PACKAGING WITH PRE-FORMED PLASTIC WEB INCLUDING USER-GRASPABLE TEAR TAB

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ABSTRACT

Packaging configured to contain an item is made from a pre-formed plastic web from which a user-graspable tear tab extends to enable removal of the item from the packaging. Preferred embodiments each include a plastic web in the form of a pocket and positioned between front and back lidding sheets that have adhesive sections bonded together to form unitary packaging. The pocket is sized to pass through a pocket-receiving aperture in the front lidding sheet and retains and displays the packaged item. The tear tab outwardly extends from a peripheral flange from which the plastic web depends. A score line boundary formed in one of the front and back lidding sheets circumscribes or partly circumscribes at least a majority of the pocket receiving aperture and allows removal of the item by a user pulling the tear tab to tear open the packaging along the score line boundary.
PACKAGING WITH PRE-FORMED PLASTIC WEB INCLUDING USER-GRASPABLE TEAR TAB

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TECHNICAL FIELD

[0002] The present disclosure relates to packaging products such as blister packages and, more particularly, to blister packages including tear tabs.

BACKGROUND INFORMATION

[0003] Articles are commonly wrapped in a package having an enclosing plastic member secured to a substrate. A blister package is a type of package that includes a cardboard blister card enclosing and glued to the periphery of a pre-formed article-holding plastic blister. The blister member is typically a molded transparent plastic sheet.

[0004] Opening the blister package typically entails tearing the plastic sheet away from the underlying cardboard blister card. In this arrangement, the glue bond at the periphery is sufficiently strong to affix the plastic blister member to the cardboard blister card but sufficiently weak to permit opening of the package. A stronger glue bond prevents inadvertent loosening of the glued periphery, but a disadvantage of the stronger glue bond is that cardboard remnants often remain adhered to the plastic sheet and obscure the bottom of the plastic blister member, making it more difficult to access the packaged items. Others have attempted to solve this problem by using various tear strip arrangements designed to allow unglued portions of the substrate to be more easily torn away from the plastic blister member. A disadvantage of this approach is that the tear strips often include a gap in the glue bond, making the packaging more complex to assemble and weaker at the point of the gap.

[0005] A frequency welded package is another common packaging product, in which a semi-rigid cardboard sheet is positioned between two pre-formed transparent plastic blister members. This type of packaging is often called "bubble" packaging. The peripheries of the plastic members of a frequency welded package are thermally fused together to form a secure bond that makes the package much more difficult for consumers to open.

[0006] WO 97/05038 describes a package in which a molded plastic box is held by a peripheral flange region between two glued together cardboard sheets. These sheets are provided with a fold line and a pair of perforated seams that extend from the fold line to edges of the box. By bending the sheets about the fold line, the perforated seams can be broken and the box slidably released. Breaking the seams clearly indicates the package has been opened and prevents unscrupulous persons from stealing items and reclosing the package. However, after the seams have been broken, the package must still be slidably removed from the cardboard sheets. Furthermore, the packaging is more difficult to assemble given the additional cuts and seams required.

[0007] In the packaging industry, especially as related to blister and related type packaging, it is desirable to have a readily manufactured package that may be easily opened by a consumer to make the entire contents of the package immediately accessible.

SUMMARY OF THE DISCLOSURE

[0008] Packaging configured to contain an item is formed with a pocket made from a pre-formed plastic web from which a user-graspable tear tab extends to enable removal of the item from the packaging. Preferred embodiments of the packaging each include at least one plastic web in the form of a pocket and positioned between a front lidding sheet and a back lidding sheet. The front lidding sheet is formed with front outer and front inner boundaries and has a front lidding surface region located between the front inner and outer boundaries. The front lidding surface region includes a releasable section with no adhesive or a low tack adhesive proximal to the front inner boundary and an adhesive section proximal to the front outer boundary. The front inner boundary defines a pocket-receiving aperture. The back lidding sheet is formed with a back outer boundary confining an interior region that spatially overlaps the pocket-receiving aperture. The back lidding sheet has between the back outer boundary and the interior region a back lidding surface region that includes a releasable section with no adhesive or a low tack adhesive proximal to the interior region and an adhesive section proximal to the back outer boundary.

[0009] The plastic web retains and displays packaged items. The plastic web in the form of a pocket depends from a peripheral flange that has first and second flange surfaces. A tear tab outwardly extends from the flange and through the releasable sections of the front and back lidding surface regions. The pocket has an opening with a boundary circumscribed by the flange. The pocket is sized to pass through the pocket-receiving aperture with the first and second flange surfaces of the flange positioned between the releasable sections of the front and back lidding surface regions.

[0010] A score line boundary formed in one of the front and back lidding sheets circumscribes or partly circumscribes at least a majority of the pocket-receiving aperture and allows the packaging to be opened. The score line boundary is proximal to a junction boundary of the adhesive and releasable sections of the lidding sheet on which the score line boundary is formed.

[0011] The assembled packaging is sealed with an adhesive material that bonds together the adhesive sections of the front and back lidding surface regions to form a unitary package. After the packaging is sealed, an item contained in the pocket can be removed by a user pulling the tear tab to tear open the packaging along the score line boundary. Pulling the tear tab separates the interior region of the back lidding sheet from the opening of the pocket to provide the user access to it and thereby enable removal of the plastic web from its position between the bonded front and back lidding sheets.

[0012] The interior region is optionally a region of the back lidding sheet that forms a contiguous piece of cardboard or similar substrate. Alternatively, the interior region can be an opening through which an additional pre-formed plastic web is passed. The additional plastic web is in the form of a pocket.
and depends in an opposite direction from that of the other pocket to form a large pocket from the front and back lidding surfaces.

Additional aspects and advantages will be apparent from the following detailed description of preferred embodiments, which proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top perspective view of a first embodiment of the packaging according to the present disclosure. FIG. 2 is a bottom perspective view of the packaging depicted in FIG. 1. FIG. 3A is a sectional view taken along line 3A-3A of FIG. 2. FIG. 3B is a sectional view taken along line 3B-3B of FIG. 2. FIG. 4A is a fragmentary view of a packaging tear tab shown in FIGS. 2, 3A, and 3B; and FIGS. 4B and 4C are fragmentary views of alternative embodiments of the packaging tear tab. FIG. 5 shows the sectional view of FIG. 3B with a rivet punched through the packaging tear tab area to prevent theft.

FIGS. 6A, 6B, and 6C are perspective views and FIG. 6D is a cross-sectional view of a second embodiment of the packaging according to the disclosure, in which the packaging includes front and back opposed plastic webs.

FIG. 7 is a perspective view of two items of the double-sided blister packaging of FIGS. 6A, 6B, 6C, and 6D shown mounted on a display shelf hook.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

FIGS. 1, 2, 3A, 3B, 4A, 4B, and 4C show, as a first embodiment, packaging 10 that includes a pre-formed optically transparent plastic web 12 secured between a front lidding sheet 14 and a back lidding sheet 16. Front lidding sheet 14 and back lidding sheet 16 are preferably made of paperboard material and preferably formed in rectangular shape defined by a front outer boundary 18 and a back outer boundary 20, respectively. Front lidding sheet 14 is formed with a pocket-receiving aperture 22 defined by a front inner boundary 24. Pre-formed plastic web 12 is in the form of a pocket 30 having an opening 32 with a boundary 34 circumscribed by an outwardly extending peripheral flange 36 (shown in dashed lines in FIGS. 1 and 2). Pocket 30 is sized to pass through pocket-receiving aperture 22. Opening 32 of pocket 30 and pocket-receiving aperture 22 are preferably of rectangular shape but can be of any mutually compatible approximate shape. Peripheral flange 36 has a first flange surface 38 that conforms an inner surface 40 of front lidding sheet 14, and peripheral flange 36 has a second flange surface 48 that conforms an inner surface 50 of back lidding sheet 16. Peripheral flange 36 is adequately sized and is sufficiently rigid to anchor plastic web 12 between lidding sheets 14 and 16 without use of an adhesive or a low tack adhesive to prevent plastic web 12 from dropping out of or being pulled through pocket-receiving aperture 22.

A tear tab 52 provided for use in opening packaging 10 outwardly extends from peripheral flange 36 and between lidding sheets 14 and 16, as will be further described below. Back lidding sheet 16 has a closed interior region 54 that is confined by a back inner boundary 56 (FIG. 2). Interior region 54 spatially overlaps pocket-receiving aperture 22 and covers opening 32 to contain an item or items placed in pocket 30 when packaging 10 is assembled.

Front lidding sheet 14 has on its inner surface 40 a front lidding surface region 62 that lies between front outer boundary 18 and front inner boundary 24. Front liddingsurface region 62 includes in proximity to front inner boundary 24 a releasable section 64 that is in the general shape of a rectangular annulus with a tab extension space 66 through which tear tab 52 extends. Front lidding surface 62 also includes between releasable section 64 and front outer boundary 18 an adhesive section 68 that is in the general shape of a rectangular annulus interrupted by tab extension space 66. Releasable section 64 and adhesive section 68 meet at a junction boundary 69.

Back lidding sheet 16 has on its inner surface 50 a back lidding surface region 72 that lies between back outer boundary 20 and back inner boundary 56. Back lidding surface region 72 includes in proximity to back inner boundary 56 a releasable section 74 that is of substantially the same size and shape as the size and shape of releasable section 64. Back lidding surface region 72 also includes between releasable section 74 and back outer boundary 20 an adhesive section 78 that is of substantially the same size and shape as the size and shape of adhesive section 68. Releasable section 74 and adhesive section 78 meet at a junction boundary 79.

When packaging 10 is assembled, releasable sections 64 and 74 are spatially aligned to each other, and peripheral flange 36 extends outwardly from opening 32 a distance no greater than that which keeps peripheral flange 36 within releasable sections 64 and 74. Releasable sections 64 and 74 contain no adhesive material or a low tack adhesive material. An example of suitable low tack adhesive material is a low profile glue dot part number XD11-204 available from Glue Dots International, New Berlin, Wisc. Optional low tack adhesive prevents plastic web 12 from sliding laterally between lidding sheets 14 and 16 while packaging 10 is unopened, but plastic web is readily releasable when opening packaging 10. A layer or multiple spots of glue form a bond line between adhesive sections 68 and 78 holding lidding sheets 14 and 16 together and thereby forming unitary packaging 10 with no adhesive. Releasable or low tack adhesive material bonded to plastic web 12.

A score line boundary 80 formed in back lidding sheet 16 circumscribes pocket-receiving aperture 22 at a location outside of adhesive section 78 and proximal to the junction of releasable section 74 and adhesive section 78. Score line boundary 80 is illustrated as short-dashed line segments. A user removing an item contained in packaging 10 pulls tear tab 52 to open back lidding sheet 16 along score line boundary 80 and separate interior region 54 from opening 32 to uncover pocket 30 and thereby enable removal of item-containing plastic web 12 from its position between bonded lidding sheets 14 and 16. In an alternative embodiment, score line 80 partly circumscribes three of the four sides of pocket-receiving aperture 22, leaving without a score line the side opposite tear tab 52 to form a hinge for the open portion of back lidding sheet 16. Providing a hinged open portion of back lidding sheet 16 facilitates user reinsertion of plastic web 12 after removal of fewer than all of the items contained in it.

FIG. 4A shows tear tab 52 terminating at outer boundaries 18 and 20. Back lidding sheet 16 includes a rect-
an angular notch 82 that overlays tab extension space 66 and thereby exposes a user-graspable end portion 84 of tear tab 52. A fold line 86 formed in user-graspable end portion 84 provides a hinge for tear tab 52 to facilitate a user starting to open packaging 10 by separating tear tab 52 lying flat against inner surface 40 of front lidding sheet 18. Skilled persons will recognize that tear tab 52 may be located at a corner of packaging 10 or in other suitable locations.

[0029] FIGS. 4B and 4C depict alternative embodiments of tear tab 52. FIG. 4B shows tear tab 52 extending from outer boundaries 18 and 20 and omission of notch 82 in back lidding sheet 16. FIG. 4C shows a rectangular opening 88 replacing notch 82 and tear tab 52 with user-graspable end portion 84 of reduced length. A user opens packaging 10 by using a fingernail or stylus to pull user-graspable end portion 84 away from tab extension space 66.

[0030] Lidding sheet 14 and lidding sheet 16 have, respectively, a front outer surface 90 and a back outer surface 92 that are suitable for displaying text and graphics describing the item(s) contained in pocket 30. Outer surfaces 90 and 92 are proportioned to accommodate plastic web 12, display text, and to allow efficient handling, storage, and retail of packaging 10. FIG. 1 illustrates that pocket-receiving aperture 22 is centrally located in front lidding sheet 14 with front outer boundary 18 providing padding for plastic web 12. Front lidding sheet 14 is sufficiently rigid to sustain its rectangular shape during transport of packaging 10 and to protect plastic web 12 from crushing or other shipping damage.

[0031] FIG. 1 shows an aperture 96 for hanging packaging 10 from a display rack. Aperture 96 may be optionally cut through lidding sheets 14 and 16, preferably in adhesive sections 68 and 78. Alternatively, aperture 96 may be cut through peripheral flange 36 and lidding sheets 14 and 16, preferably through one of lidding sheets 14 and 16 and tear tab 52, or preferably through lidding sheets 14 and 16 and tear tab 52 as shown in FIG. 1. An aperture cut through part of peripheral flange 36 or tear tab 52 has the advantage of protecting packaging 10 from theft while packaging 10 hangs from a display rack rod because an individual cannot open packaging 10 until it is removed from the display rack. Moreover, it is generally more difficult to tear through packaging plastic than it is to tear through paperboard. Fitting locked end caps on the ends of display rack rods prevents removal or opening of packaging 10 for purposes of theft.

[0032] FIG. 5 shows the sectional view of FIG. 3B with packaging 10 having a plastic rivet 98 punched through releasable sections 64 and 74 in the vicinity of tear tab 52 to secure packaging 10 until a customer removes, cuts, or pops-open rivet 98. Alternatives to plastic rivet 98 include a plastic staple or other simple fastener that secures tab 52 between paperboard lidding sheets 14 and 16.

[0033] FIGS. 6A, 6B, 6C, and 6D and FIG. 7 show, as a second embodiment, packaging 100 that includes a second pre-formed optically transparent plastic web 112 having a peripheral flange 114. FIG. 6C shows a rivet 98 punched through lidding sheets 14 and 16 and peripheral flanges 36 and 114 in the vicinity of tear tab 52 for the security reasons stated above with reference to FIG. 5 in connection with packaging 10). The detailed description of packaging 10 as a first embodiment follows a convention that refers to front lidding sheet 14 as the lidding sheet through which pocket 30 of plastic web 12 extends and back lidding sheet 16 as the lidding sheet in which interior region 54 closes opening 32 of pocket 30. Thus, the front lidding sheet represents the side of the packaging that a user can view a product contained in the pocket of the transparent plastic web. For packaging 100, a second embodiment in which interior region 54 of back lidding sheet 16 is open to receive transparent web 112 and thereby form a double-sided blister package, either one of the two lidding sheets can be arbitrarily considered as front lidding sheet 14 and the other one can be considered as back lidding sheet 16.

[0034] Plastic web 112 is joined to plastic web 12 along a hinge member or line 116 to form an integral folding plastic container 118. The components of packaging 100 are of the same construction as that of packaging 10, except that plastic web 112 has a tear tab 52 and plastic web 12 has no tear tab, back lidding interior region 54 is open to form a pocket-receiving aperture 122, and a score line boundary 80' is formed in lidding sheet 16. The components of packaging 100 are arranged such that a pocket 130 of plastic web 112 passes through pocket-receiving aperture 122 of back lidding sheet 16 and pocket 30 of plastic web 12 passes through pocket-receiving aperture 22 from lidding sheet 14. Pocket 130 has an opening 132 that is of the same size as and is spatially aligned with opening 32 of pocket 30. Pockets 30 and 130 face outwardly from each other in opposite directions to form a single large pocket when packaging 100 is assembled. Skilled persons will appreciate that plastic webs 12 and 112 need not be joined by hinge line 116 and, therefore, could be separate components of packaging 100.

[0035] FIGS. 6A, 6B, and 6C show that score line boundary 80' extends around three sides 80', 80'' and 80', of a rectangular score line perimeter, with a fourth side 80'', constituting a paperboard hinge line. Score line boundary 80' is preferably located as close as practicable to adhesive section 78 and the side margin of peripheral flange 114 of plastic web 112. Whenever a user lifts pull tab 52 to open packaging 100, a releasable section 74 of back lidding sheet 16 lifts plastic web 112 away from pocket opening 30 of plastic web 12 and folds along hinge line 804. The force of plastic tear tab 52 set below paperboard lidding sheet 16 tears it along score line 80'. FIG. 6C shows that folding plastic container 118 is readily removable in one piece from the paperboard front and back lidding sheets 14 and 16. Skilled persons will appreciate that provision of score line boundary 80' affords especially easy opening of double-sided packaging 100.

[0036] The opening process of packaging 10 and 100 entails the removal of plastic web 12 of the first embodiment and plastic webs 12 and 112 of the second embodiment and thereby results in disassembly of the packaging in pieces that are readily separable in paperboard and plastic components to facilitate recycling.

[0037] FIG. 7 shows two items of packaging 100 hanging from a display shelf hook 134.

[0038] It will be obvious to those having skill in the art that many changes may be made to the details of the above-described embodiments without departing from the underlying principles of the invention. For example, lidding sheets 14 and 16 may be of any mutually compatible arbitrary shape. The scope of the present invention should, therefore, be determined only by the following claims.

1. Packaging formed with a pocket configured to contain an item and made from a pre-formed plastic web from which a
user-graspable tear tab extends to enable removal of the item from the packaging, comprising:
a front lidding sheet formed with front outer and front inner boundaries, the front inner boundary defining a pocket-receiving aperture, the front lidding sheet having between the front outer and front inner boundaries a front lidding surface region that includes a releasable section with no adhesive or a low tack adhesive proximal to the front inner boundary and an adhesive section proximal to the front outer boundary;
a back lidding sheet formed with a back outer boundary and confining an interior region spatially overlapping the pocket-receiving aperture, the back lidding sheet having between the back outer boundary and the interior region a back lidding surface region that includes a releasable section with no adhesive or a low tack adhesive proximal to the interior region and an adhesive section proximal to the back outer boundary;
a plastic web positioned between the front and the back lidding sheets, the plastic web in the form of a pocket depending from a flange from which a tear tab outwardly extends through the releasable sections of the front and back lidding surface regions, the flange having first and second flange surfaces, and the pocket having an opening with a boundary circumscribed by the flange, the pocket sized to pass through the pocket-receiving aperture with the first and second flange surfaces of the flange positioned between the releasable sections of the front and back lidding surface regions;
a score line boundary formed in one of the front and back lidding sheets to circumscribe or partly circumscribe at least a majority of the pocket-receiving aperture at a location proximal to a junction boundary of the adhesive and the releasable sections of the one of the front and back lidding sheets; and
an adhesive material bonding together the adhesive sections of the front and back lidding surface regions to form a unitary package in which an item contained in the pocket can be removed by a user pulling the tear tab to tear open the packaging along the score line boundary.
2. The packaging of claim 1, in which the interior region spatially overlapping the pocket-receiving aperture is closed and thereby covers the pocket-receiving aperture.
3. The packaging of claim 1, in which the interior region spatially overlapping the pocket-receiving aperture is open and thereby forms an added pocket-receiving aperture, and further comprising an added plastic web in the form of an added pocket that depends from an added flange having first and second added flange surfaces, the added pocket having an added opening with a boundary circumscribed by the added flange and the added pocket sized to pass through the added pocket-receiving aperture such that the plastic web and the added plastic web face outwardly from each other in opposite directions.
4. The packaging of claim 3, further comprising a hinge member connecting portions of the flange and the added flange, respectively, the plastic web and the added plastic web to form a folding plastic container component of the packaging.
5. The packaging of claim 1, in which the front and back lidding sheets are made of paperboard material.
6. The packaging of claim 1, in which the plastic web is optically transparent.
7. The packaging of claim 1, in which one of the front and back lidding sheets includes a notch at a location that exposes the tear tab and thereby makes accessible a user-graspable end portion of the tear tab.
8. The packaging of claim 7, in which the score line boundary is formed in the one of the front and back lidding sheets.
9. The packaging of claim 1, further comprising a packaging-hanging aperture formed through the adhesive sections of the front and back lidding sheets.
10. The packaging of claim 1, further comprising a packaging-hanging aperture formed through at least one of the front and back lidding sheets and the flange.
11. The packaging of claim 1, further comprising a packaging-hanging aperture formed through at least one of the front and back lidding sheets and the tear tab.
12. The packaging of claim 1, further comprising a fastener passing through the front and back lidding sheets and the flange.
13. The packaging of claim 12, in which the fastener includes a rivet or staple.
14. The packaging of claim 1, in which the score line boundary partly circumscribing the pocket-receiving aperture includes a hinge line along which the one of the front and back lidding sheets folds as the user opens the packaging.

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