



Problem



The **current "Press & Turn" pill bottle designs** rely on **more of a strength-based approach in opening them** and are **difficult to open**, especially for seniors with arthritis.

Moreover, **some children are able to open the current "Press & Turn" pill bottle designs using their teeth and fingernails**, which are able to **slide into the bottle cap's gaps**⁽¹⁾.

It is also shown that **improper secured closures cause child poisoning incidents** to occur when the **user forgets to reattach the bottle cap**⁽²⁾.

^(1 & 2) Jenkins, W.A. & Osborn, K. R. (1993), *Packaging drugs and pharmaceuticals*, Technomic Publishing Company, Pennsylvania.

Solution

"SlideLid" presents a **new, simple and easy to use senior friendly closure** that does not compromise its child-resistance factor, which in users **access their pills in one easy simultaneous combination of a 'push down' and a 'slide across' motion**.

The evidence for the design of "SlideLid" is supported by the research found that **children aged forty-two to fifty-one months are unable to perform two different motions simultaneously to open a child-resistant closure**⁽¹⁾.

Moreover, it is further supported by the fact that **pushing is the simplest dexterity function of all, one that requires a little strength to accomplish**⁽²⁾, as compared to using a power grip to open the current "Press & Turn" bottle.

⁽¹⁾ Jenkins, W A & Osborn, K R (1993), *Packaging drugs and pharmaceuticals*, Technomic Publishing Company, Pennsylvania.

⁽²⁾ Clarkson, J, Coleman, R, Hosking, I & Waller, S (2007), *Dexterity functions: Pushing*, Inclusive Design Toolkit, Engineering Design Centre, University of Cambridge, UK.

Packaging Details

01 / Drug Identification on Top of Bottle

- For easier identification of medicine for users when bottle is kept in drawers or even if the bottle is laid flat on its back

02 / Large Flat Display Area for Label

- To allow for bigger text size and graphics for better readability
- Flat surface for better readability compared to a cylindrical surface

03 / Secured Slider

- To help prevent the problem of missing bottle's caps

04 / Large Opening for Dispensing Pills

- For easier dispensing of pills
- Able to accommodate for most pills sizes (opening size = 20 mm wide)



05 / Ergonomically Shaped Button with Grooves Details

- To provide a better grip for users when pushing down and sliding across the slider's buttons

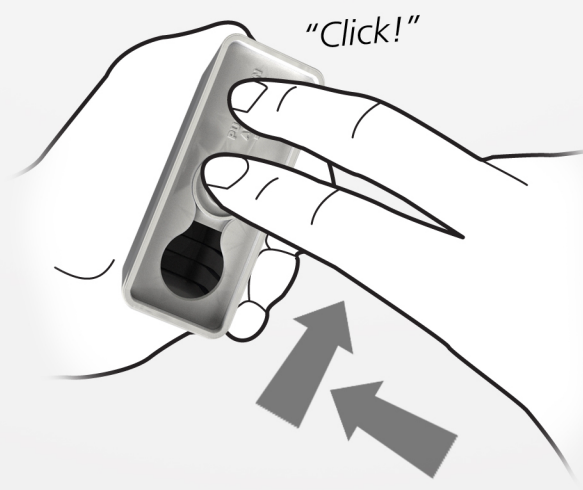
06 / Tactile Operating Information

- To provide clear instructions for users to access their pills

Operation Process



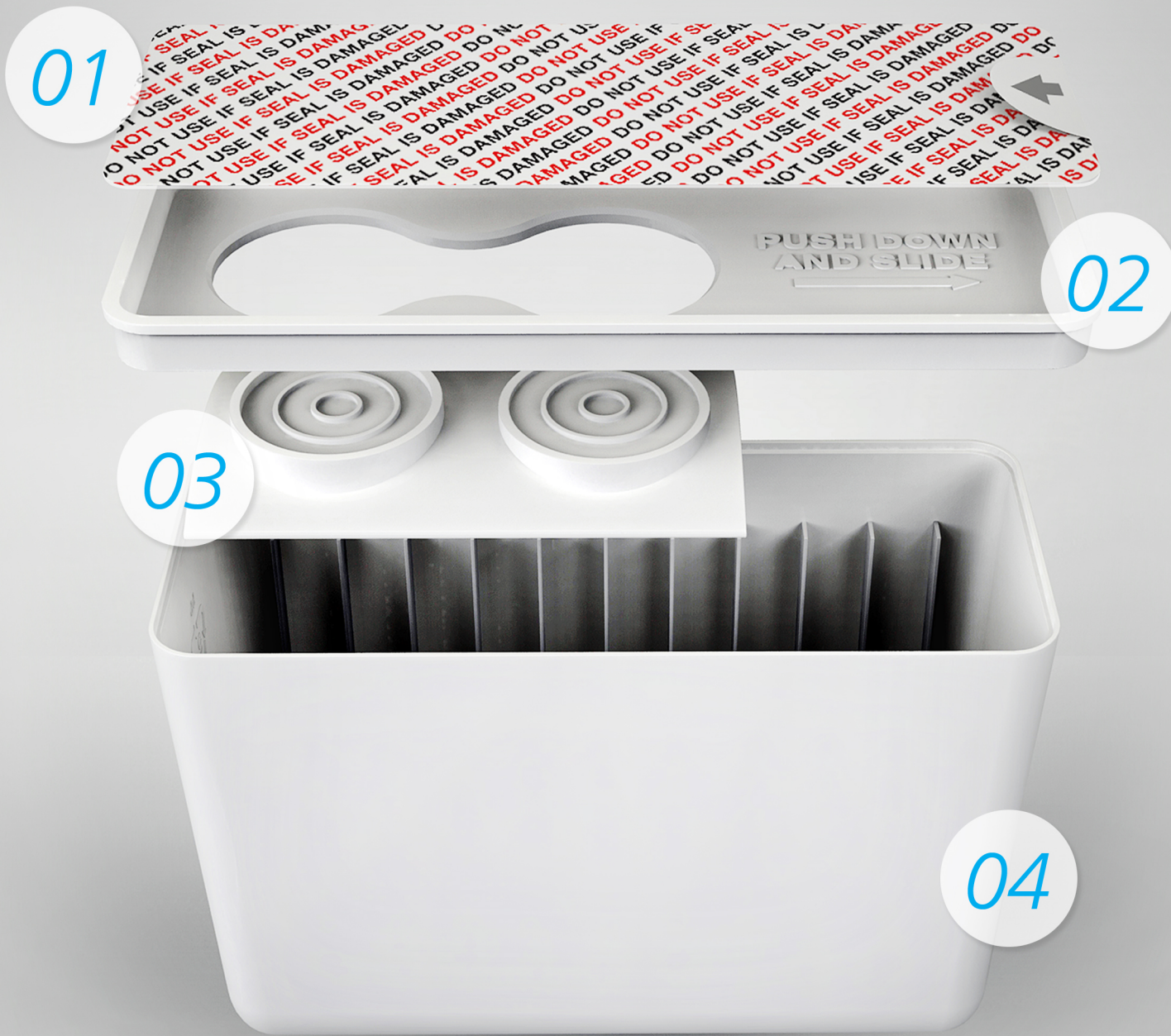
01 / Hold the top of the bottle with one hand, while position the opposing hand's fingers onto the slider's buttons.



02 / Push down buttons and slide across to the side to reveal bottle opening. A tactile and audible click will be felt and heard to confirm correct alignment.



03 / Shake to packaging to dispense required amount of pills from the opening



Product Parts, Materials & Manufacture

- 01 / Tamper Evident Seal / Foil / Heat Induction
- 02 / Bottom Cap / Polypropylene / Injection Molded
- 03 / Slider / Polypropylene / Injection Molded
- 04 / Top Bottle Case / Polypropylene / Injection Molded

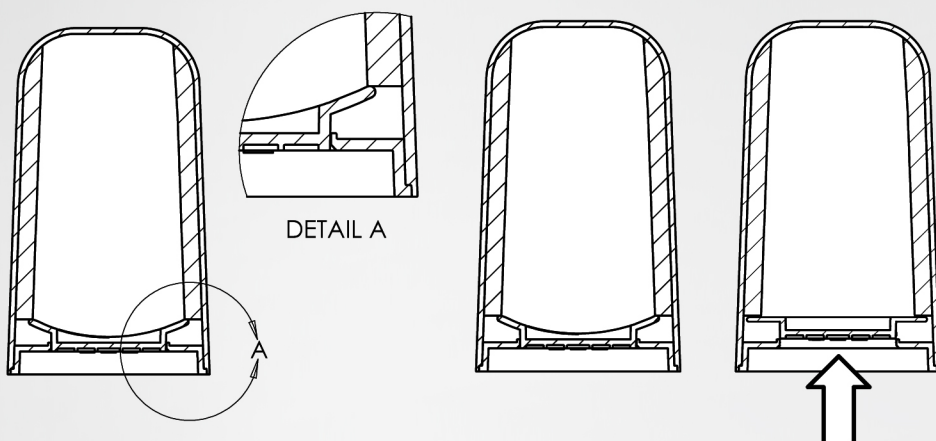
Parts Connection Methods

- 02 + 03 + 04 / Snap Fitted Assembly
- 02 + 04 / Ultrasonic Welding

Overall Dimensions

85 x 35 x 60 mm

*N.B. : Pills will be filled through the opening of the top bottle base and then assembled together.

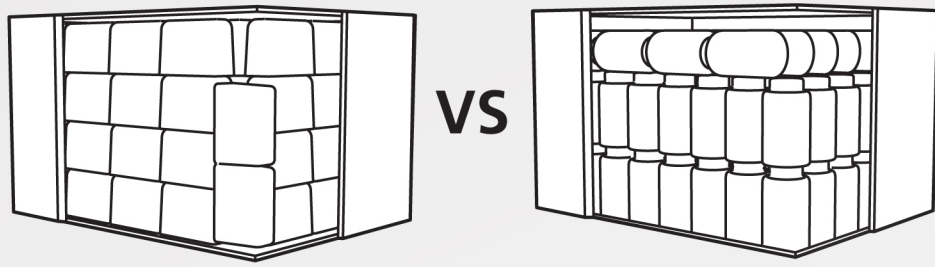


2D Cross Section View

Due to the flexible properties of polypropylene and the arc-shaped design of the slider, the slider is allowed to be pushed down and slide across along the top bottle case's rib wall edge.



3D Cross Section Views



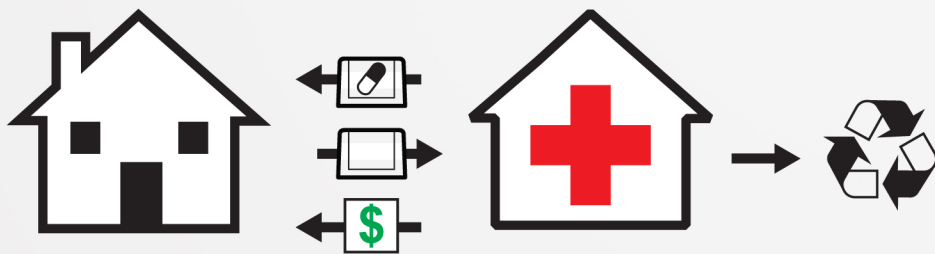
Space Saving Design

The rectangle shaped base design of "SlideLid" and its stackable function allow for **more storage room** and thus **saving storage space** as compared to the cylindrical shaped pill bottle designs, and allowing **more bottles to be stored**. This will help to **reduce transportation cost** and **increase transportation efficiency** because of the smaller footprint it has through its design.



Recyclability

As "SlideLid" is **manufactured from a same type of plastic - polypropylene**, it would be **easier to recycle** the packaging with little or no parts separation.



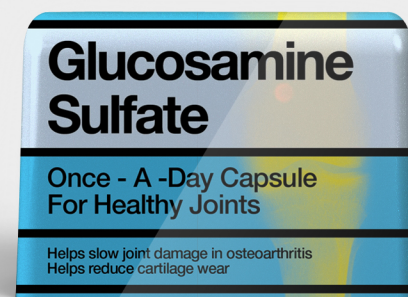
Product Service System

"SlideLid" can be used in the application of a product service system where **customers would return their used/ empty pill bottles back to their pharmacy for a refill using the same bottle or receive an incentive in a form of a discount coupon for their next purchase**. This system not only helps to ensure a more sustainable approach in **reusing and recycling the packaging**, but also **improve patient compliance** and provides a sustainable business model for the pharmacy where customers would return for their next purchase. Further, this system would **prolong the packaging life cycle and encourage lesser waste consumption**.

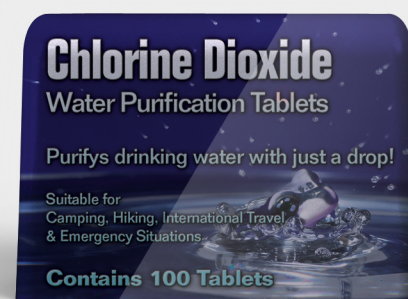


For every 405 x 300 x 255 mm cardboard box, 150 bottles of "SlideLid" can be stored, as compared to only 120 bottles of the cylindrical shaped design. Thus, an addition of a **total of 30 bottles can be transported with zero carbon footprint**.

For every standard 12.192m long shipping container, a total of 2,178 boxes can be stored, thus an addition of **65,340 bottles of "SlideLid" can be transported with zero carbon footprint**.



Glucosamine Sulfate Tablets



Chlorine Dioxide Tablets

Other Applications

The design of "SlideLid" can be applied to be used in other forms of packaging in similar or different types of industry, such as the food & beverages and cleaning products, where the need for a child resistant closure is required. Examples of other applications can be used for the **packaging of vitamins and supplement pills and chlorine dioxide tablets**.