



Pillar Technologies Webinar Series

New Innovations in Closures and Induction Sealing

Optimizing Reliability, Efficiency & Performance



An ITW Company

Presented by

Brad Budde
Sales Manager
Pillar Technologies

Presentation Agenda

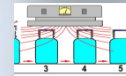


Shifting Consumer Market Dynamics

- Economic Trends
- Demographic Trends



Key Global Drivers Behind Recent Market Changes



Past, Current and Future Demand for Closures



Key Innovations in the Global Closures Market

- New Tamper-Evidence Designs
- Convenience / Ease of Use
- Aseptic/Hot Fill/Retort
- Resealability
- Increased Shelf Life
- Light-weighting
- Simpler Construction, Processing
- Child Safety
- Product Integrity



Synchronizing Induction Cap Sealing Innovations

- Sealing Head - Cap Calibration
- Connect-and-Pack / Pack ML
- Brand Protection



Q&A

Shifting Consumer Market Dynamics



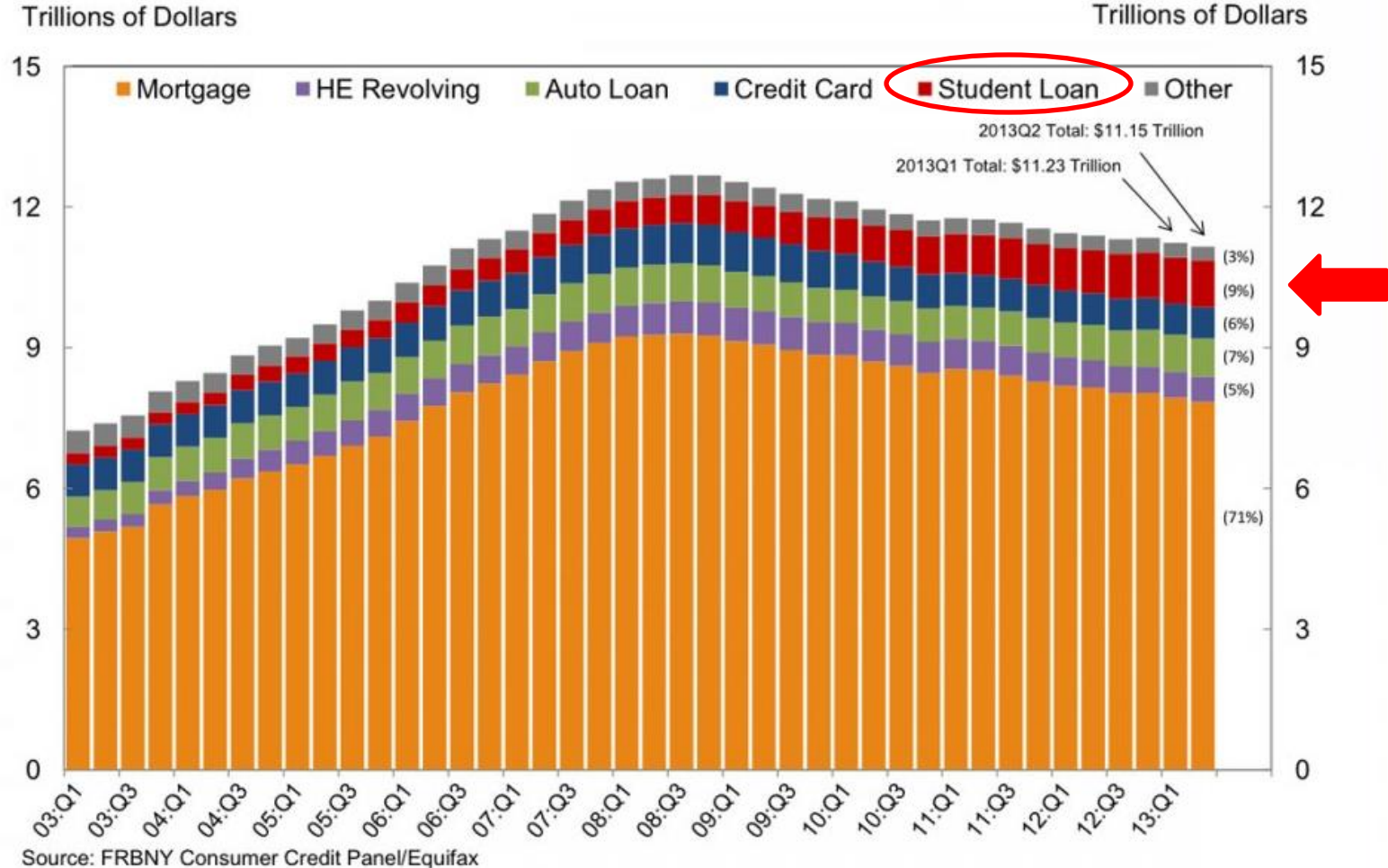
Shifting Consumer Market Dynamics

- Gap between Interest and Purchase ⇨ Narrowing (Uber-Instant Gratification)
- Eating Right ⇨ “Free-From” Products
- Environmental Brand Connection ⇨ “Sustainable Lives”
- Home is Base ⇨ Multi-generational Households
- Work/Life Balance ⇨ Life Simplification
- Luxury Products ⇨ “Affordable” Luxury
- Consumer Influence ⇨ Social Networks Challenging Brand Loyalty
- Post-Recession Buying Behaviors ⇨ Thrift Stores, Credit
- App Growth ⇨ Indicators of Consumer Interest
- More “Visual” ⇨ Virtually Showcasing Lives Pictorially



Shifting Consumer Market Dynamics

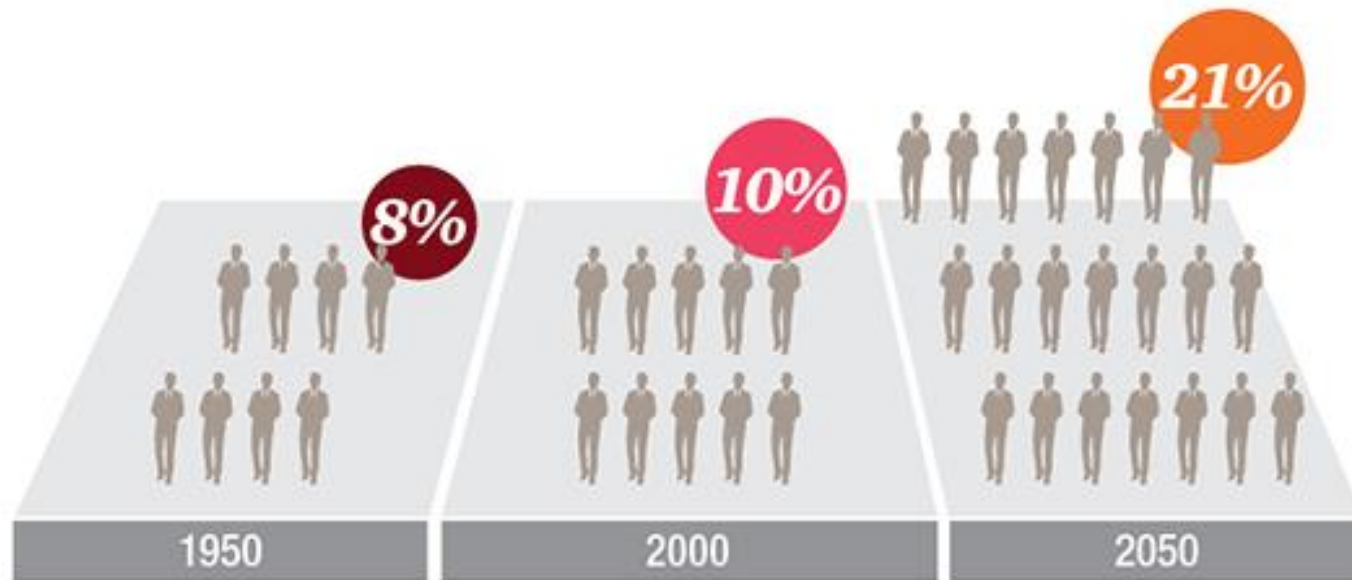
Major Economic Trends



Shifting Consumer Market Dynamics

Major Demographic Trends

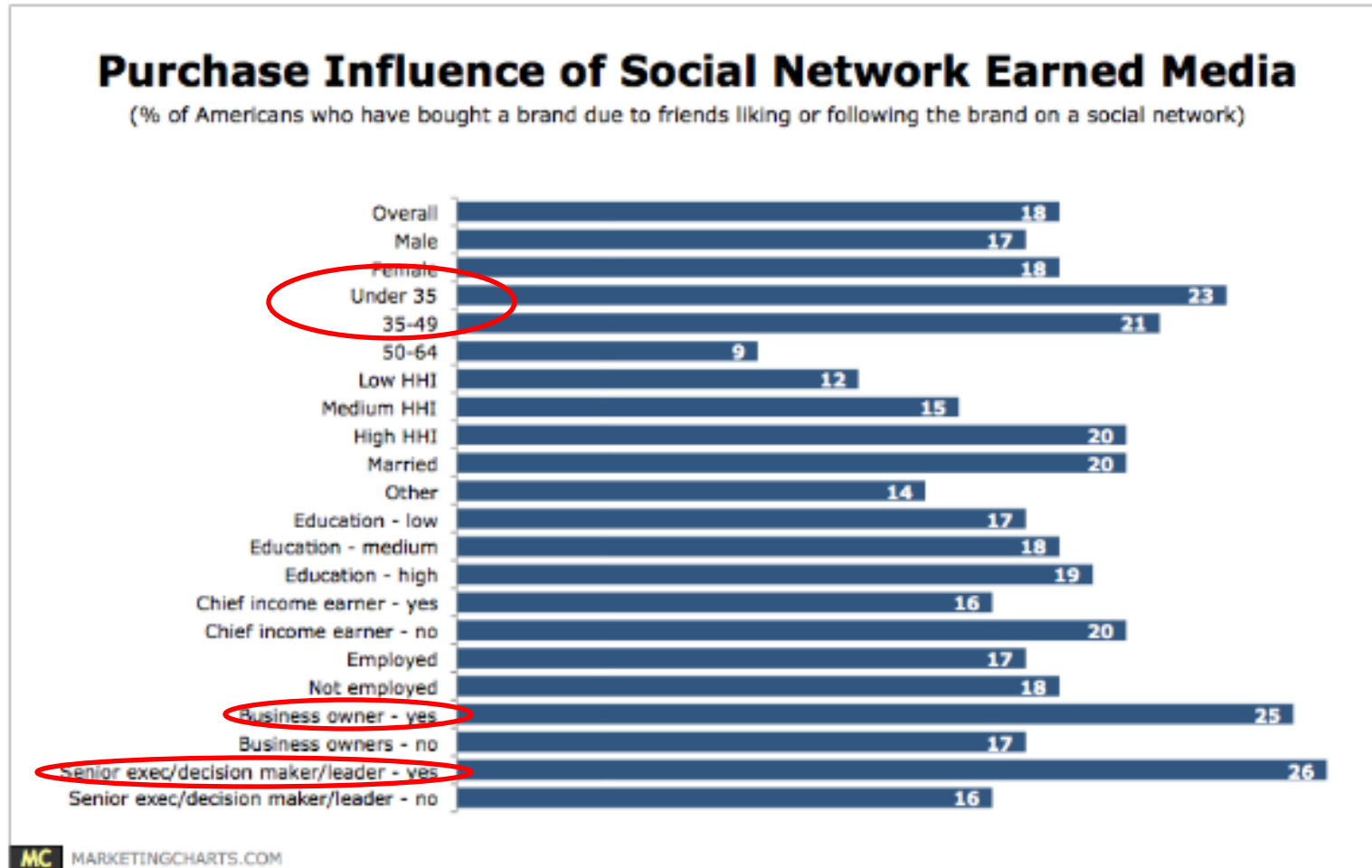
Proportion of the world population aged 60 years or more



Source: UN report World Population Ageing 1950-2050

Shifting Consumer Market Dynamics

Major Demographic Trends



Source: Ipsos Open Thinking Exchange

Key Global Drivers Behind Recent Market Changes



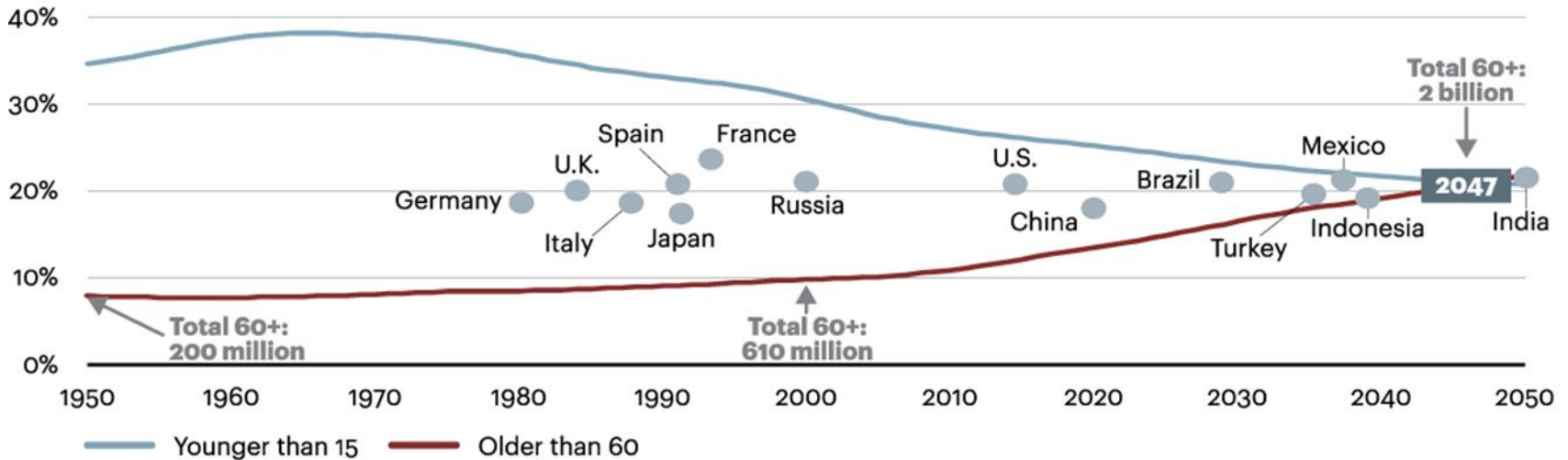
Key Global Drivers Behind Recent Market Changes



By 2047, there will be 2 billion mature consumers worldwide

Share of total world population

(%, 1950-2050)



Note: Country position on the chart represents the year in which the over-60 group overtakes the under-15 group.

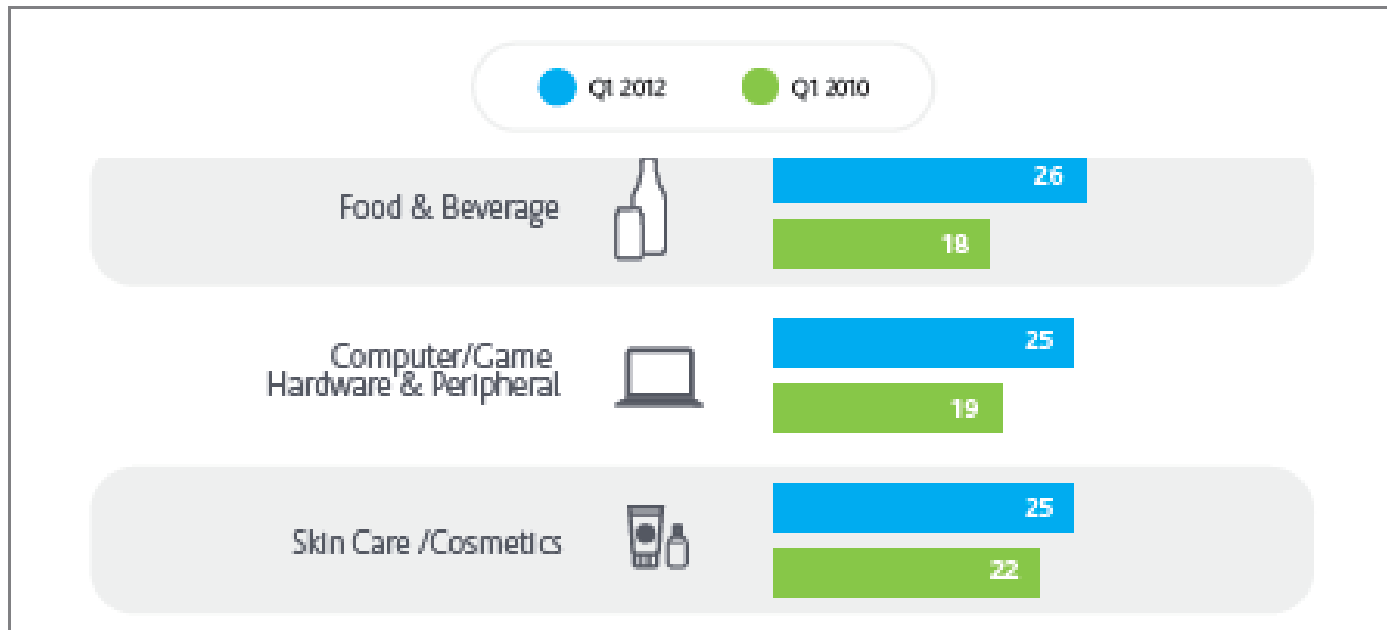
Sources: United Nations: World Population Prospects, the 2010 Revision; A.T. Kearney analysis

Key Global Drivers Behind Recent Market Changes



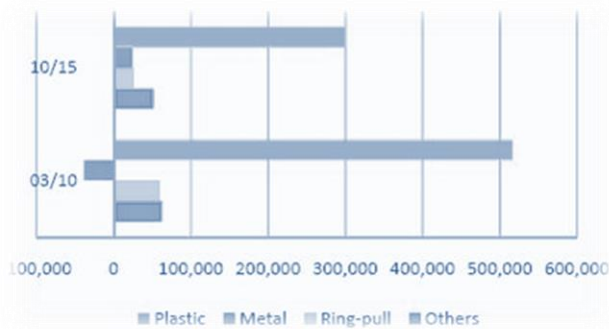
What categories of products do you plan to purchase on any connected device in the next 3 to 6 months?

Global Average



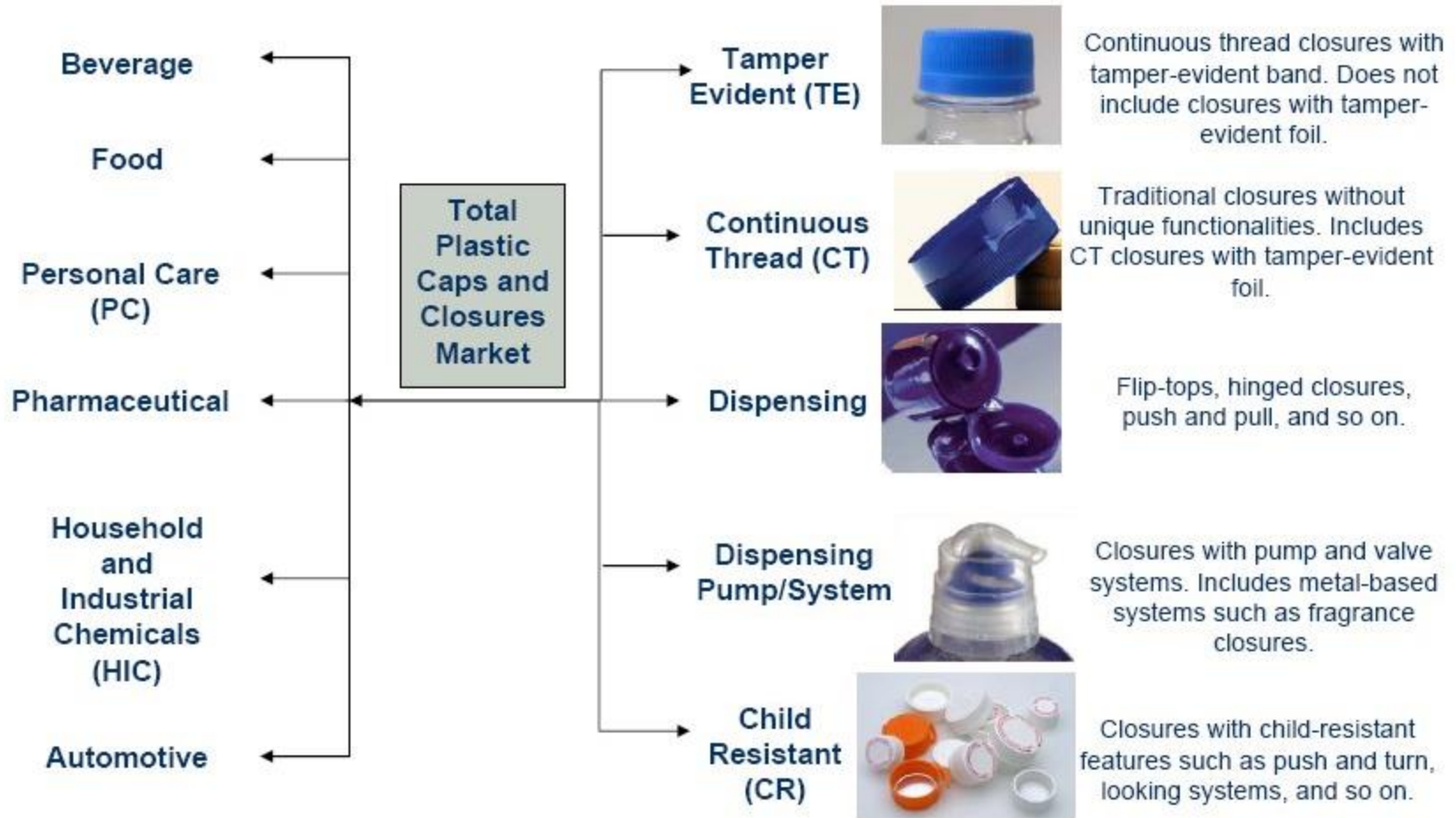
Source: Nielsen Global Survey of Digital's Influence on Grocery Shopping, Q1 2012

Past, Current and Future Demand for Closures



Past, Current and Future Demand for Closures

Closure Market Segmentation



Source: Frost & Sullivan

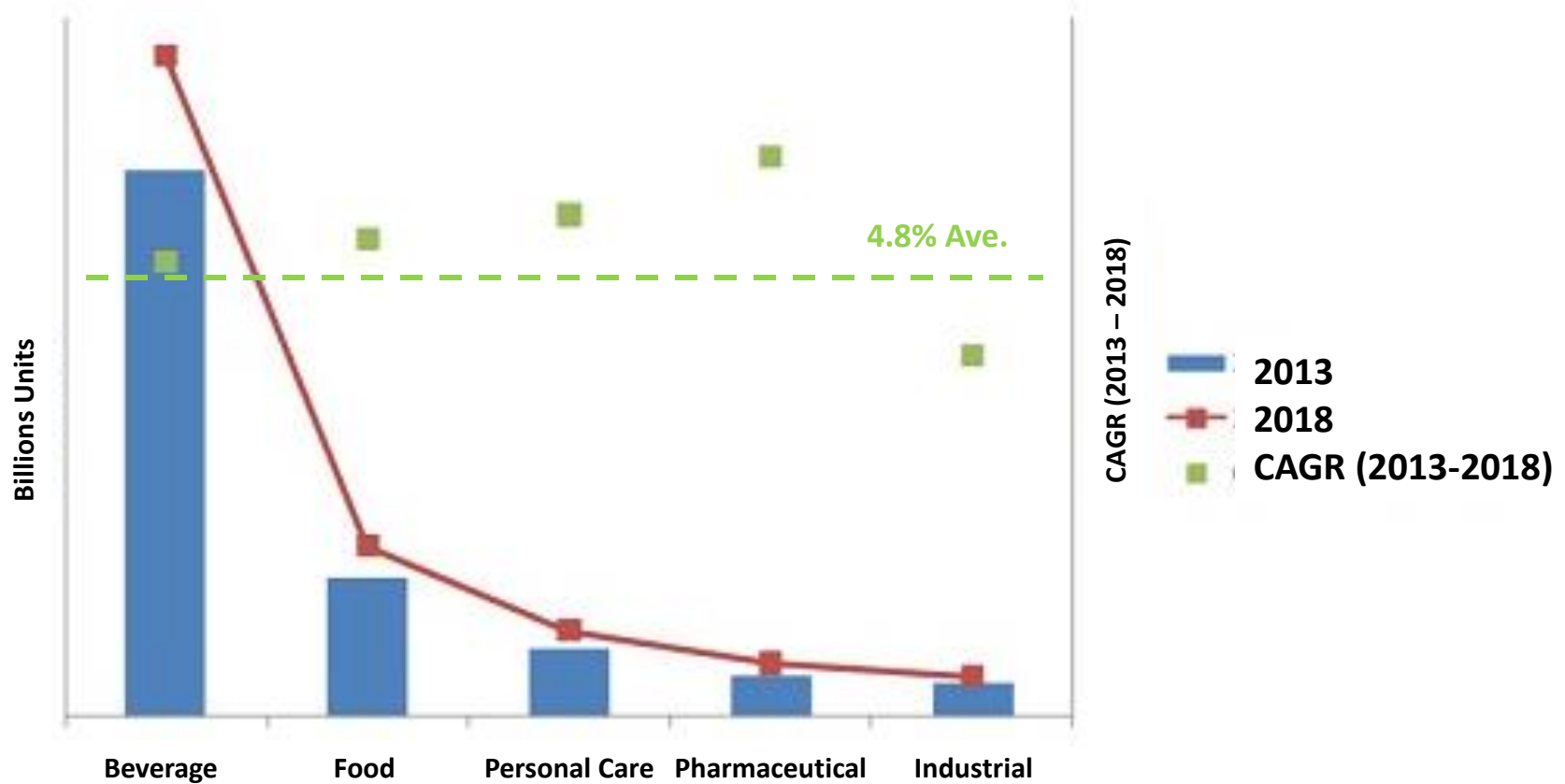
Past, Current and Future Demand for Closures

WORLD CAP & CLOSURE DEMAND 2006-2016 (millions of dollars)

Percentage Annual Growth					
Item	2006	2011	2016	2006-2011	2011-2016
TOTAL	26,850	35,750	46,350	5.90%	5.30%
North America	8,070	10,510	13,160	5.40%	4.60%
Western Europe	7,590	8,710	9,970	2.80%	2.70%
Asia/Pacific	7,760	11,860	16,740	8.90%	7.10%
Central & South America	1,480	2,020	2,790	6.40%	6.70%
Eastern Europe	1,110	1,440	1,950	5.30%	6.30%
Africa/Mideast	840	1,210	1,740	7.60%	7.50%

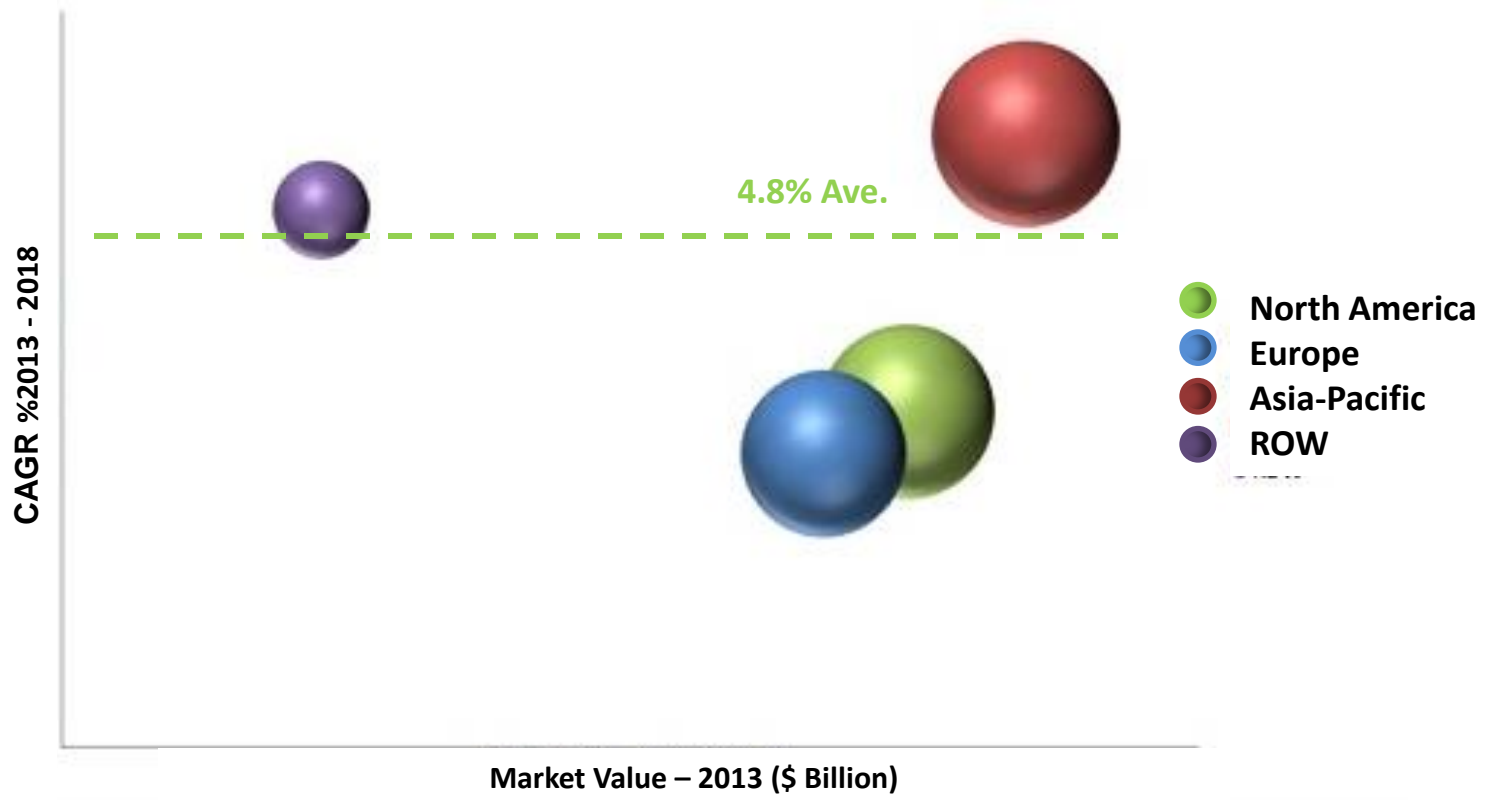
Source: Freedonia Group Inc.

Past, Current and Future Demand for Closures



Source: Markets and Market, Global Trends & Forecast to 2018

Past, Current and Future Demand for Closures



Source: Markets and Market, Global Trends & Forecast to 2018

Key Innovations in the Global Closures Market

Tamper Evidence

can2closure launched a resealable end. The closure consists of a tamper-evident lever that opens the can when turned 180 degrees in either direction.



Photo courtesy of can2closure



Astra Plastique's Picasso, a tri-color flip-top sports closure with a translucent polypropylene body with an integral tamper evident band.

Photo courtesy of Astra Plastique



Guala Closures Group's Savin®, aluminum closure for wine with a "hidden" thread and smooth outer surface.

Photo courtesy of
Guala Closures Group

Key Innovations in the Global Closures Market

Convenience / Ease of Use



The Libman Company's Freedom! Hardwood Concentrated Floor Cleaner features vacuum-sealed dosing chamber w/fitment-free closure and built-in squeeze-activated dispenser.

Photo courtesy of Libman Company

Karma Culture LLC's Wellness Water uses spin-welding technology to achieve a hermetic seal between an LDPE dispensing capsule cap and LDPE base.



Photo courtesy of Karma Culture LLC



Tetra Pak's DreamCap is ergonomically designed with a high neck and over-the-edge design for a comfortable fit to the face and lips.

Photo courtesy of Tetra Pak

Key Innovations in the Global Closures Market

Aseptic/Hot Fill/Retort

Bericap's DoubleSeal™ Closure can be used on all conventional aseptic systems with dry or wet sterilization.



Photo courtesy of Bericap

Aptar Food + Beverage's Contender sports closure does not require a liner over the container opening and underneath the cap for hot fill applications.



Photo courtesy of Aptar

Key Innovations in the Global Closures Market

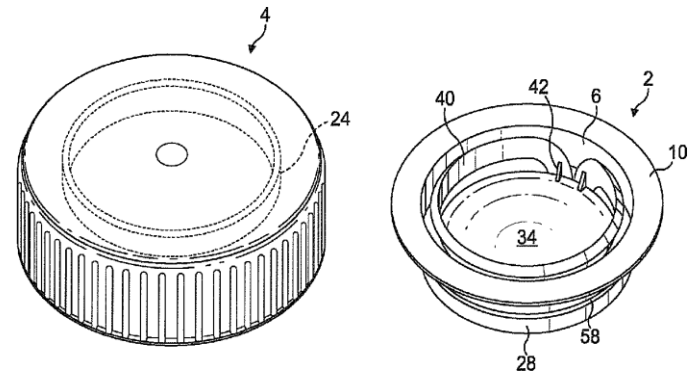
Resealability

The newest Tetra Brik Aseptic package delivers superior ease of handling, pouring, opening and reclosing for consumers.



Photo courtesy of Tetra Pak

Coming soon from Aptar



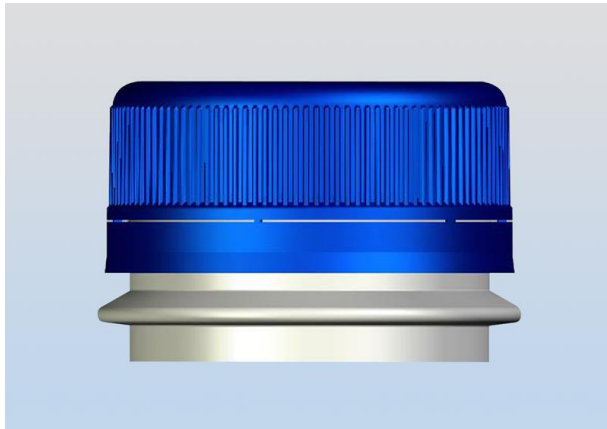
The resealable closure is comprised of a spout and overcap that seal together as a unit that can be welded by the use of an induction heat sealing of double-sided foil to a container.

Schematic courtesy of Aptar

Key Innovations in the Global Closures Market

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Increased Shelf Life



Portola Packaging's closure for extended shelf life (ESL) and aseptic beverage packages has a new Steri-Shield™ 38mm closure which can withstand an aseptic sterilization environment of up to 140 degrees F.

Illustration courtesy of Portola Packaging



Closure Systems International's SP38-D dairy closures are designed specifically for extended shelf life (ESL) and aseptic dairy packages, and are compatible with a variety of lining materials for extended shelf life sealing needs.

Photo courtesy of Closure Systems International

Key Innovations in the Global Closures Market

Light-Weighting

CSI's Omni mini XP 28mm CSD closure is among the lightest carbonated soft drink closures available, with best in class CO₂ retention.



Photo courtesy of CSI



Bericap's EV 28/26 press-on closure suited for the light-weight bottle neck PCO 1881, the closure features a light-weight neck at only 3.82g.

Photo courtesy of Bericap

Key Innovations in the Global Closures Market

Simpler Construction, Processing

Procap's Prospark 'one size fits all' closure, for the 28-1881 neck finish, features a high CO₂ retention that makes it suitable for a wide range of drinks with CO₂ volumes of up to 8.5g/l.



Photo/illustration courtesy of Procap

Key Innovations in the Global Closures Market

Child Safety

Comar's SecureCap™ Child-Resistant (CR) Closures meets the Consumer Product Safety Commission (CPSC) rule requiring child-resistant (CR) packaging for products containing the equivalent of 0.08 milligrams or more of "imidazoline."



Photo courtesy of Comar



Menshen's "Choke-Safe" features a 3cm diameter pin in the outlet opening of the weld-in neck, significantly larger than a usual closure pin which typically measures about 1.5 cm and guaranteed 100% against ingestion.

Photo courtesy of Menshen



In Development... "flow restrictors" on children's medicines in the form of a plastic device fitted into the neck of a medicine bottle to slow the release of fluid

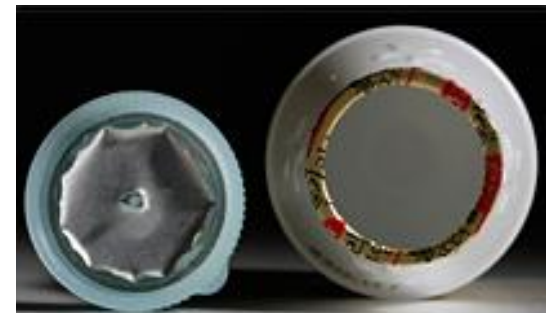
Key Innovations in the Global Closures Market

Product Integrity

Mead Westvaco's collaboration with EZCap brings to market a closure product that works through a two-step process: 1) Push a small button on the cap that pierces and hooks the seal, and 2) then as you unscrew it; the liner is removed and captured inside. There is no need even to touch the seal, significantly reducing the risks of product contamination and spills.



Before removing Al foil



After removing Al foil

Photos courtesy of Mead Westvaco

Key Innovations in the Global Closures Market

Dose Delivery



Photo courtesy of StarOne Group

StarOne Group's Drop-Top™ container closure and delivery system features an internal, multi-cavity design that stores up to three separate doses of ingredients, including liquids, powders, gases, granules, or tablets. The dispensing closure technology increases the shelf life of products that are not stable in oxygen or aqueous solutions, and stores highly sensitive products that cannot have any contact with the environment or specific ingredients.

An aluminum-laminated induction foil seals the ingredients and is activated by turning the top 360°, cutting the seal inside the chamber, and releasing the ingredients into the main container. The Drop-Top dispensing technology is available with up to three chambers.

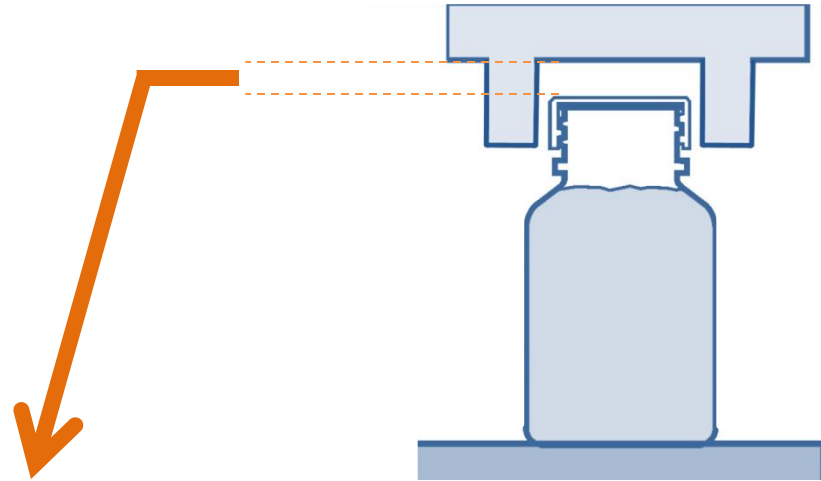
Synchronizing Induction Cap Sealing Innovations



Synchronizing Induction Cap Sealing Innovations

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Sealing Head-to-Cap Calibration – More Uptime



Dynamic Power Calibration –

Automatic power output power adjustment based on the active “coil-cap” distance each time a bottle accesses the coil.

Calibration feature to be available this Fall.

Synchronizing Induction Cap Sealing Innovations

Connect-and-Pack / PackML



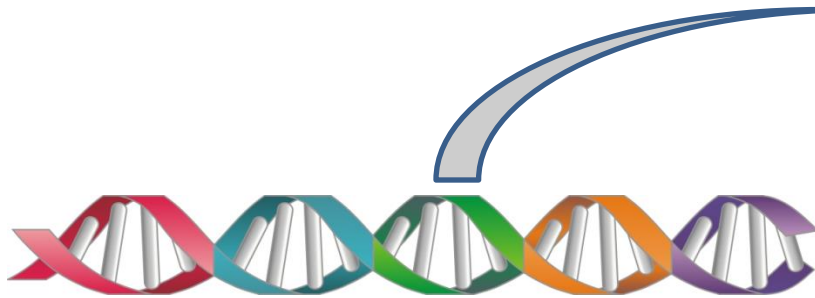
PackML (Packaging Machine Language) is a standard for programming and controlling packaging equipment to simplify communication between the different machines that make up a packaging line:

- ✓ Reduces time needed for installation and training
- ✓ Makes packaging machinery / induction sealers easier to operate.

Synchronizing Induction Cap Sealing Innovations

Brand Protection

The global anti counterfeit packaging market will reach about \$82.2 billion by the year 2015, according to California-based Global Industry Analysts Inc. DNA taggants are the most advanced and secure technology available to the printing and packaging industries to combat counterfeit products.



Invisible DNA taggants applied to the top side of an induction seal are not affected by specific Pillar induction sealing protocols.

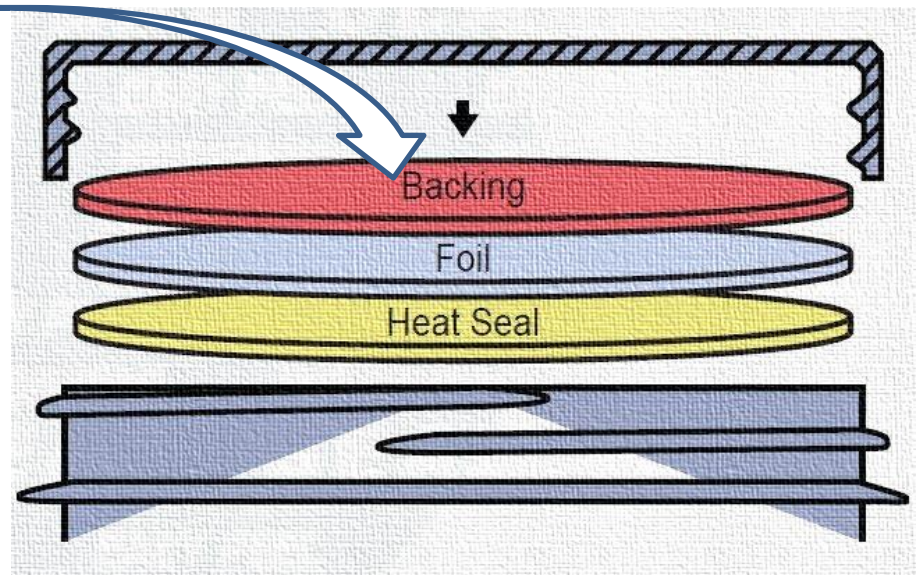


Illustration courtesy of ADNAS



Upcoming
Pillar Technologies
Webcast

“Techniques for Optimizing the Induction Sealing Process”

To register for the next Induction Sealing Webcast...
induction@pillartech.com





ITW Pillar Technologies Webcast Series



New Innovations in Closures and Induction Sealing

Optimizing Reliability, Efficiency & Performance



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