A self-heating beverage cup has a container portion adapted to hold a selected liquid. The container portion is double walled and has a water holding portion disposed between the walls along a top portion and a chemical holding portion disposed along a bottom portion. The water holding portion has two removable seals disposed on a bottom portion so that when removed, the water flows down to mix with a chemical in the chemical holding portion. The chemical is calcium oxide which releases heat when mixed with water. A string is provided to allow the user to remove the two removable seals by pulling therein. In one embodiment, a bladder is provided to contain the water. A metallic portion thermally connects the chemical holding portion to a portion of the container portion so that heat is transferred into the liquid therein.
SELF HEATING BEVERAGE CUP

BACKGROUND OF THE INVENTION

[0001] We have been enjoying hot liquids since the dawn of time but the process of preparing them is still laborious and generally requires a heat source which is not always convenient. The invention of the microwave oven greatly decreased the time required to prepare hot liquids such as tea or hot chocolate, but it still requires having access to a microwave.

[0002] Also, some products are available that can be self warmed in a can or bottle, but many people prefer to prepare their own beverage just the way they like which is not possible using prepared beverages.

[0003] There is a need for a self heating beverage cup that is convenient and easy to use that allows a user to prepare a beverage in a customized manner.

SUMMARY OF THE INVENTION

[0004] A self heating beverage cup has a container portion adapted to hold a selected liquid. The container portion is double walled and has a water holding portion disposed between the walls along a top portion and a chemical holding portion disposed along a bottom portion. The water holding portion has two removable seals disposed on a bottom portion so that when removed, the water flows down to mix with a chemical in the chemical holding portion. The chemical is calcium oxide which releases heat when mixed with water. A string is provided to allow the user to remove the two removable seals by pulling therein. In one embodiment, a bladder is provided to contain the water. A metallic portion thermally connects the chemical holding portion to a portion of the container portion so that heat is transferred into the liquid therein.

[0005] Other features and advantages of the instant invention will become apparent from the following description of the invention which refers to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a cut-away side view of a self heating beverage cup according to an embodiment of the invention.

[0007] FIG. 2 is a perspective drawing of the self heating beverage cup shown in FIG. 1.

[0008] FIG. 3 is a perspective view of a self heating beverage cup according to an embodiment of the invention.

[0009] FIG. 4 is a cut-away side view of a self heating beverage cup according to an embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0010] In the following detailed description of the invention, reference is made to the drawings in which reference numerals refer to like elements, and which are intended to show by way of illustration specific embodiments in which the invention may be practiced. It is understood that other embodiments may be utilized and that structural changes may be made without departing from the scope and spirit of the invention.

[0011] Referring to FIGS. 1 and 2, a self heating beverage cup 100 is shown having an outer wall 110 and an inner wall 115 with a water holding portion 145 disposed between walls 110 and 115 respectively along a top portion of cup 100. Removable seals 125 and 130 are located on the bottom of water holding portion 145 and connected with a string 120. When a user pulls on string 120, removable seals 125 and 130 are removed and allows the water to flow down and mix with calcium oxide 140 located along the bottom of cup 100.

[0012] Because the reaction is exothermic, heat is given off and heats any liquid within a container portion 155. A paper seal 150 contains the water within water holding portion 145. String 120 is sealed within seal 150 in order to prevent the water from leaking out in storage. Removable seals 125 and 130 respectively are made of waterproof paper or foil. Of course other materials such as plastic may be used as long as remaining impervious to the water during storage. Cup 100 is made of polyethylene but may also be made of a suitable material such as paper or plastic.

[0013] String 120 may be glued to removable seals 125 and 130 so that they tear as force is applied. Of course, other materials such as plastic tape or ribbon may be used to apply the necessary force to remove the seals 125 and 130.

[0014] A metallic portion 135 is provided to readily allow the heat produced by the chemical reaction to transfer to the liquid disposed therein.

[0015] Now referring to FIG. 3, a self heating beverage cup 200 is shown having an outer wall 210 and an inner wall 215 with a water holding portion 245 disposed between walls 210 and 215 respectively along a top portion of cup 200. Removable seals 225 and 230 are located on the bottom of water holding portion 145 and connected with a string 220. As discussed above, when a user pulls on string 220, removable seals 225 and 230 are removed and allows the water to flow down and mix with calcium oxide 240 located along the bottom of cup 200.

[0016] A handle 260 is provided to allow a user to hold cup 200 without danger of injury. Of course, handle 260 could take many possible shapes as is known in the art.

[0017] A paper seal 250 contains the water within water holding portion 245 as discussed above.

[0018] Again, a metallic portion 235 is provided to readily allow the heat produced by the chemical reaction to transfer to the liquid disposed therein.

[0019] Now referring to FIG. 4, a self heating beverage cup 400 is shown having an outer wall 410 and an inner wall 415 with a water bladder 427 disposed between walls 410 and 415 respectively along a top portion of cup 400. Removable seals 425 and 430 are located on the bottom of water bladder 427 and connected with a string 420. A retainer ring 426 is provided to keep water bladder 427 in place and is formed as a piece within cup 100 when manufactured. When a user pulls on string 420, removable seals 425 and 430 are removed and allows water 445 to flow down and mix with calcium oxide 440 located along the bottom of cup 400.

[0020] A paper seal 450 keeps water bladder 445 secured therein within water holding portion 145. A metallic portion 435 is provided to readily allow the heat produced by the chemical reaction to transfer to the liquid disposed therein.

[0021] Although the instant invention has been described in relation to particular embodiments thereof, many other variations and modifications and other uses will become apparent to those skilled in the art.

What is claimed is:

1. A self heating beverage cup comprising:
   a cup portion;
   a container portion disposed within said cup portion;
   said container portion adapted to hold a liquid;
   a water holding portion disposed within a portion of said double walled section;
said water holding portion being filled with water;  
a chemical holding portion disposed in another portion of  
said double walled section;  
said chemical holding portion being filled with a chemical;  
and  
a valve means for selectively allowing said water to mix  
with said chemical whereby heat is produced.

2. The self heating beverage cup according to claim 1  
wherein said valve means comprises at least one removable  
seal disposed on a bottom portion of said water holding  
portion.

3. The self heating beverage cup according to claim 2  
further comprising a string attached to said at least one  
removable seal wherein when a user pulls on said string, said  
at least one removable seal is removed.

4. The self heating beverage cup according to claim 1  
wherein said portion of said double walled section is disposed  
within a top portion therein.

5. The self heating beverage cup according to claim 4  
wherein said another portion of said double walled section is disposed  
within a bottom portion therein.

6. The self heating beverage cup according to claim 1  
wherein said chemical is a chemical that releases energy  
when mixed with water.

7. The self heating beverage cup according to claim 1  
wherein said chemical is calcium oxide.

8. The self heating beverage cup according to claim 2  
wherein said at least one removable seal is made of paper.

9. The self heating beverage cup according to claim 2  
wherein said at least one removable seal is made from foil.

10. The self heating beverage cup according to claim 1  
The self heating beverage cup according to claim 1 further comprising  
a thermal transfer portion disposed between a portion  
of said chemical holding portion and said container portion  
whereby heat is transferred to a liquid introduced to said  
container portion.

11. The self heating beverage cup according to claim 1  
wherein said self heating beverage cup is made of polystyrene  
foam.

12. The self heating beverage cup according to claim 1  
further comprising a handle disposed on an outer perimeter of  
said cup.

13. A self heating beverage cup comprising:  
a cup portion;  
said cup portion having a double walled section;  
a container portion disposed within said cup portion;  
said container portion adapted to hold a liquid;  
a water holding bladder disposed within a portion of said  
double walled section;  
said water holding bladder being filled with water;  
a chemical holding portion disposed in another portion of  
said double walled section;  
said chemical holding portion being filled with a chemical;  
and  
a valve means for selectively allowing said water to mix  
with said chemical whereby heat is produced.

14. The self heating beverage cup according to claim 13  
wherein said valve means comprises at least one removable  
seal disposed on a bottom portion of said water holding blad-  
er.

15. The self heating beverage cup according to claim 14  
further comprising a string attached to said at least one  
removable seal wherein when a user pulls on said string, said  
at least one removable seal is removed.

16. The self heating beverage cup according to claim 13  
wherein said portion of said double walled section is disposed  
within a top portion therein and said another portion of said  
double walled section is disposed within a bottom portion  
therein.

17. The self heating beverage cup according to claim 13  
wherein said chemical is calcium oxide.

18. The self heating beverage cup according to claim 14  
wherein said at least one removable seal is made of paper.

19. The self heating beverage cup according to claim 14  
wherein said at least one removable seal is made from foil.

20. The self heating beverage cup according to claim 13  
further comprising a thermal transfer portion disposed  
between a portion of said chemical holding portion and said  
container portion whereby heat is transferred to a liquid intro- 
duced to said container portion.

* * * * *