bubble Baths
Household Chemicals
Anti-Freeze
Acids
Pain Relievers
Orange Juice
Ketchup
Maple Syrup
Health Foods
Toothpaste
Hair Preparations
Paints
Motor Oil
Corrosion Inhibitors
Precious Metals
Solvents
Pet Treats
Sterile Containers
Powdered Mixes
Cleansing Pads
Sport Drinks
Waxes
Medical Tissues
Bonding Plastic Parts
And Many More



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