

SPECIFICATION

Beverage container

5 The present invention relates to a beverage container of multilayer composite material having a liquid-tight inside layer of thermoplastic synthetic material, with a perforation extending to the inside layer to form an opening for inserting a drinking

10 straw. In particular, the invention relates to a beverage container made of flexible foil material.

There are already known in the art beverage containers which are made of at least one exterior carrier layer and a liquid-tight inside layer and

15 provided with an insertion opening for a drinking straw closed by means of a tear-off adhesive strip. The adhesive strip is pasted to the exterior layer of the wall material surrounding the insertion opening and has a tab for tearing it off.

20 With aromatic beverages, these closures have proven permeable for the passage of aromatic matter so that quality deterioration was found between bottling and consumption of such beverages. Also, such closures do not withstand the

25 conditions occurring during transport and the storage of such beverage containers.

There is already known a beverage container of multilayer composite material where a cover strip is inserted in a withdrawal opening penetrating the

30 container wall and a thermoplastic inside layer of the cover strip is fused to the cutout edges of a liquid-tight thermoplastic inside layer of the container wall. This closure does not provide sufficient tightness against the penetration of

35 aromatic matter, because only the edges of the inside layer of the container walls are fused to the thermoplastic inside layer of the cover strip. Furthermore, this closure provides no security against leaks unless such containers are of stable

40 shape and no pressure can be exerted from the inside to the outside on the walls during transport and storage.

There are also known beverage containers consisting of multilayer composite materials having

45 perforation of the outer layers of the composite material penetrating to the liquid-tight inside layer, so that after piercing the inside layer there develops an opening through which a drinking straw can be inserted in the container. Even though the

50 liquid-tight inside layer is thin, it has been found difficult to pierce this layer with a straw. The consumers of the beverages contained in such beverage containers frequently have no means besides the drinking straw for piercing the inside

55 layer exposed in the vicinity of the perforation and an additional difficulty is encountered in the resilience of the walls.

According to the present invention there is provided a beverage container comprising walls of

60 at least an inner layer of liquid-tight thermoplastic material, an intermediate layer of a gas-tight material and an outer layer, an opening extending through the intermediate and outer layer and up to the inner layer, and a closure member to cover the

65 opening and of material having at least an inner

layer of liquid-tight thermoplastic material, an intermediate layer of a gas-tight material and an outer layer, the inner layer of the closure member being so welded to a portion of the inner layer of the container walls exposed by the opening that removal of the closure member causes said portion of the inner layer of the walls to be removed.

A safe sealing of the insertion opening is achieved which ensures particularly simple handling since the

75 closure strip is solidly connected to the beverage container material only in the perforated area while the portions overlapping the perforation contact the container walls only from the outside. Thus, when tearing off the closure strip, which is done by pulling a tab or the portion of the closure strip overlapping the perforation, that portion of the inside layer of the container walls is torn out along the peripheral contour of the perforation. This produces an opening in the container wall through which the drinking

80 straw can be easily inserted.

An embodiment of the present invention will now be more particularly described by way of example with reference to the accompanying drawings, in which:

90 *Figure 1* shows a perspective view of a beverage container which has an insertion opening for a drinking straw and closed by a closure strip with tear-off tab;

Figure 2 shows the upper end of the container in a section taken along line II-II of *Figure 1*;

Figure 3 shows an enlarged sectional view of ringed area IV of *Figure 2* before fusing on a closure strip; and

Figure 4 shows an enlarged view of ringed area IV of *Figure 2* with a fused-on closure strip.

Referring now to the drawings, the container shown in *Figure 1* is a beverage container 10 whose walls 11 are made of flexible foil laminate material consisting of a liquid-tight thermoplastic inside layer

105 12, a gas-tight intermediate layer 13 and an exterior cover layer 14. Polyethylene may be used as the thermoplastic inside layer 12 while use of a thin aluminium foil as the intermediate layer 13 forms an excellent gas lock and hence prevents penetration of aromatic matter. The exterior layer 14 is not fusible and may be Cellophane (Registered Trade Mark) or a suitable varnish coat.

A filling opening is located at the top, and is closed after filling with a beverage by means of a fused

115 seam 15. Near the opening one of the container walls 11 has an insertion opening 18 for a drinking straw and closed by means of a tear-off closure strip 17 having a tab 16. *Figure 4* shows details of the closure strip 17 which is made of the same foil laminate material as the container walls. Accordingly it has a thermoplastic inside layer 12' of polyethylene, a vapor-tight intermediate layer 13' of thin aluminium foil and a non-fusible cover layer 14' of Cellophane (Registered Trade Mark) or cover

120 varnish.

Figure 3 shows the laminate material from which the containers are made, which is provided with a perforation 20 penetrating only the outer layers 13, 14. The holes are covered on the inside by the undamaged thermoplastic layer 12. Before fusing

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the containers at seam 15, closure strip 17 is placed on perforation 20, with the fusible inside layer 12' located on the side adjacent to the perforation and fused with the use of pressure and temperature to the thermoplastic inside layer 12 of the wall material which is exposed in the perforation zone.

This provides a beverage container with a liquid-tight and aroma-tight opening for insertion of a drinking straw and this opening is distinguished by a closure which is secure against large liquid pressures and yet can be removed in a simple manner. To expose the insertion opening, it is merely necessary to tear off the closure strip 17. The portion of the inside layer 12 fused to the inside layer 12' of the closure strip remains stuck to the closure strip and is torn, as indicated at 22 of Figure 4, along a contour determined by the perforation 20.

CLAIMS

1. A beverage container comprising walls of at least an inner layer of liquid-tight thermoplastic material, an intermediate layer of a gas-tight material and an outer layer, an opening extending through the intermediate and outer layer and up to the inner layer, and a closure member to cover the opening and of material having at least an inner layer of liquid-tight thermoplastic material, an intermediate layer of a gas-tight material and an outer layer, the inner layer of the closure member being so welded to a portion of the inner layer of the container walls exposed by the opening that removal of the closure member causes said portion of the inner layer of the walls to be removed.
2. A beverage container as claimed in claim 1, wherein the closure member consists of the same materials as the container walls.
3. A beverage container as claimed in either claim 1 or claim 2, wherein the gas-tight material comprises aluminium film.
4. A beverage container as claimed in any one of the preceding claims, wherein the outer layer of the container walls is of a non-weldable material.
5. A beverage container substantially as hereinbefore described with reference to the accompanying drawings.



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