A cup insulating system, comprising a layer of elastomer formed into a homogeneous seamless conical sleeve, the conical sleeve having an exterior surface, an interior surface an upper opening and a lower opening, wherein the upper opening is configured for receiving a beverage cup, and the inner surface of the conical sleeve is configured to contact an outer surface of the beverage cup.
START

POSITION AN ELASTOMERIC SLEEVE OVER A SLEEVE SPREADING MECHANISM

ACTIVATE SLEEVE SPREADING MECHANISM TO MOVE ARMS TO OPEN SLEEVE TO LARGER THAN MAXIMUM OUTSIDE CUP DIAMETER

POSITION CUP WITHIN SLEEVE AND REST CUP ON PLATFORM

RELEASE SPREADING MECHANISM SO THAT SLEEVE AND ARMS COME INTO CONTACT OR CLOSE PROXIMITY TO CONTACTING CUP

REMOVE CUP AND INSULATING SLEEVE FROM SPREADING MECHANISM

FINISH

FIG. 6
BEVERAGE CUP SLEEVING SYSTEM AND METHOD

REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and the benefit of U.S. Provisional Application Ser. No. 60/839,259 which was filed Aug. 23, 2008, entitled BEVERAGE CUP SLEEVING SYSTEM AND METHOD, the entirety of which is hereby incorporated by reference as if fully set forth herein.

FIELD OF INVENTION

[0002] The present invention relates generally to a conical sleeve to surround a cup containing a hot beverage, more particularly to systems and methods for an improved insulation sleeve having a configuration that facilitates easier handling of hot beverages.

BACKGROUND OF THE INVENTION

[0003] Disposable hot beverage cups are customarily utilized in coffee houses, fast food restaurants, take-out restaurants, concession stands, and the like. These cups typically are manufactured in standard sizes, are conical in shape, have an open top lip adapted to receive various plastic lids, for example. These cups are often made of treated paper, cardboard, polystyrene, styrofoam, and the like. Polystyrene, for example is an excellent thermal insulator and yet it has several drawbacks, for example, it is not easily recycled nor is it biodegradable, it can effect the coffee taste and is not seen as trendy by consumers, to name a few. In contrast, paper and cardboard are easily recyclable and/or biodegradable but are poor thermal insulators. Paper based coffee cups are often preferred by the public because they overcome the taste issues mentioned supra, they are trendy, they overcome recycling and biodegradable issues, but when filled with a hot liquid, soup, coffee, and tea they are difficult to handle. In addition they can be uncomfortable to handle when cold and become slippery due to condensation.

[0004] As a result of the handling issues, many sellers of such hot and cold beverages provide an additional paper sleeve or a second cup, for example to the buyer. A second cup, a sleeve, and the like is environmentally unsound, adds additional cost to the product, results in more waste, etc.

There are many versions of insulating sleeves available for consumers to be able to handle paper cups containing hot and cold beverages. These sleeves are commonly made from paperboard that is configured to loosely match the contours of the paper cup. These sleeves provide some protection to the user from high temperatures, however that protection is often inadequate if the sleeves get wet, if the beverage is extremely hot, if a cold beverage “sweats”, and the like. Fabric sleeves exist, however they require relatively long manufacturing times and the sewing of seams, for example.

[0005] It is therefore desirable to provide an insulating cup sleeve that is effective when wetted, effective against extremely high and low temperatures, is reusable and easily manufactured. Thus, there exists a need for an improved system and method for sleeving hot and cold beverages in a paper or thin walled plastic cup.

SUMMARY OF THE INVENTION

[0006] The following presents a simplified summary in order to provide a basic understanding of one or more aspects of the invention. This summary is not an extensive overview of the invention, and is neither intended to identify key or critical elements of the invention, nor to delineate the scope thereof. Rather, the primary purpose of the summary is to present some concepts of the invention in a simplified form as a prelude to the more detailed description that is presented later. The present invention is directed to a system and method of sleeving a hot or cold beverage associated with a paper or thin walled plastic cup.

[0007] In accordance with one embodiment of the invention, a cup insulating system, comprising a layer of elastomer formed into a homogeneous seamless conical sleeve, the conical sleeve having an exterior surface, an interior surface an upper opening and a lower opening, wherein the upper opening is configured for receiving a beverage cup, and the inner surface of the conical sleeve is configured to contact an outer surface of the beverage cup.

[0008] In accordance with another embodiment of the present invention, is a thermal cup protector comprising an elastomeric and fabric composite sleeve, a conical configuration and with opposed open top end and open bottom end, an exterior surface and an interior surface, the interior surface configured for receiving a beverage container with a frusto-conical shape.

[0009] The following description and annexed drawings set forth in detail certain illustrative aspects and implementations of the invention. These are indicative of only a few of the various ways in which the principles of the invention may be employed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a side isometric view illustrating a beverage cup sleeve system according to one exemplary embodiment of the present invention;

[0011] FIG. 2 is a side isometric view illustrating another beverage container sleeving system according to another embodiment of the invention;

[0012] FIG. 3 is an isometric view of an empty beverage or liquid cup insulating enclosure with a bottom according to yet another embodiment of this invention;

[0013] FIG. 4 is a partial side view of a corrugated sleeve illustrating a cup insulation system in accordance with yet another exemplary embodiment of the invention;

[0014] FIG. 5 is a side view illustrating an elastomeric ring insulating system according to another embodiment of the invention;

[0015] FIG. 6 illustrates a block diagram of an exemplary sleeving system that facilitates placing an elastomeric sleeve on a beverage cup;

[0016] FIG. 7 is a side view illustrating a metal lip and an integrated sleeve system according to another embodiment of the invention;

[0017] FIG. 8 is a side view illustrating a sleeve insulating system with internal vertical ribs according to another embodiment of the invention;

[0018] FIG. 9 is a side view illustrating a sleeve insulating system with internal horizontal ribs according to another embodiment of the invention;

[0019] FIG. 10 is a side view illustrating a sleeve insulating system with internal vertical ribs and a key tab according to another embodiment of the invention;

[0020] FIGS. 11-12 are views illustrating a folding sleeve insulating system according to another embodiment of the invention;
Fig. 13 is a side view illustrating an sleeve insulating system with a pouch according to another embodiment of the invention; and

Fig. 14 is a side view illustrating a Velcro sleeve insulating system according to another embodiment of the invention.

Detailed Description of the Invention

One or more implementations of the present invention will now be described with reference to the attached drawings, wherein like reference numerals are used to refer to like elements throughout. The invention relates to a beverage cup sleeveing system and associated method wherein a reusable coffee cup sleeve can be fitted over hot or cold beverage cup.

Referring now to the figures, Fig. 1 illustrates a coffee cup sleeveing system 100, wherein a disposal hot beverage or liquid cup 102 can be held within an insulating elastomeric sleeve assembly 110, as shown. The cup 102 can be formed of paper, paperboard and the like, and has a wider top portion 104 and a smaller diameter bottom portion 106. While the beverage cup 102 illustrated can be made of paper, cellulose material, and the like, it may also be made of any suitable plastic, for example, Styrofoam. The lid 108 employed is typically manufactured in plastic, such as polystyrene.

The sleeve assembly 110 can be slid over the bottom portion 106 of the cup 102 and slid upwardly toward the top portion 104 of the cup 102 until the sleeve assembly 110 inner surface 114 fully or partially engages the cup 102 outer surface. The sleeve assembly 110 can be made of an elastomeric, for example silicone, rubber, Butyl, Ethylene-propylene (EPDM), polyethylene/polyethylene (PEPE), thermoplastic polyurethanes, and the like. As shown in Fig. 1, the sleeve assembly 110 can be formed from a continuous silicon or elastomeric sleeve 112 having an inner surface 114 and an outer surface 116. The inner surface 114 and the outer surface 118 can be formed with hemispherical protrusions/bumps 118 covering essentially the entire inner surface 114 and the entire outer surface 116 to provide additional insulation qualities for the silicone or elastomeric sleeve 112 by trapping air between the inner surface 114 of the sleeve assembly 110 and the outer cup surface 120. The sleeve assembly 110 is defined by a sleeve mounted on and encircling a beverage cup or liquid food cup 102. The sleeve 112 has an open top 122 and an open bottom 124 through which the cup 102 extends and an inner surface 114 adjacent the cup outer surface 120.

With respect to the sleeve assembly 110, liquid crystal technology is well known by those individuals skilled in the art. As is commonly known, liquid crystal material formulations display a color change at temperatures above 98.6 degrees Fahrenheit, an average normal body temperature. Additionally, such a temperature level generally represents a lowest safe-zone reading in that it is equal to the normal body temperature reading. In liquid crystal technology, cholesteric liquid crystals can be preferred over others since such cholesteric liquid crystals have been determined non-toxic and can readily pass through the body if accidentally ingested by a user. For example, a cholesteric liquid crystal exhibiting a color change display at 100 degree F. is a mixture of p-n-Pentylphenyl-p-methoxybenzoate and p-n-Pentylphenyl-p-n-pentylbenzoate. Other cholesteric liquid crystal materials exhibiting similar display temperatures are disclosed in a U.S. Pat. No. 4,296,831 to Ferguson. The elastomeric sleeve assembly 110 can be manufactured with a cholesteric liquid crystal in the elastomer so that a user can determine the temperature range of the beverage by the color of the sleeve, for example.

Fig. 2 shows a sleeve assembly 110 around a cup 102 having a wider top 104 and a smaller diameter bottom 106 which are formed integrally with the outside surface of the cup 120. A logo 204 can be printed on one side or opposite sides of a cup sleeve 202, for example, so that the logo 204 can be seen when the sleeve 202 is positioned on the beverage cup 102. It should be appreciated that instructions, advertisements, personal names, company logos, graphical representations, and the like, can be placed on the sleeve 202, thereby visible to a user, customer, employee, and the like. In one example, each coffee sleeve 202 can have a logo 204 associated therewith, wherein the logo 204 can, for example, be printed, molded, blow molded, extruded, rotational cast, and the like.

The cup sleeve 202 in addition can provide insulative properties, keeping cold fluids cold and hot fluids hot, for example as well as providing a non-slip type surface for the user to hold. The sleeve 202 can be cast, compression molded, injection molded, blow molded, extruded, rotational cast, and the like. It should be appreciated that any process that converts raw resin into a finished product is considered part of this invention and is contemplated herein.

Now referring to Fig. 3, a cup sleeve 302 can include a sleeve bottom 304. The bottom of a users cup 102 (Fig. 2), for example, coffee in a paper cup, hot tea in a paper cup, cup of hot chocolate, etc., can be inserted into the wider opening 308 of the cup sleeve 302 while the user is holding the sleeve outside surface 308. As the cup (not shown) is inserted deeper into the insulating sleeve 302, as shown in Fig. 3, the sleeve 302 inner and outer surfaces, 310 and 308, are forced farther apart, horizontally (or circumferentially), creating a hoop stress in the circumference of sleeve 302. This permits the cup to be held firmly in the sleeve 302. The cup 102 (Fig. 2) bottom outside surface can actually come into contact with the sleeve 302 bottom inside surface, for example. The beverage cup and the sleeve 302 can be easily inserted into a car or truck cup carrier, for example, or set on a table or flat surface. The beverage cup bottom can actually rest on the bottom surface of the sleeve or above the sleeve bottom.

Referring to Fig. 4 is a corrugated elastomeric cup insulation system 400 that employs a corrugated cup sleeve 402, shaped into folds or parallel and alternating ridges and grooves. The alternating ridges and grooves allow the cup sleeve 402 to expand and contract in diameter to allow a paper cup 416 to be inserted into the sleeve 402. This embodiment of the system 400 as well as 100 (Fig. 1), 200 (Fig. 2) and 300 (Fig. 3) can be referred to as the single hand design in that it is principally tailored for use with one hand by the user rather than both hands. The sleeve 402 comprises an open top end 404 that is wider in diameter than the open bottom end 408 and adapted to receive the liquid or beverage container, for example, the paper coffee cup 414 that is designed to hold hot coffee, a container made to contain an iced drink, a frusto-conical shaped cup, and the
like. As may be readily seen, the sleeve 402 is readily adapted for receiving a cup or container inside the sleeve 402. The height of the sleeve 402, that is, the length of the sleeve 402, as well as the open top end and open bottom end diameters 404 and 408, respectively can be determined by measuring the height and conical shape of the beverage containers normally to be associated therewith such that a significant external surface area of the container is enclosed by the sleeve 402. The design can also take into consideration the height of one’s hand utilizing, that is, grasping, the sleeve 402 as well as the container positioned therein.

[0030] The sleeve 402 can be formed of a single elastomeric, for example, silicon, rubber, and the like, or multiple layers of elastomers, and the like. Such material is microwavable, dishwasher safe, stain resistant, reusable and environmentally friendly since it is generally reusable and the elastomeric sleeve eliminates the need for consumers to use an additional cup for a hot beverage, disposable paper insulative sleeves, and the like. Also by generally forming the device from such material, the device can also be easily manufactured in the forming process. Also, it is preferably that the sleeve can keep hot beverages hot and cold beverages cold for longer periods of time. Elastomers also offer a non-slip surface with a pleasant tactile feel. The sleeve 402 being flexible is easily folded so that it can be easily be shipped, folded up into a persons pocket, and the like.

[0031] FIG. 5 is in accordance with yet another embodiment of the present invention, the cup ring Insulating system 500 is configured to surround a beverage cup 102 with an insulating ring 502, wherein the elastomeric ring 502 can have a groove 504 to accept a user’s fingers and thumb. The ring 502 is then employed with each cup 102 to prevent the user’s hand from coming into contact with a hot or cold beverage or liquid in a paper cup, a thin plastic cup, and the like. Consequently, the present invention eliminates the need for a second insulating cup, a paper insulating sleeve, etc. In addition, since each elastomeric ring 502 can be washed in the dishwasher, is microwavable, s reusable, and the like, it represents “green technology” by eliminating other disposable products. Further, since the ring 502 can be designed in various ring configurations thereto, the elastomeric ring 502 can be to low cost or given away as promotional products. Various printed matter 503, for example advertisements, logos, name brand, and the like can be printed, embossed, etc., on the outer surface 504 of the ring 502.

[0032] The ring 502 can be placed against the cup outer surface 120 by sliding the cup bottom surface 106 into the wide end 508 of the ring 502. The cup 102 can be slid further into the ring 502 until the ring elastomeric expands capturing the outside surface 120 of the cup 102 against the inner surface 114 of the ring 502.

[0033] FIG. 6 is a flow chart diagram 600 that illustrates various modes in which the cup insulating sleeve system 100 of FIG. 1 may be placed on a cup according to one exemplary embodiment of the invention. For example, initially the cup insulating sleeve can be in a relaxed state, wherein the insulating sleeve 110 (FIG. 2) associated with, for example a paper cup is not positioned on the cup and is an un-stretched mode. In the un-stretched mode, the sleeve open bottom portion 122 (FIG. 2) can be placed over the arms or fingers of a spreader mechanism (not shown). The sleeve 110 (FIG. 2) can be slid down so that a portion of elastomeric wrap inner surface 114 (FIG. 2) is in contact with the fingers. In the resting position the fingers can extend out a top portion 124 (FIG. 2) of the sleeve 110 (FIG. 2).

[0034] Once the sleeve 110 (FIG. 2) is fully engaged on the spreader mechanism, in other words the employee, customer, and the like has dropped the sleeve 110 (FIG. 2) over the fingers, a lever can be moved, activated, and the like to spread out or open up the sleeve to a wider diameter that the sleeve 110 (FIG. 2) would be in the relaxed position. The paper cup, for example, that is filled with hot coffee and with a lid attached can then be placed into the expanded sleeve 110 (FIG. 2) and rested on a platform (not shown).

[0035] Once the beverage cup is placed on the platform in step 830, the spreading mechanism at step 840 can be released so that the fingers and the sleeve 110 (FIG. 2) either come into contact with the cup 102 (FIG. 2) or close proximity to the outside surface 120 (FIG. 2) of the cup 102 (FIG. 2). For example, because the sleeve is an elastomer and the cup is relatively rigid when the cup 102 (FIG. 2) and sleeve are removed from the spreader mechanism the sleeve 110 (FIG. 2) is under stress and holds firmly to the cup. Spreading type mechanisms for elastomers are well known by those of ordinary skill in the art.

[0036] FIG. 7 illustrates yet another embodiment of the present invention. In this cup assembly 700 the upper open lip 702 of a sleeve 704 can be made of metal, for example, stainless steel, tin, aluminum and the like. The body 706 of the sleeve 704 can foe a molded elastomeric, for example silicon, rubber, and the like. The molded elastomeric can be molded over a portion of the metal upper open lip using techniques that are well known by those of ordinary skill in the art. A logo 708 can be pad printed, embossed, and the like on the elastomeric body 708.

[0037] FIG. 8 shows a sleeve assembly 802 having a wider open top 804 for receiving a cup or beverage container and a smaller diameter open bottom 806. A logo, as discussed supra, can be printed on one side or opposite sides of the sleeve assembly 802, for example, so that the logo can be seen when the sleeve assembly 802 is positioned on the beverage cup. It should be appreciated that instructions, advertisements, personal names, company logos, graphical representations, and the like, can be placed on the sleeve assembly 802, thereby visible to a user, customer, employee, and the like. In one example, each coffee sleeve assembly 802 can have a logo associated therewith, wherein the logo can, for example, be pad printed, molded, screen printed, embossed, a tape application, a label, lithography, micro-contact printing, pressure sensitive label printing, and the like. The cup sleeve assembly 802 can protect a consumer from both hot or cold liquids, beverages, soups, freezes, and the like. The cup sleeve assembly 802 in addition can provide Insulative properties, keeping cold fluids cold and hot fluids hot, for example as well as providing a non-slip type surface for the user to hold. The sleeve assembly 802 can be cast, compression molded, injection molded, blow molded, extruded, rotational cast, and the like, it should be appreciated that any process that converts raw resin into a finished product is considered part of this invention and is contemplated herein.

[0038] The inner surface of the sleeve assembly 802 can have vertical ribs 812 as illustrated that run from the top surface 814 of the sleeve assembly to the bottom surface 816 or any portion thereof, it should also be appreciated that the ribs can be horizontal, diagonal or any moldable pattern either on the internal surface 828 of the sleeve assembly 802.
or the external surface 828 of the sleeve assembly 802. Fig. 9 illustrates a sleeve assembly 900 similar to the sleeve assembly 800 in Fig. 8 except the ribs are horizontal. Fig. 10 illustrates a sleeve assembly similar to Fig. 8 except the sleeve assembly 1000 can have a molded tab 1002 with a through hole 1004 for attaching keys, check out bar code cards, and the like.

[0039] Fig. 11 illustrates an elastomeric sleeve assembly 1100 similar to the sleeve assembly 800 in Fig. 8 except the sleeve assembly 1100 has no ribs but rather two indents 1102 that run the length of the sleeve assembly 1100 so that the sleeve assembly 1100 can be folded as illustrated in Fig. 12. Fig. 12 illustrates a sleeve assembly 1200 in a partially folded position. The sleeve assembly 1300 shown in Fig. 13 is similar to the sleeve assembly 200 shown in Fig. 2 except the sleeve assembly 1300 can have a molded pouch 1302 for holding keys, coins, dollar bills, and the like.

[0040] Fig. 14 illustrates yet another embodiment of the present invention. The sleeve 1402 comprises a band of elastomeric material, for example silicon, rubber and the like. Velcro hooks 1404 are attached to the one end of the sleeve 1402 and Velcro eyes 1408 are attached to the opposite side of the sleeve 1402 as illustrated. The sleeve 1402 can then be wrapped around a cup with the Velcro ends 1404 and 1408 fastened together to wrap around the cup.

[0041] Although the invention has been illustrated and described with respect to one or more implementations, alterations and/or modifications may be made to the illustrated examples without departing from the spirit and scope of the appended claims. In particular regard to the various functions performed by the above described components or structures (assemblies, devices, circuits, systems, etc.), the terms (including a reference to a “means”) used to describe such components are intended to correspond, unless otherwise indicated, to any component or structure which performs the specified function of the described component (e.g., that is functionally equivalent), even though not structurally equivalent to the disclosed structure which performs the function in the herein illustrated exemplary implementations of the invention. In addition, while a particular feature of the invention may have been disclosed with respect to only one of several implementations, such feature may be combined with one or more other features of the other implementations as may be desired and advantageous for any given or particular application. Furthermore, to the extent that the terms “including”, “includes”, “having”, “has”, “with”, or variants thereof are used in either the detailed description and the claims, such terms are intended to be inclusive in a manner similar to the term “comprising”.

What is claimed is:

1. A cup insulating system, comprising: a layer of elastomer formed into a homogeneous seamless conical sleeve; the conical sleeve having an exterior surface, an interior surface an upper opening and a lower opening; wherein the upper opening is configured for receiving a beverage cup; and the inner surface of the conical sleeve is configured to contact an outer surface of the beverage cup.

2. The cup insulating system of claim 1, wherein the conical sleeve is changed from a folded configuration to an open configuration by exposing the upper opening of the conical sleeve for inserting a container therein.

3. The cup insulating system of claim 1, wherein the conical sleeve comprises at least one of the following: silicon, rubber, and Butyl.

4. The cup insulating system of claim 1, wherein the conical sleeve is configured to display printed matter on the exterior surface of the seamless conical sleeve.

5. The cup insulating system of claim 4, wherein the printed matter comprises: decorative insignia, a persons name, a logo, team information, store information, a coffee shop name, company information, a photo and a picture.

6. The cup insulating system of claim 1, wherein the conical sleeve comprises: a heat responsive body having a chamber, a liquid sealingly disposed in the chamber and a liquid crystalline composition disposed in the liquid, wherein the liquid crystal composition displaying a color change visually through the body at a temperature above 98.8 degrees Fahrenheit.

7. The cup insulating system of claim 1, wherein the conical sleeve comprises at least one of the following: a single continuous elastomeric conical sleeve with a bottom, and an elastomeric wrap with integral Velcro straps that is wrapped around the cup and the Velcro straps on a first side of the wrap are non-fixedly attached to Velcro connectors on a second side of the wrap.

8. The cup insulating system of claim 1, wherein the conical sleeve is configured is corrugated.

9. The cup insulating system of claim 1, wherein the conical sleeve is configured as microwave safe.

10. The cup insulating system of claim 1, wherein the conical sleeve is shipable in an approximately flattened condition.

11. The cup insulating sleeve of claim 1, wherein the exterior surface has surface features comprising at least one of the following: a smooth surface, a textured surface, vertical ribs, horizontal ribs, diagonal ribs and distributed raised surfaces.

12. The cup insulating sleeve of claim 1, wherein the interior surface has surface features comprising at least one of the following: a smooth surface, a textured surface, vertical ribs, horizontal ribs, diagonal ribs and distributed raised surfaces.

13. The cup insulating system of claim 1, wherein the conical sleeve is configured with an integral tab, wherein the tab has a through hole for attaching keys, a key ring and a spring loaded attachment.

14. A thermal cup protector comprising: an elastomeric and fabric composite sleeve; an conical configuration and with opposed open top end and open bottom end; an exterior surface and an interior surface; the interior surface configured for receiving a beverage container with a frusto-conical shape.

15. The thermal cup protector of claim 14, wherein the interior elastomeric surface is configured to permit the composite sleeve to conform to a frusto-conical configuration of each of a family of thermal cups.

16. The thermal cup protector of claim 14, wherein the composite sleeve is compatible with a family of dimensionally different frusto-conical drinking cups, with each having a common top dimension and with varying height dimensions to accommodate different capacities within the family of beverage cups.

17. The thermal cup protector of claim 14, wherein the composite sleeve is configured be cleaned in a dishwasher.
18. An insulating ring for beverage containers, the insulating ring comprising:
an elastomeric ring;
an outer surface;
an inner surface configured to receive and secure a beverage cup.

19. The insulating ring of claim 18, wherein the elastomer comprises; silicone and rubber.

20. The insulating ring of claim 17, further having printed matter on the exterior surface of the ring.

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