A food package and method for forming the same are provided, where the food package includes an outer wrapper surrounding a stack of food products and a pair of end backers, one at each end of the stack, are enclosed within the wrapper. The end backers or sealing backers each provide a backing or sealing surface for use in forming the end seals in the outer wrapper. Pressure can be applied against the backers during formation of the end seals.
FOOD PACKAGE HAVING WRAPPED STACK OF FOOD PRODUCTS AND METHOD FOR PACKAGING

FIELD

[0001] This disclosure relates generally to food packages for stacks of food products, and in particular to food packages for stacks of food products contained in an outer wrapper.

BACKGROUND

[0002] One way to package a stack of food products, such as cookies, crackers and the like, is to surround the stack of food products in a flexible outer wrapper and seal the ends of the wrapper and a longitudinal portion of the wrapper for a food package. The end seals may be envelope seals, where there are overlapping portions of the wrapper adjacent the ends, with an overlying portion of the wrapper being sealed to an underlying portion of the wrapper. In order to facilitate formation of the end seals, the wrapper may have an inner and/or outer sealant layer configured to seal to an inner and/or outer layer of the wrapper upon the application of heat and pressure against the immediately adjacent food product at each end of the stack.

[0003] The application of heat and pressure to form the end seals can result in varying degrees of end seal strength and extent of the seal. This variance can be dependent in part upon the thickness of the film structure (including inner and outer layers) of the outer wrapper and any irregularities in the surface of the immediately adjacent food product at each end of the stack underlying the end seals, in addition to the heat and pressure applied during sealing. For example, applying pressure and sealing against a more irregular facing surface of the food products can result in variances in the sealing strength and extent of the seal. This can be exacerbated when using a thinner film for the inner or outer layer of the wrapper, as the thinner film may also be more conform to the irregularities in the surface of the food products, which can result in lesser seal strength and extend where there are depressions in the food product surface and hence a reduced pressure in those areas.

SUMMARY

[0004] A food package and method for forming the same are provided, where the food package includes an outer wrapper surrounding a stack of food products and a pair of end backers, one at each end of the stack, are enclosed within the wrapper. The end backers or sealing backers each provide a backing or sealing surface for use in forming the end seals in the outer wrapper. Pressure can be applied against the backers during formation of the end seals and the backers can be configured to form more consistent, such as stronger or seals having a greater extent, but providing a more regular surface as compared to typical underlying food products.

[0005] In one aspect, the food package includes a flexible outer wrapper enclosing a plurality of discrete food items. A pair of end backers can be disposed at opposite ends of the stack of food items. The end backers may have a footprint substantially corresponding to the footprint of the food items. That is, the end backers are between slightly larger and slightly smaller than the food products. The flexible outer wrapper has a longitudinal seal and a pair of end seals. The pair of end seals can be formed between overlapping portions of the outer wrapper immediately adjacent the end backers, with the backers being disposed inside the package.

[0006] In another aspect, a method is provided for forming a food package containing a plurality of discrete food items. The method includes arranging a plurality of discrete food items into a stack and placing a sealing backer at each end of the stack. The stack, including the sealing backers, can then be wrapped in a film. Heat and pressure can be applied at each end of the film and against the adjacent sealing backer to seal the ends of the film to itself to enclose the stack of food products and the sealing backers in the film. Applying the pressure for forming the end seals against the sealing backers, with the film intermediate, can advantageously result in an improved seal when the sealing backers have a more regular surface as compared to the underlying food item.

[0007] One of the end or sealing backers may be configured for use in reclosing the wrapper after opening and removing some of the food items. The one of the end or sealing backers may have a slot or other such shape for receiving and constraining a portion of the wrapper. A user can open an end portion of the flexible outer wrapper adjacent the one of the end backers having the slot, removing one or more of the food items from the wrapper, and then insert a portion of the wrapper into the slot of the one of the end backers to reclose the wrapper.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a perspective view of a food package having an outer wrapper enclosing a stack of food products;

[0009] FIG. 2 is a cross-sectional view of the food package of FIG. 1, showing ends seals of the outer wrapper adjacent discs disposed at each end of the stack of food products and within the outer wrapper;

[0010] FIG. 3 is a top plan view of the food package of FIG. 1 showing one of the end seals of the package;

[0011] FIG. 4A is a top plan view of one of the discs of FIG. 2, the disc being configured for use in reclosing the wrapper after opening;

[0012] FIG. 4B is a top plan view of another of the discs of FIG. 2;

[0013] FIG. 5 is a perspective view of the food package of FIG. 1 after opening and removing some of the food products, shown using the disc of FIG. 4A to reclose the wrapper; and

[0014] FIG. 6 is a schematic view of a method of forming a wrapper around a stack of food products with discs at either end in order to form the package of FIG. 1.

DETAILED DESCRIPTION OF THE DRAWINGS

[0015] A food package is provided for containing a plurality of discrete food items within an outer wrapper, and is described herein and depicted in FIGS. 1-5. A method of forming the food package is depicted in FIG. 6. The food items are arranged in a stack, and an end or sealing backer is placed at each end of the stack. The sealing backer can advantageously provide for improved end seals of the outer wrapper by providing a more regular surface against which the outer wrapper can be pressed during the formation of the end seals as compared to the underlying food item. This can result in improved end seals, including stronger end seals and end seals having a greater extent.

[0016] The food package 10 includes an outer wrapper 18 enclosing the stack 14 of food items 12, as illustrated in FIGS. 1 and 2. The top end of the stack 14 of food items 12 has a
The end seals 24 and 30 are formed by applying heat and pressure to ends of the wrapper 14 to seal the ends to themselves. During the application of heat and pressure, the sealing backers 36 and 38 provide a surface against which pressure can be applied, with the wrapper 14 intermediate, in order for form the end seals 24 and 30. The end seals 24 and 30 can optionally be envelope seals, as illustrated in FIGS. 1-3. The envelope seals have an underlying segment and an overlying segment. More specifically, one of the end seals 24 has a segment 28 partially overlying and sealed to another segment 26, and the other of the end seals 30 also has a segment 34 partially overlying and sealed to another segment 32. In addition to the overlying segments 28 and 34 being sealed to their respective underlying segments 26 and 32, respectively, the overlying segments 28 and 34 may also be sealed to other portions of the end portion of the wrapper 18.

The sealing backers 36 and 38 preferably, though not necessarily, have a footprint or cross-section that substantially corresponds to a footprint or cross-section of the foot items 12. That is, the sealing backers 36 and 38 can be slightly smaller, slightly larger or the same size as the foot items 12, and in particular the immediately adjacent food items 12 at each end of the stack. Having the sealing backers 36 and 38 substantially corresponding to the size of the food items 12 can provide for an increased surface area for the pressure to be applied against during the formation of the end seals 24 and 30. In one aspect, having the footprint of the sealing backers 36 and 38 slightly larger than the foot print of the food items 12 can result in sharper, more defined edges where the outer wrapper 18 transitions from the end to the sides of the package 10, as well as can provide protection against crumbling of the outermost foot items 12 at each end of the stack during handling.

In one example, the foot items 12 may be circular and the sealing backers 36 and 38 may also be circular and disc shaped, as illustrated in FIGS. 4A and 4B. However, other sealing backers 36 and 38 and foot item 12 shapes can be used, such as rectangular, oval, triangular and polygonal.

One of the sealing backers 38 may optionally be configured for use in reclosing the food package 10 after opening. More specifically, one of the sealing backers 38, illustrated in FIG. 4A, has a radially-extending slot 40 and an enlarged circular opening 42 with a width greater than the slot 40 for receiving the wrapper 18. After opening the wrapper 18 and removing some of the food items 12 and the sealing backer 38, an excess portion of the wrapper 18 that was previously surrounding the removed food items 12 can be inserted into the slot 40 and opening 42 for retention therein, thereby providing for reclosability of the food package 10, as depicted in FIG. 6. Further, the sealing backer 38 can be used multiple times for reclosing the wrapper 18 as the food items 12 are removed. One or both of the sealing backers 36 and 38 can include promotional, advertising or marketing information thereon, such as information printed thereon or an applied label having the information. In one example, the information can encourage collection of multiple backers from different packages, and/or can be part of a game or sweepstakes.

To assist in opening of the package 10, the outer wrapper 18 may include a tear tape 20 surrounding the circumference of the package 10, as illustrated in FIG. 1. The tear tape 20 can assist in initiating the tearing of the outer wrapper 18 to at least partially separate the wrapper 18. The tear tape 20 may optionally be aligned with a weakened portion of the outer wrapper 18, such as an oriented film with a greater propensity to tear in one direction than another or a score, perforation or other such weakening. A portion of the tear tape 20 can be left exposed to initiate opening of the package.

Turning to details of an example of the food package 10, the food package 10 may be configured to hold any number of food items 12. The food items 12 may be crackers, biscuits, cookies and the like, and fourteen sandwich cookies may be included in the package 10. The outer wrapper 18 may be formed of a multilayer film configured for sealing to itself upon the application of heat and pressure. For example, the outer wrapper 18 may include, moving outward to inward, a clear outer layer, an ink layer having graphics, product information and the like, a metalized film layer that contains a sealant layer applied on its surface. The sealing backers 36 and 38 may be formed of paperboard, plastic, such as carton PP, PS PET, or other semi-rigid or generally rigid materials. The materials for the sealing backers 36 and 38 and the outer wrapper 18 may be selected so that there is a greater propensity for the wrapper 18 to seal itself as opposed to the underlying sealing backers 36 and 38 so as to hinder removal of the sealing backers 36 and 38 from the outer wrapper 18.

In order to form the food package 10, the food items 12 can be arranged in a stack 14. Arranging the food items 12 in a stack 14 can include feeding a continuous supply of foot items 12 in a large stack and then separating the large stack into the stacks 14 for the package 10. The stack 14 can be placed in one of a sequence of pairs of bars (not shown) extending generally perpendicular to a machine direction and supported at each end by a track extending in the machine direction. The sealing backers 36 and 38 can be placed at ends, respectively, of the stack 14 either before or after insertion between the pair of bars. The pair of bars can then advance each stack 14 to a wrapping turret (not shown), having an axis of rotation extending perpendicular to the machine direction. The stack 14 and the backers 36 and 38 can be placed on a sheet of film unwound from a spool of film at the wrapping turret, either before or after cutting the film into the sheet. The sheet can then be formed into a tube around the stack 14 and backers 36 and 38 and the longitudinal seal 22 can be formed using the wrapping turret. After the wrapping turret, a downstream conveyor can advance the wrapped stacks to an end sealing station, where sealing bars can be applied at each end of the tube to exert pressure and heat on the end portions of the tube to fold and form the end seals 24 and 30. The optional tear tape 20 can be unwound and applied to the sheet at the wrapping turret, with the cutting of the sheet also cutting the tear tape 20.

From the foregoing, it will be appreciated that food packages and methods of assembly and use thereof are provided that have improved end seals. However, the disclosure
is not limited to the aspects and embodiments described hereinabove, or to any particular embodiments.

1. A food package having a flexible outer wrapper enclosing a plurality of generally circular discrete food items, the package comprising:
   a stack of circular food items, the food items each have substantially the same diameter;
   a pair of circular end discs disposed at opposite ends of the stack of circular food items, the discs having a diameter substantially corresponding to the diameter of the circular food items; and
   a flexible outer wrapper enclosing the stack of circular food items, the outer wrapper having a longitudinal seal and a pair of end seals, the pair of end seals being formed between overlapping portions of the outer wrapper immediately adjacent the end discs.

2. The food package of claim 1, wherein the outer wrapper has an inner sealing layer with a greater propensity for sealing to the outer wrapper than to the end discs.

3. The food package of claim 1, wherein the discs have a planar, generally smooth surface facing the end seals of the outer wrapper to provide a backing for use during formation of the seals.

4. The food package of claim 1, wherein at least one of the discs has a slot for receiving the outer wrapper for reclosing the outer wrapper after the package has been opened.

5. The food package of claim 4, wherein the slot is radially extending.

6. The food package of claim 5, wherein an enlarged cut out is positioned at a radially inward end portion of the slot.

7. The food package of claim 6, wherein the cut out is disposed generally at the center of the disc.

8. The food package of claim 1, wherein at least one of the discs includes means for reclosing the package after opening.

9. The food package of claim 8, including means for opening the package.

10. The food package of claim 1, wherein the end seals are envelope seals.

11. A method of forming a food package containing a plurality of discrete food items, the method comprising:
   arranging a plurality of discrete food items into a stack;
   placing a sealing backer at each end of the stack;
   wrapping the stack in a film;
   applying heat and pressure at each end of the film and against the adjacent sealing backer to seal the ends of the film to itself to enclose the stack of food products and the sealing backers in the film.

12. The method of claim 11, wherein the step of wrapping the stack in a film further comprises the step of forming the film into a tubular wrapper surrounding the stack.

13. The method of claim 12, wherein the step of forming the film into a tubular wrapper further includes the step of sealing a longitudinal portion of the film to another longitudinal portion of the film.

14. The method of claim 13, wherein the step of sealing longitudinal portions of the film occurs prior to the step of applying heat and pressure to seal the ends of the film.

15. The method of claim 11, wherein the step of applying heat and pressure to seal the ends of the film further includes the step of forming envelope seals.

16. The method of claim 11, including the step of providing at least one of the sealing backers with an opening for receiving a portion of the film after opening of the package.

17. The method of claim 11, wherein the food products are generally circular and the sealing backers are generally circular, having a diameter substantially corresponding to a diameter of the food products.

18. A method of opening and reclosing a food package, the package comprising a stack of food items, the food items each have substantially the same diameter, a pair of end backers disposed at opposite ends of the stack of food items, the end backers having a footprint substantially corresponding to the footprint of the food items and at least one of the end backers having a slot, and a flexible outer wrapper enclosing the stack of food items, the outer wrapper having a longitudinal seal and a pair of end seals, the pair of end seals being formed between overlapping portions of the outer wrapper immediately adjacent the end backers, the method comprising:
   opening an end portion of the flexible outer wrapper adjacent the one of the end backers having a slot;
   removing one or more of the food items from the wrapper, and
   inserting a portion of the wrapper into the slot of the one of the end backers to close the wrapper.

19. The method of claim 18, wherein the food products are generally circular and the end backers are generally circular, having a diameter substantially corresponding to a diameter of the food products.

20. The method of claim 19, wherein the step of opening an end portion of the flexible outer wrapper adjacent the one of the end backers having a slot further includes the step of tearing the end portion of the flexible wrapper from a remainder of the wrapper using tear tape.