DESCRIPTION

NUTRITIVE SUBSTANCE DELIVERY CONTAINER

TECHNICAL FIELD

[0001] The present disclosure relates generally to the field of container constructions.

BACKGROUND ART

[0002] Many nutritive substances which would be beneficial if included in food or drink products are sensitive to heat, light, oxygen, and/or moisture. For example, a nutritive substance which is sensitive to heat cannot be added to a food or drink product that requires heat sterilization because the high sterilization temperatures may damage or destroy the nutritive substance. As a result of these limitations, containers have been developed that can separate the nutritive substance from the food or drink product prior to consumption. The user can then dispense the nutritive substances into the food or drink product just before consumption. The present disclosure, therefore, relates to a container which can separately contain a nutritive substance and a food or drink product and deliver the nutritive substance to the food or drink product just before consumption.

~~DISCLOSURE OF THE INVENTION~~ SUMMARY

[0003] In an embodiment, the present disclosure provides an apparatus for delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, the upper portion defining an opening therein, and a chamber defined by the container body, the chamber being in fluid communication with the upper portion opening. A laminate seal having at least two layers is bonded across the upper portion opening and is adapted to provide an airtight seal across the opening. A nutritive substance is bonded to at least one layer of the laminate seal. The container additionally comprises a closure removably coupled to the upper portion. The closure comprises a cutting portion which is adapted to pierce the laminate seal, thereby releasing the nutritive substance into the container contents.

[0004] In another embodiment, the disclosure is directed to an apparatus for delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, the upper

portion defining an opening therein, and a chamber defined by the container body, the chamber being in fluid communication with the upper portion opening. The disclosure also comprises a laminate seal having at least two layers, the laminate seal being bonded across the upper portion opening and adapted to provide an airtight seal across the opening, wherein a nutritive substance is bonded to at least one layer of the laminate seal. Additionally, the embodiment comprises a closure removably coupled to the upper portion, the closure comprising an annular cap, a tear band coupled to the annular cap, and a cutting portion operatively coupled to the annular cap, wherein the cutting portion is adapted to pierce the seal, wherein the tear band prevents the cutting portion from piercing the seal, and wherein the seal prevents contact between the nutritive substance and the contents of the container until the seal is pierced.

[0005] The disclosure is also directed, in an embodiment, to a method for making a delivery apparatus, the method comprising the steps of providing a container body having a base at one end thereof, an upper portion at the other end of the body, wherein the upper portion is adapted for removable receipt of a closure, the upper portion defining an opening therein, a chamber defined by the container body, the chamber being in fluid communication with the body upper portion opening, and a closure adapted to be removably received on the upper portion; filling the container with a product; sterilizing the product-filled container; sealing the container upper portion with a laminate seal, the laminate seal having at least two layers, wherein a nutritive substance is bonded to at least one layer of the laminate seal; and placing the closure on the body upper portion so that the seal prevents the nutritive substance from contacting the product and the closure prevents the nutritive substance from contacting the atmosphere surrounding the container.

[0006] In still another embodiment, the disclosure presents an apparatus for delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, the upper portion defining an opening therein, and a chamber defined by the container body, the chamber being in fluid communication with the upper portion opening. A seal is bonded across the upper portion opening of the container and is adapted to

provide an airtight seal across the opening. A closure is removably coupled to the container upper portion. A nutritive substance is coated onto an element selected from the group consisting of an inner surface of the container upper portion, the closure, an insert positioned above the seal, and combinations thereof. The seal prevents contact between the nutritive substance and the contents of the container until the seal is removed or pierced.

[0007] In yet embodiment, an apparatus for delivering a nutritive substance is provided, comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, the upper portion defining an opening therein, and a chamber defined by the container body. The chamber is in fluid communication with the upper portion opening. The disclosure additionally comprises a seal bonded across the upper portion opening, which is adapted to provide an airtight seal across the opening. The embodiment also includes a closure removably coupled to the upper portion, the closure comprising an annular cap having a vertical side wall and a top surface coupled to the side wall, wherein the top surface is adapted to allow the contents of the container to pass therethrough. Additionally, the present embodiment comprises a nutritive substance coated onto an insert positioned intermediate the seal and top surface, wherein the seal prevents contact between the nutritive substance and the contents of the container until the seal is removed or pierced.

[0008] In another separate embodiment, a method is presented for making a delivery apparatus, the method comprising the steps of providing a container body having a base at one end thereof, an upper portion at the other end of the body, wherein the upper portion is adapted for removable receipt of a closure, the upper portion defining an opening therein, a chamber defined by the container body, the chamber being in fluid communication with the body upper portion opening, and a closure adapted to be removably received on the upper portion; filling the container with a product; sterilizing the product-filled container; sealing the container upper portion with a seal; coating a nutritive substance onto an element selected from the group consisting of an inner surface of the container upper portion, the closure, an insert positioned above the seal, and combinations thereof; and placing the closure on the body upper portion.

[0009] In still another embodiment, the disclosure includes an apparatus for delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, the upper portion defining an opening therein, and a chamber defined by the container body, the chamber being in fluid communication with the upper portion opening. A laminate seal having at least two layers is bonded across the upper portion opening and is adapted to provide an airtight seal across the opening and prevent contact between the nutritive substance and the contents of the container until the seal is altered. The laminate seal comprises a first layer permanently bonded to a rim defining the opening in the container upper portion and a second layer that is releasably coupled to the first layer. A nutritive substance is bonded to the first layer of the laminate seal. The container additionally comprises a closure removably coupled to the upper portion.

[0010] In yet another embodiment, the disclosure is directed to an apparatus for delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, the upper portion defining an opening therein, and a chamber defined by the container body, the chamber being in fluid communication with the upper portion opening. This embodiment also comprises a laminate seal having at least three layers, the laminate seal being bonded across the upper portion opening and adapted to provide an airtight seal across the opening, wherein a centrally-positioned layer of the laminate seal comprises a nutritive substance and wherein the laminate seal prevents contact between the nutritive substance and the contents of the container until the seal is altered. Additionally, the disclosure comprises a closure removably coupled to the upper portion.

[0011] In another embodiment, a method for making a delivery apparatus is provided, the method comprising the steps of providing a container body having a base at one end thereof, an upper portion at the other end of the body, wherein the upper portion is adapted for removable receipt of a closure, the upper portion defining an opening therein, a chamber defined by the container body, the chamber being in fluid communication with the body upper portion opening, and a closure adapted to be removably received on the upper portion; filling the container with a

product; sterilizing the product-filled container; sealing the container upper portion with a laminate seal, the laminate seal having at least two layers, wherein a first layer of the laminate seal is bonded to a rim of the container, a second layer of the laminate seal is removably bonded to the first layer, and a nutritive substance is bonded to the first layer; and placing the closure on the body upper portion, wherein the seal prevents the nutritive substance from contacting the product and the atmosphere surrounding the container until the seal is altered.

[0011A] According to one aspect, there is provided an apparatus for delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, the upper portion defining an opening therein, and a chamber defined by the container body, the chamber being in fluid communication with the upper portion opening, a laminate seal having at least two layers, the laminate seal being bonded across the upper portion opening and adapted to provide an airtight seal across the opening, wherein a nutritive substance is bonded to a bottom side of an upper layer or to a top side of a lower layer of the laminate seal and a closure removably coupled to the upper portion, the closure comprising an annular cap and a cutting portion operatively coupled to the annular cap, wherein the cutting portion is adapted to pierce the seal, wherein the seal prevents contact between the nutritive substance and the contents of the container until the seal is pierced.

[0011B] According to another aspect, there is provided an apparatus for delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, said upper portion defining an opening therein, and a chamber defined by said container body, said chamber being in fluid communication with said upper portion opening, a seal bonded across said upper portion opening and adapted to provide an airtight seal across said opening a closure removably coupled to said upper portion, and a nutritive substance coated onto an element selected from the group consisting of an inner surface of said container upper portion, wherein said seal prevents contact between said nutritive substance and the contents of said container until said seal is removed or pierced.

[0011C] According to yet another aspect, there is provided an apparatus for

delivering a nutritive substance comprising a container body having a base at one end thereof, an upper portion adapted for removable receipt of a closure, said upper portion defining an opening therein, and a chamber defined by said container body, said chamber being in fluid communication with said upper portion opening, a laminate seal having at least two layers, the laminate seal being bonded across said upper portion opening and adapted to provide an airtight seal across said opening, wherein the laminate seal comprises a first layer permanently bonded to a rim defining the opening in said container upper portion, and a second layer that is releasably coupled to said first layer, wherein a nutritive substance is bonded to said first layer and wherein said seal prevents contact between said nutritive substance and the contents of said container until said seal is altered and a closure removably coupled to said upper portion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] A full and enabling disclosure, including the best mode thereof directed to one of ordinary skill in the art, is set forth in the specification, which refers to the appended figures, in which:

[0013] FIG. 1 is a perspective view of a container in accordance with one embodiment of the present disclosure;

[0014] FIG. 2 is a partial perspective view of the container top illustrated in FIG. 1;

[0015] FIG. 3 is a partial perspective view of the container top illustrated in FIG. 1;

[0016] FIG. 4 is a partial perspective view of the container top illustrated in FIG. 1;

[0017] FIG. 5 is a perspective view of a container top in accordance with one embodiment of the present disclosure;

[0018] FIG. 6 is a perspective cut-away view of the container top illustrated in FIG. 5;

[0019] FIG. 6A is a plan view of a seal for use in the container of FIG. 5;

[0020] FIG. 7 is a perspective cut-away view of the container top illustrated in FIG. 5;

[0021] FIG. 8 is a perspective view of a container in accordance with one embodiment of the present disclosure;

[0022] FIG. 9 is a partial perspective view of the container top illustrated in FIG. 8;

[0023] FIG. 10 is a partial perspective cut-away view of the container top illustrated in FIG. 8;