HEAT-INSULATING PAPER CUP

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ABSTRACT

A heat-insulating paper cup has a cup body with a conical cylindrical wall, a cup bottom and a cup rim. A glued heat-insulating tube has its inner wall sleeved onto the exterior of the conical cylindrical wall of the cup body. The heat-insulating tube and the conical cylindrical wall of the cup body are adhered securely by glue. The heat-insulating tube is of conical cylindrical shape and mated with the conical cylindrical wall. Moreover, the external wall of the heat-insulating tube is configured to have a smooth surface. Multiple raised lines are protruded at interval onto the inner wall of the heat-insulating tube, and mated with the conical cylindrical wall of the cup body. Multiple hollow ducts are set into the heat-insulating tube at interval in tune with the raised lines.
HEAT-INSULATING PAPER CUP

CROSS-REFERENCE TO RELATED U.S. APPLICATIONS

[0001] Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

NAMES OF PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not applicable.

REFERENCE TO AN APPENDIX SUBMITTED ON COMPACT DISC

[0004] Not applicable.

BACKGROUND OF THE INVENTION

[0005] 1. Field of the Invention
[0006] The present invention relates generally to a heat-insulating paper cup, and more particularly to an innovative one which allows raised lines to be set on the inner wall of the heat-insulating tube and mated closely with the cup body.

[0007] 2. Description of Related Art

[0009] Since the conventional single-layer paper cup filled with hot drink or water makes it difficult to hold manually, a heat-insulating paper cup has been developed in the industry.

[0010] Said heat-insulating paper cup is structurally configured in such a manner that an external paper tube is generally sleeved onto the exterior of the original cup body, so a two-layer wall is employed for heat insulation; yet, there still exist the following shortcomings against conventional heat-insulating paper cup:

[0011] As for the typical structure wherein spaced ribs are set on the external wall of the external paper tube, the heat-insulating effect can be enhanced by the bigger thickness of the external paper tube with spaced ribs, but the irregular surface formed by the spaced ribs leads to difficult advertisement printing and fabrication on the surface of the heat-insulating paper cup.

[0012] Moreover, upper and lower flanges of the external paper tube are configured into incurved shape to form an annular space of better insulation effect between the external paper tube and cup body of conventional heat-insulating paper cup. Yet, it is observed during actual application that, only incurved portions of the upper and lower flanges of external paper tube are used as a support, a vacant shell is formed between the intermediate region of the external paper tube and the cup body, so the external paper tube is easily squashed when it is held manually.

[0013] Thus, to overcome the aforementioned problems of the prior art, it would be an advancement if the art to provide an improved structure that can significantly improve the efficacy.

[0014] Therefore, the inventor has provided the present invention of practicability after deliberate experimentation and evaluation based on years of experience in the production and development of related products.

BRIEF SUMMARY OF THE INVENTION

[0015] The enhanced efficacy of the present invention is as follows:
[0016] Based on the unique configuration of the present invention wherein the “heat-insulating paper cup” allows the glued external wall of the heat-insulating tube to be configured with a smooth surface, and the raised lines on the inner wall of the heat-insulating tube are mated closely with the conical cylindrical wall of the cup body. This can facilitate advertisement printing and fabrication on the surface of heat-insulating paper cup. Moreover, the raised lines on the inner wall of the heat-insulating tube can support the ribs, thus enhancing the structural strength and robustness of the heat-insulating tube and avoiding squashing during manual holding.

[0017] The improvements brought about by this invention are as follows:
[0018] Based on the structural configuration wherein the raised line is configured into an oblique angle, the flow speed of glue can be delayed to prevent dripping of the glue.
[0019] Based on the structural configuration wherein the raised lines and hollow ducts of the heat-insulating tube are staggered in relation to the curvature and extension direction of the heat-insulating tube, it is possible to support more strongly the heat-insulating tube due to the torsional resistance of the raised lines and hollow ducts.

[0020] When said hollow duct penetrates the top and bottom of the heat-insulating tube, the heat-insulating paper cups are overlapped, then the hollow duct will be ventilated to avoid vacuum suction due to tight sleeveing between annular space of heat-insulating paper cup, and enable easier removal of the closely overlapped heat-insulating paper cups.

[0021] Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0022] FIG. 1 shows perspective view of a preferred embodiment of the present invention.
[0023] FIG. 2 shows an exploded perspective view of a preferred embodiment of the present invention.
[0024] FIG. 3 shows a schematic view where the heat-insulating tube of the present invention where it is unfolded.
[0025] FIG. 4 shows a top view of a preferred embodiment of the present invention.
[0026] FIG. 5 is a schematic view showing the flow process diagram of the present invention.
[0027] FIG. 6 shows a schematic view of the present invention wherein the raised line is of a wavy pattern.

DETAILED DESCRIPTION OF THE INVENTION

[0028] FIGS. 1-4 depict preferred embodiments of a heat-insulating paper cup of the present invention, which are provided for only explanatory objective for patent claims. Said heat-insulating paper cup includes a cup body 10, which has a conical cylindrical wall 11, a cup bottom 12 and a cup rim 13. A glued heat-insulating tube 20 is made of paper material.
The inner wall 21 of the heat-insulating tube 20 is sleeved onto the exterior of the conical cylindrical wall 11 of the cup body 10, and the heat-insulating tube 20 and the conical cylindrical wall 11 of the cup body 10 are adhered securely by glue W (shown in FIG. 4). The heat-insulating tube 20 is of conical cylindrical shape and mated with the conical cylindrical wall 11. Moreover, the external wall 22 of the heat-insulating tube 20 is designed with a smooth surface, so this can facilitate advertisement printing and fabrication on the surface of heat-insulating paper cup, thus increasing the visibility of the business performance and improving the value of the products. Meanwhile, the users are allowed to hold stably the heat-insulating tube 20 which can prevent efficiently heat transfer and avoid the scalding of hot liquid stored in the cup body 10 to ensure the safety of utilization.

Multiple raised lines 23 are protruded at interval onto the inner wall 21 of the heat-insulating tube 20 at an oblique angle, and mated with the conical cylindrical wall 11 of the cup body 10. Said raised line 23 permits reduction of the contact area with the cup body 10, helping to cut down efficiently the heat transfer.

Multiple hollow ducts 24 are set into the heat-insulating tube 20 at interval and at an oblique angle in tune with the raised lines 23.

Of which, the heat-insulating tube 20 is made of corrugated paper, so the corrugated inner layer of the corrugated paper is defined to form said raised line 23 and hollow duct 24. Said hollow duct 24 will then be ventilated to avoid vacuum suction due to tight sleeving between annular space of heat-insulating paper cup, and enable easier removal of the closely overlapped heat-insulating paper cups.

Of which, said raised line 23 is available with multiple patterns, referring to FIGS. 2, 3, said raised line 23 is extended obliquely from the top to the bottom of the heat-insulating tube 20, or referring to FIG. 6, said raised line 23 is extended transversely into a wavy pattern between the top and bottom of the heat-insulating tube 20.

Based on above-specified structural configuration, said heat-insulating paper cup is formed by the steps in FIG. 5, wherein the unfolded heat-insulating tube 20 is folded into a conical cylindrical pattern in tune with the cup body 10, and the inner wall 21 of the conical cylindrical heat-insulating tube 20 is coated with glue W. Next, the cup body 10 is sleeved onto it such that the heat-insulating tube 20 and the conical cylindrical wall 11 of the cup body 10 are adhered by glue W (in conjunction with FIG. 4).

1. A heat-insulating paper cup, which comprising:
   a cup body, which a conical cylindrical wall, a cup bottom and a cup rim;
   a glued heat-insulating tube made of paper material; the inner wall of the heat-insulating tube is sleeved onto the exterior of the conical cylindrical wall of the cup body, and
   the heat-insulating tube and the conical cylindrical wall of the cup body are adhered securely by glue W; the heat-insulating tube is of conical cylindrical shape and mated with the conical cylindrical wall; moreover, the external wall of the heat-insulating tube is configured to have a smooth surface;
   multiple raised lines, protruded at interval onto the inner wall of the heat-insulating tube at an oblique angle, and mated with the conical cylindrical wall of the cup body; multiple hollow ducts, set into the heat-insulating tube at interval and at an oblique angle in tune with the raised lines.

2. The device defined in claim 1, wherein the heat-insulating tube is made of corrugated paper, so the corrugated inner layer of the corrugated paper is defined to form said raised line and hollow duct.

3. The device defined in claim 1, wherein the raised lines are protruded at interval onto the inner wall of the heat-insulating tube at an oblique angle, and said hollow ducts are also configured to have an oblique angle in tune with the raised lines.

4. The device defined in claim 3, wherein said raised line is extended obliquely from the top to the bottom of the heat-insulating tube.

5. The device defined in claim 3, wherein said raised line is extended transversely into a wavy pattern between the top and bottom of the heat-insulating tube.

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