A novel ice for beverages and methods of manufacturing thereof. The novel ice includes liquid and solid contents frozen together to provide ice with a cooling, flavor, and visual appeal effects. The ice may also be manufactured to be cooperatively used with water bottles and sports bottles that have limited-diameter openings.
NOVEL ICE AND METHODS OF MANUFACTURING ICE

CROSS REFERENCE OF RELATED APPLICATION

[0001] This patent application is a non-provisional application of a provisional application Ser. No. 61/608,572 filed on Mar. 8, 2012.

BACKGROUND

[0002] This invention relates to innovative ice and method of manufacture thereof. Ice has been consumed for many years in various drinks and beverages. The ice is used because it has desirable cooling properties and can rapidly cool a drink while dissolving in it. This property is especially useful in hot weather and seasons when it is not practical to cool large quantities of drinks, but small quantities of ice may make the drinks cold when the ice is added to the drinks.

DESCRIPTION OF PRIOR ART

[0003] Water ice is currently manufactured for use in water and beverages, and also for cooling purposes unrelated to drinking beverages. However, the currently manufactured commercial ice is just water ice, whether cube, oval, chunk, crushed, flakes, or otherwise.

[0004] What is needed is a novel ice that allows the cooling of water and beverages, while providing flavor and visual appeal, and while being easily usable with limited-access water containers such as water and sports bottles. There is a need for an innovative ice that provides cooling, flavor, visual appeal, and the ability to fit into water bottles or other containers with limited-diameter access.

SUMMARY

[0005] This invention meets the current need for a superior type of ice that may be used with water and various alcoholic and non-alcoholic drinks and beverages. A novel ice comprising frozen liquid and solid contents frozen inside the liquid and methods of manufacture of the novel ice are provided. The Applicant calls this innovative ice FRÜZEN IcETM.

DRAWINGS

[0006] These features, aspects and advantages of the novel ice and methods of manufacture thereof will become further understood with reference to the following description and accompanying drawings where

[0007] FIG. 1 is a perspective view of the novel ice of the present invention;

[0008] FIG. 2 is a perspective view of the manufacturing form for the ice of the present invention illustrated in FIG. 1;

[0009] FIG. 3 is a perspective view of the hollow cylinder manufacturing form for the ice of the present invention;

[0010] FIG. 4 is a perspective view of the plurality of the hollow cylinder manufacturing forms illustrated in FIG. 3; and

[0011] FIG. 5 is perspective view of the elements forming the two-part hollow cylinder manufacturing form.

DESCRIPTION

[0012] The present invention is directed to novel ice and methods of manufacturing thereof. A preferred embodiment is shown in FIG. 1. With references to the drawings, and particularly FIG. 1, one embodiment of the invention is ice 10 that comprises liquid 20 with solid contents 30, frozen (solidified) in the ice form 40. The solid contents 30 are preferably fully embedded within the liquid 20. In FIG. 1, a cube of the ice 10 is shown as one preferred embodiment, but the ice 10 may also be manufactured in other shapes.

[0013] With reference to FIG. 2, the form 40 for manufacturing the ice 10 may include walls 42, a bottom 44, and at least one but preferably a plurality of ice-forming compartments 46 into which the liquid 20 and the solid contents 30 are supplied. Each of the ice-forming compartments 46 has an opening 48, which is typically located at the top of the ice-forming compartment 46. The liquid 20 is preferably supplied to the ice-forming compartment 46 by pouring the liquid 20 into the opening 48 from a container, through a suitable spout, pipe or hose, or using other delivery methods known in the art.

The form 40 may be manufactured from plastic, stainless steel, or other suitable materials well-known in the art that are sufficiently liquid-proof to retain the liquid 20 and to allow for slight expansion of the ice 10 during the freezing process, and to facilitate easy removal of the ready ice. The form 40 may be a tray, such as a plastic refrigerator ice tray, having a plurality of ice-forming compartments 46, or a different implementation.

[0014] The removal of the ice 10 is typically accomplished by knocking on or twisting the form 40, particularly when the manufacturing is on a small-scale level. Preferably, some water (of any temperature) is poured over the ice 10 and the ice 10 is then easily separated and removed from the form 40. Other methods known in the art may also be used for small-scale and industrial-scale production and removal of FRÜZEN IcETM, such as using self-extracting forms, exposing the forms with the ice to ambient temperatures and allowing the ice to thaw a little, using heating of the forms or passing an electric charge through the forms.

[0015] There are two kinds of FRÜZEN IcETM envisioned by the Applicant. The preferred embodiment is comprised of individual ice pieces 10, as illustrated in FIG. 1, made from the liquid 20 and the solid contents 30 embedded or frozen inside the liquid 20 of the ice pieces 10. The ice pieces 10 may be of varying sizes and shapes, such as cubes, ovals, chunks, rectangular pieces, cylindrical pieces, star-shaped pieces, or other shapes suitable or desirable for beverages. The shapes of the ice 10 may also be elongated or round Popsicle shapes, or other simple and fancy Popsicle shapes.

When a Popsicle shape is used to manufacture FRÜZEN IcETM, it may be used with a holding element (not shown), such as a Popsicle stick, that is embedded into the ice 10. This embodiment permits the uses of the ice 10 in children’s drinks or fun tropical beverages.

[0016] The manufacture of FRÜZEN IcETM may be accomplished on a small-scale or large-scale, industrial level for commercial ice production. The manufacturing steps include supplying the liquid 20 and the solid contents 30 into a form 40, or multiple forms, exposing the form 40 with the liquid 20 and the solid contents 30 to freezing temperatures, allowing the liquid 20 to freeze and solidify into the ice 10, and removing the ready ice 10 (FRÜZEN IcETM). It should be noted that the freezing point of the liquid 20 may be different from the freezing point of water, and the freezing point of the liquid 20 will depend on the composition of the liquid 20.

[0017] The liquid 20 may be water, fruit juice, alcoholic and non-alcoholic beverage, carbonated beverage, milk, or the drink or beverage that the ice 10 will be added to, such as chardonnay or champagne. Manufacturing FRÜZEN IcETM
from the drink itself allows preventing the dilution of the beverage with water in cases where it is undesirable, such as with champagne, while still achieving the cooling, flavor, and visual appeal effects of FRÜZEN ICE™. The liquid 20 may also be any combination of these ingredients, or it may be mixed with any number of sauces or flavor additives such as hot sauce, Worcestershire sauce, Tabasco sauce, vanilla extract, honey, maple or corn syrup, or a number of other additives that would generally dissolve in water well.

[0018] For example, a splash of Tabasco sauce may be added to and dissolved in the liquid 20 prior to manufacturing the ice 10 for a Bloody Mary or similar drinks. The liquid 20 with the Tabasco sauce may then be frozen with a piece of celery or a wedge of lemon as the solid contents 30 inside the ice 10. When added to the drink, FRÜZEN ICE™ will continuously add flavor to the drink as the ice 10 melts, providing an extra “kick” from the Tabasco sauce. When the ice 10 melts to the solid contents 30, the solid contents 30 will provide another flavor boost, whether from celery juice or lemon juice. Using combinations of the liquid 20 and the solid contents 30 it is thus possible to change the flavor and effect of any given drink or beverage during its consumption. It is also possible to offset the diluting effect of the water in the ice 10, especially if tomato juice is used with the Tabasco sauce and water as the liquid 20. Clear liquids and additives are preferably used for manufacturing FRÜZEN ICE™ because the liquids that are not clear, such as the tomato juice added to the liquid 20 in this example, will obstruct the view of the solid contents 30 if the concentration is high enough in the liquid 20.

[0019] When water is used as the liquid 20, it is possible to use filtered or spring water to produce clear ice that contains fewer contaminants. When tap water is used as the liquid 20, the process to produce very clear ice is a longer process, but it yields more clear ice. When tap water or filtered tap water is used, the water is preferably boiled before using it as the liquid 20 to produce the ice 10 that is more clear and more visually appealing. Boiling the tap water has the added benefit of reducing or eliminating the amount of harmful bacteria and microorganisms in the liquid 20. However, the step of boiling tap water is not a necessary step in producing FRÜZEN ICE™ according to the disclosure of the present invention.

[0020] Illustrative examples of the uses of FRÜZEN ICE™ include uses in alcoholic beverages, non-alcoholic beverages, juice drinks, and children’s drinks. By way of example, pieces of ice 10 comprising a liquid 20 and chopped, sliced, or cubed cucumber solid contents 30 may be used in a Martini drink; pieces of ice comprising a liquid 20 and chopped or sliced celery solid contents 30, where the liquid 20 may be water or water mixed with any combination of tomato juice and/or hot sauce, may be used in a Bloody Mary drink; pieces of ice 10 comprising a liquid 20 and whole or chopped strawberry solid contents 30 for use in champagne; pieces of ice 10 comprising the liquid 20 and chocolate solid contents 30 for use in dessert liquors; pieces of ice 10 comprising the liquid 20 and mandarin orange, orange or lemon slices solid contents 30 for use in children’s drinks and juices.

[0021] Another use of FRÜZEN ICE™ is in fruit smoothies or blended drinks, where the ice 10 comprising the liquid 20 and the solid contents 30, whether the ice 10 is cubed, chunked, or crushed, may be deposited into a blender in a juice bar or sports club in front of the consumers for instant production of these drinks with a superior visual appeal and flavor, instead of placing regular water ice and fruit or frozen fruit into the blender, which is frequently lumped together and unappetizing. This method of mixing or blending drinks would stimulate the consumption of such beverages as the consumers would perceive these beverages to be of a better content and higher preparation quality.

[0022] Yet other illustrative examples of the uses of FRÜZEN ICE™ include use in ice spas and baths, hot/cold therapies, and other recreational applications. For example, pieces of the ice 10 comprising the liquid 20 and blueberries or blackberries as the solid contents 30 may be used in such applications.

[0023] The solid contents 30 may be supplied into the forms 40 with the liquid 20, and in the cases of spices or other particle or powder substances dissolved or interspersed within the liquid 20. The solid contents 30 may also be supplied into the forms 40 after the liquid 20 is supplied, but the preferred method is depositing the solid contents 30 into the forms 40 before supplying the liquid. The preferred sequence of steps allows avoiding or minimizing the spillage of the liquid 20 such as when the solid contents 30 are deposited into the forms 40 after the liquid 20. The form 40 may be fitted with a top cover (not shown), having ports or outlets for supplying the liquid 20 to prevent or minimize the overflow, spillage and the wasting of the liquid. The cover may be detachably coupled to the form 40, or it may be attached to the form 40 by fastening means, such as hinges, a pivoting pin, or cooperating rails, so as to swing or slide open to allow for removal of the ice 10. The form 40 may be fully (to the top of the walls 42 of the form 40 illustrated in FIG. 2) or partially filled with the liquid 20 and the solid contents 30.

[0024] The solid contents 30 may include whole berries, such as strawberries, blueberries, blackberries, raspberries, cranberries, tomatoes; fruits, including all citrus fruits, pineapple, mango, kiwi, banana, melon, watermelon, apples, pears; vegetables, such as cucumbers, celery, or olives; roots (such as ginger); dry vegetables or fruits, such as sun-dried tomatoes, raisins, dried papaya, dried pineapple; marshmallows; candies, such as coffee beans in chocolate, toffee, chewy candy, gum; chocolate, including milk chocolate, dark chocolate, or white chocolate; coffee beans; nuts, such as almonds, hazelnuts, walnuts, pecans, pine nuts; leaves such as mint or bezei; all kinds of tea and tea leaves, including flower blossoms tea; flowers and seeds such as rose or hibiscus; various spices suitable for beverages, such as pepper, cayenne pepper, wasabi, fennel, tarragon, star anise, cinnamon, nutmeg, coriander, cumin, curry, cardamom, vanilla powder, ginger powder, salt; sweeteners such as sugar, brown or cane sugar, or artificial sweeteners; various herbs suitable for beverages; chopped, crushed, or minced berries, fruits, vegetables, and flowers; or any combination thereof. The fruits and vegetables may be used with or without skin where they may be consumed with skin (apples may be consumed with or without skin, for example, but bananas are preferably peeled prior to use). Marshmallows may be pre-frozen before depositing them inside the liquid 20 to avoid the absorption of the liquid and sogginess. The colors, flavors, and textures of these ingredients provide for an endless number of combinations and variety in FRÜZEN ICE™ for drinks and beverages.

[0025] A conventional refrigerator freezer or a commercial freezer may be used for manufacturing FRÜZEN ICE™. The manufacturing process may be automated for commercial manufacture and distribution, and the process may employ manufacturing, dispensing, bagging, and other machinery as necessary, with a stand-alone or integral freezer unit and/or
storage compartment. The Applicant envisions using regular commercial freezers for manufacturing the ice 10, and using cooled compartments to store the ready ice 10, preferably in plastic bags. Conventional plastic bags or Ziploc bags may be used for bagging and storing the ice 10. The conventional plastic bags may use twist ties or built-in pull ties to fasten the bags closed.

[0026] With reference to FIG. 3, another embodiment of the present invention uses individual ice pieces 15 cooperatively shaped to fit into specific beverage holders and vessels: water bottles, sports water bottles, alcoholic beverage bottles, champagne glasses, etc. Thus, for example, the ice 15 of the present invention that is elongated along its longitudinal axis and cylindrical in its cross section, and has a cooperating cross section diameter with the mouth of a water bottle or a sports bottle, may be used to add functional cooling, berry, fruit, or vegetable flavor, and/or visual appeal to a clear or at least partially transparent water bottle, sports bottle, champagne bottle, or wine bottle. The forms for manufacturing the ice 15 (FRÜZEN ICE™) according to this embodiment include a tubular element 50 forming a hollow cylinder 60. The hollow cylinder 60 has at least one open end 67, but the hollow cylinder 60 could have two open ends. The hollow cylinder 60 with only one open end 67 has an individual bottom 68.

[0027] In the alternative, and with reference to FIG. 4, the first of the two open ends of the hollow cylinders 60 with two open ends may be placed on a flat surface 80 to form the bottom and the seal of the hollow cylinders 60, and to prevent the liquid 20 from leaking out when the liquid 20 is supplied through the second of the two open ends of hollow cylinder 60. The flat surface 80 is preferably made of, or is coated with, a material (not shown) that facilitates a liquid-proof seal. A plurality of hollow cylinders 60 with two open ends may be placed on the flat surface 80 in such a way that the flat surface 80 creates the bottom and the seal on the first end of the plurality of the hollow cylinders 60 with two open ends.

[0028] After the solid contents 30 and the liquid 20 are supplied into the plurality of the hollow cylinders 60, the hollow cylinders 60 are subjected to below-freezing temperatures to form the ice 15. When the freezing process is completed, the plurality of the hollow cylinders 60 may be separated from the flat surface 80 and the ice 15 (FRÜZEN ICE™) formed in the plurality of the hollow cylinders 60 may be pushed out by a cooperating plurality of rods 70 having a cross-section diameter cooperating with the diameter of the hollow cylinders 60. Methods of separating ice from forms known in the art may be used to assist in the extraction of the ice, such as heating the form, allowing the form to heat naturally when exposed to ambient temperature, or using an electric charge.

[0029] With reference to FIG. 5, the hollow cylinder 60 of this embodiment may be comprised of two elongated parts 62 with semi-circular channels 64 formed therein. When the two elongated parts 62 are coupled along the longitudinal edges 66 of the two elongated parts 62, the two semi-circular channels 64 form the hollow cylinder 60 having at least one open end 67 but that could have two open ends. Using the two-part hollow cylinder 60 allows for the ease of removing the ice, without damaging the ice structure, when the two elongated parts 62 are separated after the liquid 20 solidifies into the ice 15 with the solid contents 30 inside the liquid 20. The ice 15 can be easily manufactured in a variety of cross section diameters so as to be compatible with a number of bottles and containers, such as water bottles, sports bottles, champagne bottles, and the like. Due to the elongated cylindrical nature of the ice 15, having a cooperating cross section diameter with any number of containers, several pieces of the ice 15 can be easily inserted into a sports bottle on the go, for example, providing cooling and flavor effects that are impossible to achieve with cubed and other conventional ice that will not fit into the narrow opening.

[0030] Yet another embodiment of FRÜZEN ICE™ envisioned by the applicant utilizes chunk, crushed, or flake ice. Due to the nature and relatively small pieces of chunk or crushed ice, many of the implementations described with the preferred embodiments are not possible. However, the chunk, crushed, or flake ice still lends itself well to various spices as disclosed herein, chopped berries, fruits, vegetables, and flowers, or any combination thereof as disclosed herein. The chunk, crushed, or flake ice may be manufactured by mixing the liquid 20 with the solid contents 30 so as to achieve an approximately homogeneous mix, exposing the mix to freezing temperatures, and processing the frozen mix to chunk, crush, or flake the ice using crushing machinery or other methods well-known in the art to crush and separate the frozen lump of the mix.

[0031] The layers of the liquid 20 and the solid contents 30 typically balance automatically. However, for those instances where the solid contents 30 have much lower or much higher density than the liquid 20, floating up to the top or sinking down to the bottom of the compartment 46 of the form 40 respectively, it is advantageous to modify the method of manufacturing FRÜZEN ICE™. Yet another embodiment of the manufacturing method of the present invention comprises supplying a first part of the liquid 20 into a form 40, without filling the entire form 40, exposing the form 40 with the liquid 20 to freezing temperatures, allowing the liquid 20 to freeze and solidify, depositing the solid contents 30 into the form 40, said solid contents 30 being disposed on top and approximately in the center of the frozen first part of the liquid 20, supplying a second part of the liquid 20 into the form 40 so as to cover the solid contents 30, exposing the form 40 with the first part and second part of the liquid 20 and the solid contents 30 to freezing temperatures, and allowing the second part of the liquid 20 to freeze and bond with the first part of the liquid 20, thus also freezing the solid contents 30 inside the second part of the liquid 10 and forming one solid piece of ice 10.

[0032] Preferably, the first part of the liquid 20 according to this method is approximately one quarter to one third of the total amount of the liquid 20 necessary to fill the compartment 46 of the form 40, depending on the size and volume of the solid contents 30 to be contained in the ice 10. This method of manufacture allows for the positioning of the solid contents 30 approximately in the center of the final piece of FRÜZEN ICE™, preventing the solid contents 30 that are heavy from sinking to the bottom of the compartment 46. In order to manufacture the ice 10 with the solid contents 30 that are less dense than the liquid 20, it is necessary to add the steps of supplying another small amount of the liquid 20 onto the frozen first part of the liquid 20 before or after depositing the solid contents 30 on top of the frozen first part of the liquid 20, and exposing these components to freezing temperatures, thus allowing the solid contents 30 to bond with the frozen first part of the liquid 20 before adding the second part of the liquid 20. This will prevent the less-dense solid contents 30 from floating up to the top of the compartment 46.
method thus creates an even visual appearance of the ice piece 10 with the solid contents 30 approximately in the center.

This method of manufacture also allows creating FRÜZEN ICE™ with a layered or striped look by supplying a plurality of layers of the liquid 20 interlaced with a plurality of layers of the solid contents 30 that may otherwise aggregate at the top or the bottom of the compartment 46 of the form 40, such as certain spices or chopped fruit. In the case of the higher-density solid contents, the first layer of liquid 20 could be frozen in the form 40, followed by the first layer of the solid contents 30 disposed on the first layer of the frozen liquid 20, and then followed by as many successive layers of the liquid 20 and the solid contents 30 as is desirable. In the case of the lower-density solid contents, the first layer of the liquid 20 and the first layer of the solid contents 30 may be supplied to the form 40 simultaneously, whereby the solid contents 30 would float to the top of the first layer of the liquid 20 and be frozen in place when the first layer of the liquid 20 solidifies, then followed by successive applications of the liquid 20 and the solid contents 30.

The novel FRÜZEN ICE™ of the present invention may also be used in larger-size forms than those conventionally used for drinks and beverages, such as wedding sculptures, ice sculptures for children's parties, birthday parties, sweet 16 parties, Bar- and Bat-Mitzvahs, event and convention decorations, ice art, and other applications where large and small blocks of ice are generally used.

The above description of the disclosed preferred embodiments is provided to enable any person skilled in the art to make or use the invention. Various modifications to these embodiments will be readily apparent to those skilled in the art, and the principles described herein can be applied to other embodiments without departing from the spirit or scope of the invention and the subject matter of the present invention, which is broadly contemplated by the Applicant. The scope of the present invention fully encompasses other embodiments that may be or become obvious to those skilled in the art.

1. A novel ice for beverages comprising:
   (a) A liquid frozen into an individual ice piece inside an ice-forming compartment of a form for manufacturing ice, said ice-forming compartment having a shape; and
   (b) At least one solid content embedded in the liquid frozen into the individual ice piece.

2. The novel ice of claim 1, wherein the at least one solid content is fully embedded within the individual ice piece.

3. The novel ice of claim 1, wherein the liquid is water.

4. The novel ice of claim 1, wherein the at least one solid content is whole berries.

5. The novel ice of claim 1, wherein the liquid comprises at least one of water, fruit juice, alcoholic beverage, non-alcoholic beverage, carbonated beverage, milk, wine, hot sauce, Worcestershire sauce, Tabasco sauce, vanilla extract, honey, syrup or combination thereof.

6. The novel ice of claim 1, wherein the at least one solid content is selected from the group consisting of berries, fruits, vegetables, roots, dry vegetables, dry fruits, marshmallows, candies, chocolate, coffee beans, nuts, leaves, flowers, seeds, spices, sweeteners, herbs and combination thereof.

7. The novel ice of claim 1, further comprising an elongated holding element embedded into the individual ice piece.

8. The novel ice of claim 1, wherein the shape of the ice-forming compartment is selected from the group consisting of cube shapes, oval shapes, chunk shapes, cuboid shapes, cylindrical shapes, star shapes, elongated shapes, and spherical shapes suitable for beverages.

9. The novel ice of claim 1, wherein the shape of the ice-forming compartment is selected so as to enable production of individual ice pieces cooperatively shaped to fit into bottles.

10. The novel ice of claim 9, wherein the shape of the ice-forming compartment is cylindrical.

11. A method of manufacturing novel ice for beverages comprising:
   (a) Supplying at least one solid content into at least one ice-forming compartment of a form for manufacturing ice, said ice-forming compartment having a shape;
   (b) Supplying a liquid into the at least one ice-forming compartment of the form for manufacturing ice; and
   (c) Freezing the liquid to form ice with embedded solid content in the at least one ice-forming compartment of the form for manufacturing ice.

12. The method of claim 11, wherein the liquid is water.

13. The method of claim 11, wherein the at least one solid content is whole berries.

14. The method of claim 11, wherein the liquid comprises at least one of water, fruit juice, alcoholic beverage, non-alcoholic beverage, carbonated beverage, milk, wine, hot sauce, Worcestershire sauce, Tabasco sauce, vanilla extract, honey, syrup or combination thereof.

15. The method of claim 11, wherein the at least one solid content is selected from the group consisting of berries, fruits, vegetables, roots, dry vegetables, dry fruits, marshmallows, candies, chocolate, coffee beans, nuts, leaves, flowers, seeds, spices, sweeteners, herbs and combination thereof.

16. The method of claim 11, wherein the shape of the at least one ice-forming compartment is selected from the group consisting of cube shapes, oval shapes, chunk shapes, cuboid shapes, cylindrical shapes, star shapes, elongated shapes, and spherical shapes suitable for beverages.

17. The method of claim 11, wherein the shape of the at least one ice-forming compartment is selected so as to enable production of individual ice pieces cooperatively shaped to fit into bottles.

18. A method of manufacturing novel ice for beverages comprising:
   (a) Interspersing at least one solid content within a liquid to create a mixture;
   (b) Supplying the mixture of the at least one solid content and the liquid into at least one ice-forming compartment of a form for manufacturing ice, said ice-forming compartment having a shape; and
   (c) Freezing the mixture to form ice with the at least one solid content embedded in the ice in the at least one ice-forming compartment of the form for manufacturing ice.

19. The method of claim 18, wherein the liquid comprises at least one of water, fruit juice, alcoholic beverage, non-alcoholic beverage, carbonated beverage, milk, wine, hot sauce, Worcestershire sauce, Tabasco sauce, vanilla extract, honey, syrup or combination thereof.

20. The method of claim 18, wherein the at least one solid content is selected from the group consisting of berries, fruits, vegetables, roots, dry vegetables, dry fruits, marshmallows, candies, chocolate, coffee beans, nuts, leaves, flowers, seeds, spices, sweeteners, herbs and combination thereof.

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