

Self Sealing Chemical Resistant Closure

By Mullackal Polymers | Category: Most Innovative Supplier

Packing liquids are always a challenge, especially if the product is a hazardous agrochemical. Finding solutions to problems faced in packing agrochemicals in PET bottles and aluminium bottles is the core reason of this innovation.



The Context

With respect to agrochemical being packed in PET bottles, existing bottles are capped and sealed with induction liner fitted caps.

Challenges during capping and sealing:

PET bottles have a very small sealing temperature window, which results in either a weak seal or seal burning, thereby resulting in leakage of hazardous chemicals.

The unevenness of the bottle's mouth surface makes sealing weak, again resulting in leakage.

Once the induction seal is open, then the cap cannot be leak-proof.



The Innovation

To address these challenges, Mullackal Polymers developed CRTESS (Chemical Resistant Tamper-Evident Self-Sealing) CAP for the PET bottle for which:

- 1) No induction sealing is required
- 2) The soft flexible chemically-resistant inner material of the seal cap accommodates the unevenness and provides barrier property to the product - good seal, no leakage.
- 3) Each time the cap is closed, it would be 100% leak-proof, every time. This helps retain the efficacy of the product till its last drop.
- 4) The product manufacturer can guarantee the product quality to the last drop.

Additional benefits of using the CRTESS Cap:

- The entire existing induction sealing and wadding operation is eliminated, resulting in saving cost of the Induction Machine, saving of space, saving production time, money and energy
- Spurious operation of duplicate packs are discouraged due to high investment and the high end technology of mould and machines
- In the existing Cap, the Induction liner is non-recyclable (It is made up of aluminium foil, paper board and plastic laminate). The new cap is recyclable. This innovation makes the new CRTESS Cap sustainable.

This innovative cap solves all the disadvantages of the existing cap associated with induction sealing liner.



Overcoming Challenges

The challenges encountered while developing the CRTESS Cap and the CR Screw Cap were:

- 1) Maintaining a tamper-evident design
- 2) Fine dimensional tolerance for user friendliness i.e. ease of opening and closing the cap
- 3) Use the existing production filling line

Impact of the Innovation

leakproof capping

100%

environmental impact

recyclable