

(19)



(11)

EP 2 272 774 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

12.01.2011 Bulletin 2011/02

(51) Int Cl.:

B65D 85/816 (2006.01)

(21) Application number: **10006946.7**

(22) Date of filing: **06.07.2010**

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO SE SI SK SM TR**

Designated Extension States:

BA ME RS

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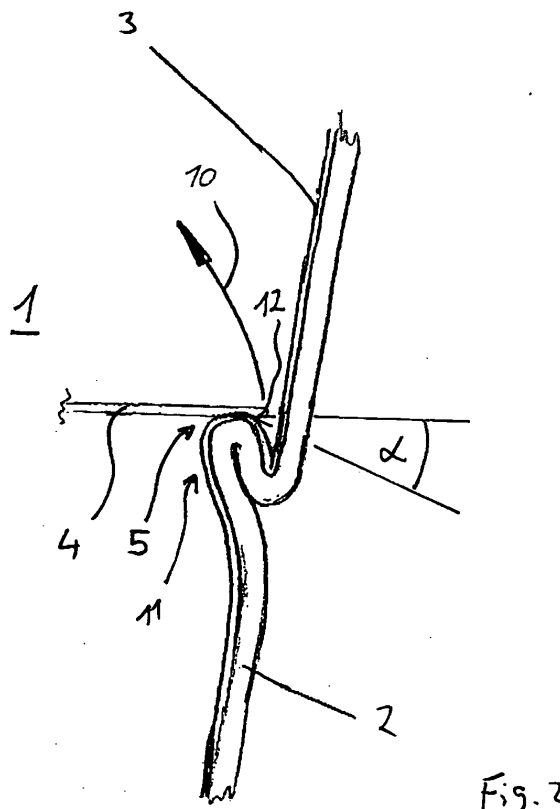
(30) Priority: **06.07.2009 DE 102009026108**
04.12.2009 DE 102009044772
09.04.2010 DE 102010016390

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(54) **Container with a membrane which confines a compartment within the container**

(57) The present invention relates to a container (1) with a sidewall (2) and a base (6) which is connected to the lower end of the sidewall and a membrane (4) which

confines a compartment (7) within the container and which is sealed to the sidewall in an area distant from the rim (8) of the container at a sealing area (5) and which can be pulled off.



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Description

[0001] The present invention relates to a container with a sidewall and a base which is connected to the lower end of the sidewall and a membrane which confines a compartment within the container, which is sealed to the sidewall in an area distant from the rim of the container at a sealing area and which can be pulled off.

[0002] In many cases, containers, for example cardboard containers, comprise a confined compartment, in which for example pellets, powder or the like are/is arranged, from which, by addition of a fluid, for example a beverage or a food can be made. This compartment needs to be sealed by a membrane to avoid, for example, that the pellets get lost and/or that the pellets lose their aroma.

[0003] Often, the containers are cardboard containers which comprise on the surface, that is subjected to a fluid and/or humidity, a coating which makes it, at least temporarily, resistant against for example humidity, water, aqueous solutions, oil and/or fat or a combination thereof. This coating can be provided as a film, which is adhered to the cardboard container.

[0004] This is objective of the present invention, to provide a container whose coating is not damaged in case the membrane is removed from the container.

[0005] The problem is solved with a container with a sidewall and a base which is connected to the lower end of the sidewall and a membrane which confines a compartment within the container, which is sealed to the sidewall in an area distant from the rim of the container at a sealing area and which can be pulled off, whereas the sealing area is plastically formed into the sidewall of the container and whereas the shear angle between the membrane and the sealing area is larger than 0°.

[0006] The present invention relates to a container. Particularly, the container is a cup, in which beverages, especially hot beverages such as coffee or tea or food, especially soup can be served. This container is preferably made from paper, thick paper, cardboard, fiber-material, plastic-material, materials made from renewable and/or biodegradable raw materials or a combination thereof. However, paper and cardboard are preferred. Preferably, the material is plastically deformable, preferably embossable and more preferably also elastically deformable. All parts of the inventive container are made from this material, whereas the individual parts of the container can be made from different materials.

[0007] Especially the surfaces of parts of the container which are subjected to a liquid and/or vapour are provided with means, especially a coating, an impregnation, a film or the like, which makes the parts at least temporarily resistant against for example humidity, water, aqueous solutions, oil and/or fat or a combination thereof. Preferably the above mentioned means are also heat sealable. The means are preferably provided as a film.

[0008] The container according to the present invention comprises a first sidewall, which is, preferably, con-

ically shaped and which, more preferably, has, at its upper end, a rolled rim. The first sidewall is preferably made from a flat segment, preferably a cardboard-segment, which is subsequently formed, preferably rolled into its final, preferably conical shape. Preferably at its lower end, the sidewall is connected to a base, in order to close the container at the bottom. The base is preferably a separate part, which is attached, more preferably glued or heat sealed, to the lower end of the sidewall of the container.

[0009] According to the present invention, the first sidewall comprises at least a first shaping, which extends, preferably entirely, around the circumference of the first sidewall. This shaping is directed inwardly, i.e. towards the content of the container. This shaping can be produced by any technique known by a person skilled in the art, e.g. by folding or any other method of plastic deformation. Preferably, the shaping is inserted into the segment before it is formed, e.g. rolled, into the final shape of the sidewall. More preferably the shaping is an embossment, which is produced for example by applying locally pressure to the sidewall and deforming the material of the sidewall plastically. The shaping can have any form known by a person skilled in the art. However, it should be compressible, at least partially, especially in case an axial-force, preferably axial pressure, is applied to the sidewall. Preferably, the shaping is U-shaped or has, at least partially, the shape of a segment of a circle.

[0010] This shaping is preferably compressed in its height extension, i.e. after the compression of the shaping, the sidewall is reduced in its height. Due to the compression of the shaping, the shaping receives its final shape.

[0011] This shaping is utilized as the sealing area for the membrane, whereas the shaping is shaped such, that the shear angle between the membrane and the sealing area is larger than 0°. Preferably, the shaping comprises an undercut adjacent to the sidewall, whereas the membrane preferably extends, at least partially, into or above the undercut

[0012] The invention is now further explained according to figures 1 and 2. This explanation does not limit the scope of protection of the present invention.

Figure 1 shows the inventive container.

Figure 2 shows details of the sealing area.

[0013] **Figure 1** shows the inventive container 1, which is in the present case a cup, preferably a cardboard cup. This container comprises a sidewall 2, which has at its upper end a rim 8 and at its lower end a base 6, which is preferably sealed to the sidewall. In order to have a confined department 7, a membrane 4 is sealed to the sidewall 2, specifically to a shaping 11 that has been plastically formed, here embossed, into the sidewall 2 of the container 1, in a height defined by the desired volume. The shaping 11 extends around the entire inner circum-

ference of the sidewall 2. The compartment 7 can, for example, comprise pellets or a powder, from which, under the addition of water a beverage or a food can be produced.

[0014] Therefore, the membrane 4 has to be pulled off, which is carried out, as depicted in figure 2 by pulling the membrane 4 off the sealing area 5 in a pull-off direction 10. According to the present invention, this shaping is now shaped such, that the shear angle α between the membrane 4 and the shaping, at least at the edge 12 is larger than 0° . Due to this shear angle α , a coating 3 which is attached to the inside of the sidewall 2 is not damaged especially not delaminated from the sidewall 2 during the rip off of the membrane 4. Thus, the container especially a cardboard container maintains its stability.

List of reference signs:

[0015]	20
1	cardboard container, cup
2	sidewall
3	inner layer
4	membrane
5	sealing area
6	base
7	compartment
8	rim
9	undercut
10	pull-off direction
11	shaping, embossment
12	edge of the sealing area
α	shear angle
	35

Claims

1. Container (1) with a sidewall (2) and a base which is connected to the lower end of the sidewall (2) and a membrane (4) which confines a compartment (7) within the container and which is sealed to the sidewall in an area distant from the rim (8) of the container at a sealing area (5) and which can be pulled off, **characterized in, that** the sealing area (5) is plastically formed into the sidewall and that the shear angle (α) between the membrane (4) and the sealing area (5) is larger than 0° .
2. Container (1) according to claim 1 or the preamble of claim 1, **characterized in, that** the sealing area (5) comprises an undercut (9) adjacent to the sidewall (2).
3. Container according to one of the preceding claims, **characterized in that** the sidewall (2) comprises an inner layer (3).

