may retain the squeezed shape as is. The tubular container that retains the shape of the body part as is changes in outer shape in accordance with the residual amount of the contents when squeezed by hand. Such a tubular container has the advantage of allowing determination of the residual amount of the contents from the external form of the tubular container.

[0007]

In Patent Document 4, there is proposed a tubular container that encloses a paste material having low fluidity, such as toothpaste, cosmetics, condiments, food, or medicine. In the tubular main body that constitutes this tubular container, a multilayer laminate sheet comprising an innermost layer made of a polyethylene resin and a gas barrier layer is used. An edge of the multilayer laminate sheet is sealed and formed into a cylindrical shape. The gas barrier layer is formed from a metal oxide deposited film, an aluminum foil, or the like.

Patent Documents

[0008]

Patent Document 1: Japanese Laid-Open Patent Application No. H11-5721
Patent Document 2: Japanese Laid-Open Patent Application No. H09-132251
Patent Document 3: Japanese Laid-Open Patent Application No. 2002-96847
Patent Document 4: Japanese Laid-Open Patent Application No. 2001-151251

SUMMARY

[0009]

The tubular container proposed in Patent Document 1 is for storing toothpaste. The innermost layer of the tubular container comprises an ethylene-vinyl alcohol copolymer. In general, an ethylene-vinyl alcohol copolymer is mainly used when oxygen barrier properties, oil resistance, and chemical resistance are required, and is not necessarily superior in non-absorbing properties. Thus, this tubular container may not sufficiently achieve the effect of non-absorbing properties with respect to substances other than L-menthol.

[0010]

Further, in the tubular containers proposed in Patent Document 1 and Patent Document 2 and the squeezable container proposed in Patent Document 3, the outlet section and the body section are configured as an integrated body obtained by extrusion-molding a resin. Thus, such a tubular container cannot be formed by members made of different materials, decreasing the degree of freedom of material selection.

[0011]

Various embodiments were made to resolve the above problems, and to provide a tubular container having non-absorbing properties with respect to contents as well as gas barrier properties.

[0012]

(1) A tubular container according to a first aspect of the present disclosure is a container that has non-absorbing properties with respect to contents as well as gas barrier

properties, and allows formation of an outlet unit and a body part using members made of different materials. That is, this tubular container comprises at least an outlet unit that includes an outlet part through which the contents are dispensed and a shoulder part that extends radially outward from the outlet part; and a body part that is made of a laminated film, is welded to the shoulder

part of the outlet unit, and stores the contents therein.

Furthermore, this tubular container has the following characteristics. At least the surfaces of the outlet unit that comes into contact with the contents are formed from a non-absorbing resin. In the body part, a first surface side of one side edge of the laminated film is overlapped and welded to a second surface side of the other side edge. One end of the body part in an axial direction is welded to an outer peripheral surface of the shoulder part. On the other end of the body part in the axial direction, inner surfaces are aligned and welded together, or at least the surfaces that come into contact with the contents are welded to a lid member made of a non-absorbing resin. The laminated film comprises at least an innermost layer formed from a non-absorbing resin on an inner side that comes into contact with the contents, an outermost layer formed from a non-absorbing resin on an outermost side, and an intermediate layer formed between the innermost layer and the outermost layer and including a gas barrier layer.

[0013]

According to an embodiment, when the outlet unit, the body part, and the lid member are provided, the surfaces that come into contact with the contents along with the lid member are each formed from a non-absorbing resin. Thus, it is possible to form these from different materials and thus increase the degree of freedom of material selection. Further, the innermost layer and the outermost layer of the laminated film that constitutes the body part are formed from a non-absorbing resin, and the intermediate layer comprises a gas barrier layer. This makes it possible to provide a tubular container having non-absorbing properties with respect to the contents as well as gas barrier properties. As a result, the tubular container according to the present invention is capable of smoothly dispensing the contents and preventing a decrease in flavor, efficacy, and the like of the contents.

[0014]

In the tubular container according to an embodiment, the outlet unit is formed from a non-absorbing resin. According to this invention, it is possible to achieve an outlet unit having non-absorbing properties, and provide a tubular container that comprises the outlet unit and has non-absorbing properties.

[0015]

In the tubular container according to an embodiment, the outlet unit comprises at least the innermost layer formed from a non-absorbing resin, the intermediate layer including a gas barrier layer, and the outermost layer formed from a non-absorbing resin. According to this invention, it is possible to achieve an outlet unit having non-absorbing properties and gas barrier properties, and provide a tubular container that comprises the outlet unit and has non-absorbing properties as well as gas barrier properties.

[0016]

In the tubular container according to an embodiment, the gas barrier layer is made of a metal foil, a metal deposited film, or an inorganic vapor-deposited film. According to this invention, it is possible to achieve a body part having non-absorbing properties with respect to the contents as well as gas barrier properties. As a result, a tubular container that prevents a decrease in the flavor, efficacy, and the like of the contents can be provided.

[0017]

In the tubular container according to the present invention, the laminated film comprises one type or two or more types of resin layers selected from a polyolefin, an adhesive resin, and a thermoplastic elastomer. According to this invention, the body part is formed from the laminated film comprising such a resin layer, and thus the body part is flexible, making it possible to improve the squeezability that allows the contents to be pushed out and dispensed.

[0018]

(2) A tubular container according to a second aspect of the present disclosure is a tubular container that has non-absorbing properties with respect to contents as well as gas barrier properties, and allows the contents to be visually checked from outside the tubular container. That is, this tubular container comprises at least an outlet unit that includes an outlet part through which the contents are dispensed and a shoulder part that extends radially outward from the outlet part; and a body part that is welded to the shoulder part of the outlet unit, and stores the contents therein. Furthermore, the body part is a transparent body part comprising at least an innermost layer formed from a non-absorbing resin on an inner side that comes into contact with the contents, an outermost layer formed on an outermost side, and an intermediate layer formed between the innermost layer and the outermost layer and including a gas barrier layer.

[0019]

According to an embodiment, a transparent body part that comprises a gas barrier layer is formed, allowing the contents to be checked from outside the tubular container and imparting gas barrier properties. As a result, the residual amount and the like of the contents can be visually checked, and a decrease in the flavor, efficacy, and the like of the contents can be suppressed. Further, the innermost layer of the body part is formed from a non-absorbing resin, making it possible to suppress the absorption of the active ingredients and the like of the contents to the tubular container. Note that the body part can be formed into a cylindrical shape by extrusion molding or by overlapping the side edges of a laminated film having a rectangular shape, making it possible to provide a tubular container having various forms.

[0020]

In the tubular container according to an embodiment, one end of the body part in the axial direction is welded to the outer peripheral surface of the shoulder part. On the other end of the body part in the axial direction, the inner surfaces are aligned and welded together or welded to the lid member. According to this invention, as long as the material of the shoulder part of the outlet unit and the material of the innermost layer of the body part to be welded to the shoulder part are the same, the materials used for the layers of the body part other than the innermost layer can be materials different from that of the outlet unit. Further, even when the body part and the lid member are welded at the other end of the body part in the axial direction, as long as the material of the lid member and the material of the innermost layer or the outermost layer of the body part to be welded to the lid member are the same, the materials used for other layers of the body part can be materials different from

the material of the lid member. As a result, a tubular container having various forms can be provided.

[0021]

In the tubular container according to an embodiment, at least the surfaces of

the outlet unit and the lid member that come into contact with the contents are formed from a non-absorbing resin. According to this invention, it is possible to suppress the absorption of the active ingredients and the like of the contents to the tubular container.

[0022]

In the tubular container according to an embodiment, the outlet unit and the body part are integrated by extrusion molding in the same layer configuration as that of the body part, and the inner surfaces of the other end of the body part in the axial direction are aligned and welded together or the lid member is welded. According to this invention, it is possible to impart transparency, gas barrier properties, and non-absorbing properties not only to the body part but to the outlet unit as well. Note that, because the body part and the outlet unit are integrated by extrusion molding, a tubular container having various forms can be provided.

[0023]

In the tubular container according to an embodiment, the gas barrier layer is formed from one type or two or more types of resin selected from an ethylene-vinyl alcohol copolymer resin, a polyvinyl alcohol resin, a polyamide resin, and a polyvinylidene chloride resin. According to this invention, the tubular container comprises the body part that includes the gas barrier layer formed from a transparent resin described above, making it possible to form the body part using a laminated film including a transparent gas barrier layer, form the body part by extrusion molding, and provide a tubular container having various forms.

[0024]

In the tubular container according to an embodiment, the gas barrier layer has oxygen absorbency or an area between the gas barrier layer and the innermost layer comprises an oxygen absorbing layer. According to this invention, the intermediate layer may comprise the gas barrier layer having oxygen absorbency, or may comprise an oxygen absorbing layer separate from the gas barrier layer. With the intermediate layer having oxygen absorbency, the oxygen that exists inside the tubular container is absorbed, making it possible to suppress the occurrence of oxidation of the contents and the like as well.

[0025]

In the tubular container according to an embodiment, the intermediate layer is a transparent deposited layer having gas barrier properties. According to this invention, it is possible to impart transparency and gas barrier properties to the intermediate layer.

[0026]

According to various embodiments, it is possible to provide a new tubular container that has non-absorbing properties with respect to contents as well as gas barrier properties, and allows an outlet unit and a body part to be different members.

[0027]

According to various embodiments, it is

possible to provide a tubular container that has non-absorbing properties as well as gas barrier properties, allows contents to be visually checked from outside the tubular container, and has various forms.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028]

Fig. 1 is a plan view of one example of a tubular container according to the present