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Sealing disc with gripping tab

The invention relates to a sealing disc with a gripping tab.

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Sealing discs are known in various forms of manufacture (DE 1 482 575, EP 0 148 527 B1, GB 2 142 911 A, US 4 266 687). They are manufactured as thin discs with a gripping tab and a special thermoplastic coating for heat sealing in induction technology. The sealing discs are placed on a container and connected to the upper edge of this container. They can be withdrawn again from the edge of the container by means of the gripping tab if the container has to be opened. The gripping tab is so disposed that it is not connected to the edge of the container during the heat sealing.

The object of the invention is to provide an improved sealing disc with gripping tab.

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This object is achieved by the invention defined in claim 1. Developments of the invention are defined in the sub-claims. A sealing disc with gripping tab is thereby created which possesses a form such that it is suitable

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both for heat sealing and for the adhesion and contact pressure method. The fit inside a closure for a container is very reliable due to the arrangement of further tabs. Pneumatic transport in the container is thereby permitted.

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Moreover, the singular form of the sealing disc possesses at the same time a decorative, aesthetic value. Because it is able to be manufactured in different sizes and forms, individual adaptation to customers' requirements is
10 possible without increased technical sophistication.

In principle a sealing disc with a gripping tab for the peelable closing of a container is created by the sticking, sealing or the like of the surface of the
15 sealing disc, which surface is pressed against an edge of the container by means of a closure, in particular by induction or heat welding, which comprises supporting tabs for creating a good fit of the gripping tab in the closure and retaining tabs for the additional securing of the
20 sealing disc in the closure. The supporting tabs are tabs which are mostly disposed next to the gripping tab and support the gripping tab in the closure when it is not in engagement with the latter. To this end they engage with a groove, retaining bead or the like provided in the closure
25 or with a screw groove of the female thread of the closure. The diameter of the mostly circular sealing discs essentially corresponds to the inner diameter of the female thread inside the closure. With known sealing discs, their diameter matches the outer diameter of the female
30 thread inside the closure. The supporting tabs thus in fact replace a ring of the known sealing discs which

corresponds to this difference between inner and outer diameter of the female thread of the closure. Material is therefore saved and at the same time a more simple insertion of the sealing disc into the closure is
5 provided. Removal from the closure and replacement of the sealing discs is also made easier in this way.

The retaining tabs are mostly disposed on the side of the sealing disc which lies opposite the gripping tab and the
10 supporting tabs. They ensure a further securing of the sealing disc in the closure of the container.

Advantageously an equivalent number of tabs are provided as gripping tabs and supporting tabs, for example three retaining tabs for two supporting tabs and one gripping
15 tab. Retaining tabs and supporting tabs together replace the above-mentioned greater diameter of the known sealing discs.

The gripping tab projects beyond the groove or retaining
20 bead or the screw groove of the female thread of the closure. It rests against the female thread and is held firmly thereby during the screwing down of the closure.

The sealing disc is introduced into the closure while the
25 closure is being screwed down onto the container on the edge thereof. For the closure or sealing of the container the sealing disc is then either heated together with the edge of the container or, by contact pressure of the surface of the sealing disc facing the edge of the
30 container and prior application of an adhesive on this edge, is stuck thereto. During the heat sealing the

sealing disc is connected to the edge of the container by means of its thermoplastic coating. If the sealing disc, on the opening of the container, has to be again removed therefrom, it can be pulled off or peeled from the
5 container edge by means of the gripping tab. This is also possible if the sealing disc is attached to the edge of the container by adhesion and contact pressure.

For the detailed explanation of the invention, several
10 embodiments of sealing discs with a gripping tab will be described below by means of the drawings. These show in:

Fig. 1: a perspective, exploded view of a container with a closure and a sealing disc according to the
15 invention,

Fig. 2: a top plan view of the sealing disc according to Fig. 1,

20 Fig. 3: a perspective view of a cut-away closure with an inserted sealing disc in a second embodiment,

Fig. 4; a top plan view of the sealing disc according to Fig. 3,

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Fig. 5: a top plan view of a third embodiment of a sealing disc according to the invention and

Fig. 6: a top plan view of a fourth embodiment of a
30 sealing disc according to the invention.

Fig. 1 shows a perspective, exploded view of a container 1 with a sealing disc 2 according to the invention and a closure 3. The container 1 comprises at its upper end 4 a male thread 5. The latter ends in an upper edge 6. The sealing disc 2 can be fitted to this upper edge 6. The sealing disc 2 is essentially circular. Its diameter essentially corresponds with that of the upper edge 6 of the container 1. Along its outer edge 7 the sealing disc 2 has various tabs 8, 9, 10. The tab 8 is a gripping tab. It is formed as an elongated tab with a rounded end 11. The size of the gripping tab 8 is such that at it the sealing disc 2 can be removed from the closure 3 or from the upper edge 6 of the container 1 by pulling or withdrawing.

The tabs 9 are supporting tabs. Two supporting tabs 9a and 9b are provided in Fig. 1. These are disposed adjacent to the gripping tab 8. The ends, bordering on the outer edge 7 of the sealing disc 2, of the tabs 8, 9a, 9b border one another directly and merge into one another. The transition zone 12 is rounded in shape, in order to prevent a notch effect and the resulting risk of inward or outward tearing of the tabs during removal from the edge 6 of the container 1 or during the pulling of the sealing disc 2 out of the closure 3. The supporting tabs 9a, 9b support the sealing disc 2 in the closure 3. This means that they engage with a female thread 13 provided on the inside of the closure 3 or a groove provided there (not shown). To this end the supporting tabs 9a, 9b possess a length corresponding or adapted to the depth of the female thread 13. The width of the supporting tabs 9a, 9b is

variably selectable. A reliable fit of the sealing disc 2 in the closure 3 should be facilitated.

The tabs 10 are retaining tabs. They are disposed on the 5 side of the sealing disc 2 which is opposite the supporting tab(s) and the gripping tab. Three retaining tabs 10a, 10b and 10c are provided in Fig. 1. The retaining tab 10b is disposed exactly opposite the gripping tab 8. The two other retaining tabs 10a, 10c are 10 disposed adjacent thereto at an acute angle thereto measured from the centre of the sealing disc 2. The retaining tabs 10 can however also be provided in another disposition or quantity. Since they are intended for the additional securing of the sealing disc 2 in the closure 15 3, they should however be so proportioned and disposed that this is guaranteed. The retaining tabs 10 are mostly of a size corresponding to the supporting tabs 9. The tab 8 is on the other hand mostly greater in size, as in Fig. 2.

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The sealing disc 2 is first of all introduced into the closure 3. At the same time both the supporting tabs 9a, 9b and the retaining tabs 10a, 10b, 10c engage with groove 14 of the female thread 13. The gripping tab 8 does not 25 engage with the groove 14, but projects beyond it and in some cases rests against it. The closure is then screwed onto the upper end 4 of the container 1 provided with the male thread 5. If the sealing disc 2 is to be connected to the edge 6 of the container 1 by means of heat sealing, 30 the container 1 with closure 3 is subjected to the corresponding heat in the screwed-down state. The

connection of sealing disc 2 and edge 6 is improved by the fact that a peripheral, linear contact surface 15, shown only in outline, in the closure 3 presses the sealing disc 2 against the edge 6. The tabs 9, 10 projecting into the female thread 13 of the closure 3 and the gripping tab 8 are not connected to the edge 6 during the sealing. Instead of heat sealing the sealing disc 2 and the edge 6 of the container 1 can however also be adhered to one another or connected to one another in a different way. In this case an adhesive is applied to the edge 6 prior to the screwing down of the closure 3.

During the unscrewing of the closure 3 from the container 1 the sealing disc remains behind on the edge 6 of the container 1. The sealing action is therefore retained. It is terminated only when the sealing disc 2 is pulled from the edge 6 of the container 1 by means of the gripping tab 8.

If the edge 6 of the container 1 and the sealing disc 2 are not connected firmly to one another, the sealing disc 2 disposed in the closure 3 nevertheless seals the container 1 when the closure 3 is screwed down onto the container 1. The sealing action is moreover dependent among other things on the material selected for the sealing disc, for example aluminium-coated polypropylene or polyethylene.

Fig. 2 shows the sealing disc 2 according to Fig. 1 in top plan view. Its essentially circular shape can be distinguished. The sealing disc 2 can however also have an

oval, rectangular or any other shape. The choice of the shape is simply dependent on the shape of the edge 6 of the container 1. In the top plan view the sealing disc appears in the shape of a tortoise. The tabs 8, 9, 10 are so disposed that the longer gripping tab 8 can be regarded as the head, the supporting tabs 9a, 9b and the retaining tabs 10a, 10c as the legs, and the middle retaining tab 10b as the tail of the tortoise. The sealing disc 2 thereby also acquires an aesthetic value. Its effect in advertising terms can also be taken into account, for example in the case of food for children which is stored in containers.

Fig. 3 represents a perspective view of a closure 3 with a sealing disc 2 according to the invention in a second embodiment. The closure 3 is shown partly cut away. The female thread 13 with its thread grooves 14 is thereby visible. The sealing disc 2 is supported in a groove 16 disposed above the female thread 13. The supporting tabs 9 and the retaining tabs 10 engage with this groove 16. The gripping tab 8 is curved downwards and rests against an outer wall 17 of the closure 3. On the screwing down of the closure 3 onto the container 1 the gripping tab 8 is clamped between this outer wall 17 and the wall of the container 1. A gap can however also be left between the two walls, for example in the form of a recess or the like, into which the gripping tab 8 is introduced.

The two supporting tabs 9a, 9b are in Fig. 3 disposed further removed from the gripping tab 8 than in the two previous figures. They are therefore disposed essentially

in a mirror-inverted manner relative to the two laterally disposed retaining tabs 10a, 10c.

Fig. 4 shows the sealing disc 2 according to Fig. 3 in top plan view. The mirror-inverted arrangement of the supporting tabs 9a, 9b and of the lateral retaining tabs 10a, 10b is clearly distinguishable. The middle retaining tab 10b is arranged opposite the longer gripping tab 8. The circular shape predominates in this embodiment of the sealing disc 2. The gripping tab 8 projects from this virtually regular shape.

Both the sealing disc 2 shown in Fig. 4 and those shown in the previous figures have a top side facing the closure 3 and consisting of a coated plastics material, for example polypropylene or polyethylene, with a coating of polypropylene or wax, and an underside facing the container. The underside is composed either of a metal coated with wax or similar or of a metal coated with a thermoplastically acting special-purpose paint, for example coated aluminium. If the sealing disc 2 is to be adhered to the edge of the container 1 or attached to it by contact pressure, the metal is simply coated with a conventional paint, which can be connected to the adhesive.

Fig. 5 shows a top plan view of a third embodiment of a sealing disc 2 according to the invention. In contrast to the previous embodiments, the latter comprises a gripping tab 8 considerably reduced in size. Its proportions are exactly those of the two lateral retaining tabs 10a, 10c.

The three tabs 8, 10a, 10c are disposed at an angle of about 120° to one another. The other three tabs, the supporting tabs 9a, 9b and the retaining tab 10b, are likewise disposed at an angle of 120° to another, offset by 5 60° relative to the three first-mentioned tabs 8, 10a, 10c. The three tabs 8, 10a, 10c are of larger size than the other three tabs 10b, 9a, 9b. The circular shape of the sealing disc 2 emerges even more clearly than with the embodiment in Fig. 4. The gripping tab 8 can however no 10 longer be distinguished as such, since three larger tabs are provided. In order to withdraw the sealing disc 2 from the edge 6 of the container 1, any of the three tabs 8, 10a, 10c can be grasped and pulled. All six tabs 8, 10a, 10c and 9a, 9b, 10b engage with the female thread 13 or 15 the groove 16 of the closure 3. Additional recesses can be provided in the groove 16 of the closure 3 for the larger tabs 8, 10a, 10c, so that during the heat sealing they are not sealed to the edge 6 of the container 1.

20 Fig. 6 shows in top plan view a fourth embodiment of a sealing disc 2 according to the invention. The sealing disc 2 possesses only the gripping tab 8 and the two lateral retaining tabs 10a, 10c, but no middle retaining tab 10b and no supporting tabs 9a, 9b. The retaining tabs 25 10a, 10c therefore assume the supporting function of the supporting tabs 9a, 9b and hold the sealing disc 2 firmly in the closure 3. To this end they have essentially the same size as the gripping tab 8 and are disposed at an angle of about 120° thereto. The gripping tab 8 can however 30 also be slightly larger. The firm fit of the sealing disc 2 in the closure 3 should however be ensured.

The sealing discs 2 of all the above-mentioned embodiments can be manufactured in various sizes and also in different intermediate variants. The particular shape and size are
5 determined by the shape and size of the container 1 and the closure 3 and by the desired aesthetic impression which is to be combined with the sealing disc 2. Printing can be provided on the top side of the disc 2, for example the name of the product or manufacturer. A coloured
10 coating is also possible. This can be considered in particular, for example, with the tortoise shape in Fig. 2.



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Claims

1. A sealing disc with a gripping tab (8) for the peelable closing of a container (1) by sticking, sealing or the like of the surface of the sealing disc (2), which surface is pressed by means of a closure (3) against an edge (6) of the container (1), in particular by induction or heat welding, **characterised in that** the sealing disc (2) has supporting tabs (9a, 9b) for creating a good fit of the gripping tab (8) in the closure (3) and retaining tabs (10a, 10b, 10c) for the additional securing of the sealing disc (2) in the closure (3).
2. A sealing disc according to claim 1, **characterised in that** the supporting tabs (9a, 9b) are disposed next to the gripping tab (8).
3. A sealing disc according to claim 1 or 2, **characterised in that** the retaining tabs (10a, 10b, 10c) and the supporting tabs (9a, 9b), in order to fix the sealing disc (2) in the closure (3), engage with a groove (16), retaining bead or the like disposed in the latter and/or engage with a groove (14) of a female thread (13) of the closure (3).
4. A sealing disc according to any of claims 1 to 3, **characterised in that** the container (1) is sealable peelably by means of the sealing disc (2) by contact pressure.

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5. A sealing disc according to claim 4 or any of claims 1 to 3, **characterised in that** the sealing disc (2), for the heat sealing and/or for the contact pressure during the sticking, sealing or the like of the sealing disc (2) to the edge (6) of the container (1), rests against a linear contact surface (15) in the closure (3) of the container (1).
6. A sealing disc according to claim 1 to 3, **characterised in that** the gripping tab (8) is larger than the supporting tabs (9a, 9b) and/or the retaining tabs (10a, 10b, 10c).
7. A sealing disc according to any of claims 1 to 5, **characterised in that** the two supporting tabs (9a, 9b) are disposed directly adjacent to the gripping tab (8) in such a way that the tabs (8, 9a, 9b) merge into one another.
8. A sealing disc according to claim 1 to 3 or 6, **characterised in that** three retaining tabs (10a, 10b, 10c) are so provided that a middle one (10b) is disposed opposite the gripping tab (8) and the other two (10a, 10c) are disposed laterally adjacent to the middle one (10b) at an acute angle thereto.
9. A sealing disc according to any of claims 1 to 8, **characterised in that** the sealing disc (2) has a shape adapted to the shape of the closure (3).





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10. A sealing disc according to claim 9, **characterised in that** the sealing disc (2) has an essentially circular shape.
- 5 11. A sealing disc according to claim 10, **characterised in that** the sealing disc (2) is shaped like a tortoise.
12. A sealing disc according to any of the preceding
10 claims, **characterised in that** the retaining tabs (10a, 10b, 10c) and the supporting tabs (9a, 9b) have essentially the same size.
13. A sealing disc according to any of claims 8 to 12,
15 **characterised in that** three retaining tabs (10a, 10b, 10c) are so provided that a first one is disposed opposite the gripping tab (8) and two further ones (10a, 10c) are disposed laterally adjacent to the first one at an acute angle thereto, and that the
20 supporting tabs (9a, 9b) are so provided that they are disposed in a mirror-inverted manner to the two lateral retaining tabs (10a, 10c).
14. A sealing disc according to claim 13, **characterised**
25 **in that** the two lateral retaining tabs (10a, 10c) are of the same size as the gripping tab (8).
15. A sealing disc with a gripping tab (8) for the
30 peelable closing of a container (1) by sticking, sealing or the like of the surface of the sealing disc (2), which surface is pressed by means of a





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closure (3) against an edge (6) of the container (1),
in particular by induction or heat welding,
characterised in that there are provided only two
lateral retaining tabs (10a, 10c) for securing the
5 sealing disc (2) in the closure (3) and the gripping
tab (8).

16. A sealing disc according to claim 15, **characterised**
in that the three tabs (8, 10a, 10c) are disposed at
10 an angle of essentially 120° to one another.

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