COOLING CUBE ASSEMBLY

Inventors: Cory James Harsh, Chagrin Falls, OH (US); Kim Marie Block, Chagrin Falls, OH (US); Robert Elliot Block, Chagrin Falls, OH (US); Andrew Michael Harsh, Chagrin Falls, OH (US)

Appl. No.: 13/220,868
Filed: Aug. 30, 2011

Publication Classification

Int. Cl. F25D 3/00 (2006.01)

ABSTRACT
A cooling cube assembly for cooling a liquid contained within a beverage container. The cooling cube assembly includes a cooling element containing a cooling solution, and an insertion and extraction filament attached to the cooling element for inserting and extracting the cooling element from the liquid within the beverage. The insertion and extraction filament is an elongated flexible filament connected at a first end to the cooling element and at a second end to a tag for inserting and extracting the cooling element from the liquid within the beverage. The cooling element is inserted into the liquid to be cooled while the tag remains outside of the liquid. The cooling element is extracted from the liquid by pulling on the elongated filament with the tag after the liquid is cooled to a desired temperature.
COOLING CUBE ASSEMBLY

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates generally to a liquid cooling device. More specifically, the present invention relates to a reusable plastic cooling device that may be used to reduce the temperature of a hot liquid or maintain the low temperature of a cool liquid for an extended time.

BACKGROUND OF THE INVENTION

[0002] Many beverages are preferably consumed when cold and in order to keep beverages cold people generally freeze water into ice and deposit the ice in their beverages. In order to cool a beverage, the ice consumes heat from the beverage, changing phase and becoming water which dilutes the beverage and frequently spoils its taste. Moreover, ice floats on the surface of the beverage. Consequently, if one is drinking a beverage from a glass or cup the beverage is continually consumed from the surface adjacent the ice cubes and, therefore, is continually diluted. In addition, the ice cubes tend to come into contact with the drinker’s lips which is not necessarily a pleasant sensation. Moreover, the flavor of many drinks sinks to the bottom while the drink is being consumed or cooled.

SUMMARY OF THE INVENTION

[0003] One embodiment of the present invention is directed to a cooling cube assembly for cooling a liquid contained within a beverage container. The cooling cube assembly includes a cooling element containing a cooling solution, and an insertion and extraction filament attached to the cooling element for inserting and extracting the cooling element from the liquid within the beverage. The insertion and extraction filament is an elongated flexible filament connected at a first end to the cooling element and to a tag at a second end for inserting and extracting the cooling element from the liquid within the beverage.

[0004] Another embodiment is a method of cooling a liquid within a beverage container. First, a cooling cube assembly, including a cooling element containing a cooling solution, an elongated flexible filament connecting a first end to the cooling element, and a tag connected at a second end of the elongated filament is provided. Second, the cooling element is inserted within the liquid to be cooled while the tag remains outside of the liquid. Third, the cooling element is extracted from the liquid by pulling on the elongated filament with the tag after the liquid is cooled to a desired temperature.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The structure, operation, and advantages of the present invention will become further apparent upon consideration of the following description taken in conjunction with the accompanying figures (FIGs.). The figures are intended to be illustrative, not limiting. Certain elements in some of the figures may be omitted, or illustrated not-to-scale, for illustrative clarity. The cross-sectional views may be in the form of "slices", or "near-sighted" cross-sectional views, omitting certain background lines which would otherwise be visible in a "true" cross-sectional view, for illustrative clarity.

[0006] In the drawings accompanying the description that follows, both reference numerals and legends (labels, text descriptions) may be used to identify elements. If legends are provided, they are intended merely as an aid to the reader, and should not in any way be interpreted as limiting.

FIG. 1 is a three-dimensional front view of a cooling cube assembly, in accordance with the present invention.

FIG. 2 is a three-dimensional front view of the cooling cube assembly disposed above a beverage container, in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0009] In the description that follows, numerous details are set forth in order to provide a thorough understanding of the present invention. It will be appreciated by those skilled in the art that variations of these specific details are possible while still achieving the important characteristic of the known processing steps are generally not described in detail in order to avoid unnecessarily obfuscating the description of the present invention.

[0010] In the description that follows, exemplary dimensions may be presented for an illustrative embodiment of the invention. The dimensions should not be interpreted as limiting. They are included to provide a sense of proportion. Generally speaking, it is the relationship between various elements, where they are located, their contrasting compositions, and sometimes their relative sizes that is of significance.

[0011] In the drawings accompanying the description that follows, often both reference numerals and legends (labels, text descriptions) will be used to identify elements. If legends are provided, they are intended merely as an aid to the reader, and should not in any way be interpreted as limiting.

[0012] The present invention is directed to a cooling cube assembly. It is well known that many beverages are preferable to drink when cold. Accordingly persons usually place some ice cube therein for cooling the same. However, this has some disadvantages because as the beverage is cooled the ice cube dissolves, and the beverage thus becomes diluted and is less tasty.

[0013] The present device is designed to either rapidly reduce the temperature of a hot beverage or keep a cold beverage cool for a long duration. The cooling cube contains a solution (as described below) that is cooled or frozen. When the cooling cube is placed into a beverage, it causes the temperature of the beverage to drop until it reaches the temperature that the user desires. The cooling cube is typically constructed of a plastic polymer, however, it is within the terms of the preferred embodiment to construct it of any desirable material. An important characteristic of the cooling cube is that it will not melt in beverages into which it is placed, and will therefore not dilute the beverage.

[0014] Referring to FIG. 1, the cooling cube assembly consists of a cube, an elongated thread or filament, and a tag. Cube is a sealed or sealable, hollow cooling element having relatively thin walls having a relatively high thermal conductivity so that the cold temperature of the coolant within the cube can easily transfer through the walls and into a fluid beverage into which the cooling element is inserted. Walls may have an exemplary thickness of 1 mm, or any other appropriate thickness. The dimensions of the cube include an exemplary dimension of each wall having a width, height, and length of 40 mm. However, while the hollow cooling element preferably has a cube shape, it can be a regular hexahedron having any suitable dimensions, such as a width...
22 of 40 mm, height 24 of 20 mm, and length 26 of 40 mm. It is within the terms of the invention to construct the cooling cube assembly 10 of a single element.

[0015] While in the preferred embodiment of the hollow cooling element 12 is a regular hexahedron, preferably shaped as a cube, other embodiments may include but are not limited to hollow spheres, hollow cones, hollow pyramids, a hollow cylinder, hollow animal shapes, and hollow triangular dipyramids.

[0016] The hollow void 20 of cube 12 is an interior space containing a coolant material such as liquid or a gel or any similar freezeable material, including water which can be cooled or frozen when the cooling cube assembly 10 is to be used. The hollow void 20 within the hollow cooling element 12 is not completely filled with the coolant when it is in a liquid state, so as to leave space within the cooling element to allow for expansion when the coolant is frozen. Further, a dye, such as food coloring, can be mixed into the coolant to decorate cube 12. The colors inside cube 12 include but are not limited to the following colors and combinations thereof: FD&C Blue No. 1, FD&C Blue No. 2, FD&C Green No. 3, FD&C Red No. 3, FD&C Yellow No. 5, and FD&C Yellow No. 6. The freezeable coolant material allows the user to maintain the cool temperature of a cold beverage for an extended period of time without the diluting effects of an ice cube formed of water. Further, the coolant is intended to be used for cooling down a hot beverage.

[0017] Cube 12 is preferably molded of a transparent material so as to resemble an appearance of a conventional ice cube. Further, in one embodiment, the surface of cube 12 can have a slight wave or ripple pattern (not shown) to mimic a melting ice cube. The cube 12 can also be molded of a translucent material, an opaque material or of a material of any desired color. The cooling cube 12 is preferably composed of a plastic material which is easily molded into a rigid body. However, it is contemplated that the cube 12 can be made of other plastics, metals or materials of similar characteristics. In a preferred embodiment, polypropylene with resin identification code (5) is a type of plastic variant that may be used to form the walls of cube 12. It is also within the terms of the invention that the cooling cube 12 can be printed or imprinted on its outer surface.

[0018] An elongated, flexible thread or filament 14 is attached to the surface of a wall of cube 12 at any desired location such as at the connector 28. The attachment between thread or filament 14 and cube 12 may be made with any suitable means, such as an adhesive after the cube 12 is molded, or placed within the wall of the cube 12 when it is being molded, or welded onto the cube during a separate step after the cube is molded. The elongated, flexible filament 14 may be of any suitable material such as a fabric, plastic or rubber. In a preferred embodiment, the elongated, flexible filament 14 is constructed of white cotton pulp. The elongated, flexible filament 14 may be of an appropriate length, such as for example, 190 mm.

[0019] In a preferred embodiment, the elongated, flexible filament 14 is further attached to a tag 16 at a location 30. The specific location 30 on the tag 16 may be at any location on the tag. The elongated, flexible filament 14 may be attached to tag 16 by any suitable means, such as adhesive or a staple. Tag 16 is constructed out of paper, plastic, rubber or a similar material and may have any appropriate dimensions. An exemplary dimension would be 27 mm in width by 27 mm in length. It is also within the terms of a preferred embodiment that the tag 16 can be printed or imprinted on surface. It is further within the terms of the preferred embodiment that the interior cube liquid, cube exterior, string, and tag can be made of any color and may also change colors depending on conditions such as the ambient temperature.

[0020] The purpose of the combination of the elongated, flexible filament 14 and tag 16 is to allow the user to simply insert the cube 12 into a beverage and then remove the cube when the beverage has reached the desired temperature.

[0021] FIG. 2 illustrates the cooling cube assembly 10 in use. Cooling cube 12 is lowered into a beverage by means of holding the tag 16 and lowering cube 12 into the beverage through mouth 34 of beverage container 32. Cooling cube 12 remains within beverage 32 for a period of time until the beverage reaches the desired temperature, when it is then removed by means of tag 16.

[0022] Plastic cooling cube 12 is reusable. After the freezeable material within cube 12 warms up and returns to a liquid state, the user may simply return the cooling cube assembly 10 to a freezer for repeat use. Cooling cube assembly 10 can be used in both hot and cold liquids. Beverages such as coffee, hot chocolate, soda, juice, alcoholic beverages, water, etc. are the most common beverages for the use of cooling cube assembly 10, but it may also be used in other liquids, such as soup. Cooling cube 12 is designed to withstand extreme temperatures up to about 215°F. All of the components utilized in cooling cube 12 are FDA approved and are also recyclable.

[0023] Although the invention has been shown and described with respect to a certain preferred embodiment or embodiments, certain equivalent alterations and modifications will occur to others skilled in the art upon the reading and understanding of this specification and the annexed drawings. In particular regard to the various functions performed by the above described components (assemblies, devices, etc.) the terms (including a reference to a “means”) used to describe such components are intended to correspond, unless otherwise indicated, to any component which performs the specified function of the described component (i.e., that is functionally equivalent), even though not structurally equivalent to the disclosed structure which performs the function in the herein illustrated exemplary embodiments of the invention. In addition, while a particular feature of the invention may have been disclosed with respect to only one of several embodiments, such feature may be combined with one or more features of the other embodiments as may be desired and advantageous for any given or particular application.

1. A cooling cube assembly for cooling a liquid contained within a beverage container, comprising:
   - a cooling element containing a cooling solution;
   - an insertion and extraction filament attached to the cooling element for inserting and extracting the cooling element from the liquid within the beverage container.

2. The cooling cube assembly of claim 1 wherein:
   - the insertion and extraction filament is an elongated flexible filament connected at a first end to the cooling element; and
   - a tag connected is connected to a second end of the elongated flexible filament for inserting and extracting the cooling element from the liquid within the beverage container.

3. The cooling assembly of claim 2 wherein the cooling element is constructed of a plastic polymer.
4. The cooling assembly of claim 3 wherein the cooling element has a hollow interior partially filled with the cooling solution.
5. The cooling assembly of claim 4 wherein the hollow cooling element has relatively thin walls having a relatively high thermal conductivity.
6. The cooling assembly of claim 5 wherein the hollow cooling element has a cube shape.
7. The cooling assembly of claim 5 wherein the hollow cooling element has a shape selected from the group comprising a regular hollow hexahedron, a hollow sphere, a hollow cone, a hollow pyramid, a hollow cylinder, hollow animal shapes, and hollow triangular dipyramids.
8. The cooling assembly of claim 4 wherein the cooling solution is a freezeable material which can be cooled or frozen.
9. The cooling assembly of claim 2 wherein the elongated filament is molded into the cooling element.
10. The cooling assembly of claim 2 wherein the elongated filament is glued onto the cooling element.
11. The cooling assembly of claim 2 wherein the elongated filament is welded to the cooling element.
12. The cooling assembly of claim 2 wherein the elongated filament is constructed of a flexible fabric.
13. The cooling assembly of claim 2 wherein the elongated flexible filament is constructed of a material selected from a group consisting of rubber and plastic.
14. The cooling assembly of claim 2 wherein the tag is adhesively connected to the elongated filament.
15. The cooling assembly of claim 2 wherein the tag is stapled to the elongated filament.

16. The cooling assembly of claim 2 wherein the tag is molded to the elongated filament.
17. The cooling assembly of claim 2 wherein the tag is constructed from a material selected from the group comprising paper, plastic and rubber.
18. A method of cooling a liquid within a beverage container, comprising:
   providing a cooling cube assembly, including a cooling element containing a cooling solution, an elongated flexible filament connecting a first end to the cooling element, and a tag connected at a second end of the elongated filament;
   inserting the cooling element in the liquid to be cooled while the tag remains outside of the beverage container;
   extracting the cooling element from the liquid by pulling on the elongated filament with the tag after the liquid is cooled to a desired temperature.
19. The method of claim 18 including constructing the elongated filament of a flexible fabric so that the cooling element can have a springing action within the liquid.
20. The method of claim 19 including constructing the elongated filament of a flexible rubber so that the cooling element can have a springing action within the liquid.
21. The method of claim 18 including returning the cooling cube assembly to a freezer for repeat use.
22. The method of claim 18 including maintaining the cooling element within the liquid for a period of time until the liquid reaches the desired temperature.

* * * * *