A food container for shipping and displaying food items is provided. The food container is made up of a base container having an upper perimeter portion that is configured to be closed using a label seal. The label seal replaces a lid or cover (either hinged or separate) and enables a significant reduction in the amount of plastics used in food containers of this type. The label seal is adhesively applied to the upper perimeter portion of the base container and is cut to size to the same perimeter edge of the container. A tamper evident feature can be integrated into the label seal technology disclosed herein.
CONTAINER UTILIZING LABEL SEAL TECHNOLOGY

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority from U.S. Provisional Patent application Ser. No. 62/015,009 filed on Jun. 20, 2014, the entire content of which is incorporated herein by reference.

BACKGROUND

[0002] 1. Technical Field

[0003] The present principles relate to containers and packaging. More particularly, they relate to food and perishable containers and packaging having sealing features for both tamper-evident and non-tamper evident solutions that eliminate the need for both single piece hinged and non-hinged containers, (clamshells/tubs) and two piece containers (tubs and lids).

[0004] 2. Discussion of Related Art

[0005] Disposable containers for packaging, distributing, displaying or otherwise housing consumer items, especially perishable foods, are becoming increasingly important. Historically, perishable products had to be brought to market and sold quickly before exposure to the atmosphere caused the products to lose their freshness.

[0006] The advent of plastics resulted in many products being wrapped or packaged in plastic, both in the form of flexible plastic bags and solid plastic containers. The use of plastics in the modern-day convenience food industry has significantly improved the “shell life” of perishable products, allowing both merchants and their customers to store the products for longer periods of time, resulting in substantial savings.

[0007] In addition, consumers prefer to visually inspect the food product within such containers prior to purchase. Thus, fabricating containers from clear see-through plastics is desirable. For example, packaging provided for bakery goods or agriculture products has often been in the form of clear, plastic clamshell packaging, because, among other things, such clear, plastic clamshell packaging, provides a homemoven, baked-on-the-premises image which grocery retailers have found to be especially appealing to consumers.

[0008] Typically, plastic containers will include a fairly rigid lid and base, although they may be subject to some amount of flexure. The lid provided must be capable of properly and effectively sealing the container, yet the container must be constructed so that the lid is relatively easy to remove, and even replace, since it is expected that the container and lid would normally be reused. In addition the lid must provide adequate space for product branding and meet all the regulatory product identification (product, product of origin, weight, etc.) in the form of a label both paper and or plastic. Typically these containers are either pre-labeled or labeled after the product is filled in a secondary application.

[0009] In addition to the aforementioned consumer design preferences, it is desirable to fabricate containers that include features which either deter unauthorized tampering or clearly indicate whether unauthorized tampering has occurred, or both. These tamper-resistant/evident features typically include structural elements which, when the container is tampered with or opened without authorization, enable the consumer to easily visually recognize such tampering so that the product can then be rejected. Such tamper-resistant/evident elements are important for, among other things, deterring theft and preventing the loss of product and income for the seller, as well as instilling consumer confidence in the integrity of the contents within the container and confidence in the ability of the seller and/or manufacturer to provide and maintain quality goods.

[0010] The advancement in these types of containers has significantly increased availability of healthy food options, ready to eat products, and decreased cost and spoilage of fruits and vegetables; however, their existence has also increased the amount of rigid plastic present in our waste stream each year. The amount of non-recycled rigid plastic containers has reach epidemic levels and has led to many cities and states in North America creating new recycling guidelines and laws both restricting use and attaching monetary penalties for over use.

[0011] It has been found that viable options to reduce the amount of rigid plastic used each year are few, more expensive, and often not practical considering the initial capital equipment needed to execute the conversion. In addition, these solutions often have no re-closeable features, particularly for comestible products, especially in circumstances where more than one serving of a comestible product is contained therein, in order to reduce drying out or other deterioration of the comestible food product.

[0012] A specific example of such a solution would be lidding film. Lidding film is an option to seal a rigid container with film and not a rigid lid; however, the equipment needed to heat seal film to such rigid container is hundreds of thousands of dollars, often runs at half the speed of current rigid automated closure lines, as there is no reusable feature, and has additional cost associated with ventilation of film.

[0013] Thus, there is a compelling interest in the development of containers having consumer-preferable design elements, such as recloseability features which are reliable and easy to operate, containers using less rigid plastic, tamper-resistant/evident features with non exposed jagged or sharp edges but remain a deterrent against tampering and clearly indicate whether tampering has occurred. Accordingly, the present invention is directed to a container that meets all these needs.

SUMMARY

[0014] The present principles meets the aforementioned needs, while also improving upon and solving problems associated with previous containers by providing, among other things, a label sealing technology, which relates to the removal of rigid structures as sealing features.

[0015] According to an implementation, the food container includes a base container having an upper perimeter flange defining an opening for receiving food products. A film label is configured to be adhered to the upper flange and entirely seal closed the food receiving opening of the base portion.

[0016] According to another implementation, the food container includes a base container having an upper perimeter flange defining an opening for receiving food products and a bottom surface treated with a silicone agent. A film label is configured to be adhered to the upper flange and entirely seal closed the food receiving opening of the base portion. The film label is stretched over the opening during adhesion such that when the film label is entirely adhered to the flange, the base container with adhered film label can support one or more additional base containers for stacking purposes. The
bottom silicone treated surface of the base container prevents the same from sticking to the film label of a lower container on which it is stacked. The film label can also further include a perforated peel back area configured to partially separate the film label from the upper flange of the container to allow access to the food items in the container. [0017] Other aspects and features of the present principles will become apparent from the following detailed description considered in conjunction with the accompanying drawings. It is to be understood, however, that the drawings are designed solely for purposes of illustration and not as a definition of the limits of the present principles, for which reference should be made to the appended claims. It should be further understood that the drawings are not necessarily drawn to scale and that, unless otherwise indicated, they are merely intended to conceptually illustrate the structures and procedures described herein.

BRIEF DESCRIPTION OF THE DRAWINGS
[0018] In the drawings wherein like reference numerals denote similar components throughout the views:
[0019] FIG. 1 is a top view of an exemplary food packaging container according to an embodiment of the present principles;
[0020] FIG. 2A is a partial perspective view of an exemplary food packaging container without vents, according to an embodiment of the present principles;
[0021] FIG. 2B is a partial perspective view of an exemplary food packaging container having vents, according to an embodiment of the present principles;
[0022] FIG. 3 is a top view of another exemplary food packaging container showing the label seal technology, according to an embodiment of the present principles;
[0023] FIG. 4A is top view of another food container implementing the label seal technology, according to yet another embodiment of the present principles;
[0024] FIG. 4B is a top view of yet another food container implementing the label seal technology, according to a further embodiment of the present principles;
[0025] FIG. 4C is a top view of another food container implementing the label seal technology, according to yet another embodiment of the present principles;
[0026] FIG. 5A is an enlarged view of a food container implementing the label seal technology with an unopened tamper evident feature integrated into the same, according to another embodiment of the present principles;
[0027] FIG. 5B is an enlarged view of a food container implementing the label seal technology with the tamper evident feature of FIG. 5B showing the same opened, according to an embodiment of the present principles;
[0028] FIG. 6 is perspective view of an example of a prior art food container, often referred to as a clamshell; and
[0029] FIG. 7 is a perspective view of the food container implementing the label seal technology of the present principles.

DETAILED DESCRIPTION
[0030] According to an implementation, and as will be described in further detail below, the container with both a tamper-evident and non-tamper lid feature includes a large sealing rim area which is specifically designed for the size and shape of the container and its intended use as a sealed container. The specific custom rim width is intended to provide adequate surface area for adhesion and to provide strength to double stack containers in both shipping and at retail displays. [0031] The use of such a label seal as a lid and all its related properties will replace the need for a rigid hinged or two piece solution and thus reduces the overall plastic weight in waste streams by 30-35 percent resulting in millions if not hundreds of millions of pounds of plastic reduction in landfills each year.
[0032] So that those having ordinary skill in the art to which the subject invention pertains will more readily understand how to make and use the label seal technology and its use as a tamper-resistant/evident package are disclosed herein, embodiments thereof will be described in detail below with reference to the drawings.
[0033] FIG. 1 shows a top view of an example of a food container 10, although shown in a square configuration, can be any shape or size, with or without ventilation depending on the application. The label sealing area 12 is defined by the flat upper surface created by the upper container flange 14. The label sealing area 12, and the size thereof, is specifically determined by the size and expected performance of the container. A larger sealing area 12 allows for the label seal to adhere to the container with adequate seal and re-seal capabilities. The specific shape of the front and back seal area is designed to catch the label as its being applied and reduce slipping effects when applied. Those of skill in the art will appreciate that the shape of the seal area can be optimized to enable the label placement having a tolerance from the applicator to be within +/-1/16".
[0034] FIG. 2A shows an upside down, partial perspective view of a food container implementing the label seal technology of the present principles and which does not include vents in areas identified by reference numeral 20. FIG. 2B shows another version of the food container having vents 22 in the areas 20 identified in FIG. 2A.
[0035] Referring now to FIG. 3, there is shown a top view of a rectangular food container 30 according to an implementation of the present principles. The label seal or label film 50 is a clear plastic seal, and as such, it is to be understood that the same is present in this Figure and in this top view, we are looking down through the same. As shown, the edge 33 formed by the container flange 34 operates as functions as the label perimeter die line (i.e., this is the edge used to determine the exact size of the label to be positioned and sealed over the opening of the container 30). Immediately adjacent the die line edge 32 is the labels sealing area 32 also formed by the perimeter flange 34. Within the label sealing area 32, an adhesive 36 is positioned (either on the flange 34 or on the underside of the label seal 50). As mentioned above, the size of the label sealing area 32 and the amount of adhesive area 36 of the same is determined based on the size and anticipated volume/weight intended for the food being sealed in the container. At no time will adhesive come into contact with food product.
[0036] In this particular implementation, the flange 34 is configured to include a pull tab 40. As will be appreciated by those of skill in the art, the pull tab 40 allows for a portion of the label seal 50 to be gripped and torn along the tamper evident perforated lines 38 to open the food container (i.e., the portion of the label seal 50 that is outside the adhesive label area 36). The shape and size of the perforations can be changed without departing from the intended scope of this disclosure.
Also shown in FIG. 3 is temper evident corner features 42 can be included. Those of skill in the art will appreciate that when the label film 50 is removed from the label sealing area, two circular features 42 tear away from the label film and will remain adhered to the sealing area on the container flange. After the label is resealed, the label strings will not match the original position. Depending on the application, the label seal or label film 50 may also have one or more vents 44 in any type of pattern or configuration for the particular application or food product. Those of skill in the art will appreciate that products having an Oxygen Transfer Rate (OTR) will not require vents, and in those instances, microperforations can be used (e.g., see FIG. 4B discussed below).

In all the embodiments and implementations discussed herein, the label seal or label film 50 is stretched during the adhesion of the same to the flange of the base container. This stretching during adhesion enables the label seal or label film 50 to operate as a support (or lid) for the purposes of stacking multiple containers on top of each other.

The base containers of the present principles are preferably specifically coated with a silicone agent on only the bottom side of the container to prevent sticking together in a stack, but yet allow for the best possible seal between the label seal adhesive and the container. Those of skill in the art will appreciate that an FDA approved silicone can be applied throughout the container and not just the bottom, without departing from the intended scope of the present disclosure. This “full container treatment” is actually done during the thermoforming process of manufacturing the container. As will be appreciated, the silicone assists in smooth “denesting” of the stacked containers during the labeling process. An example of such FDA approved silicone is ACC-Clear 24119 Silicone Concentrate and is manufactured by a company by the name of ACC Coatings.

An FDA approved adhesive is applied to the bottom of the label seal or label film 50 such that the adhesive will only come in contact with the container in the label sealing area (12, 32), therefore, no adhesive will ever come in contact with food product. The “Label Seal” technology of the present principles uses a standard automated label application process to a rigid base within a ½ inch creating a unique seal with very little variance. The label seal will also have the option of a tamper evident perforated area that will tear away from a portion of the container and label resulting in a breaking the seal and clearly depicting tamper evidence.

FIGS. 4A-4C show various different implementations of the label seal technology of the present principles. FIG. 4A shows a square food container having a pull tab portion 40, such that the label 50 can be pulled therefrom. The adhesive area 36 covers the entire perimeter of the container, and the container may also include vents 44 in the bottom thereof. FIG. 4B shows an alternative implementation where a micro-perforation 46 is added to the label seal. As mentioned above, certain processed fruits and vegetables that require an Oxygen Transfer Rate (OTR) for shelf life extension can use micro-perforations in the label seal 50. Micro-perforations are needle perforations measured in microns for MAP (Modified Atmosphere) applications. Alternatively, a more conventional perforation may be implemented when MAP applications are not at issue.

The designs shown in FIGS. 3, and 4A-4C can be a combination of any shape or size to fit any container as well as any combination of design elements, such as the label perimeter die line, the tamper evident perforations, the adhesive label area, the ventilation pattern, the pull table, the microperforation, etc.

Those of skill in the art will appreciate that the tamper evident features 42 and 52 can be comprised of any series of perforated lines, rounds or shapes on any area of the container, designed to tear away when opened, thus revealing the tamper evident nature of the package.

FIG. 4C shows another implementation where a tamper evident side feature 52 is added to the label sealing area near the pull tab area 40. This is further described with reference to FIGS. 5A and 5B.

As shown in FIGS. 5A and 5B, the label seal 50 comes all the way to the edge 34 and includes a tamper evident feature 52 integrated in the same. When the label seal 50 is removed from the sealing area 32, a portion 521 of the label seal tears away with the label, and another portion 52A remains adhered to the sealing area 32 on the container flange. The sealing area 32 allows for the label to adhere to the container with adequate tamper evident seal 50 and re-seal capabilities. After the label is removed, the label string 52B will perfectly fit into or match the original position identified by 52A. Again, those of skill in the art will appreciate that the die cut pattern of this tamper evident feature can be changes or modified from the example shown, yet still provide a very visually noticeable tamper evident feature to the label seal container of the present principles.

FIG. 6 shows an example of the current clamshell style packaging used in the marketplace for food storage and sale vs. applicant’s Label Seal Solution container shown in FIG. 7. The clamshell style packaging of FIG. 6 requires a lid or cover that may or may not be hingedly or pivotally connected to the base. This lid amounts to anywhere between 30 and 35% of the plastic used for this type of packaging. As such, applicant’s label seal technology results in an overall rigid plastic reduction between the prior art in a range between 30 to 35 percent, which leads to an overall reduction of millions of pounds of plastic out of the waste stream each year. Thus, the label seal technology of the present principles provides an environmentally conscious alternative to food container packaging.

While there have been shown, described and pointed out fundamental novel features of the present principles, it will be understood that various omissions, substitutions and changes in the form and details of the methods described and devices illustrated, in and their operation, may be made by those skilled in the art without departing from the spirit of the same. For example, it is expressly intended that all combinations of those elements and/or method steps which perform substantially the same function in substantially the same way to achieve the same results are within the scope of the present principles. Moreover, it should be recognized that structures and/or elements and/or method steps shown and/or described in connection with any disclosed form or implementation of the present principles may be incorporated in any other disclosed, described or suggested form or implementation as a general matter of design choice. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.

1. A food container comprising: a base container having an upper perimeter flange defining an opening for receiving food products; and
a film label configured to be adhered to the upper flange and
entirely seal closed the food receiving opening of the base portion.

2. The food container according to claim 1, wherein said film label further comprises a perforated peel back area con-
figured to partially separate the film label from the upper
flange of the container to allow access to the food items in the container.

3. The food container according to claim 1, wherein said upper flange further comprises a label sealing area.

4. The food container according to claim 3, wherein an adhesive is applied to the film label such that the amount of adhesive is less than a surface area of said label sealing area.

5. The food container according to claim 4, wherein said upper flange further comprises a pull tab portion and said film label further comprises perforations configured to respond to a pulling action originating from said pull tab portion and thereby open the base container in a re-sealable manner.

6. The food container according to claim 1, wherein said film label further comprises one or more vents.

7. The food container according to claim 1, wherein said film label further comprises micro-perforations for modified atmosphere applications.

8. The food container according to claim 1, further comprising a tamper evident feature integrated into said film label.

9. The food container according to claim 8, wherein said tamper evident feature is disposed on said upper flange and comprises a portion of said film label that remains adhered to said upper flange after the film label has been lifted to open said container.

10. The food container according to claim 1, wherein said film label further comprises printed matter in the form of text and/or graphics providing information about the food items contained therein.

11. A food container comprising:

a base container having an upper perimeter flange defining
an opening for receiving food products and a bottom
surface treated with a silicone agent; and

a film label configured to be adhered to the upper flange and
entirely seal closed the food receiving opening of the base portion, said film label being stretched over said
opening during adhesion such that when the film label is
entirely adhered to the flange, the base container with
adhered film label can support one or more additional
base containers for stacking purposes, said bottom sil-
cone treated surface of the base container preventing
sticking to the film label of a lower container on which it
is stacked;

said film label further comprising a perforated peel back
area configured to partially separate the film label from
the upper flange of the container to allow access to the
food items in the container

12. The food container according to claim 11, wherein said film label further comprises one or more vents.

13. The food container according to claim 11, wherein said film label further comprises micro-perforations for modified atmosphere applications.

14. The food container according to claim 11, further comprising a tamper evident feature integrated into said film label.

15. The food container according to claim 14, wherein said tamper evident feature is disposed on said upper flange and comprises a portion of said film label that remains adhered to said upper flange after the film label has been lifted to open said container.

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