A sleeve for use with hot or cold beverage cups. The sleeve is composed of three layers. The inner layer or lining is water-absorbent. This prevents condensation from dripping onto the table. The outer layer is made of a non-woven synthetic fabric for purposes of keeping the hand dry. The inner and outer layers are adhered together with a polyethylene film, which is not visible after fabrication. The two ends of the sleeve may be glued or hot-melted together. The sleeve is extremely lightweight, thin, inexpensive, and disposable. It is also a highly effective insulator for hot drinks.
Fig. 5

Fig. 6
HOT AND COLD CUP SLEEVE

1. FIELD OF THE INVENTION

[0001] This invention is in the field of food and beverage supplies, specifically disposable sleeves used for holding beverage cups.

2. BACKGROUND AND OBJECTS OF THE INVENTION

[0002] Coffeeshops often provide hot cup sleeves. The purpose of a sleeve is to thermally protect the consumer’s hand from the heat of the coffee, which is served in a thin cup. Hot cup sleeves are generally made of cardboard, especially when they are made for mass production and are meant to be disposable after one use.

[0003] Hot cup sleeves do not work well for cold drinks. A cold drink gathers moisture on the outer surface of the cup. The moisture drips down onto the tabletop. The condensation makes a cardboard cup sleeve soggy when wet. Another difficulty is that moisture has a tendency to undo the glue that fastens the two ends of the cup sleeve together.

[0004] Cold cup sleeves are available in a different market. They are thick, reusable, and sold as standalone products. A common example is a cloth or foamy sleeve designed to accommodate a twelve-ounce can or a cold bottle of beer. The most common materials for cold cup sleeves are neoprene, PVC, silicone, and organic fabrics. These sleeves are too expensive for coffeeshops to offer as single-use devices. They are also much bulkier than hot-cup sleeves and more difficult to ship in large quantities.

[0005] What is needed is an inexpensive, thin, single-use cold-cup sleeve. A single sleeve that is appropriate for either hot or cold use would be ideal. My invention achieves these objectives.

3. SUMMARY OF THE INVENTION

[0006] The disclosed invention solves the problems described above. It is a cup sleeve that is water-absorbent for use on cold plastic beverage cups. The sleeve is thin enough to be shipped and stored in bulk. It is inexpensive enough to be mass distributed and provided by beverage retailers as a single-use product. It is also an effective insulator for use on hot drinks.

[0007] The sleeve is made of three layers. The inner layer, also known as the lining, is water-absorbent. It is preferably made of super-absorbent resin and/or pulp. The lining may alternatively be made of sponge, paper towels, or any absorbent material.

[0008] The outer layer is easy to grip, and water repellent so that it stays dry. The outer layer is preferably made of a non-woven synthetic fabric such as polypropylene (PP), polyethylene (PE), polyethylene terephthalate (PET), viscous rayon (VR), aramid, acrylic fiber, or nylon. It may also be made of natural fabric, such as cotton, wool, or pulp.

[0009] A PE coating laminate film layer is used as an adhesive to bind the lining to the outer layer. After manufacture, the adhesive layer is not visible. The process of sealing the layers together with a PE coating laminate film layer avoids the use of organic glues, which can fail when exposed to prolonged moisture.

[0010] Construction with these materials allows the product to be lightweight, thin, and inexpensive. A typical weight is 70 g/m. A typical thickness is just 2 mm. Each unit can be made for pennies. Prototypes have been made, and the product has proved to be highly effective at water absorbency and thermal protection from hot and cold cups alike.

4. BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a front-plan view of the sleeve as assembled, before it is sealed together into cylindrical form. This profile is identical for both layers.

[0012] FIG. 2 is a perspective view of the sleeve before its ends are sealed together. This view shows the three-dimensional structure of the sleeve, particularly its two visible layers.

[0013] FIG. 3 is a front-plan view of the sleeve after its ends are sealed together. In this view, the product is not in use around a cup. It is collapsed into a flat shape.

[0014] FIG. 4 is a perspective view of the sleeve during manufacture, as the layers are being assembled together into a single unit.

[0015] FIG. 5 is a perspective view of the sleeve in use on a cold beverage container.

[0016] FIG. 6 is a close-up view of FIG. 5, emphasizing moisture on the outer surface of the cup.

5. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] FIG. 4 shows an outer layer 41 and a lining 42 being assembled together into a unit. Each layer is pre-fabricated separately. In a preferred embodiment, the outer layer 41 is made of a non-woven fabric such as polypropylene (PP), polyethylene (PE), polyethylene terephthalate (PET), nylon, aramid, acrylic fiber, or viscous rayon (VR). The outer layer 41 is imprinted with an embossed texture 43 (similar to a golf club) for a comfortable, non-slip grip. The lining 42 is made of a water-absorbent fabric such as resin or pulp. During manufacture, the outer layer 41 and the lining 42 are hot-melted together with a PE coating laminate film layer 44 as adhesive agent. This avoids the use of glue, which can easily come undone when the lining 42 is wet.

[0018] FIG. 1 shows the sleeve after the layers are adhered together. In this view, the outer layer 41 is visible and the lining 42 is on the unseen, reverse side of the figure. The layers each have a first perforation 11 and a second perforation 12. The perforations divide each layer into a short panel 13, a central panel 14, and a long panel 15. The free end of the short side panel is called the left end 16 of the sleeve 51. The free end of the long side panel is called the right end 17 of the sleeve.

[0019] FIG. 2 is a three-dimensional view of the sleeve. Here, the lining 42 is visible in the central panel 14, and the outer layer 41 is visible on the short panel 13 and the long panel 15. The panels are shown as bent at the first perforation 11 and the second perforation 12. In the final stage of construction, the short panel 13 is lain completely flat on the central panel 14. Then glue 21 is applied to the exposed end 22 of the short panel 13. Finally, the long panel 15 is folded flat on top of the short panel 13.

[0020] The left end 16 and the right end 17 are secured together with securing means 21. As shown in the figures, the securing means 21 may be glue. Alternatively, the left end 16 and the right end 17 may be hot-melted together. This avoids the use of glue altogether. The hot-melting process has been found to provide a significant advantage for structural integrity, as moisture tends to degrade glue.
The purpose of the tri-panel construction is to provide the sleeve with a naturally flat shape when not in use. FIG. 3 shows the sleeve after manufacture and before use. Here, the outer layer 41 of the central panel 14 is visible. The short panel 13 has been folded behind the central panel 14 at the first perforation 11. The long panel 15 has been folded behind the central panel 14 at the second perforation 12. All panels retain their flat two-dimensional shape. Thus, the product stacks and ships easily. It does not retain a round cylindrical shape, which would waste space and make the product tend to roll around.

FIG. 5, the sleeve 51 is expanded into its three-dimensional configuration and is wrapped around a cup 52. In this view, of course, the outer layer 41 is visible.

FIG. 6 shows a close-up view of FIG. 5 as indicated by the zoom region. In this view, the surface of the cup 52 is cold and coated with moisture 61. The lining 42 is snug against the cup 52, allowing the lining 42 to absorb the moisture 61. The moisture 61 is then retained in the lining 42, leaving the outer layer 41 dry. Since the sleeve 51 is made of insulating materials, it also protects the consumer’s hand from cold discomfort. It should be noted that the sleeve is equally well thermally protective when the cup 52 is hot. In fact, tests have demonstrated that this combination of materials makes the sleeve much more heat-protective than conventional cardboard sleeves.

I claim the following:

1. A disposable sleeve for beverage cups, comprising:
   a water-absorbent lining;
   a water-repellent outer layer;
   a polyethylene coating laminate film layer as an adhesive to bind said lining to said outer layer.

2. A disposable sleeve for beverage cups, comprising:
   a water-absorbent lining, a water-repellent outer layer, and a polyethylene coating laminate film layer as an adhesive to bind said lining to said outer layer;
   wherein the material for said lining is selected from the group consisting of polypropylene, polyethylene, polyethylene terephthalate, viscous rayon, acrylic, aramid, and nylon.

3. A disposable sleeve for beverage cups as disclosed in claim 2, wherein the weight of said sleeve is between 15 grams and 800 grams per meter of length, and the thickness of said sleeve is between 0.2 mm and 10 mm.

4. A disposable sleeve for beverage cups as disclosed in claim 2, wherein said outer layer is embossed for a safe and comfortable grip.

5. A disposable sleeve for beverage cups as disclosed in claim 2, wherein said outer layer is embossed for a safe and comfortable grip, and wherein the weight of said sleeve is between 15 grams and 800 grams per meter of length, and the thickness of said sleeve is between 0.2 mm and 10 mm.

6. A disposable sleeve for beverage cups, comprising:
   a water-absorbent lining;
   a water-repellent outer layer;
   a polyethylene coating laminate film layer as an adhesive to bind said lining to said outer layer;
   a left end of said sleeve;
   a first perforation through said sleeve, parallel to said left end;
   securing means to secure said left end to said right end;
   wherein the material for said lining is selected from the group consisting of resin and pulp;
   wherein the material for said outer layer is selected from the group consisting of polypropylene, polyethylene, polyethylene terephthalate, viscous rayon, acrylic, aramid, and nylon.

7. A disposable sleeve for beverage cups as disclosed in claim 6, wherein said securing means is glue, and the weight of said sleeve is between 15 grams and 800 grams per meter of length, and the thickness of said sleeve is between 0.2 mm and 10 mm.

8. A disposable sleeve for beverage cups as disclosed in claim 6, wherein said securing means is glue, and outer layer is embossed for a safe and comfortable grip.

9. A disposable sleeve for beverage cups as disclosed in claim 6, wherein said securing means is glue, and said outer layer is embossed for a safe and comfortable grip, and wherein the weight of said sleeve is between 15 grams and 800 grams per meter of length, and the thickness of said sleeve is between 0.2 mm and 10 mm.

10. A disposable sleeve for beverage cups as disclosed in claim 6, wherein said securing means is the process of hot-melting said left end to said right end, and the weight of said sleeve is between 15 grams and 800 grams per meter of length, and the thickness of said sleeve is between 0.2 mm and 10 mm.

11. A disposable sleeve for beverage cups as disclosed in claim 6, wherein said securing means is the process of hot-melting said left end to said right end, and outer layer is embossed for a safe and comfortable grip.

12. A disposable sleeve for beverage cups as disclosed in claim 6, wherein said securing means is the process of hot-melting said left end to said right end, and said outer layer is embossed for a safe and comfortable grip, and wherein the weight of said sleeve is between 15 grams and 800 grams per meter of length, and the thickness of said sleeve is between 0.2 mm and 10 mm.

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