METHOD AND APPARATUS FOR ADDING AN AROMA TO A BEVERAGE CONTAINER

Applicant: NESTEC S.A., Vevey (CH)

Inventors: Carol Borland, Richwood, OH (US); Christian Milo, Dublin, OH (US); Stefan Pulzer, Lausanne (CH)

Appl. No.: 14/917,727
PCT Filed: Sep. 10, 2014

PCT No.: PCT/EP2014/069251
§ 371 (c)(1), (2) Date: Mar. 9, 2016

ABSTRACT

Methods and apparatuses for releasing an aroma from a beverage container to enforce or compliment the aroma of the beverage inside the container are disclosed herein. In a general embodiment, a beverage container (2) includes a pull tab (8) and a substance (20) applied to the pull tab. The substance includes a micro-encapsulated aroma. The micro-encapsulated aroma can be released by applying a frictional force to the portion of the pull tab with the substance applied.
METHOD AND APPARATUS FOR ADDING AN AROMA TO A BEVERAGE CONTAINER

BACKGROUND

[0001] The present disclosure generally relates to a system and method for adding an aroma to a beverage container. More specifically, the present disclosure relates to an aroma that can be released from a beverage container by applying mechanical friction on a portion of the beverage container close to a consumer’s nose.

[0002] A consumer typically enjoys a beverage due to the taste of the beverage, which is based on the ingredients that go into creating the beverage. Each distinct beverage requires distinct ingredients, which cause each beverage to taste differently than another distinct beverage. These different tastes often cause one beverage to be preferred by a consumer over another beverage.

[0003] The smell of a beverage can also enhance the drinking experience for the consumer. Typically, a consumer can smell a beverage as the beverage is being consumed. The combination of the taste and smell of the beverage therefore affects the consumer’s enjoyment of the beverage. A beverage with a pleasant smell is normally more pleasurable to consume, whereas a beverage with an unpleasant smell is normally less pleasurable to consume. Even if a consumer enjoys the taste of a beverage, an unpleasant smell can ruin the drinking experience for the consumer. Likewise, a beverage with a plain taste can still be enjoyed by a consumer if accompanied by a pleasant smell.

[0004] It is therefore desirable to enhance or alter the smell of a beverage to improve the beverage for consumers. In some cases, it is desirable to add to the natural smell of a beverage, that is, to make the natural smell stronger. In other cases, it is desirable to change the smell of a beverage, that is, to block out or replace the natural smell of the beverage. In many cases, however, changing the smell of the beverage requires changing the ingredients in the beverage, which can cause the taste of the beverage to also change. Ideally, the smell of the beverage can be altered without changing the ingredients and therefore the taste of the beverage.

SUMMARY

[0005] The present disclosure provides methods and apparatuses for releasing an aroma from a beverage container to enforce or complement the aroma of the beverage inside the container. In a general embodiment, a beverage container includes a pull tab and a substance applied to the pull tab, the substance including a micro-encapsulated aroma that is released upon the application of friction.

[0006] In another embodiment, the substance is applied to a top surface of the pull tab.

[0007] In another embodiment, the substance is transparent.

[0008] In another embodiment, the substance includes a colored dye.

[0009] In another embodiment, the colored dye marks a specific aroma.

[0010] In another embodiment, the substance is applied to the pull tab by spraying the substance onto the pull tab.

[0011] In another embodiment, the beverage container includes an aroma release element.

[0012] In a general embodiment, a method of manufacturing a beverage container includes providing a beverage container that upon moving a pull tab from a first position to a second position releases an aroma.

[0013] In another embodiment, the method includes applying a substance to a surface of the pull tab, the substance including a micro-encapsulated aroma that is released upon the application of friction.

[0014] In another embodiment, the method includes coloring the substance to the surface of the pull tab includes spraying the substance onto the pull tab.

[0015] In another embodiment, applying the substance to the surface of the pull tab includes attaching the pull tab to the beverage container using a rivet.

[0017] In a general embodiment, a method of manufacturing a plurality of beverage containers includes applying a first substance to a first plurality of pull tabs, the first substance including a first micro-encapsulated aroma that is released upon the application of friction, applying a second substance to a second plurality of pull tabs, the second substance including a second micro-encapsulated aroma that is released upon the application of friction, attaching each of the first plurality of pull tabs to each of a first plurality of beverage containers, and attaching each of the second plurality of pull tabs to each of a second plurality of beverage containers.

[0018] In another embodiment, the method includes filling the first plurality of beverage containers and the second plurality of beverage containers with a beverage.

[0019] In another embodiment, the method includes coloring the first substance with a first colored dye and coloring the second substance with a second colored dye.

[0020] In another embodiment, the method includes at least one of: (i) coloring the first plurality of pull tabs with a first color and coloring the second plurality of pull tabs with a second color; and (ii) coloring the first plurality of beverage containers with a first color and coloring the second plurality of beverage containers with a second color.

[0021] In a general embodiment, a method of releasing an aroma from a beverage container includes applying a substance to a surface of a pull tab, the substance including a micro-encapsulated aroma that is released upon the application of friction, opening the beverage container using the pull tab, and applying a frictional force to the surface of the pull tab to release the micro-encapsulated aroma.

[0022] In another embodiment, the method includes applying the frictional force with a consumer’s fingers.

[0023] In another embodiment, the method includes applying the frictional force with an aroma release element.

[0024] In another embodiment, the method includes applying the frictional force while opening the beverage container.

BRIEF DESCRIPTION OF THE FIGURES

[0025] FIG. 1 depicts a front perspective view of an embodiment of a beverage container.

[0026] FIG. 2 depicts a top view of the embodiment of FIG. 1.

[0027] FIG. 3 depicts a cross-sectional view of the embodiment of FIG. 2 taken across lines A-A.

[0028] FIG. 4 depicts a front perspective view of an embodiment of a beverage container in a closed state.

[0029] FIG. 5 depicts a front perspective view of the embodiment of FIG. 4 in an open state.

[0030] FIG. 6 depicts a front perspective view of an embodiment of a beverage container in a closed state.
FIG. 7 depicts a front perspective view of the embodiment of FIG. 6 in an open state.

DETAILED DESCRIPTION

Before the disclosure is described, it is to be understood that this disclosure is not limited to the particular apparatus, methods, compositions, and experimental conditions described. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting, since the scope of the present disclosure will be limited only to the appended claims.

As used in this disclosure and the appended claims, the singular forms “a,” “an,” and “the” include plural references unless the context clearly dictates otherwise. The methods and apparatus disclosed herein may lack any element that is not specifically disclosed herein. Thus, “comprising,” as used herein, includes “consisting essentially of” and “consisting of.”

FIGS. 1 and 2 illustrate an embodiment of a beverage container 2. Beverage container 2 includes a side surface 4 and a top surface 6. Top surface 6 includes a punch surface 16 surrounded by a score line 10. A pull tab 8 is pivotally attached to top surface 6. To access the contents of beverage container 2, a consumer must pull upwards on the rear portion 12 of pull tab 8, which causes the front portion 14 of pull tab 8 to force punch surface 16 to separate from top surface 6 along score line 10 and protrude into beverage container 2. Those of ordinary skill in the art will recognize other embodiments of beverage containers with pull tabs that are similar to beverage container 2 that can be modified according to the present disclosure. In one embodiment, beverage container 2 is an aluminum can, but those of ordinary skill in the art will recognize other suitable containers and materials.

Beverage container 2 includes a substance 20 that is applied to pull tab 8. Substance 20 includes a micro-encapsulated aroma, described in more detail below. In use, the substance 20 on pull tab 8 can be scratched so that it releases the micro-encapsulated aroma. That is, the aroma is released from substance 20 by mechanical friction on the portion of pull tab 8 to which substance 20 has been applied. In an embodiment, the substance 20 can be applied to all or a portion of pull tab 8 before pull tab 8 is attached to top surface 6 of beverage container 2. In another embodiment, the substance 20 can be applied to all or a portion of pull tab 8 after pull tab 8 has been attached to beverage container 2. The substance 20 is advantageously applied to pull tab 8 instead of another portion of beverage container 2 because pull tab 8 will be the closest portion of beverage container 2 to a consumer’s nose when the consumer is consuming the beverage inside beverage container 2. Therefore, the substance 20 will be released from pull tab 8 rather than another portion of beverage container 2. A further advantage of the substance 20 is that it will be released from pull tab 8 rather than another portion of beverage container 2 to a consumer’s nose when the consumer is consuming the beverage inside beverage container 2. Therefore, the substance 20 will be released from pull tab 8 rather than another portion of beverage container 2.

The aroma can be released from pull tab 8 for a variety of reasons, and the aroma can be the same as or different from the natural smell of the beverage inside the beverage container 2. In an embodiment, the aroma is released from pull tab 8 to enhance the natural smell of the beverage inside of beverage container 2. For example, the aroma can be a coffee aroma released to enhance the natural coffee smell of a ready-to-drink coffee beverage. In another embodiment, the aroma is released from pull tab 8 to complement the natural smell of the beverage inside of beverage container 2. For example, the aroma can be a chocolate, caramel or vanilla aroma released to complement the natural coffee smell of a ready-to-drink coffee beverage. In another embodiment, the aroma is released to mask the natural smell of the beverage inside of beverage container 2. For example, the aroma can be a strawberry or blueberry aroma released to mask an unpleasant natural smell from a vitamin beverage. The present disclosure contemplates various aromas and beverages, which will be recognized by those of ordinary skill in the art. In addition to different types of aromas, the intensity of the aroma can be varied by using different ingredients when the substance 20 is manufactured or by applying more or less substance 20 to the pull tab 8.

Substance 20 is created through a process of micro-encapsulation. First, a desired aroma is encapsulated in micro-capsules. In an embodiment, the micro-capsules can be created by mixing a scented oil with water and a water-soluble polymer or gelatin. One suitable water-soluble polymer is polyoxyethylene urea (PMU), but those of ordinary skill in the art will recognize other suitable materials. The scented oil includes the desired scent that is to be encapsulated in the substance 20. As the oil and polymer mix, the oil breaks down into very small droplets. A chemical catalyst can then be added to the mixture which causes the molecular weight of the polymer to increase and become water insoluble, encapsulating the desired aroma into micro-capsules. This process is also used to create what is commonly referred to as “scratch and sniff” material. This process is only one way to create a micro-encapsulated aroma, and those of ordinary skill in the art will recognize other suitable methods for creating aroma-filled micro-capsules.

Once the aroma-filled micro-capsules have been formed, substance 20 is created by mixing the micro-capsules with a water base and/or a water base and an adhesive to form a water-based liquid or slurry. One example of a suitable adhesive is polyvinyl alcohol. Substance 20 can then be applied to pull tab 8 as a liquid or slurry. Once applied, substance 20 can be allowed to dry on pull tab 8, which creates micro-encapsulated bubbles on pull tab 8. When a mechanical friction force is then applied to pull tab 8, such as by a consumer’s fingers or by another device, the friction force breaks the micro-encapsulated bubbles and releases the desired aroma captured in the micro-encapsulated bubbles. This micro-encapsulation process allows the desired aroma from the scented oil to be preserved for a fairly long time.

FIG. 3 shows a cross-sectional view of pull tab 8. In an embodiment, substance 20 is applied to the top surface 30 of pull tab 8 so as to be close to a consumer’s nose as the beverage inside beverage container 2 is consumed. Alternatively, substance 20 can be applied to both the top 30 and bottom 32 surfaces of pull tab 8, or substance 20 can be applied to only the bottom surface 32 of pull tab 8. An advantage of applying substance 20 to both the top 30 and bottom 32 surfaces of pull tab 8 is that a consumer will have to rub his or her hand against a portion of pull tab 8 with the substance 20 applied regardless of how the consumer grips pull tab 8 to open beverage container 2.

The application of substance 20 to pull tab 8 provides several advantages. When a consumer lifts beverage container 2 to his or her mouth to consume the beverage inside, pull tab 8 is the closest portion of beverage container 2 to the consumer’s nose. Pull tab 8 therefore allows the release of the micro-encapsulated aroma to occur at the closest point of the beverage container 2 to the consumer’s nose.
Pull tab 8 must also be contacted to open beverage container 2, so the application of substance 20 to pull tab 8 therefore ensures that at least some friction will occur on pull tab 8 that will force some of the micro-capsules to break and release the micro-encapsulated aroma.

[0041] Substance 20 can be applied to pull tab 8 in a variety of ways. The present disclosure provides a simplified manufacturing process because pull tabs 8 can be coated with a substance 20 before the pull tabs 8 are attached to beverage containers 2. In an embodiment, substance 20 can be sprayed onto a plurality of pull tabs 8 before the pull tabs 8 are attached to beverage containers 2. Substance 20 can also be applied with a brush stroke, by dipping the pull tabs 8 into a vat of substance 20, or by a variety of other methods that will be recognized by those of ordinary skill in the art. Alternatively, substance 20 can be applied to a pull tab 8 after the pull tab 8 is attached to a beverage container 2 using the same methods described above, for example, by spraying pull tab 8, by brush stroke, by dipping pull tab 8 into substance 20, or by any other method recognized by those of ordinary skill in the art.

[0042] In an embodiment, substance 20 is transparent so as not to alter the physical appearance of beverage container 2. In other embodiments, substance 20 can include a colored dye. Different substances 20 with different aromas can include different colored dyes to differentiate the different aromas as applied to beverage containers 2. In an embodiment, the same beverage container 2 can be manufactured with different aromas marked by different color substances 20. For example, a plurality of ready-to-drink coffee beverage containers 2a can be manufactured with a chocolate aroma captured in a brown substance 20a, a caramel aroma captured in a red substance 20b, and a vanilla aroma captured in a white substance 20c. A consumer can then select his or her preferred aroma simply by selecting the corresponding color pull tab. The simplified manufacturing process of the present disclosure allows for a plurality of pull tabs 8 having different substances 20a-20c to be manufactured separately from a plurality of beverage containers 2. The plurality of pull tabs 8 having different substances 20a-20c can then simply be attached to the same set of beverage containers 2 containing the same beverage. That is, the experience of a consumer consuming a beverage can be altered simply by changing the pull tab 8 on the beverage container 2. Those of ordinary skill in the art will understand that numerous different aromas and different colors can be used in a substance 20 and applied to a beverage container 2. In an alternative embodiment, the different substances 20a-20c can all be transparent, and the pull tabs 8 or beverage containers 2 can be different colors or can differ aesthetically to differentiate between the different aromas.

[0043] In the embodiment of FIGS. 1-3, the action of the consumer’s fingers on pull tab 8 causes the friction force to release the micro-encapsulated aroma from the substance 20 applied to the pull tab 8. The present disclosure also provides for a separate aroma release element which causes a friction force on a pull tab as a beverage container is opened. In both cases, the aroma is released as the pull tab is moved from a first position to a second position. FIGS. 4 and 5 illustrate an embodiment of a beverage container 40 that includes a top surface 46 with a punch surface 42 surrounded by a score line 44. A pull tab 48 and an aroma release element 50 are attached to top surface 46. Pull tab 48 is attached to and pivots about top surface 46 of beverage container 40 at rivet 52, and aroma release element 50 is attached to and pivots about top surface 46 of beverage container 40 at rivets 54. Similar to the previous embodiment, pull tab 48 is covered with a substance 20 including a micro-encapsulated aroma. When beverage container 40 is closed, as shown in FIG. 4, aroma release element 50 abuts a lower or intermediate portion 56 of pull tab 48. As beverage container 40 is opened by pivoting pull tab 48 about rivet 52, the pivoting motion causes aroma release element 50 to rub against pull tab 8 as aroma release element 50 moves upwardly toward a top surface 58 of pull tab 48 (FIG. 5). The friction caused by the rubbing motion of aroma release element 50 causes some of the micro-capsules of substance 20 to break and release the micro-encapsulated aroma. In alternative embodiments, an aroma release element 50 can be structured so as to rub against the bottom surface of a pull tab 48 instead of the top surface 58. An aroma release element 50 can also be structured so that the consumer must separately cause the aroma release element 50 to rub against the pull tab 48 in addition to opening the beverage container with the pull tab 48. Such aroma release elements 50 are advantageous in that the consumer does not need to use his or her own fingers to break the micro-capsules and release the aroma. In another embodiment, the aroma release element 50 can be coated with substance 20.

[0044] FIGS. 6 and 7 show another embodiment of a beverage container 60. Beverage container 60 includes a side surface 64 and a top surface 66. Attached to top surface 66 is a pull tab 68. Top surface 66 also includes two score lines 70. To access the contents of beverage container 60, a consumer must pull upwards on the rear portion 72 of pull tab 68, which causes pull tab 68 to pull back a break-away portion 74 of top surface 66. Like the previous embodiments, substance 20 can be applied to pull tab 68 so that when a consumer grabs pull tab 68 to open beverage container 60 the frictional force caused by the consumer’s fingers on pull tab 68 breaks open the micro-capsules in substance 20 and releases the specific aroma in the micro-capsules. Like the previous embodiments, pull tab 68 lies close to a consumer’s nose when the consumer is consuming the beverage, so pull tab 68 provides an ideal location to release an aroma.

[0045] Lacquer 20 can be applied to pull tab 48, aroma release element 50, and/or pull tab 68 using the same methods as described above, for example, by spraying the pull tab 48, 68 or release element 50, by brush stroke, by dipping the pull tab 48, 68 or release element 50 into substance 20, or by any other method recognized by those of ordinary skill in the art. Substance 20 can be applied to a plurality of pull tabs 48, 68 and release elements 50 before the pull tabs 48, 68 and release elements 50 are attached to a plurality of beverage containers 40, 60, or substance 20 can be applied to each pull tab 48, 68 and release element 50 after the pull tabs 48, 68 and release elements 50 are attached to respective beverage containers 40, 60. Similarly, different pull tabs 48, 68 and release elements 50 can be coated with different types of substances 20a-20c as described above.

[0046] It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present subject matter and without diminishing its intended advantages. It is therefore intended that such changes and modifications be covered by the appended claims.
1. A beverage container, comprising:
a pull tab; and
a substance applied to the pull tab, the substance including
a micro-encapsulated aroma that is released upon the
application of friction.
2. The beverage container of claim 1, wherein the
substance is applied to a top surface of the pull tab.
3. The beverage container of claim 1, wherein the
substance is transparent.
4. The beverage container of claim 1, wherein the
substance includes a colored dye.
5. The beverage container of claim 4, wherein the colored
dye marks designates a specific aroma.
6. The beverage container of claim 1, wherein the sub-
stance is applied to the pull tab by spraying the substance onto
the pull tab.
7. The beverage container of claim 1, further including an
aroma release element.
8. A method of manufacturing a beverage container, com-
prising:
providing a beverage container that upon moving a pull tab
from a first position to a second position releases an
aroma.
9. The method of claim 8, further including applying a
substance to a surface of the pull tab, the substance including
a micro-encapsulated aroma that is released upon the applica-
tion of friction.
10. The method of claim 9, further including coloring the
substance with a colored dye.
11. The method of claim 9, wherein applying the substance
to the surface of the pull tab includes spraying the substance onto
the pull tab.
12. The method of claim 8, further including attaching the
pull tab to the beverage container using a rivet.
13. A method of manufacturing a plurality of beverage
containers, comprising:
applying a first substance to a first plurality of pull tabs, the
first substance including a first micro-encapsulated
aroma that is released upon the application of friction;
applying a second substance to a second plurality of pull
tabs, the second substance including a second micro-
encapsulated aroma that is released upon the application
of friction;
attaching each of the first plurality of pull tabs to each of a
first plurality of beverage containers; and
attaching each of the second plurality of pull tabs to each of
a second plurality of beverage containers.
14. The method of claim 13, including filling the first
plurality of beverage containers and the second plurality of
beverage containers with a beverage.
15. The method of claim 13, including coloring the first
substance with a first colored dye and coloring the second
substance with a second colored dye.
16. The method of claim 13, including at least one step
selected from the group consisting of: (i) coloring the first
plurality of pull tabs with a first color and coloring the second
plurality of pull tabs with a second color; and (ii) coloring the
first plurality of beverage containers with a first color and
coloring the second plurality of beverage containers with a
second color.
17. A method of releasing an aroma from a beverage con-
tainer, comprising:
applying a substance to a surface of a pull tab, the substance
including a micro-encapsulated aroma that is released
upon the application of friction;
opening the beverage container using the pull tab; and
applying a frictional force to the surface of the pull tab to
release the micro-encapsulated aroma.
18. The method of claim 17, including applying the fric-
tional force with a consumer’s fingers.
19. The method of claim 17, including applying the fric-
tional force with an aroma release element.
20. The method of claim 17, including applying the fric-
tional force while opening the beverage container.