

ADULT FRIENDLY CHILD-RESISTANT PACKAGE

FIELD OF THE INVENTION

The present invention relates to a package which is resistant to opening by the majority of children, yet which can be opened without undue difficulty by adults, also by those whose manual dexterity may, at least to a degree, be impaired.

BACKGROUND OF THE INVENTION

Child resistant packaging is understood to be an important concept for preventing inadvertent access by children, for example, to potentially dangerous liquid or dry products. However, inclusion of the child resistant feature adds difficulty and frustration for the adult user when attempting to open the package. Due to the difficulty in opening child resistant packages, many persons, especially elderly adults which may also have impaired strength and dexterity, could prefer a non-child resistant package substitute. Alternatively, when dangerous products are purchased in child resistant packages by adults, the child resistant package is often not reclosed in order to defeat the child resistant feature. As a result, the danger of child poisonings may increase in the homes.

The aforementioned problems are generally recognised in the packaging industry. Attempts to deal with these problems are also disclosed in the patent literature. For example, U.S. Pat. No. 4,948,002 issued to Thornock et al. on Aug. 14, 1990 discloses a package comprising a bottle, a collar which is secured in place over the uppermost portion of the bottle and a closure which is secured to the finish portion of the bottle. The collar preferably includes a pair of spring-like pushtabs containing vertical extensions which engage interlocking teeth on the innermost surface of the closure skirt when the closure is fully assembled onto the bottle. To remove the closure, the opposed pushtabs must be manually depressed prior to applying unscrewing torque to the closure to disengage the pushtab extensions from the interlocking teeth on the closure.

The package disclosed in '002 exhibits highly improved child resistance without significantly impeding access by adults. This has been further improved in WO 92/07286, in which a package is described whose child resistance is enhanced even further without making the package more difficult to open by adults. This is achieved, if the spring-like pushtabs containing vertical extensions are, at least to a degree, preloaded so as to exert a force against the innermost surface of the closure skirt once the closure has been fully assembled onto the package.

In both documents '002 and '286 the spring-like pushtabs containing vertical extensions are part of a transition piece attached to the bottle, like the collar of '002, or may be integral part of the bottle without any transition piece. Nonetheless, the user has to use both hands to allow him/her to overcome the child resistant feature and unscrew the closure. Indeed, firstly one hand has to hold the bottle and at the same time depress the spring-like pushtabs. Secondly, the closure has to be unscrewed with the other hand. This means that both hands are needed to actually disengage said child resistant closure from the bottle, which is called in the following a "two hand operation". We found that this two hand operation is difficult for larger containers having an unwieldy external shape, especially for elderly adults having impaired manual strength and dexterity. Indeed, it is more difficult for one hand to hold a large and/or heavy container

and at the same time depress the pushtabs, especially when said pushtabs are located in the upper portion of said bottle.

It is therefore an object of the present invention to provide a child resistant package which is resistant to opening by the majority of children but which, at the same time, can readily be opened by adults without the need of a two hand operation.

SUMMARY OF THE INVENTION

The present invention is a child-resistant package comprising a container and a closure. Said package is suitable for storing and dispensing potentially dangerous products. Said container comprises an upper portion, said upper portion comprising a first engaging means for releasably securing said closure to said container. Said closure comprises an inner skirt which comprises second engaging means corresponding to said first engaging means of said upper portion for releasably securing said closure to said container. Said closure further comprises an outer skirt, generally concentrically aligned with said inner skirt. Said upper portion of said container further comprises at least an interlocking tooth, and said closure further comprises at least one resiliently deformable pushtab, and at least a part of said pushtab is inwardly movable when a squeezing force is applied to said inwardly movable part of said pushtab. Said pushtab has an exposed surface contour which generally conforms to the exterior surface contour of the adjacent portions of said outer skirt. Said interlocking tooth and said pushtab are so formed and positioned to prevent removing of said closure from said container to open said package unless said pushtab is first depressed to disengage said pushtab from said interlocking tooth before said container is opened. At least part of said pushtab faces the innermost surface of said interlocking tooth when said closure is disengaged from said container.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is an exploded perspective view of a child resistant package of the prior art.

FIGS. 2a to 2c are exploded perspective views of embodiments of child resistant packages according to the present invention. FIGS. 2d and 2e are cross sectional top views of another child resistant package according to the present invention. FIG. 2f is a front view of a child resistant package according to the present invention. FIGS. 2g and 2h are partial cross sectional views of the interlocking tooth and the pushtab, the pushtab further comprising a guiding ramp. FIG. 2i is a perspective view of an embodiment of a closure of a child resistant package according to the present invention.

FIG. 3a is a front view of the upper portion of another embodiment of a child resistant package according to the present invention. FIG. 3b illustrates cross sectional top view of the upper portion of another child resistant package according to the present invention.

FIG. 4a is a front view, partially cut through the thickness, of an embodiment of a closure of a child resistant package according to the present invention. FIG. 4b is a cross sectional side view of an embodiment of a closure of a child resistant package according to the present invention.

FIG. 5a shows a partial front view of another embodiment of a closure of a child resistant package according to the present invention. FIG. 5b is a cross sectional top view taken along line (A,A') of FIG. 5a.

FIG. 6a shows a partial front view of another embodiment of a closure of a child resistant package according to the