

US 20150232232A1

(19) United States (12) Patent Application Publication SHIBUKI et al.

(10) Pub. No.: US 2015/0232232 A1 (43) Pub. Date: Aug. 20, 2015

(54) COFFEE STORAGE CONTAINER

- (71) Applicant: Seven . seven Co., Ltd., Tsubame-shi (JP)
- Inventors: Shuichi SHIBUKI, Tsubame-shi (JP);
 Tadahiro SHIMBO, Tsubame-shi (JP);
 Masaya TAKANO, Tsubame-shi (JP)
- (73) Assignee: Seven . seven Co., Ltd., Tsubame-shi (JP)
- (21) Appl. No.: 14/220,213
- (22) Filed: Mar. 20, 2014
- (30) Foreign Application Priority Data

Feb. 20, 2014 (JP) 2014-030733

Publication Classification

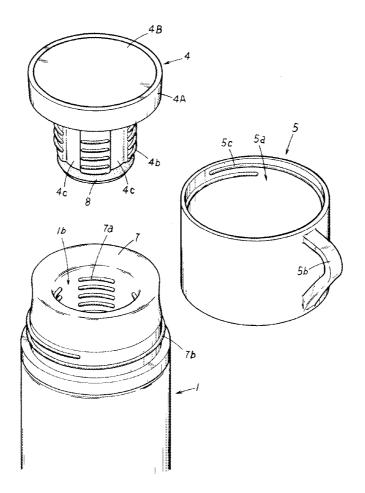
(51) Int. Cl.

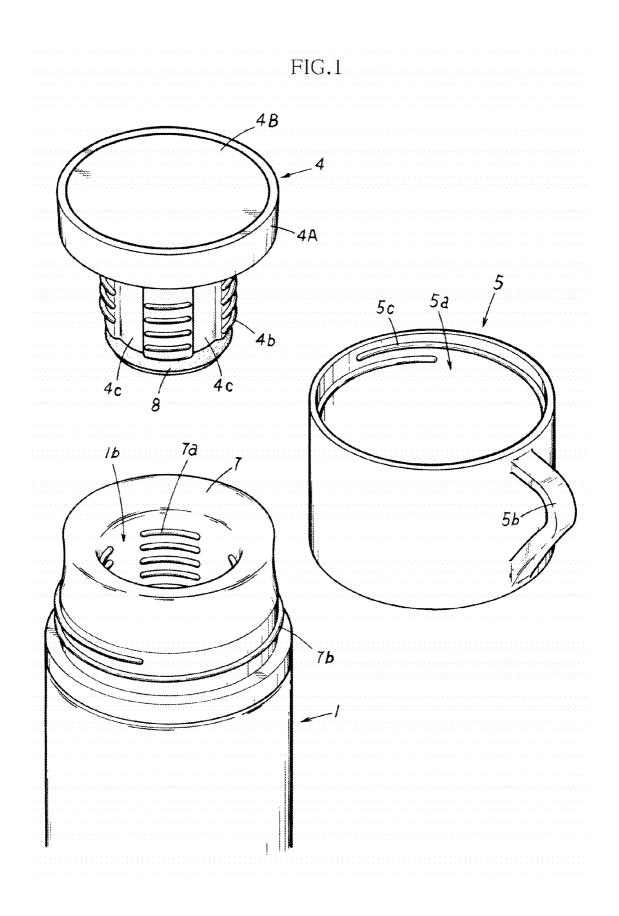
B65D 25/14	(2006.01)
B65D 41/04	(2006.01)
B65D 81/38	(2006.01)
A47G 19/22	(2006.01)

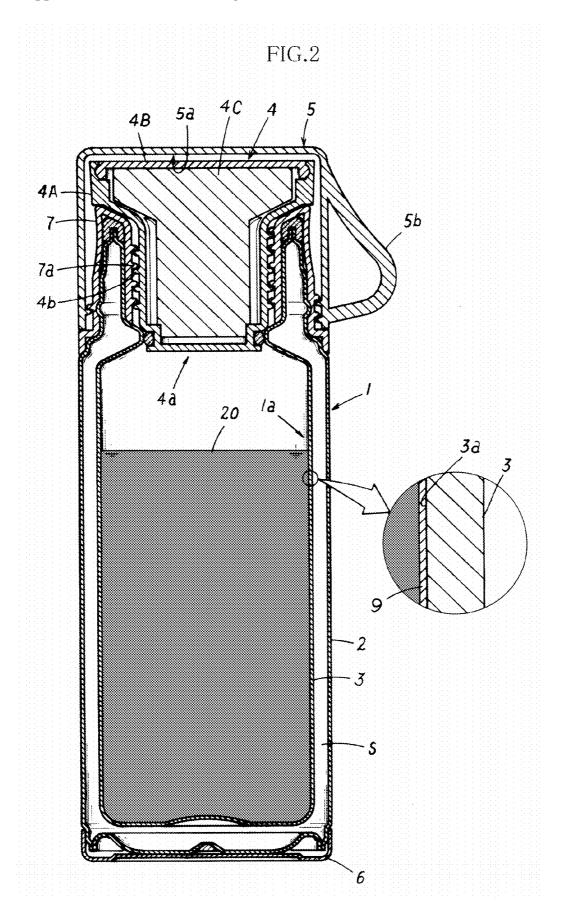
(52) U.S. Cl.

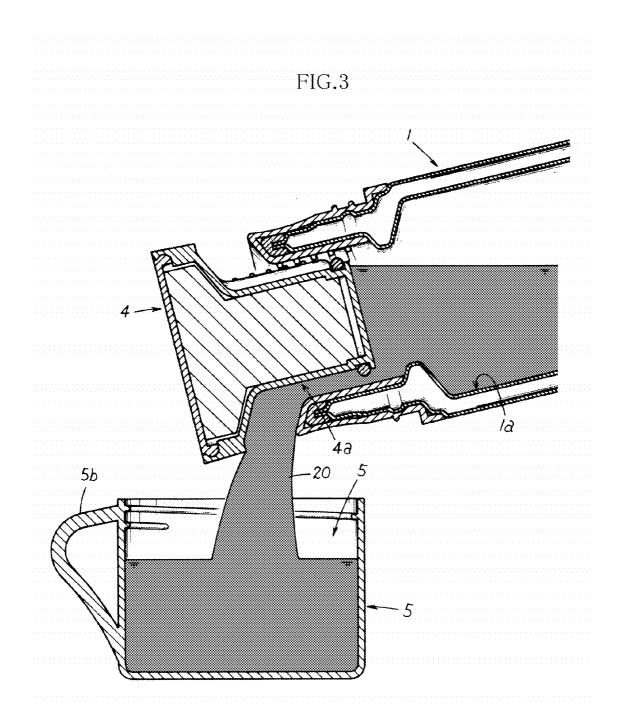
(57) ABSTRACT

The purpose of the present invention is to provide a revolutionary coffee storage container of exceedingly high commercial value. This coffee storage container is designed for storing coffee (20), and has: a container body (1) in which an inner cylinder (3) made of metal is arranged within an outer cylinder (2) with a space (S) therebetween, the space (S) between the outer cylinder (2) and the inner cylinder (3)functioning as a vacuum insulation space; a closure body (4) for providing closure to an opening (1b) of the container body (1); and a coffee pouring cup body (5) that fits about the closure body (4) once the opening (1b) of the container body (1) has been closed by the closure body (4). An inner surface portion (1a) of the container body (1) that comes into contact with the coffee (20), a section of the closure body (4) that comes into contact with the coffee (20), and an inner surface portion (5a) of the coffee pouring cup body (5) are constituted by inert synthetic resin.









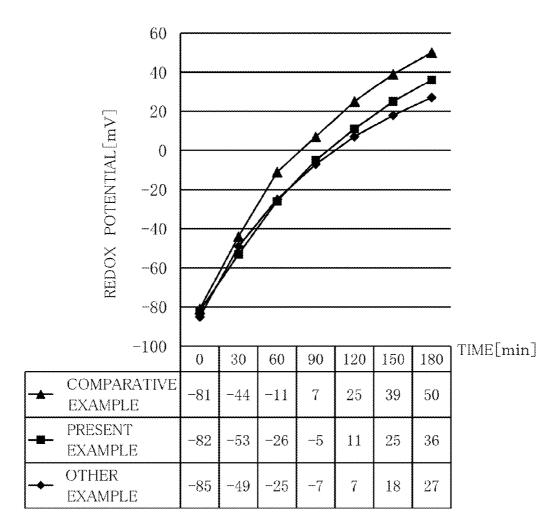


FIG.4

	FIG.5			
	ACIDITY	BITTERNESS	ASTRINGENCY	RICHNESS
COMPARATIVE EXAMPLE	-0.61278	0.905	-1.07389	2.446667
PRESENT EXAMPLE	-0.63611	0.991667	-1.03722	2.476667
DIFFERENCE BETWEEN PRESENT EXAMPLE AND COMPARATIVE EXAMPLE (PRESENT EXAMPLE— COMPARATIVE EXAMPLE)	-0.02333	0.086667	0.03667	0.0:

COFFEE STORAGE CONTAINER

TECHNICAL FIELD

[0001] The present invention relates to a coffee storage container.

BACKGROUND ART

[0002] As the numbers of coffee aficionados have increased in recent years, there has been increasing demand not only to enjoy coffee in a café or at home, but to be able to bring along one's own preferred style of coffee, for drinking at any time at a time and place of one's choosing.

[0003] As containers for storing coffee, there have been proposed, for example, lidded containers such as those of Japanese Laid-Open Patent Application 9-2516 and Japanese Design Registration 1329194. However, neither of these has sufficient heat retention properties, and therefore could not maintain the pleasant taste of the coffee. Generally speaking, as coffee cools down, its acidity becomes more pronounced, and taste suffers (the delicious taste fades).

[0004] In recent years, the numbers of consumers who bring along coffee stored in a vacuum insulation double-walled container made of metal (hereinafter termed "prior art example") has been on the increase, and due to the very high heat retention properties obtained with this prior art example, coffee could be maintained for prolonged periods at a temperature suitable for a pleasant tasting drink.

PRIOR ART DOCUMENTS

Patent Documents

[0005] [Patent Document 1]

- [0006] Japanese Laid-Open Patent Application 9-2516
- [0007] [Patent Document 2]
- [0008] Japanese Design Registration 1329194

DISCLOSURE OF THE INVENTION

Problem the Invention Attempts to Solve

[0009] However, in actual practice, when coffee is placed into a container according to the prior art example, taste is diminished even when the coffee has not yet dropped in temperature.

[0010] It is thought that the reason is that when coffee is placed into a container according to the prior art example, portions of the container according to the prior art example that come into contact with the coffee, and more specifically, the metal of the container inner surface, promote chemical changes in components contained in coffee.

[0011] As a result of various repeated testing and research efforts conducted in view of the aforementioned problem, the inventors developed a revolutionary coffee storage container of exceedingly high commercial value.

Means for Solving the Problems

[0012] The main points of the present invention are described with reference to the attached drawings.

[0013] The present invention relates to a coffee storage container for storing coffee 20, the coffee storage container characterized by having: a container body 1 in which an inner cylinder 3 made of metal is arranged within an outer cylinder 2 with a space S therebetween, the space S between the outer

cylinder 2 and the inner cylinder 3 functioning as a vacuum insulation space; a closure body 4 for providing closure to an opening 1b of the container body 1; and a coffee pouring cup body 5 that fits about the closure body 4 once the opening 1b of the container body 1 has been closed by the closure body 4; an inner surface portion 1a of the container body 1 that comes into contact with the coffee 20, a section of the closure body 4 that comes into contact with the coffee pouring cup body 5 being constituted by inert synthetic resin.

[0014] The present invention relates also to the coffee storage container according to the first aspect, wherein the coffee storage container is characterized in that the closure body 4 is threadably attached in the opening 1*b* of the container body 1, and the coffee 20 inside the container body 1 is poured out from a pour passage formed by unthreading of the closure body 4 from the opening 1*b*.

[0015] The present invention relates also to a coffee storage container according to the second aspect, wherein the coffee storage container characterized in that the threadable attachment surface of the closure body **4** is constituted by an inert synthetic resin.

[0016] The present invention relates also to the coffee storage container according to the first aspect, wherein the coffee storage container characterized in that the closure body **4** is constituted by an inert synthetic resin.

[0017] The present invention relates also to the coffee storage container according to the second aspect, wherein the coffee storage container characterized in that the closure body 4 is constituted by an inert synthetic resin.

[0018] The present invention relates also to the coffee storage container according to the third aspect, wherein the coffee storage container characterized in that the closure body **4** is constituted by an inert synthetic resin.

[0019] The present invention relates also to the coffee storage container according to the first aspect, wherein the coffee storage container characterized in that the coffee pouring cup body **5** is constituted by an inert synthetic resin.

[0020] The present invention relates also to the coffee storage container according to the second aspect, wherein the coffee storage container characterized in that the coffee pouring cup body **5** is constituted by an inert synthetic resin.

[0021] The present invention relates also to the coffee storage container according to the third aspect, wherein the coffee storage container characterized in that the coffee pouring cup body **5** is constituted by an inert synthetic resin.

[0022] The present invention relates also to the coffee storage container according to the fourth aspect, wherein the coffee storage container characterized in that the coffee pouring cup body **5** is constituted by an inert synthetic resin.

[0023] The present invention relates also to the coffee storage container according to the fifth aspect, wherein the coffee storage container characterized in that the coffee pouring cup body **5** is constituted by an inert synthetic resin.

[0024] The present invention relates also to the coffee storage container according to the sixth aspect, wherein the coffee storage container characterized in that the coffee pouring cup body **5** is constituted by an inert synthetic resin.

[0025] The present invention relates also to the coffee storage container according to any of the first to twelfth aspects, the coffee storage container characterized in that the inert synthetic resin is a fluororesin, a polypropylene resin, or an acrylic resin containing a hindered amine light stabilizer.

Effect of the Invention

[0026] The present invention, being constituted in the manner set forth above, differs from the aforedescribed prior art example in that coffee can be maintained in a delicious state for an extended period, thus providing a revolutionary coffee storage container having very high commercial value.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] FIG. 1 perspective view showing the present embodiment;

[0028] FIG. **2** is a cross sectional view showing the present embodiment;

[0029] FIG. **3** is a diagram describing the present embodiment in use;

[0030] FIG. **4** is a table and graph showing results of Test 1; and

[0031] FIG. 5 is a table showing results of Test 2.

BEST MODE FOR CARRYING OUT THE INVENTION

[0032] Preferred embodiments of the present invention are briefly described below on the basis of the diagrams, while indicating the effects of the present invention.

[0033] When the stored coffee 20 is brought along for example, the coffee 20 is stored in the container body 1, and the opening 1b of the container body 1 is closed off by the closure body 4.

[0034] The container body 1 of the present invention has a structure designed for high heat retention, in which the inner cylinder 3 made of metal is arranged within the outer cylinder 2 with the space S therebetween, the space S between the outer cylinder 2 and the inner cylinder 3 functioning as a vacuum insulation space, whereby the coffee 20 can be maintained for an extended period at a temperature suitable for delicious drinking.

[0035] According to the present invention, the container body 1 at the inner surface portion 1a thereof that, with the coffee 20 in the stored state, comes into contact with the coffee 20, and the closure body 4 in the section thereof that comes into contact with the coffee 20, are constituted by an inert synthetic resin, whereby, in particular, action of the metal of the inner cylinder 3 constituting the container body 1 on the coffee 20 is minimized to the greatest extent possible, preventing the taste of the coffee 20 from being diminished. Consequently, in this respect as well, the coffee 20 can be maintained in a delicious state.

[0036] Additionally, according to the present invention, to drink the coffee **20** inside the container body **1**, the closure body **4** is positioned in the open state to allow pouring into the coffee pouring cup body **5** for drinking.

[0037] The coffee pouring cup body 5 at the inner surface portion 5a thereof that comes into contact with the coffee 20 is constituted by an inert synthetic resin, and even when the coffee 20 is placed into the coffee pouring cup body 5, the taste of the coffee 20 is unaffected by the inner wall portion 5a of the coffee pouring cup body 5, and therefore in this respect as well, the coffee 20 can be maintained in a delicious state.

Example

[0038] A specific example of the present invention is described below with reference to the drawings.

[0039] The present example is a coffee storage container for storing coffee **20**, having a container body **1**, a closure body **4** for providing closure to an opening **1**b of the container body **1**, and a coffee pouring cup body **5** fitting about the closure body **4** in a state of closure of the opening **1**b of the container body **1** by the closure body **4**.

[0040] As the coffee **20** there may be employed coffee that has been extracted from roasted, ground coffee beans with cold or hot water or the like; instant coffee obtained by concentration and drying of extracted coffee, prepared by adding an appropriate quantity of cold or hot water or the like; or the like. In the present example, the coffee **20** is hot coffee, but could be iced coffee instead.

[0041] The constituent parts according to the present example shall be described in detail below.

[0042] As shown in FIGS. 1 and 2, the container body 1 is a bottle-shaped body formed by members made of appropriate metal, and has a vacuum double-walled structure in which the bottomed inner cylinder 3 made of stainless steel is arranged within the bottomed outer cylinder 2 made of stainless steel, with the space S therebetween, the space S between the outer cylinder 2 and the inner cylinder 3 functioning as a vacuum insulation space. In the present example, the outer cylinder 2 and the inner cylinder 3 are made of stainless steel, but these could be made of some other metal, the outer cylinder 2 and the inner cylinder 3 could be made of different metals, or the outer cylinder 2 could be made of synthetic resin.

[0043] Drawing symbol 6 indicates a bottom member welded to the bottom part of the outer cylinder 2.

[0044] The inner surface portion 1a of the container body 1 is constituted by an inert synthetic resin.

[0045] In specific terms, the inner surface 3a of the inner cylinder 3 is covered (coated) by a fluororesin (No. 8140 made by Okitsumo Inc.).

[0046] This coating layer **9** is formed by subjecting the inner surface 3a of the inner cylinder **3** to a blasting process as a pretreatment, then applying the fluororesin by spraying it onto the blasted inner surface 3a, then drying. As coating on the inner surface 3a of the inner cylinder **3** there may be employed, in place of a fluororesin, an inert synthetic resin containing a hindered amine light stabilizer (HALS), such as a HALS-containing resin (YUDABURUTM made by Nihon Shokubai Co. Ltd.), or the polypropylene resin discussed below.

[0047] Consequently, the inner surface portion 1a of the container body 1, which comes into contact with the coffee 20 when the coffee 20 is stored therein is constituted by an inert synthetic resin.

[0048] The opening 1*b* of the container body 1 is furnished, in the zone linking the upper end part of the outer cylinder 2 and the upper end part of the inner cylinder 3, with a linking part 7 which is a ring-shaped body made of an appropriate synthetic resin installed fitting thereon.

[0049] On the inner surface of this linking part 7 are formed helical threads 7a of discontinuous helical shape from which portions are missing, designed to mesh with helical threads 4b of the closure body 4 to be discussed below. On the outer surface of the linking part 7 are formed a helical thread 7b designed to mesh with a helical thread 5c of the coffee pouring cup body 5 to be discussed below.

[0050] The linking part 7 is integrally molded of an inert synthetic resin, i.e., a polypropylene resin (PRIME POLYPROTM made by Prime Polymer Co. Ltd.).

[0051] Consequently, the opening 1b of the container body 1, which comes into contact with the coffee 20 when, for example, the coffee 20 from a coffeemaker is stored in the container body 1, or when the coffee 20 is poured from the container body 1 into the coffee pouring cup body 5 discussed below, is constituted by an inert synthetic resin.

[0052] The opening 1*b* of the container body 1 may be constituted by a zone linking the upper end part of the outer cylinder 2 and the upper end part of the inner cylinder 3, rather than furnishing the linking part 7. In this case, because the inner surface 3a of the inner cylinder 3 is coated with an inert synthetic resin as discussed below, the opening 1*b* of the container body 1 which comes into contact with the coffee 20 will be constituted by an inert synthetic resin in any event. Alternatively, the linking part 7 may be made of metal, and coated on the surface thereof with one of the aforementioned inert resins, i.e., a fluororesin, or an acrylic resin containing a hindered amine light stabilizer.

[0053] As shown in FIGS. 1 and 2, the closure body 4 is a hollow body formed by a member of an appropriate synthetic resin material, and threadably attaches in the opening 1b of the container body 1. The structure is one allowing the coffee 20 inside the container body 1 to be poured out from a pour passage formed by unthreading of the closure body 4 from the opening 1b, the threadable attachment surface of the closure body 4 being constituted by an inert synthetic resin.

[0054] In specific terms, the closure body **4** is constituted by a base body **4**A of container shape, and a lid body **4**B providing closure to an opening of this base body **4**A, the interior of the base body **4**A being filled with an expanded resin material **4**C as a heat insulating material.

[0055] The lower part of the closure body 4 (the base body 4A) is constituted to fit within the opening 1b of the container body 1, and on the peripheral surface of this zone of fit there are formed the helical threads 4b of discontinuous helical shape from which portions are missing, designed to mesh with the aforementioned helical thread 7a furnished to the opening 1b.

[0056] Consequently, the closure body 4 is constituted to threadably attach in the opening 1b of the container body 1 and provide closure to the opening 1b.

[0057] A plurality of recessed grooves 4c are formed on the outside peripheral face of the closure body 4, in the zone of fit. [0058] The recessed grooves 4c are designed to facilitate passage of the coffee 20 through a coffee passageway formed in relation to the inner surface of the linking part 7, as the coffee 20 is poured from the container body 1 with the closure body 4 loosened from the threadably attached state.

[0059] The base body 4A and the lid body 4B constituting the closure body 4 of the present example are formed of the aforementioned polypropylene resin as the inert synthetic resin.

[0060] Consequently, predetermined sections of the closure body 4 that come into contact with the coffee 20 (the outside peripheral surface and the bottom surface that form the pour path in relation to the inner surface of the linking part 7), for example, during storage of the coffee 20 in the container body 1, or during pouring of the coffee 20 into the coffee pouring cup body 5 (discussed later) from the container body 1, are constituted by the inert synthetic resin.

[0061] It is sufficient for the structure of the closure body 4 to be one that fits into the opening 1*b* of the container body 1, and the closure body 4 may be made of metal, with the surface thereof being coated with one of the aforementioned inert

resins, i.e., a fluororesin, or an acrylic resin containing a hindered amine light stabilizer.

[0062] Drawing symbol **8** indicates a ring-shaped leak sealing material made of silicone resin.

[0063] As shown in FIGS. 1 and 2, the coffee pouring cup body 5 is formed by a member made of an appropriate synthetic resin, detachably furnished to the upper part of the container body 1.

[0064] In specific terms, the coffee pouring cup body 5 is constituted to fit together with the linking part 7, and has formed on the inner surface of the zone of fit thereof a helical thread 5c designed to mesh with the helical thread 7b furnished on the outer surface of the linking part 7.

[0065] Consequently, the coffee pouring cup body 5 fits onto the closure body 4, in a state in which the opening 1b of the container body 1 is closed off by the closure body 4.

[0066] The outside peripheral surface of the coffee pouring cup body **5** is furnished with a handle **5***b*.

[0067] Consequently, the coffee pouring cup body 5 is easily gripped from the handle 5b, and, moreover, conditions under which the coffee 20 can be drunk in a more delicious manner, due to the impression of drinking from a coffee cup, can be achieved.

[0068] The coffee pouring cup body **5** of the present example is formed of the aforementioned polypropylene resin as the inert synthetic resin.

[0069] Consequently, the inner surface portion 5a of the coffee pouring cup body 5 which comes into contact with the coffee 20 when, for example, the coffee 20 is poured from the container body 1 into the coffee pouring cup body 5 is constituted by an inert synthetic resin.

[0070] The coffee pouring cup body **5** may be made of metal, with the surface thereof being coated with one of the aforementioned inert resins, i.e., a fluororesin, or an acrylic resin containing a hindered amine light stabilizer.

[0071] The container body **1** according to the present example having the aforedescribed constitution was subjected to the following tests in order to verify effectiveness.

[0072] Firstly, the relationship between the container (stainless steel) and chemical change of the coffee 20 when the coffee 20 is placed in a stainless steel container was ascertained. On the basis of the fact that higher redox potential is associated with greater susceptibility to chemical change, selecting a container in which the inner surface 3a of the stainless steel inner cylinder 3 is not coated with fluororesin as a comparative example, the coffee 20 was placed in the containers of the comparative example and the present example, and the redox potential of the coffee 20 was measured with a redox potential meter (Test 1).

[0073] FIG. **4** shows a table and a graph of the measurement results of Test 1.

[0074] It may be seen from the graph that at any point in time, the redox potential in the case of the present example is always lower than in the case of the comparative example.

[0075] In Test 1, the redox potential was also measured in a case in which the coffee **20** was placed in a container formed of polypropylene resin (other example). From the graph in FIG. **4** it may be seen that at any point in time, the redox potential in the case of the other example is always lower than in the case of the comparative example.

[0076] Consequently, it was ascertained that chemical change of the coffee 20 can be minimized when the surfaces that come into contact with the coffee 20 are constituted by an inert synthetic resin.

[0077] Next, the coffee **20** was placed in the containers of the aforementioned comparative example and the present example, and after three hours had elapsed, the taste was measured using a taste sensing system (TS-5000Z made by Intelligent Sensor Technology Inc.) (Test 2). This taste sensing system measures the potential difference between a reference liquid and a sample liquid, and provides numerical values of taste (acidity, bitterness, astringency, richness, and the like).

[0078] FIG. **5** shows a table of the measurement results of Test 2.

[0079] Specifically, it may be seen that when the two numerical values for each of indices of the coffee **20** taste, namely, acidity, bitterness, astringency, and richness, are compared, in the case of the present example, acidity is lower than in the case of the comparative example (in general, less acidity is desirable), while ample bitterness, astringency, and richness remain (in general, bitterness, astringency, and richness are desirable).

[0080] Consequently, it was ascertained that the taste of the coffee 20 can be maintained when surfaces that will come into contact with the coffee 20 are constituted by inert inorganic resins.

[0081] From the preceding Test 1 and Test 2, it was ascertained that, when zones that will come into contact with the coffee 20 are constituted of inert inorganic resins, the adverse effects on coffee 20 taste can be minimized. It was ascertained therefrom that it is effective for zones that will come into contact with the coffee 20, not only in the container body 1, but also in the closure body 4 and the coffee pouring cup body 5, to be constituted of inert inorganic resins.

[0082] Owing to the aforedescribed constitution of the present example, to store and bring along coffee 20, the coffee 20 is stored in the container body 1, and the opening 1b of the container body 1 is then closed off using the closure body 4. [0083] The container body 1 of the present example, due to the high heat retention properties afforded by arranging the metal inner cylinder 3 within the outer cylinder 2 with the space S therebetween, so that the space S between the inner cylinder 3 and the outer cylinder 2 functions as a vacuum insulation space, can maintain the coffee 20 for an extended period at a temperature suitable for delicious drinking.

[0084] Additionally, according to the present example, the inner surface portion 1a of the container body 1 and the inner surface portion 4a of the closure body 4, which come into contact with the coffee 20 when the coffee 20 is stored therein, are constituted by an inert synthetic resin, whereby, in particular, the action on the coffee 20 by the metal inner cylinder 3 constituting the container body 1 is minimized to the greatest extent possible, preventing the taste of the coffee 20 from being diminished. Consequently, in this respect as well, the coffee 20 can be maintained in a delicious state. That is, unlike the prior art example discussed above, coffee can be maintained in a delicious state of freshly-brewed deliciousness) for an extended period.

[0085] According to the present example, the coffee 20 inside the container body 1 is drunk by being poured into the coffee pouring cup body 5, with the closure body 4 in the open state.

[0086] The inner surface portion 5a of the coffee pouring cup body 5 that comes into contact with the coffee 20 is constituted by an inert synthetic resin, so even when the coffee 20 is placed in the coffee pouring cup body 5, the inner surface portion 5a of the coffee pouring cup body 5 produces

no adverse effects on the taste of the coffee **20**, and in this respect as well, the coffee **20** can be maintained in a delicious state.

[0087] According to the present example, the coffee 20 stored in the container body 1 is drunk not with the mouth placed directly against the container body 1, but rather drunk after being poured into the coffee pouring cup body 5, whereby even in cases in which the coffee 20 stored in the container body 1 has been heated to above optimal temperature (about 70° C.), the coffee 20 can be brought down in temperature in the course of being poured from the container body 1 into the coffee pouring cup body 5, and can therefore be drunk in a delicious state by being placed into the coffee pouring cup body 5.

[0088] The present invention is not limited to the present example, and the specific constitutions of the various constituent elements may be designed as appropriate.

1. A coffee storage container for storing coffee, the coffee storage container characterized by having: a container body in which an inner cylinder made of metal is arranged within an outer cylinder with a space therebetween, the space between the outer cylinder and the inner cylinder functioning as a vacuum insulation space; a closure body for providing closure to an opening of the container body; and a coffee pouring cup body fitted onto the closure body once the opening of the container body has been closed by the closure body; an inner surface portion of the container body that comes into contact with the coffee, a section of the closure body that comes into contact with the coffee, and an inner surface portion of the coffee pouring cup body being constituted by an inert synthetic resin.

2. The coffee storage container according to claim 1, wherein the coffee storage container is characterized in that the closure body is threadably attached in the opening of the container body, and the coffee inside the container body is poured out from a pour passage formed by unthreading of the closure body from the opening.

3. The coffee storage container according to claim 2, wherein the coffee storage container is characterized in that the threadable attachment surface of the closure body is constituted by an inert synthetic resin.

4. The coffee storage container according to claim 1, wherein the coffee storage container is characterized in that the closure body is constituted by an inert synthetic resin.

5. The coffee storage container according to claim 2, wherein the coffee storage container is characterized in that the closure body is constituted by an inert synthetic resin.

6. The coffee storage container according to claim 3, wherein the coffee storage container is characterized in that the closure body is constituted by an inert synthetic resin.

7. The coffee storage container according to claim 1, wherein the coffee storage container is characterized in that the coffee pouring cup body is constituted by an inert synthetic resin.

8. The coffee storage container according to claim **2**, wherein the coffee storage container is characterized in that the coffee pouring cup body is constituted by an inert synthetic resin.

9. The coffee storage container according to claim **3**, wherein the coffee storage container is characterized in that the coffee pouring cup body is constituted by an inert synthetic resin.

10. The coffee storage container according to claim 4, wherein the coffee storage container is characterized in that the coffee pouring cup body is constituted by an inert synthetic resin.

11. The coffee storage container according to claim 5, wherein the coffee storage container is characterized in that the coffee pouring cup body is constituted by an inert synthetic resin.

12. The coffee storage container according to claim 6, wherein the coffee storage container is characterized in that the coffee pouring cup body is constituted by an inert synthetic resin.

13. The coffee storage container according to claim **1**, wherein the coffee storage container is characterized in that the inert synthetic resin is a fluororesin, a polypropylene resin, or an acrylic resin containing a hindered amine light stabilizer.

* * * * *