

Description

The invention relates to a tubular container for dispensing a paste product according to the preamble of claim 1 and to a method for making such a tubular container according to the preamble of claim 5.

Such a container and method for making the container are known from GB-A-795 154. In this proposal the dispensing opening is not a slit but a hole, which can be closed using a cap.

A tube having a self-closing dispensing closure is for example known from US-A-2 552 715.

US-A-2,552,715 discloses a pressure operated dispensing nozzle for collapsible tubes. This dispensing nozzle is fitted onto the top of the collapsible tube. It has a slit opening for dispensing a paste-like product. The paste-like product is dispensed via pressure which is applied to the exterior of the collapsible tube. In this patent, the membrane closure is not an integral part of the shoulder of the container.

The self-closing dispensing closures that are in use are comprised of a pliable material which has at least one slit. This type of a dispensing closure is very effective for use with various viscous and paste-like materials. Such viscous and paste-like materials include various food products, dentifrices, lotions, shampoos and other personal care products. In order to dispense such products from a container, it is only necessary to apply a force onto the product within the container so that it can be displaced from the container. Since the only mode of displacement from the container is through the slit opening, the product will be delivered through the slit opening. Upon the release of the force on the product in the container the pliable membrane of the slit opening returns to its original position thereby ceasing the dispensing of the product from the container. The product remaining in the container is then retained in a sealed condition. These closures can be effectively used on pliable tubular containers.

Self-closing dispensing closures of this type are not complicated and provide for a positive dispensing action. Further, such self-closing dispensing closures are usually low in cost in comparison to other types of closures and serve very effectively to preserve the product which remains within the container. The slit opening in the closure will usually be a single slit or a double slit which will usually intersect at the center of each slit. A prime requirement with regard to the material from which the closure is constructed is that the material have a memory with regard to its original orientation. That is, the material must be of a type which will return to its original orientation upon the cessation of a pressure on the product which is being

dispensed. It is this memory which will cause the slit opening to close and to thereby cut off the flow of product from the container.

Self-closing dispensing closures are usually constructed of a number of pieces. In this construction, they effectively dispense the contained product. There is also a good cut-off of the product being dispensed when the pressure on the product in the container is released. However, when an item is made of two or more pieces that must be assembled, there is the added cost of assembly. It is preferred that an item be of one-piece construction. There is also the potential for leakage. It has now been found that a self-closing dispensing closure for a tubular container can be formed as a single item integral with the shoulder for the tubular container. This shoulder is then heat sealed onto the end of a tube to produce the dispensing end of a tubular container.

The present self-closing dispensing membrane closure is an improvement over the various prior art, closures. In the present closure, the closure membrane is an integral part of the shoulder of the container. The closure membrane and shoulder are molded as one piece. This obviates the need for assembly and removes the potential for leakage. This results in a savings in time and money. According to the invention the tubular container is characterized by the features of claim 1.

The tubular container can be a collapsible container or a non-collapsible container. It can also be a tubular container in which the force on the contained product is supplied by a piston. The membrane closure provides for a positive dispensing of the contained product. Product is dispensed by applying a force onto the product. This can be a squeezing force when it is being dispensed from a tubular container and a force applied by a piston for a pump container. When the force pushing the product from the container is released, the membrane closure closes and cuts off the flow of product. This also protects the product near the opening from drying or becoming encrusted during storage.

Figure 1 is a perspective view of a collapsible container having an integral dispensing closure, having a nozzle which does not comprise the features according to the invention;

Figure 2 is a side view of the shoulder and dispensing closure shown in fig. 1;

Figure 3 is a side view of the tube portion of the dispensing container shown in fig 1;

Figure 4 is a top view of the dispensing closure showing a single slit.

Figure 5 is a top view of the dispensing closure showing two slits.

Figure 6 is a side view of an embodiment of the dispensing closure with the closure elevated

above the threads.

In Figure 1, there is shown tubular container 10 having a tube portion 11 sealed at the bottom at 12. The upper portion of the tubular container consists of shoulder 15 which has shoulder wall 16 and exit nozzle 17. On the exterior of the exit nozzle, there is shown threads 18 for attaching a threaded cap. The top portion 19 will have one or more slit openings. This nozzle portion is not an embodiment which comprises the features according to the invention.

In Figure 2 and Figure 3, there is shown the shoulder section 15 and the tube section 11 respectively. The tubular portion 11 has an upper opening 13 defined by rim 14. The shoulder portion 15 has a vertical portion 21 which terminates in rim 20. Rim 20 defines aperture 22. In assembling the shoulder 15 onto the tube 11, the vertical portion 21 extends downward into opening 13 of the tube portion 11. The two portions are then heat sealed. It is also an embodiment where the vertical portion 21 of the shoulder extends down over the wall of tube 11 and is then heat sealed. This can be by any convenient heat sealing technique, including RF sealing and ultrasonic sealing. The embodiment shown in fig. 2 does not comprise the characterizing features according to the invention.

Figure 4 and Figure 5 show configurations for the openings in the membrane closures on the nozzle portion of the shoulder. In Figure 4, there is shown to be one slit opening 23 while in Figure 5 there is shown to be two slit openings, 23 and 24, which slit openings intersect. These two slit openings need not intersect, and further, there may be more than two slit openings.

Figure 6 sets out an alternate embodiment for the shoulder portion. In this embodiment, the slit region 19 is elevated above threads 18 by sidewall 26. This is in the nature of a hat type of dispensing slit arrangement. As with the prior embodiments in this embodiment, the shoulder is a single molded piece.

The entire shoulder portion is molded as a single piece, including the membrane 25 on the top portion. This can be conveniently accomplished by compression molding. Since the shoulder portion is constructed as one piece, there is removed the likelihood of leakage at joints. The slits 23 and 24 are cut into the membrane 25 at a convenient time. This can be after the shoulder portion has been molded and prior to bonding to the tubular container portion, after attachment to the tubular container portion, or after the tube has been filled with a paste-like product.

The tube portion and shoulder portion can be made out of any single or multilayer compatible materials. These include polyolefin, polyester polymers and copolymers, including polyethylene,

polypropylene, vinyl acetate, and ethylene-vinyl acetate copolymers, polyethylene terephthalate polymers and polyethylene terephthalate copolymers.

Claims

1. A tubular container (10) for dispensing a paste product comprising a tube portion (11) and a closure portion, said tube portion (11) being sealed at one end (12) with the other end having said closure portion attached thereto, said closure portion comprised of a one-piece flexible polymeric material having a shoulder portion (15) attached to said tube portion (11) by means of a skirt (21), symmetrical in shape to said tube portion (11) and which contacts a sufficient area of the tube portion (11) to form a seal, said shoulder portion (15) having extending upwardly a nozzle (17) having threads (18) on the exterior thereof, characterized in that said nozzle (17) terminates in a continuous substantially flat (25) section having at least one slit (23, 24) therethrough for dispensing of the paste product contained in the tubular container (10), the flat section (25) being elevated a distance above the threads (18) by a sidewall (26), said distance being at least equivalent to the distance along which the threads extend, such that the potential for leakage is removed.
2. A tubular container as in claim 1 wherein said tube portion (11) is heat sealed at the lower end (12).
3. A tubular container as in claim 1 wherein said tube portion (11) is comprised of a material selected from the group consisting of polyolefin and polyester polymers and copolymers.
4. A tubular container as in claim 1 wherein said continuous flat section (25) has two intersecting slits (23, 24) therethrough.
5. A method of making a tubular container (10) for dispensing paste product comprising forming a tube portion (11) and a flexible shoulder portion (15), said shoulder portion (15) formed by injecting molding as a single piece, a nozzle portion (17) extending upwardly from said shoulder portion having external threads (18) and a flat section (25) covering the opening of said nozzle portion (17), further comprising connecting said tube portion (11) to said shoulder portion (15), characterized by cutting at least one slit (23, 24) in said flat section, which flat section (25) is elevated a distance above

above the threads.

In Figure 1, there is shown tubular container 10 having a tube portion 11 sealed at the bottom at 12. The upper portion of the tubular container consists of shoulder 15 which has shoulder wall 16 and exit nozzle 17. On the exterior of the exit nozzle, there is shown threads 18 for attaching a threaded cap. The top portion 19 will have one or more slit openings. This nozzle portion is not an embodiment which comprises the features according to the invention.

In Figure 2 and Figure 3, there is shown the shoulder section 15 and the tube section 11 respectively. The tubular portion 11 has an upper opening 13 defined by rim 14. The shoulder portion 15 has a vertical portion 21 which terminates in rim 20. Rim 20 defines aperture 22. In assembling the shoulder 15 onto the tube 11, the vertical portion 21 extends downward into opening 13 of the tube portion 11. The two portions are then heat sealed. It is also an embodiment where the vertical portion 21 of the shoulder extends down over the wall of tube 11 and is then heat sealed. This can be by any convenient heat sealing technique, including RF sealing and ultrasonic sealing. The embodiment shown in fig. 2 does not comprise the characterizing features according to the invention.

Figure 4 and Figure 5 show configurations for the openings in the membrane closures on the nozzle portion of the shoulder. In Figure 4, there is shown to be one slit opening 23 while in Figure 5 there is shown to be two slit openings, 23 and 24, which slit openings intersect. These two slit openings need not intersect, and further, there may be more than two slit openings.

Figure 6 sets out an alternate embodiment for the shoulder portion. In this embodiment, the slit region 19 is elevated above threads 18 by sidewall 26. This is in the nature of a hat type of dispensing slit arrangement. As with the prior embodiments in this embodiment, the shoulder is a single molded piece.

The entire shoulder portion is molded as a single piece, including the membrane 25 on the top portion. This can be conveniently accomplished by compression molding. Since the shoulder portion is constructed as one piece, there is removed the likelihood of leakage at joints. The slits 23 and 24 are cut into the membrane 25 at a convenient time. This can be after the shoulder portion has been molded and prior to bonding to the tubular container portion, after attachment to the tubular container portion, or after the tube has been filled with a paste-like product.

The tube portion and shoulder portion can be made out of any single or multilayer compatible materials. These include polyolefin, polyester polymers and copolymers, including polyethylene,

polypropylene, vinyl acetate, and ethylene-vinyl acetate copolymers, polyethylene terephthalate polymers and polyethylene terephthalate copolymers.

Claims

1. A tubular container (10) for dispensing a paste product comprising a tube portion (11) and a closure portion, said tube portion (11) being sealed at one end (12) with the other end having said closure portion attached thereto, said closure portion comprised of a one-piece flexible polymeric material having a shoulder portion (15) attached to said tube portion (11) by means of a skirt (21), symmetrical in shape to said tube portion (11) and which contacts a sufficient area of the tube portion (11) to form a seal, said shoulder portion (15) having extending upwardly a nozzle (17) having threads (18) on the exterior thereof, characterized in that said nozzle (17) terminates in a continuous substantially flat (25) section having at least one slit (23, 24) therethrough for dispensing of the paste product contained in the tubular container (10), the flat section (25) being elevated a distance above the threads (18) by a sidewall (26), said distance being at least equivalent to the distance along which the threads extend, such that the potential for leakage is removed.
2. A tubular container as in claim 1 wherein said tube portion (11) is heat sealed at the lower end (12).
3. A tubular container as in claim 1 wherein said tube portion (11) is comprised of a material selected from the group consisting of polyolefin and polyester polymers and copolymers.
4. A tubular container as in claim 1 wherein said continuous flat section (25) has two intersecting slits (23, 24) therethrough.
5. A method of making a tubular container (10) for dispensing paste product comprising forming a tube portion (11) and a flexible shoulder portion (15), said shoulder portion (15) formed by injecting molding as a single piece, a nozzle portion (17) extending upwardly from said shoulder portion having external threads (18) and a flat section (25) covering the opening of said nozzle portion (17), further comprising connecting said tube portion (11) to said shoulder portion (15), characterized by cutting at least one slit (23, 24) in said flat section, which flat section (25) is elevated a distance above



said exterior threads (18) by a side wall (26), said distance being at least equivalent to the distance along which the threads extend, such that the potential for leakage is removed.

6. A method as in claim 5 wherein said tube portion (11) is filled with a paste product and the end (12) of said tube opposite said shoulder portion (15) is sealed.
7. A method as in claim 5 wherein said at least one slit (23, 24) is cut in said flat section (25) after said tube portion (11) is filled with paste product.
8. A method as in claim 5 wherein there are at least two slits (23, 24) cut in said flat section (25).
9. A method as in claim 5 wherein said slits (23, 24) intersect.
10. A method as in claim 5 wherein the nozzle portion (17) on its exterior surface has threads (18).
11. A method as in claim 10 wherein a cap engages said threads (18) and covers said flat section (25).

Patentansprüche

1. Röhrenförmiger Behälter (10) zum Spenden von pastenartigen Produkten, versehen mit einer Röhre (11) und einem Verschuß, wobei die Röhre (11) an einem Ende (12) abgedichtet ist und am anderem Ende der Verschuß befestigt ist, der aus einem einteiligen flexiblen Polymermaterial besteht und eine Schulter (15) aufweist, die an der Röhre (11) durch einen Rand (21) befestigt ist, der in seiner Form symmetrisch zu der Röhre (11) ist und einen genügenden Teil der Röhre (11) berührt, um eine Abdichtung zu bilden, wobei die Schulter (15) einen sich nach oben erstreckenden Hals (17) mit Gewinde (18) auf dessen Außenfläche aufweist, dadurch gekennzeichnet, daß der Hals (17) in einem ununterbrochenen, im wesentlichen flachen (25) Teil endet, durch den mindestens ein Schlitz (23, 24) zum Spenden des in dem röhrenförmigen Behälter (10) enthaltenen pastenartigen Produktes verläuft, wobei der flache Teil (25) durch eine Seitenwand (26) in einigem Abstand über dem Gewinde (18) liegt, welcher Abstand mindestens äquivalent zu dem Abstand ist, über den das Gewinde sich erstreckt, derart, daß die Leckmöglichkeit beseitigt ist.

2. Röhrenförmiger Behälter nach Anspruch 1, wobei die Röhre (11) am unteren Ende (12) durch Heißsiegeln abgedichtet ist.

3. Röhrenförmiger Behälter nach Anspruch 1, wobei die Röhre (11) aus einem Material besteht, ausgewählt aus der Gruppe, bestehend aus Polyolefin- und Polyesterpolymeren und -copolymeren.

4. Röhrenförmiger Behälter nach Anspruch 1, wobei zwei sich schneidende Schlitz (23, 24) durch den ununterbrochenen flachen Teil (25) verlaufen.

5. Verfahren zur Herstellung von röhrenförmigen Behältern (10) zum Spenden von pastenartigen Produkten, wobei eine Röhre (11) und eine flexible Schulter (15) gebildet werden, welche Schulter (15) im Spritzgußverfahren einzeln gebildet wird, wobei ein Hals (17) sich von der Schulter nach oben erstreckt und ein Außengewinde (18) und einen flachen, die Öffnung des Halses (17) bedeckenden Teil (25) aufweist, und wobei die Röhre (11) mit der Schulter (15) verbunden wird, dadurch gekennzeichnet, daß mindestens ein Schlitz (23, 24) in den flachen Teil geschnitten wird, welcher flache Teil (25) durch eine Seitenwand (26) in einigem Abstand über dem Außengewinde (18) liegt, welcher Abstand mindestens äquivalent zu dem Abstand ist, über den das Gewinde sich erstreckt, derart, daß die Leckmöglichkeit beseitigt ist.

6. Verfahren nach Anspruch 5, wobei die Röhre (11) mit einem pastenartigen Produkt gefüllt ist und das der Schulter (15) gegenüberliegende Ende (12) der Röhre abgedichtet ist.

7. Verfahren nach Anspruch 5, wobei der mindestens eine Schlitz (23, 24) in den flachen Teil (25) geschnitten wird, nachdem die Röhre (11) mit einem pastenartigen Produkt gefüllt worden ist.

8. Verfahren nach Anspruch 5, wobei mindestens zwei Schlitz (23, 24) in den flachen Teil (25) geschnitten werden.

9. Verfahren nach Anspruch 5, wobei die Schlitz (23, 24) sich schneiden.

10. Verfahren nach Anspruch 5, wobei der Hals (17) auf seiner Außenfläche mit Gewinde (18) versehen ist.



11. Verfahren nach Anspruch 10, wobei eine Kappe auf das Gewinde (18) aufgeschraubt wird und den flachen Teil (25) bedeckt.

Revendications

1. Récipient tubulaire (10) pour distribuer un produit pâteux, comprenant un tube (11) et une fermeture, ledit tube (11) étant étanché à l'une extrémité (12) et ayant ladite fermeture attachée à l'autre extrémité, ladite fermeture comprenant une matière polymère flexible d'une seule pièce ayant un col (15) attaché audit tube (11) par un bord (21), symétrique en forme relatif audit tube (11), et qui touche une zone du tube (11) suffisante à former une étanchéité, ledit col (15) ayant un goulot (17) s'étendant en haut et muni d'un pas de vis (18) à l'extérieur, caractérisé en ce que ledit goulot (17) se termine en une section continue et substantiellement plate (25), ladite section ayant au moins une fente (23, 24) à travers pour distribuer le produit pâteux contenu dans le récipient tubulaire (10), la section plate (25) étant élevée une distance au-dessus du pas de vis (18) par une paroi latérale (26), ladite distance étant au moins équivalente à la distance sur laquelle le pas de vis s'étend, de manière à ce que la possibilité de fuites soit éliminée.
2. Récipient tubulaire conforme à la revendication 1, dans lequel ledit tube (11) est scellé par la chaleur à l'extrémité inférieure (12).
3. Récipient tubulaire conforme à la revendication 1, dans lequel ledit tube (11) comprend une matière sélectionnée parmi le groupe se composant de polymères et copolymères de polyoléfines et polyesters.
4. Récipient tubulaire conforme à la revendication 1, dans lequel ladite section plate continue (25) est munie à travers de deux fentes s'entrecroisant (23, 24).
5. Procédé pour produire un récipient tubulaire (10) pour distribuer un produit pâteux, comprenant la formation d'un tube (11) et d'un col flexible (15), ledit col (15) étant formé d'une seule pièce par le moulage par injection, un goulot (17) s'étendant en haut depuis ledit col étant muni d'un pas de vis extérieur (18) et une section plate (25) couvrant l'ouverture dudit goulot (17), d'ailleurs comprenant la fixation dudit tube (11) au col (15), caractérisé en ce qu'au moins une fente (23, 24) est coupée dans ladite section plate, ladite section plate (25) étant élevée une distance au-dessus dudit

5

10

15

20

25

30

35

40

45

50

55

pas de vis extérieur (18) par une paroi latérale (26), ladite distance étant au moins équivalente à la distance sur laquelle le pas de vis s'étend, de manière à ce que la possibilité de fuites soit éliminée.

6. Procédé conforme à la revendication 5, dans lequel ledit tube (11) est rempli d'un produit pâteux et l'extrémité (12) dudit tube opposée audit col (15) est étanchée.
7. Procédé conforme à la revendication 5, dans lequel au moins une fente (23, 24) est coupée dans ladite section plate (25) après que ledit tube (11) est rempli d'un produit pâteux.
8. Procédé conforme à la revendication 5, dans lequel au moins deux fentes (23, 24) sont coupées dans ladite section plate (25).
9. Procédé conforme à la revendication 5, dans lequel lesdites fentes (23, 24) s'entrecroisent.
10. Procédé conforme à la revendication 5, dans lequel le goulot (17) est muni à l'extérieur d'un pas de vis (18).
11. Procédé conforme à la revendication 10, dans lequel un bouchon se visse sur ledit pas de vis (18) et couvre ladite section plate (25).

