A flexible container is disclosed having a base member and walls extending from the base member. The flexible container is reinforced by a support structure integrally attached thereto, the support having a base support for reinforcing the base of the container and a side support for reinforcing the side walls of the container.
FLEXIBLE CONTAINER WITH INTEGRATED SUPPORT STRUCTURE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority from U.S. Provisional App. No. 60/506,174 filed on Sep. 26, 2003, the entire contents of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention generally relates to flexible containers, and in particular, molds constructed of a flexible silicone elastomer material having an integrated support structure.

[0003] Molds made of flexible or deformable materials are known and widely used for cooking on professional and domestic levels. One example of such molds is bakeware containing silicone elastomer material, herein referred to as “silicone bakeware.” There are many advantages to using silicone bakeware. The principal advantage is the flexibility of the silicone bakeware. Flexible bakeware allows the user to more easily remove baked items from the bakeware. Furthermore, the chemical composition of silicone bakeware typically provides a slick interior surface, eliminating the need to grease and flour the pans and allowing the baked items to easily slip out of the bakeware. Another advantage of flexible bakeware is that when it is not in use, it can be stored in a folded state, thereby minimizing the storage room necessary.

[0004] The main characteristic of silicone bakeware is that it remains thermally stable and non-toxic over a broad temperature range. As a result, the silicone bakeware can go from the refrigerator or freezer to the oven, and thereafter into a dishwasher. For example, the same mold can be used for preparing ice cream cakes at very low temperatures (e.g., -140°F) and for baking cakes at high temperatures (e.g., 500°F). Moreover, the molds can be used in the microwave. After use, the molds can be easily cleaned by hand or in the dishwasher.

[0005] A disadvantage of the known flexible molds is that when filled with food, particularly food that is heavy in nature, the mold does not always maintain its shape. Because of its flexible nature, the walls of the mold can bulge, slant or otherwise fail to maintain their linear, vertical orientation. As a result, food baked therein may not have the intended shape because the mold was unable to retain its shape in the baking process. Furthermore, the flexible nature of the mold makes the mold unstable during movement. So, for example, when the mold is gripped and lifted, the mold may deform causing overflow of the liquid, semi-liquid or pasty contents or the breakage of the solid or semi-solid contents.

[0006] It would therefore be desirable to provide a flexible mold that has sufficient structural support to prevent the buckling or slanting of the mold wall and to prevent deformation of the mold during movement.

SUMMARY OF THE INVENTION

[0007] A flexible container is disclosed having a base member and walls extending from the base member. The flexible container is reinforced by a support structure integrally attached thereto, the support having a base support for reinforcing the base of the container and a side support for reinforcing the side walls of the container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a perspective view of a preferred embodiment of the flexible container of the present invention having an integrated support structure;

[0009] FIG. 2 depicts a portion of a preferred embodiment of the support structure of the present invention;

[0010] FIG. 3 depicts another preferred embodiment of the support structure of the present invention; and

[0011] FIG. 4 depicts another preferred embodiment of the invention having an extended portion on the lip thereof.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] As shown in FIG. 1, a preferred embodiment of the flexible container 10 of the present invention includes a base member 12 and side walls 14 extending from the base member 12. In the embodiment shown in FIG. 1, container 10 has a rectangular shape. It is envisioned that the container of the present invention can be of any shape or size, including various geometrical shapes (e.g., circular, square, triangular, rectangular, oval, polygonal) or can be in the shape of an article, character or other artwork. Accordingly, the appearance and shape of the container should not be limited to that shown in the drawings or described herein.

[0013] Furthermore, although the terms bakeware and mold are used herein, the invention is intended to include any flexible cooking container, regardless of the type of food prepared therein or the method of preparation. Bakeware and mold are simply terms used to describe preferred embodiments of the invention. As such, these terms should not be construed as limiting the scope of the invention.

[0014] In a preferred embodiment of the invention, as shown in FIG. 1, the flexible container 10 includes a lip or edge 16 extending from the side walls 14. The thickness of the lip 16 is preferably greater than the thickness of the side walls 16. The lip 16 preferably includes a textured surface to provide assistance in maintaining a grip on the lip 16 and to reduce the risk of the lip slipping from one’s grasp.

[0015] The flexible container 10 is reinforced by support structure 20. In a preferred embodiment of the invention, the support structure 20 includes a base support 22 and a side support 24. In the embodiment shown in FIG. 1, the base support includes two cross-members 26 that form an “X” across the base member 12 of the container. The cross-members 26 have extended arms 28 that connect to the side support 24.

[0016] In a preferred embodiment of the invention, side support 24 includes a series of support sections 30. The benefit of using support sections 30 is that during the manufacturing process, the versatility of the support sections 30 enables one to use the same pieces to create support structures 20 for containers of various sizes and shapes. Furthermore, by using support sections 30, the side support 24 can tolerate a certain degree of expansion resulting from heat or other environmental conditions.
The support sections are preferably interconnected by coupling members. In the embodiment shown in FIGS. 1 and 3, coupling members are spherical beads having an opening therethrough. Each end of a support section is inserted in the opening of a coupling member. The size of the opening should be selected such that the coupling member firmly grips the end of the support section, thereby securing coupling one support section to an adjoining support section. The coupling member is not limited to the embodiment described herein but encompasses any device that can interconnect adjoining support sections.

In a preferred embodiment of the invention the support sections are made of stainless steel, having a diameter of 1.5 to 2 mm. The spherical beads preferably are made of a material containing silicone. Those skilled in the art will know that other materials can be substituted for those described herein.

In FIG. 1, the side support is shown positioned adjacent the bottom surface of edge. However, the position of the side support can be adjusted to provide structural support where needed. For example, the side support can be positioned at or near the center of the side wall. The side walls and/or edge preferably have channels to receive coupling members. The coupling member should be sized to be slightly smaller than the size of channel.

The support structure is preferably not removable from the flexible container. In another preferred embodiment, the support structure is integrally molded with the flexible container. During the manufacturing process, after the support structure is constructed, the structure can be inserted into the mold and integrally molded with the flexible container. Alternately, during the molding process, the flexible container can be manufactured with receiving channels therein, and the support structure can be snap-fitted into the receiving channels. The manufacturing techniques described herein are for exemplary purposes only. Other known manufacturing techniques can be employed by those skilled in the art.

FIG. 2 depicts another preferred embodiment of the invention, wherein the side support is an integral assembly attached to the base support, forming a unitary support structure. It is within the scope of the invention for side support and base support to be manufactured as a unitary structure or as one or more pieces that are connected to each other.

FIG. 4 depicts another preferred embodiment of the invention, wherein lip is an extended portion. Extension portion can be adapted to receive a logo. In another embodiment of the invention, the lip carries at least two extended portions, one on each side of the container (not shown). The extended portions are sized and positioned to facilitate the grip of a user, thereby assisting the user in grasping, lifting or moving the flexible container. In yet another preferred embodiment of the invention, the extended portion includes an aperture therein (not shown) that facilitates the hanging of the flexible container from a hook, thereby providing an alternate method of storing the container.

Many modifications and other embodiments of the invention set forth herein will come to mind to one skilled in the art to which the invention pertains having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the invention is not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

1. A flexible container, comprising:
   a base member;
   at least one wall extending from the base member, the at least one wall defining a periphery;
   a support structure having a base support and a side support, wherein the base support is adapted to reinforce the base member and the side support is adapted to reinforce the at least one wall;
   wherein the base support is integrally attached to the base member.

2. The flexible container of claim 1 wherein the base support is molded with base member.

3. The flexible container of claim 1 wherein the side support extends completely about the periphery of the at least one side wall.

4. The flexible container of claim 1 wherein the side support comprises a plurality of support sections.

5. The flexible container of claim 4 wherein the plurality of support section comprises first and second support section adjoined each other, wherein the first and second support section are joined by a coupling member.

6. The flexible container of claim 5 wherein the coupling member is bead-shaped.

7. The flexible container of claim 5 wherein the coupling member comprises silicone.

8. The flexible container of claim 1 wherein the base member comprises cross-members forming an X-shape.

9. The flexible container of claim 1, wherein the support structure comprises stainless steel.

10. The flexible container of claim 1, wherein the support structure comprises a wire assembly having a diameter of about 1.5 to 2 mm.

11. The flexible container of claim 1 wherein the support structure is an integral, unitary assembly.

12. The flexible container of claim 1 further comprising a lip extending from the at least one side wall, wherein the lip includes an extended portion and wherein the extended portion is adapted to receive a logo therein.

13. The flexible container of claim 1 wherein the at least one side wall comprises a first wall and a second wall opposite the first wall, a lip extends around the periphery, and the lip carries a first extended portion proximal the first wall and a second extended portion proximal the second wall.

14. A flexible container, comprising:
   a base member;
   at least one wall extending from the base member, the at least one wall defining a periphery;
   a support structure having a base support and a side support, wherein the base support is adapted to rein-
force the base member and the side support is adapted to reinforce the at least one wall; and

wherein the base support is integrally attached to the base member and the side support comprises at least two support sections joined together by an coupling member.

15. The flexible container of claim 14 wherein the coupling member is bead-shaped.

16. The flexible container of claim 14 wherein the coupling member comprises silicone.

17. A method of making a flexible container having an integral support structure, comprising the steps of:
    providing a support structure assembly;
    placing the support structure assembly inside a mold; and
    molding the container on the support structure assembly.

18. The method of claim 17 wherein the support structure comprises a wire assembly and the step of molding the container comprises pouring a mixture comprising silicone onto the wire assembly in the mold.

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