

EUROPEAN PATENT SPECIFICATION

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EP-A-0 116 355
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DE-C- 215 245
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Description

FIELD OF THE INVENTION

The present invention relates to a packaging container with a closure, primarily for pressure creating or pressurized filling goods, for instance carbonated drinks. With advantage, the container closure is useful in applications where the container has relatively thin walls. Additionally, the combination of container and closure forms a structure where an adequate sealing pressure is obtained in the sealing area between the container and the closure.

BACKGROUND OF THE INVENTION

The object of the invention is to provide a combination of a container and closure having strain resisting sealing characteristics and an inherent controllable deformation resistance against internal pressure as well as handling.

The object is also to provide means allowing expansion, created by pressure, of the volume of the package formed by the container and the closure such that a volume in excess to the nominal filling volume may be assumed.

A most important, further object is to provide a closure allowing sealing with an acceptable counter-pressure, meaning the provision of a sufficient sealing pressure in the sealing area.

In for instance the European patent specification No. 0029039 W0-A-80025441 there is disclosed an end closure for a sleeve shaped packaging container manufactured from a relatively thin material. Said disclosure represents the state of the art identified in that preamble of the accompanying main claim.

SUMMARY OF THE INVENTION

In order to provide a container-closure structure meeting the above objects the invention provides a packaging container with a closure, the closure comprising at least one panel of a relatively thin and flexible material covering an opening in the packaging container, and a marginal part formed by flexible material and surrounding the panel and attached to the edge of the opening, said marginal part forming circumferential, radially inner and outer seals, the inner one formed entirely between the surfaces in the marginal part and the outer one formed between the marginal part and the container, the radially inner seal of said seals comprising a sealing area between marginal parts forming a fold therein. The container-closure structure is characterized in that the fold has an open end exposed to the internal region of the container.

The invention allows an arrangement of seals such that the internal pressure counter-acting sealing strength of said radially inner seal is lower than the corresponding sealing strength of the second seal.

In one embodiment of the invention the closure forms the end piece of a sleeve shaped container casing, and the sealing area comprises a fold extending circumferentially around the panel, and

formed of double panel material layers, the radially outer layer of said internal layers forming said outer seal.

In another embodiment of the invention the sealing area is formed by double panel material layers, and the radially outer seal is formed by an additional panel material layer integral with said double layers.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 in a partial section view shows a first embodiment of an end closure of a container together with a portion of a container wall,

Figure 2 in a partial section view shows another embodiment of an end closure of a container together with a portion of a container wall,

Figure 3 in a partial section shows a third embodiment of an end closure of a container together with a portion of the wall of the container, and

Figure 4 in a partial section view shows a fourth embodiment of an end closure of a container together with a portion of a container wall.

DESCRIPTION OF PREFERRED EMBODIMENTS

In Figure 1 the reference numeral 10 generally relates to a container closure shown in a partial section view and comprising a lid panel 11 and a marginal part 12. In the embodiment that has been shown the closure 10 is manufactured from a relative thin flexible material, for instance a laminate comprising an aluminium foil having a thickness in the interval 10 to 200 μ m and having a coating of a thermoplastic material, preferably a polyolefine, on one or both sides thereof. Other type of material/material combinations are of course possible, for instance plastic laminates/plastic film having a suitable additive for giving the required tightness degree and/or for allowing a specific sealing method.

A sealing area comprising a fold 13 extending around the panel 11 is formed in the end closure and exposed to the internal region of the package, which here merely has been shown as a portion of a sleeve wall 14. In this case the fold is formed by folding the margin of the blank forming the closure 10. The fold has an outer rim 15, which in this case alone forms a lip for sealing against the sleeve wall. The seal 16 between the rim and the sleeve is formed with a sufficient sealing pressure for obtaining an acceptable sealing. This pressure is obtained in that a counter-pressure is created by means of a support 17 which is displaceable in the directions of the double arrow 18 and for instance expandable in the directions of the double arrow 18' and which co-operates with a stationary support 19. The sealing technique used may for instance comprise induction welding or high frequency welding, and in this case the material of the end closure 10, at least in the welding area comprises an additive well suited for the actual welding technique. For rational reasons the end closure generally is laminated with a metal foil (not explicitly shown in Figures 1 to 5) along the entire surface thereof. In the

embodiment according to Figure 1 the seal 16 preferably extends along the entire height of the rim 15 and continuously around the sleeve 14.

In order to protect the free edge of the rim, the cut edge, a lacquer layer 20, alternatively a tape or other protective means is arranged along the edge facing the internal region of the package.

Alternatively, it is possible to press the edge into the material of the casing 14, as shown by the reference numeral 21 in Figure 1.

The fold 13, which is exposed to the internal region of the package, has a seal 22 of so called peelable type. The seal 22 is thus weaker than the seal 16.

If for some reason, for instance due to a pressure increase originating from the filling goods, the internal pressure increases within the container, the seal 22 will break (if such a seal exists, i.e. a seal having a strength higher than zero). The flexible end closure 10 (cover panel 11) then assumes its natural shape according to the broken lines 23 in Figure 1. Due to the increase of volume the pressure decreases inside the container. The seal is protected by this construction, meaning that the risk for leakage and destruction of the contents of the package is reduced at the same time as the fold construction, in the manner mentioned, allows the creation of an acceptable sealing pressure.

In Figure 2 there is shown a lip 15 comprising double material layers 15' and 15''. The layer 15' forms a skirt which is folded and sealed against the rim 15'' in order to reinforce the end closure. The seal 15''' preferably is of the same strength as the seal 16 and has an extension in the height direction for instance equal to the height of the rim 15''. The seal may also be accomplished dot-wise, alternatively along a certain part of the height of the rim. In the same manner as previously, the fold 13 has a peelable seal 22, which at a strain exceeding the maximum load allows resetting of lid panel 11 to the natural position 23 thereof.

The free edge of the skirt 15' is turned away from the internal region of the container and in Figure 1 the skirt is located at the same level as the upper edge of the sleeve 14 and the uppermost portion of the lip 12.

An extension of the skirt 15' according to the broken line 24 is also possible.

In Figure 3 the edge part 12 is placed in a position below the top edge of the sleeve 14. Such placement implies that the lid panel 11, in the natural position 23 thereof, is protected by the sleeve 14 and/or the skirt 15'.

In Figure 4 there is shown a version of an end closure where the skirt 15' is shortened and the upper portion of the rim 15'' of the marginal part 12 is sealed against the sleeve 14. This seal together with the seal 16 forms the actual sealing of the end closure 10. In the same manner as previously there is a peelable seal 22 in the fold 13 exposed to the internal region of the package.

Claims

1. A packaging container (14) with a closure, the closure comprising at least one panel (11) of a relatively thin and flexible material covering an opening in the packaging container and a marginal part (12, 15) formed by flexible material and surrounding the panel and attached to the edge of the opening, said marginal part forming circumferential radially inner and outer seals, the inner one formed entirely between surfaces in the marginal part and the outer one formed between the marginal part and the container, the radially inner seal (22) of said seals comprising a sealing area between marginal parts forming a fold (13) therein characterized in that the fold has an open end exposed to the internal region of the container.

2. A container as in claim 1, characterized in that the internal pressure counter-acting sealing strength of said radially inner seal (15) is lower than the corresponding sealing strength of the second seal.

3. A container as in claim 2, which consists of a sleeve shaped container casing (14), characterized in that the sealing area comprises a fold (13) extending circumferentially around the panel and formed of double panel material layers, the radially outer layer (15) of said material layers forming said outer seal.

4. A container as in claim 2, characterized in that said sealing area is formed by double panel material layers, and that the radially outer seal is formed by an additional panel material layer (15') integral with said double layers.

Patentansprüche

1. Verpackungsbehälter (14) mit einem Verschluss, wobei der Verschluss zumindest eine Platte (11) eines relativ dünnen und flexiblen Materials aufweist, welche eine Öffnung des Verpackungsbehälters abdeckt, sowie einen Randteil (12, 15) aufweist, welcher von dem flexiblen Material gebildet wird und die Platte umgibt und an der Kante der Öffnung befestigt ist, wobei der Randteil umlaufende, radial innen und außen liegende Dichtungen bildet, wobei die innere vollständig zwischen Flächen in dem Randteil und die äußere zwischen dem Randteil und dem Behälter gebildet wird, wobei die radial innere (22) der Dichtungen einen Dichtungsbereich zwischen Randteilen aufweist, die eine Falte (13) darin bilden, dadurch gekennzeichnet, daß die Falte ein offenes Ende hat, welches zu dem Innenbereich des Behälters hin liegt.

2. Behälter nach Anspruch 1, dadurch gekennzeichnet, daß die dem inneren Druck entgegenwirkende Dichtungskraft der radial inneren Dichtung (15) kleiner ist als die entsprechende Dichtungskraft der zweiten Dichtung.

3. Behälter nach Anspruch 2, welcher aus einem hülsenförmigen Behältergehäuse (14) besteht, dadurch gekennzeichnet, daß der Dichtungsbereich eine Falte (13) aufweist, welche sich entlang

des Umfangs um die Platte herum erstreckt und aus doppelten plattenmaterialsichten gebildet ist, wobei die radial außen liegende (15) der Materialsichten die äußere Dichtung bildet.

4. Behälter nach Anspruch 2, dadurch gekennzeichnet, daß der Dichtungsbereich durch doppelte Plattenmaterialsichten gebildet ist und daß die radial außen liegende Dichtung von einer zusätzlichen Plattenmaterialsicht (15') gebildet wird, welche mit den Doppelsichten einstückig ist.

Revendications

1. Récipient d'emballage (14) comportant une fermeture, la fermeture comprenant au moins un panneau (11) en matière relativement mince et flexible, qui recouvre une ouverture du récipient d'emballage, et une partie marginale (12, 15) formée par la matière flexible et entourant le panneau et fixée au bord de l'ouverture, ladite partie marginale formant des zones scellées circumférentielles radialement intérieure et radialement extérieure, la zone scellée intérieure étant formée entièrement entre des surfaces de la partie marginale et la zone scellée extérieure étant formée entre la partie marginale et le récipient, la zone scellée radialement intérieure (22)

desdites zones scellées comprenant une zone de scellement entre des parties marginales définissant un pli (13), caractérisé en ce que le pli présente une extrémité ouverte du côté de la région intérieure du récipient.

2. Récipient suivant la revendication 1, caractérisé en ce que la force de scellement, s'opposant à la pression interne, de ladite zone scellée radialement intérieure (22) est plus faible que la force de scellement correspondante de la deuxième zone scellée.

3. Récipient suivant la revendication 2, qui consiste en une enveloppe de récipient en forme de manchon (14), caractérisé en ce que la zone de scellement comprend un pli (13) s'étendant circumférentiellement autour du panneau et formé de couches de matière de panneau repliées l'une sur l'autre, la couche radialement extérieure (15) desdites couches de matière constituant ladite zone scellée extérieure.

4. Récipient suivant la revendication 2, caractérisé en ce que ladite zone de scellement est formée par des doubles couches de matière de panneau repliées l'une contre l'autre, et en ce que la zone scellée radialement extérieure est formée par une couche de matière de panneau supplémentaire (15') solidaire desdites doubles couches.

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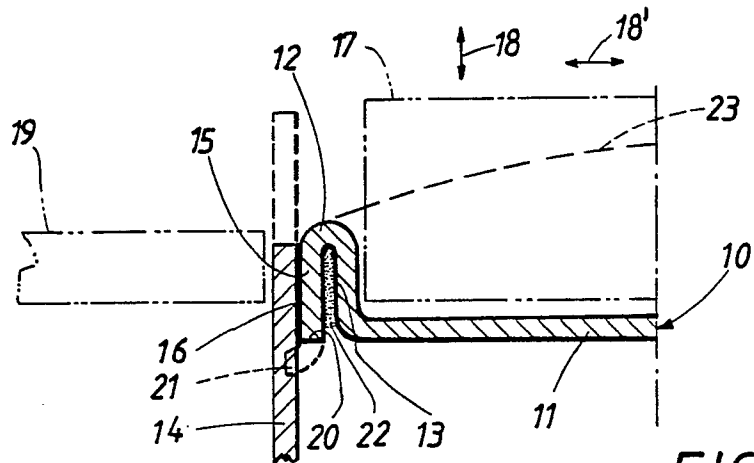


FIG. 1

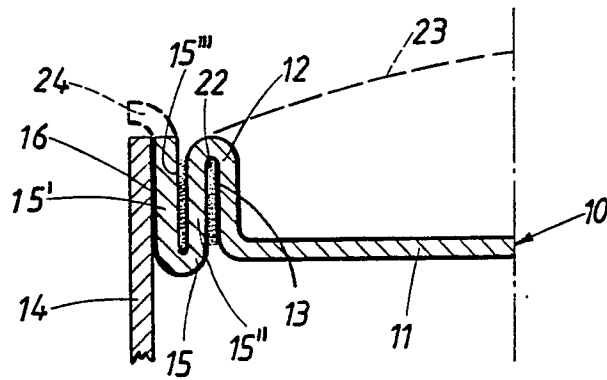


FIG. 2

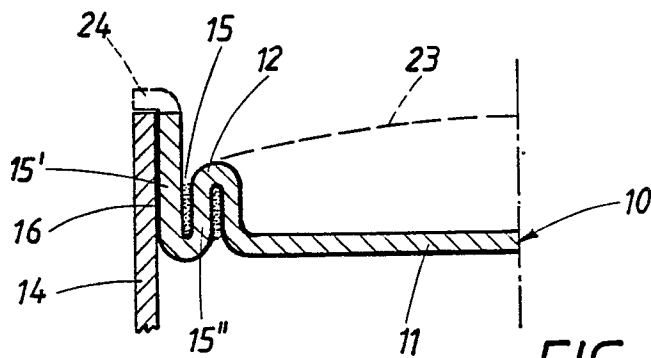


FIG. 3

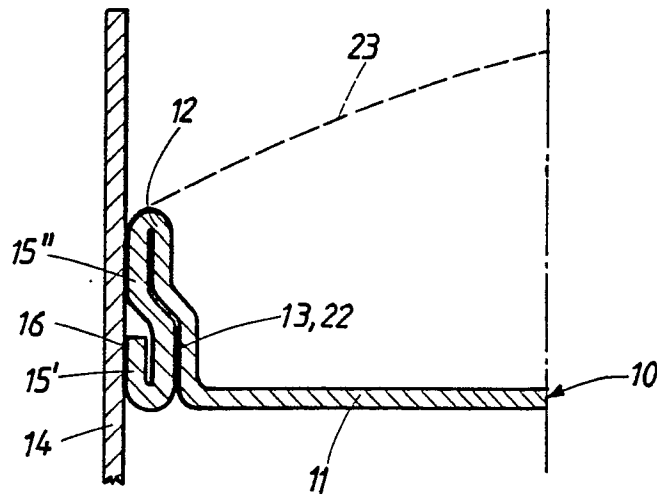


FIG. 4