A sound-producing container closure for closing a container is provided. The closure is made at least partially of a brittle material. Furthermore, the closure is configured to be deformed upon opening the container such that the brittle material is deformed and thus produces a sound.
CONTAINER CLOSURE COMPRISING A SOUND PRODUCER

[0001] The invention relates to a container closure with sound-producing means.

[0002] Commercially available on the one hand are bottles with crown caps and on the other hand bottles with swing top closures, the latter being preferred by users due to the striking deep sound (“plop”) that occurs upon opening. Moreover, a clear opening sound which is caused by pressure equalisation between the contents of the bottle and the surroundings has the advantage of indicating the integrity of the bottle closure, and so when it is missing suggests that the content of the bottle may have been tampered with or that the content of the bottle has been manipulated.

[0003] However, swing top closures are more expensive to produce and additionally have the disadvantage of the bottles being equipped with them being difficult to introduce into a deposit circuit or a disposal system.

[0004] From the patent literature numerous bottle closures are known which supposedly produce a clear opening sound without the use of swing top closures. Therefore crown caps were proposed with which an opening sound is produced by means of additional elastic bulges which are moulded onto the inside of the crown cap such that they press against the upper internal wall of the neck of the bottle, provided the bottle is sealed, and when the bottle is opened are abruptly released from the neck of the bottle, by means of which a sound is produced (JP 01-139 350 A, JP 04-018 255 A, JP 07-257 628 A, JP 07-277 358 A and WO 2004/067 402 A). However, these closures have various disadvantages: Conventional crown caps can not be used in this way, but rather special caps have to be produced (which have said bulges on the inside). Moreover, production is expensive because the sound-producing parts are connected directly to the sealing parts of the cap and must observe the dimensional tolerances of the latter. Finally, the type of sound which can be produced with this type of closure is restricted to a “plop”.

[0005] Furthermore, from the patent literature a bottle closure is known which produces a whistling sound by the escaping gas flowing to the outside through a pipe fitted in the bottle opening after the opening of the actual cap. (NL 8001976 and JP 2000008779 A). However, this type of sound producer is relatively expensive to produce and additionally has the disadvantage that it also remains in the bottle after removing the closure, and this would bother most users of drink bottles because the pipe disposed in the neck of the bottle makes it difficult e.g. to introduce drinking straws or slices of lemon into the neck of the bottle and for the drink to flow out.

[0006] Means for producing whistling sounds are also proposed for cans of drink (U.S. Pat. No. 5,388,718 A and JP 2000006968 A). However, as with the aforementioned pipes in the necks of bottles, these sound producers also have the disadvantage that that container must be produced in a modified form before filling and closing, and so the sound-producing means can not be fitted subsequently.

[0007] All of the aforementioned possibilities have the additional disadvantage that the material used to produce the sound comes into contact with the liquid in the bottle—i.e. it must where necessary be food safe, and this makes production more expensive.

[0008] Finally, from the patent literature a sound producer is known with which the material of the bottle cover is moulded in the manner of the children’s “snap action frog” toy, and in the closed state of the bottle is in the semi-stable state so that upon opening the bottle, as a result of pressure equalisation, it jumps into the stable state and in so doing produces a sound (JP 2004 196 318 A). This type of sound producer is only suitable for screw closures though, and not however for crown caps because the latter are deformed upon opening, and due to this, the sound producer, which is dependent upon the holding of its outer shape in order to function, is prevented from functioning, or at least its function is interrupted. Moreover, another disadvantage of this sound producer is that closure parts must be produced which have relatively critical dimensions, and so are more expensive than the conventional crown caps.

[0009] The object which forms the basis of the invention is to provide a container closure with which different opening sounds can be produced and which is inexpensive to produce. In particular, the sound-producer should be suitable for use with conventional drinks containers and the closures of the latter, such as e.g. for cans of drink or for bottles with crown caps.

[0010] According to the invention the object is achieved by a container closure with the features of Patent claim 1.

[0011] An essential advantage results from the fact that the sound-producing means (brittle material) is fitted outside of the container interior or is separated from the drink content at least by the conventional sealing means (when using crown caps by sealing discs disposed here in the interior). Therefore, when designing the sound producers, as regards shape and material, one need hardly take into account the requirements of the seal or the cleanliness of the container content. The plurality of materials and shapes which it thus becomes possible to use enables different designs for the production of different sounds.

[0012] In a preferred embodiment of the invention a crown cap closure of a known design has glued to it a disc made from a brittle material. This makes it possible, in a particularly inexpensive way, not only to produce sound-producing closures. In fact, in this way, even bottles which have already been closed in a conventional manner are subsequently equipped in a further procedural step with the sound producer. One does not already need to decide when filling which bottles are to be provided with a sound producer. In fact, the bottles can be filled, transported and stored, and only subsequently be provided with the sound producer if so required. This facilitates the production of small series, e.g. for temporary sales campaigns.

[0013] Further advantages of the invention are given in the following description of an exemplary embodiment particularly suitable for crown cap closures.

[0014] However, it is also possible to fit the sound producer to the closure of a can of drink or to produce a bottle closure totally from the brittle material (e.g. in the manner of a crown cap made of brittle plastic).

[0015] The figures show as follows:

[0016] FIG. 1 a section of the closure in the closed state,
[0017] FIG. 2 a section of the closure during the opening process.

[0018] The closure 1 here is a commercially available crown cap 2 made of sheet metal which with its bent over edge covers the neck of the bottle 3 with a form fit. Glued onto the upper side of the latter is a glass disc 3 with the same or a smaller diameter, a disc with a smaller diameter essentially having to be attached concentrically.
Upon opening (FIG. 2) the crown cap 1 bends and the brittle glass breaks—shown here in FIG. 2 in spatial region 4—a crunching sound being produced, similar to that caused e.g. when crushing ice cubes.

1. A sound-producing container closure for closing a container, the closure being made at least partially of a brittle material, wherein the closure is configured to be deformed upon opening the container such that the brittle material is deformed and thus produces a sound.

2. The container closure according to claim 1, wherein the brittle material breaks as a result of the deformation and therefore produces the sound.

3. The container closure according to claim 1, wherein the closure comprises a closure member having an outer surface, and the brittle material is attached to the outer surface of the closure member, and wherein the closure member is made of a material different than the brittle material.

4. The container closure according to claim 3, wherein the brittle material is a hardened coating which was previously applied in liquid form to the closure member, and upon hardening formed an adhesive connection to the closure member.

5. The container closure according to claim 1, wherein the whole closure is made of the brittle material.

6. The container closure according to claim 1, wherein the brittle material is glass.

7. The container closure according to claim 1, wherein the brittle material is a synthetic resin.

8. The container closure according to claim 1, wherein the brittle material is sealing wax.

9. The container closure according to claim 1, wherein the brittle material is Schellac.

10. The container closure according to claim 1, wherein the brittle material is a metal.

11. The container closure according to claim 1, wherein the container is a bottle and the closure is a crown cap.

12. The container closure according to claim 11, wherein the brittle material is formed as a disc to which a top surface of the crown cap is applied.

13. The container closure according to claim 11, wherein the brittle material is formed as a ring that encompasses an outer circumference of the crown cap.

14. The container closure according to claim 11, wherein the brittle material is formed as a cap that encloses the crown cap.

* * * * *