

DESCRIPTION

TITLE OF INVENTION PACKING POUCH

TECHNICAL FIELD

[0001]

The present invention relates to a packing pouch which opens due to vapor pressure or the like when the packing pouch filled with a contained item such as a retort-pouch food including a liquid body, a solid body, or a mixture thereof is heated by a microwave or the like and which is capable of discharging vapor generated therein to the outside.

BACKGROUND ART

[0002]

When a packing pouch filled with a contained item such as a retort-pouch food is heated by a microwave or the like, pressure in the packing pouch becomes higher due to gas such as vapor or the like generated from the contained item in association with the heating, which leads to a fear that the packing pouch bursts and the contained item scatters.

[0003]

To cope with the situation, there is a packing pouch including a mechanism to avoid the pressure increase in the inside of the packing pouch (reference is to be made to, for example, patent document 1: Japanese Patent Laid-Open Ser. No. 2002-80072, patent document 2: Japanese Patent Laid-Open Ser. No. 2005-82172, patent document 3: Japanese Patent Laid-Open Ser. No. 2003-182779, patent document 4: Japanese Patent Laid-Open Ser. No. 2005-320023, and patent document 5: Japanese Patent No. 3665795).

[0004]

In patent document 1, there is disposed an inflection-shaped heat seal (vapor exhaust seal section) to concentrate stress when the pressure goes up during the heat-cooking by the microwave, to preferentially peel off the vapor exhaust seal section such that vapor is discharged therefrom, to thereby prevent bursting of the packing pouch. The vapor exhaust seal section is a portion configured by sealing an area between an inner inflection contour in an inflected contour near an inner side of the packing pouch and an outer inflection contour in an inflected contour near an outer side of the packing pouch, and the portion is projected in an inflection contour toward an inner direction of the packing pouch.

[0005]

In the packing pouch of patent document 1 described above, it is possible that the vapor exhaust seal section is preferentially peeled off to discharge vapor to the outside, to thereby prevent the bursting of the packing pouch. However, the packing pouch disclosed in patent document 1 does not include means to notify an event of the opening; hence, it is required to visually confirm the event of the opening. Hence, for example, in a situation wherein during the heat-cooking of the contained item of the packing pouch by a microwave, when the cooking person leaves the place of the microwave or goes to another place for some work and overlooks the event of the opening of the packing pouch, the contained item in the packing pouch is excessively heated to be dehydrated after the opening of the packing pouch, and the taste thereof is deteriorated. Further, depending on the kind of the contained item, by heating it for a fixed period of time after the opening of the packing pouch, the taste can be improved due to the steaming effect; however, when the opening of the packing pouch is overlooked, it is not possible to obtain an appropriate period of steaming time.

[0006]

To cope with this situation, there is a packing pouch capable of notifying by a sound the event of the opening of the packing pouch.

[0007]

In patent document 2 described above, a non-seal section includes an air reservoir and a vibration piece produced through working, for example, by cutting the non-seal section itself, to make a sound by vibrating the vibration piece by vapor stored in the air reservoir. As a result, in patent document 2 described above, by conducting the working on packing material itself configuring the packing pouch, it is possible to notify through sounding the opening of the packing pouch.

[0008]

In patent document 3 described above, notches or splits as vapor passage facilitation means are formed in a seal section enclosed on four sides, and vapor is diffused to the outside by retraction of a seal in the seal section and the vapor passage facilitation means.

[0009]

Further, in patent document 1 and 4 described above, a heat seal (vapor exhaust seal section) in substantially a V contour is disposed to concentrate stress when pressure goes up during heat-cooking by a microwave, and the vapor exhaust seal section is preferentially peeled off to thereby discharge vapor therefrom to the outside.

[0010]

Moreover, for the packing pouch for microwaves disclosed in patent document 5, in consideration of serviceability for users when putting a contained item into the packing pouch and when displaying goods, there is disclosed a packing pouch to be placed in the vertical state in which a gusset is disposed in a bottom section of the packing pouch and which has substantially a triangular cross section such that the bottom section facilitates the standing of the packing pouch.

PRIOR ART REFERENCE

PATENT DOCUMENT

[0011]

- PATENT DOCUMENT 1: Japanese Patent Laid-Open Ser. No. 2002-80072
- PATENT DOCUMENT 2: Japanese Patent Laid-Open Ser. No. 2005-82172
- PATENT DOCUMENT 3: Japanese Patent Laid-Open Ser. No. 2003-182779
- PATENT DOCUMENT 4: Japanese Patent Laid-Open Ser. No. 2005-320023
- PATENT DOCUMENT 5: Japanese Patent No. 3665795

SUMMARY OF INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0012]

The packing pouch including the vapor exhaust mechanism described above has been widely used for its serviceability, and further improvement has been strongly desired.

[0013]

Embodiments of the present invention to provide a packing pouch in which improvement is made for vapor exhaust.

MEANS FOR SOLVING TO THE PROBLEMS

[0014]

According to a first aspect of the present invention, there is provided a packing bag having a seal section formed by sealing films, wherein the seal section is peeled off by inner vapor pressure generated inside and vapor is discharged to an outside of the packing bag, comprising;

a vapor exhaust seal section projecting by inflecting a part of the seal section in an inward direction, wherein the vapor exhaust seal section is substantially V-shaped, a non-seal section formed outside the vapor exhaust seal section, and a cut or a notch formed in a film of the non-seal section, wherein in a state before the packing bag expands, an inward end the cut or notch is disposed in a position inside of the packing bag than a line connecting start points of the substantially V shape, the vapor exhaust seal section is sandwiched by a pair of band-shaped end seal sections, the pair of band-shaped end seal sections are connected to side seal sections sealing side edges of the packing bag, respectively, the start points are points where an extension of an inner boundary line of each of the pair of band-shaped end seal sections crosses the vapor exhaust seal section, and a width of the vapor exhaust seal section is smaller than width of the pair of band-shaped end seal sections.

[0014a]

According to a second aspect of the present invention, there is provided a packing bag having a seal section formed by sealing films, wherein the seal section is peeled off by inner vapor pressure generated inside and vapor is discharged to an outside of the packing bag, comprising;

a vapor exhaust seal section projecting by inflecting a part of the seal section in an inward direction, wherein the vapor exhaust seal section is substantially V-shaped, a non-seal section formed outside the vapor exhaust seal section, wherein a gap between the films which are not sealed each other in the non-seal section communicate with the outside of the packing bag,

wherein the vapor exhaust seal section and the non-seal section are provided in a joining section formed by folding and overlapping of the films,

wherein the packing bag further comprising;

a first vapor discharge section and a second vapor discharge section

wherein the first vapor discharge section is composed of an opening area and the non-seal section, and the opening area is an area where the vapor exhaust seal section is peeled off and opened when the packaging bag expands, and

wherein the second vapor discharge section is formed by a cut or a notch formed in the non-seal section, wherein

in a state before the packing bag expands, an inward end of the cut or notch is disposed in a position inside of the packing bag than a line connecting start points of the substantially V shape.

the vapor exhaust seal section is sandwiched by a pair of band-shaped end seal sections, and

a width of the vapor exhaust seal section is smaller than width of the pair of band-shaped end seal sections.

[0015]

The packing pouch in accordance with the present invention is characterized by comprising a vapor exhaust seal section formed by inflecting and projecting part of a seal section in which films are laminated onto each other, in an inner direction, wherein in the vapor exhaust seal section, peeling-off strength of at least part thereof is less than that of

the section other than the part; and at peeling-off due to vapor pressure, the section other than the part remains and forms an edge section, to make a sound when vapor is exhausted.

ADVANTAGEOUS EFFECTS OF THE INVENTION

[0016]

In accordance with embodiments of the present invention, it is possible to propose a packing pouch in which improvement is made for vapor exhaust.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]

FIG. 1 is a diagram showing a configuration example of a packing pouch 100 in a first embodying mode, (a) is a perspective view of the packing pouch 100 before an opening 4 is sealed up, and (b) is a perspective view of the packing pouch 100 in a state in which a contained item D is put into the packing pouch 100 and then the packing pouch 100 is sealed up by heat-sealing the opening 4.

FIG. 2 is a diagram showing a configuration example of a vapor exhaust seal section 7 and a non-seal section 9 (9a, 9b).

FIG. 3 is a diagram to explain a function of the packing pouch 100 of the present embodying mode, (a) is a side view of the packing pouch 100 showing a state in which the packing pouch 100 of FIG. 1(b) is heated by a microwave and expands, (b) is a diagram showing a state in which a tip end 70 of the vapor exhaust seal section 7 opens at high-pressure expansion and a vapor discharge section is formed, and (c) is a perspective view of the packing pouch 100 showing a state in which the packing pouch 100 is heated by a microwave and expands.

FIG. 4 is a diagram to explain an example in which a sound is made when a vapor discharge section is formed.

FIG. 5 is a diagram to explain the vapor discharge section.

FIG. 6 is a diagram showing a configuration example of the packing pouch of the present embodying mode.

FIG. 7 is a diagram showing a configuration example of the packing pouch of the present embodying mode.

FIG. 8 is a diagram to explain an example in which a sound is made in the configuration example shown in FIG. 7(c).

FIG. 9 is a diagram showing a configuration example of a packing pouch in

exemplary embodiments 1 to 5 and shows a configuration example of a vapor exhaust seal section before and after peeling-off.

FIG. 10 is a diagram showing a configuration example of a packing pouch in comparison examples 1 and 2 and shows a configuration example of a vapor exhaust seal section before and after peeling-off.

FIG. 11 is a diagram showing a configuration example of a packing pouch 200 in the second embodying mode and a packing pouch 300 in the third embodying mode, (a) is a perspective view of the packing pouch 200 (300) before an opening 4 is sealed up and (b) is a perspective view of the packing pouch 200 (300) in a state in which a contained item D is put into the packing pouch 200 (300) and it is sealed up by heat-sealing the opening 4.

FIG. 12 is a diagram showing a configuration example of the vapor exhaust seal section 7 and the non-seal section 9 (the polygonal non-seal section 9a, the band-shaped non-seal section 9b).

FIG. 13 is a diagram to explain a function of the packing pouch 200 in the present embodying mode, (a) is a side view of the packing pouch 200 showing a state in which the packing pouch 200 of FIG. 1 is heated by a microwave and expands and (b) is a diagram showing a state in which the tip end 70 of the vapor exhaust seal section 7 opens at high-pressure expansion and a first vapor discharge section 101 is formed.

FIG. 14 is a diagram showing a configuration example of a film joining section 6 in the third embodying mode.

FIG. 15 is a diagram showing a layered configuration example in respective sections 7, 8a, 8b configuring the film joining section 6 shown in FIG. 14, (a) is a diagram showing a layered configuration example of a second seal section 8b shown in FIG. 14, (b) is a diagram showing a layered configuration example of the first seal section 8a shown in FIG. 14, and (c) is a diagram showing a layered configuration example of the vapor exhaust seal section 7 shown in FIG. 14.

FIG. 16 is a diagram showing a configuration example of a packing pouch 300 of the present embodying mode.

FIG. 17 is a perspective view of a container in accordance with the fourth embodying mode.

FIG. 18 is a developed view of the container in accordance with an embodying mode.

FIG. 19 is a top view of the container in accordance with the present embodying mode.

FIG. 20 is a perspective view of a packing pouch in accordance with the present embodying mode.

FIG. 21 is a diagram showing integration of the container and the packing pouch in accordance with the present embodying mode.

FIG. 22 is a diagram showing a state in which the container and the packing pouch are heated by a microwave and are expanded.

FIG. 23 is a diagram showing a folding container in accordance with the present embodying mode.

FIG. 24 is a developed view showing the folding container in accordance with the present embodying mode.

FIG. 25 is a perspective view showing a state in which the container and the packing pouch are placed in the flat state.

FIG. 26 is a perspective view showing a state in which the container and the packing pouch in the vertical state.

DESCRIPTION OF THE EMBODIMENTS

[0018]

[First embodying mode]

The present embodying mode is an improvement associated with a packing pouch which makes a sound at discharge of vapor.

[0019]

Patent document 2 exemplified in the prior art describes a configuration in which splits are disposed in a circumferential edge section of a vibration piece by punching or the like, and the vibration piece is vigorously vibrated by vapor, and vapor is discharged from the circumferential edge section of the vibration piece to the outside, and it is required to conduct working on a non-seal section itself.

[0020]

Hence, in the packing pouch of patent document 2 described above, after the packing material configuring the packing pouch is heat-sealed to form the non-seal section, it is required to conduct punching for the non-seal section to form the vibration piece and to conduct punching for the non-seal section to form the vibration piece or to conduct punching for the non-seal section of the packing material to beforehand form the vibration piece; hence, to configure the mechanism to make a sound, it is required to conduct different working other than the process to heat-seal the packing material.

[0021]

The present embodying mode is made under the circumstances described above and aims at providing a packing pouch capable of making a sound only by a contour of a seal section formed by sealing films.

[0022]

<Outline of packing pouch 100 of present embodying mode>

First, referring to FIGS. 1 to 4, description will be given of an outline of the packing pouch 100 of the present embodying mode.

[0023]

The packing pouch 100 of the present embodying mode is, as shown in FIG. 1, a packing pouch 100 including seal sections 3, 5, 10, 8a, and 8b formed by sealing circumferential edge sections of a film constituting an upper surface section 2 (2a, 2b) and a film constituting a lower surface section 1.

[0024]

The packing pouch 100 of the present embodying mode includes a vapor exhaust seal section 7 formed by inflecting and by projecting the substantially central portion of the seal section 8a in substantially V shape toward an inner direction of the packing pouch 100 and a non-seal section 9 (9a, 9b) which is formed to be adjacent to the vapor exhaust seal section 7 without sealing on an outer side thereof; and when the internal pressure of the packing pouch 100 goes up and the packing pouch 100 expands, the vapor exhaust seal section 7 peels off and opens, and the opened area and the non-seal section 9 (9a, 9b) form a vapor discharge section to discharge vapor from the packing pouch 100.

[0025]

The vapor exhaust seal section 7 of the present embodying mode includes a seal contour projecting in the inner side relative to the substantially V-shaped seal section 8a, and includes a portion of the packing pouch 100 on an inner side relative to a line connecting two start points 71, 71 to each other at which the inflection contour starts. The vapor exhaust seal section 7 of the present embodying mode is characterized in that the seal width differs at least at the two start points 71, 71 at which the inflection contour starts between its tip end section and the other portion such that the tip end 70 side of the vapor exhaust seal section 7 is narrow; and when the packing pouch 100 expands and the vapor exhaust seal section 7 peels off as shown in FIG. 3(b), the other portion remains, and the remaining other portion forms an edge section 7a projecting in the inner direction from the seal section 8a.

[0026]

In the packing pouch 100 of the present embodying mode, there is formed the edge

section 7a projecting in the inner direction from the seal section 8a; hence, when gas such as vapor in the packing pouch 100 is discharged from the gas discharge section to the outside of the packing pouch 100, part of the gas collides with the edge section 7a. When the gas collides with the edge section 7a, the flow of gas changes to generate eddies, to make a sound. As a result, it is possible to make a sound only by the contour of the vapor exhaust seal section 7 formed by sealing the films. Next, referring to the accompanying drawings, description will be given in detail of the packing pouch 100 of the present embodying mode.

[0027]

(Example 1 of first embodying mode)

<Configuration example of packing pouch 100>

First, referring to FIGS. 1 to 3, description will be given of a configuration example of the packing pouch 100 of the present embodying mode. FIG. 1 is a diagram showing a configuration example of the packing pouch 100 in the present embodying mode, FIG. 1(a) is a perspective view of the packing pouch 100 before an opening 4 is sealed up, and FIG. 1(b) is a perspective view of the packing pouch 100 in which a contained item D is put into the packing pouch 100 and then the packing pouch 100 is sealed up by heat-sealing the opening 4. FIG. 2 is a diagram showing a configuration example of the vapor exhaust seal section 7 and the non-seal section 9 (9a, 9b) disposed in a film joining section 6 shown in FIG. 1. FIG. 3 shows a configuration example of the packing pouch 100, showing a state in which the packing pouch 100 shown in FIG. 1(b) is heated by a microwave and expands, FIG. 3(a) is a side view of the packing pouch 100, FIG. 3(b) is a diagram showing a state in which a tip end 70 of the vapor exhaust seal section 7 opens and a vapor discharge section is formed, and FIG. 3(c) is a perspective view of the packing pouch 100.

[0028]

The packing pouch 100 of the present embodying mode includes, as shown in FIG. 1, a lower surface section 1, an opening side upper surface section 2a overlapping an opening 4 side of the lower surface section 1, and a depth side upper surface section 2b overlapping the depth side of the lower surface section 1. In the packing pouch 100 of the present embodying mode, the opening side upper surface section 2a and the depth side upper surface section 2b configure an upper surface section 2.

[0029]

As films to configure the lower surface section 1, the opening side upper surface section 2a, and the depth side upper surface section 2b, any kind of films are applicable

only if the films are welded onto each other when they are heat-sealed; for example, plastic films having heat-seal performance to be employed for ordinary packing pouches are applicable. As materials to configure the plastic films, there can be considered a single-layer film or sheet including a thermoplastic resin having heat-seal performance and a multilayer film in which a thermoplastic resin having heat-seal performance and another thermoplastic resin are laminated.

[0030]

As materials having appropriate heat-seal performance, there can be considered, for example, known low-density polyethylene, linear low-density polyethylene, middle-density polyethylene, high-density polyethylene, polypropylene, propylene-ethylene copolymer, ethylene-vinyl acetate copolymer, olefin-based resins such as olefin resin graft denatured by ethylene-based unsaturated carboxylic acid or anhydride thereof, polyamide or copolyamide resins having relatively low melting point or low softening temperature, polyester or copolyester resins, and polycarbonate resins.

[0031]

Also, as plastic materials to be laminated, various barrier films may be employed. Incidentally, in a situation wherein laminated films including these thermoplastic resins are used, it is favorable to conduct heat-sealing such that thermoplastic resin layers of resins having appropriate heat-seal performance such as resins having a low melting point are used to form internal surfaces.

[0032]

In the packing pouch 100 of the present embodying mode, both side edges of the lower surface section 1 and the opening side upper surface section 2a are heat-sealed to form a portion of a side seal section 3. Further, three side edges of the lower surface section 1 and the depth side upper surface section 2b are heat-sealed to form a portion of the side seal section 3 and an end seal section 5. Also, the opening side upper surface section 2a and the depth side upper surface section 2b are folded to overlap each other and are heat-sealed to form the film joining section 6.

[0033]

The film joining section 6 includes, in the central portion in the longitudinal direction of the film joining section 6, the vapor exhaust seal section 7 inflecting and projecting in substantially a V contour toward the inner side of the packing pouch 100, and band-shaped end seal sections 8a and 8a on both sides of the vapor exhaust seal section 7 along edges in the longitudinal direction of the film joining section 6. Also, it includes band-shaped side seal sections 8b and 8b along edges in the vertical direction of

the film joining section 6. The vapor exhaust seal section 7, the band-shaped end seal section 8a, and the band-shaped side seal section 8b are portions in which the opening side upper surface section 2a and the depth side upper surface section 2b overlap each other and are heat-sealed, and the vapor exhaust seal section 7, the band-shaped end seal section 8a, and the band-shaped side seal section 8b are linked to each other. In the description of the present embodying mode, the band-shaped end seal sections 8a and the band-shaped side seal sections 8b are generally referred to as band-shaped seal sections 8a, 8b.

[0034]

The film joining section 6 includes the non-seal section 9 on an outer side of the vapor exhaust seal section 7. The non-seal section 9 is an outside section not heat-sealed, enclosed by the end seal sections 8a, 8a, the side seal section 8b, and the vapor exhaust seal section 7 formed in a manner in which the opening side upper surface section 2a and the depth side upper surface section 2b overlap each other and are heat-sealed. The non-seal section 9 includes the polygonal non-seal section 9a formed along the vapor exhaust seal section 7 and the band-shaped non-seal section 9b linked to the polygonal non-seal section 9a. The band-shaped non-seal section 9b is formed along the band-shaped end seal sections 8a. Incidentally, it is not necessarily required to form the band-shaped non-seal section 9b.

[0035]

The vapor exhaust seal section 7 is configured, as shown in FIG. 2, in a projected contour inflected in substantially a V shape toward an inner direction of the packing pouch 100, and the two start points 71, 71 at which the substantially V shape of the vapor exhaust seal section 7 starts are linked to the band-shaped end seal section 8a. The substantially V-shaped tip end 70 of the vapor exhaust seal section 7 is placed in an inner side direction relative to the line connecting the start points 71, 71 to each other. The vapor exhaust seal section 7 of the present embodying mode includes a portion in the inner side direction of the packing pouch 100 relative to the line connecting the two start points 71, 71 to each other.

[0036]

Further, the polygonal non-seal section 9a configuring the non-seal section 9 includes an area defined by a projection contour line 9a1 along the substantially V-shaped contour of the vapor exhaust seal section 7, two link lines 9a2, 9a2 which connect to edge sections 91, 91 of the projection contour line 9a1 and which connect to the band-shaped non-seal section 9b, and a bottom line 9a3 connecting to edge sections

92, 92 of the two link lines 9a2, 9a2. A tip end 90 of the projection contour line 9a1 of the polygonal non-seal section 9a is placed in an inner side direction of the pouch relative to a line linking, to each other, the two edge sections 91, 91 at which the projection contour line 9a1 starts.

[0037]

The vapor exhaust seal section 7 of the present embodying mode is formed by using, as shown in FIG. 2, a heat seal including an inner inflection contour 7a1 projecting in a V shape near an inner side of the packing pouch 100 not adjacent to the non-seal section 9 and an outer inflection contour (corresponding to the projection contour line 9a1 and the link line 9a2) near an outer side of the packing pouch 100 adjacent to the non-seal section 9; and the seal width differs at least at the two start points 71, 71 at which the V-shaped contour starts between its tip end section and the other portion such that the tip end 70 side of the vapor exhaust seal section 7 is narrow. Hence, when the internal pressure of the packing pouch 100 goes up and the packing pouch 100 expands, only the tip end 70 side of the vapor exhaust seal section 7 peels off and opens, and the opened area and the non-seal section 9 (particularly, the polygonal non-seal section 9a) form the vapor discharge section to discharge vapor or the like from the packing pouch 100. And, from the vapor discharge section, the vapor or the like is discharged from the packing pouch 100. Hence, even in a situation wherein the internal pressure of the packing pouch 100 goes up and the packing pouch 100 expands, since the vapor or the like in the packing pouch 100 is discharged from the vapor discharge section, it is possible to prevent the packing pouch 100 from bursting.

[0038]

The vapor discharge section includes, as shown in FIG. 3(a), an area opened beginning at the tip end 70 of the vapor exhaust seal section 7 up to the line linking the edge sections 91, 91 of the projection contour line 9a1 to each other and the polygonal non-seal section 9a.

[0039]

The vapor exhaust seal section 7 to form the vapor discharge section is, since the film joining section 6 is disposed in the upper surface section 2, at an upper position relative to the upper surface of the contained item D in the packing pouch 100. Incidentally, the film joining section 6 is favorably disposed on an outer side relative to the center in the packing pouch longitudinal direction. As a result, at increase in the internal pressure due to vapor, pressure is easily concentrated by the vapor exhaust seal section 7, leading to appropriate unseal performance. Further, in the neighborhood on

the film joining section 6 side of the side seals 3, 3, preferably, on an inner side relative to the film joining section 6, there are disposed notches 11, 11 to unseal the packing pouch 100 after the cooking with heat and under pressure. As for the packing pouch 100 of the present embodying mode, the packing pouch 100 is opened beginning at the notches 11, 11 and then the contained item D is taken out of the packing pouch 100.

[0040]

When the packing pouch 100 in the sealed state shown in FIG. 1(b) is heated by a microwave, vapor or the like is generated in the packing pouch 100 and then temperature and pressure go up, and the packing pouch 100 expands. Then, as shown in FIG. 3(a), the expansion takes place such that the perpendicular cross section of the main body portion of the packing pouch 100 including the lower surface section 1 and the upper surface section 2 becomes a circular shape; further, the space defined by the vapor exhaust seal section 7, the band-shaped end seal section 8a, and the band-shaped side seal section 8b of the film joining section 6 expands. Hence, force is applied in a concentrated manner onto the portion of the tip end 70 of the vapor exhaust seal section 7 configuring the film joining section 6; and as shown in FIG. 3(b), the peeling-off of the heat seal takes place beginning at the tip end 70 of the vapor exhaust seal section 7; the opening is formed beginning at the tip end 70 of the vapor exhaust seal section 7 up to the line connecting the edge sections 91, 91 of the projection contour line 9a1 to each other, and the opened area and the non-seal section 9 (the polygonal non-seal section 9a, the band-shaped non-seal section 9b) form the vapor discharge section 101 to discharge vapor or the like from the packing pouch 100. As a result, vapor or the like generated in the packing pouch 100 can be discharged from the vapor discharge section to the outside. Further, when vapor or the like in the packing pouch 100 is discharged to the outside, it is possible to make a sound “pee” to thereby notify by the sound an event of the opening of the packing pouch 100. As a result, even in a situation wherein during the cooking of the packing pouch 100 with heat and under pressure by a microwave, the cooking person leaves the place of the microwave or goes to another place for some work, it is possible to perceive by the sound the event of the opening of the packing pouch 100, and the overlooking the opening of the packing pouch 100 can be beforehand prevented.

[0041]

When the packing pouch 100 of the present embodying mode is heated by a microwave to be expanded, it opens, as shown in FIG. 4, beginning at the tip end 70 of the vapor exhaust seal section 7 to the line linking the edge sections 91, 91 of the projection contour line 9a1 to each other, and in the area from the position at which the

edge sections 91, 91 are linked to each other to the position at which the two start points 71, 71 at which the V-shaped contour starts are linked to each other, the seal section is kept formed; and there is formed an edge section 7a projecting from the band-shaped end seal section 8a to the inner side of the pouch. That is, in the packing pouch 100 of the present embodying mode, when the vapor exhaust seal section 7 peels off, the portion other than the tip end section configuring the vapor exhaust seal section 7 connects to the band-shaped end seal section 8a and remains, and the remaining other portion forms the edge section 7a projecting from the band-shaped end seal section 8a to the inner side. Further, between the edge sections 7a, a cylindrical vapor discharge outlet is formed.

[0042]

In the packing pouch 100 of the present embodying mode, there is formed the edge section 7a projecting from the band-shaped end seal section 8a to the inner side; hence, when vapor in the packing pouch 100 is discharged from the cylindrical vapor discharge outlet to the outside (the outside of the packing pouch 100), part of the vapor collides with the edge section 7a. It can be considered that when the vapor collides with the edge section 7a, the flow of vapor changes and pressure in the inside of the cylindrical vapor discharge outlet periodically changes, and this successive up-and-down movement of the pressure causes eddies, and the eddies generate vibration, to make the sound. That is, as shown in FIG. 4, when the vapor collides with the edge section 7a, the flow of vapor changes and eddies are caused by the change of the flow of vapor, and eddies generate vibration, to make the sound. As a result, when the vapor or the like in the packing pouch 100 is discharged from the cylindrical vapor discharge outlet to the outside, the sound "pee" can be made.

[0043]

On the other hand, as for the conventional packing pouch, even when it is heated by a microwave to be expanded, it does not form the edge section 7a projecting from the band-shaped end seal section 8a to the inner side as shown in FIG. 4, and at peeling-off when the vapor is discharged, the peeling off takes place at once up to the two start points 71, 71 at which the V-shaped contour starts, and vapor is discharged and the pressure is kept in an equilibrium state. Hence, when the vapor is discharged from the packing pouch to the outside, there does not occur the event in which part of the vapor collides with the edge section 7a, and no sound is made in many cases.

[0044]

In contrast, when the packing pouch 100 of the present embodying mode is heated by a microwave to be expanded, the edge section 7a projecting from the band-shaped end

seal section 8a in the inner side direction is formed as shown in FIG. 4; hence, when the vapor is discharged from the packing pouch to the outside, part of the vapor collides with the edge section 7a and eddies are generated and it is possible to make a sound. As a result, the opening of the packing pouch 100 can be notified by the sound. As above, in the packing pouch 100 of the present embodying mode, it is possible that the edge section is formed by using only the configuration including the seal contour of the vapor exhaust seal section 7 and the sound is made.

[0045]

Moreover, the packing pouch 100 of the present embodying mode includes the band-shaped non-seal section 9b on an outer side relative to the band-shaped end seal section 8a, and when vapor is discharged from the vapor discharge outlet to the outside, the vapor passes through the band-shaped non-seal section 9b. Since the band-shaped non-seal section 9b includes films in the non-seal state, when the vapor passes through the band-shaped non-seal section 9b, the films configuring the band-shaped non-seal section 9b vibrate, and it is possible to make a sound of vibration.

[0046]

Incidentally, in the packing pouch 100 of the present embodying mode, the vapor exhaust seal section 7 configuring the vapor discharge section is disposed in the film joining section 6 which is at an upper position relative to the upper surface of the contained item D in the packing pouch 100; hence, it is possible to prevent boiling-over of the contained item D of the packing pouch 100 and to prevent leakage of the contained item D of the packing pouch 100.

[0047]

In addition, the expansion of the space defined by the vapor exhaust seal section 7, the band-shaped end seal section 8a, and the band-shaped side seal section 8b of the film joining section 6 overlaps the expansion of the main body portion of the packing pouch 100 including the lower surface section 1 and the upper surface section 2, and the band-shaped end seal sections 8a and the edge sections 7a on both edges of the vapor exhaust seal section 7 (reference is to be made to FIG. 4) do not peel off and remain; hence, the space defined as above symmetrically rises at the start points 71, 71 of the vapor exhaust seal section 7; this functions as stress to raise both sides of the central portion of two films (the opening-side upper surface section 2a, the depth-side upper surface section 2b) configuring the film joining section 6, and as FIG. 3(c) shows, the non-seal section 9 (9a, 9b) forming the vapor discharge section opens to discharge vapor or the like generated in the packing pouch 100 to the outside. Hence, even in a situation

in which the contained item D exists in quantity in the packing pouch 100, since the non-seal section 9 configuring the vapor discharge section to discharge high-pressure vapor is sufficiently large and is secured at a high position, it is possible to prevent the boiling-over of the contained item D.

[0048]

Further, the polygonal non-seal section 9a configuring the vapor discharge section includes, as shown in FIG. 5, an area defined by a projection contour line 9a1 along the substantially V-shaped contour of the vapor exhaust seal section 7, the two link lines 9a2, 9a2 which connect to the edge sections 91, 91 of the projection contour line 9a1 and which connect to the band-shaped non-seal section 9b, and a bottom line 9a3 connecting to the edge sections 92, 92 of the two link lines 9a2, 9a2, to define an opening area ($\alpha 1$ and $\alpha 2$ shown in FIG. 5) of the vapor discharge section; hence, it is possible to control the discharge quantity per unitary time of the vapor or the like to be discharged to the outside.

[0049]

For example, as shown in FIG. 5(a), when the opening area $\alpha 1$ formed by connecting the edge sections 91, 91 of the projection contour line 9a1 to each other is long, that is, when the length of the portion in which the seal width is narrow is large, the discharge quantity per unitary time of the vapor or the like to be discharged to the outside becomes large; on the other hand, as shown in FIG. 5(b), when the opening area $\alpha 2$ formed by connecting the edge sections 91, 91 of the projection contour line 9a1 to each other is short, the discharge quantity per unitary time of the vapor or the like to be discharged to the outside becomes small.

[0050]

Also, in the packing pouch 100 of the present embodying mode, it is beforehand stipulated that the projection contour line 9a1 configuring the tip end 90 side of the polygonal non-seal section 9a is configured to be in substantially the same contour as the inner inflection contour 7a1 configuring the tip end 70 side of the vapor exhaust seal section 7 and to be small in the seal width than the other portion. And, the position of the edge sections 91, 91 of the projection contour line 9a1 is at least on an inner side of the packing pouch 100 relative to the line connecting the start points 71, 71 of the vapor exhaust seal section 7 to each other. As a result, when the packing pouch 100 is heated by a microwave to be expanded, it opens beginning at the tip end 70 of the vapor exhaust seal section 7 up to the line linking the edge sections 91, 91 of the projection contour line 9a1 to each other, and it is possible to form the opening areas $\alpha 1$ and $\alpha 2$. In more detail,

seal widths $\beta 1$ and $\beta 2$ shown in (a) and (b) of FIG. 5 are widths in a direction parallel to the direction of stress imposed onto the vapor exhaust seal section 7. As shown in FIG. 5, in the vapor exhaust seal section 7 of the present embodying mode, the seal width $\beta 1$ of the area interposed between the inner inflection contour 7a1 and a first outer inflection contour (corresponding to the projection contour line 9a1) is smaller than the seal width $\beta 2$ of the area interposed between the inner inflection contour 7a1 and a second outer inflection contour (corresponding to the link line 9a2). Hence, when vapor is generated and pressure concentrates onto the vapor exhaust seal section 7, only the portion of the seal width $\beta 1$ peels off, and it is possible to suppress the discharge quantity per unitary time of the vapor or the like generated in the packing pouch 100. Further, only the portion of the seal width $\beta 1$ peels off, and the portion of the seal width $\beta 2$ is connected to the band-shaped end seal section 8a and remains, and the remaining other portion forms the edge section 7a projecting in the inner direction from the band-shaped end seal section 8a (reference is to be made to FIG. 4(a)). Hence, when vapor in the packing pouch 100 is discharged to the outside, part of the vapor collides with the edge section 7a, and eddies are generated, and it is possible to make a sound.

[0051]

Also, in the packing pouch 100 of the present embodying mode after the opening thereof, by making the link lines 9a2 to be parallel to each other such that the opening side faces downward, the opening section of the vapor exhaust seal section 7 closes, and it can function as a safety valve to prevent leakage of the contained item D. As a result, the packing pouch 100 after the cooking with heat and under pressure can be safely taken out of the microwave 100.

[0052]

Incidentally, in the packing pouch 100 of the present embodying mode, the bottom line 9a3 is disposed for convenience to explain the contour of the polygonal non-seal section 9a and is not disposed in an actual packing pouch 100. Further, in the packing pouch 100 of the present embodying mode, the polygonal non-seal section 9a and the band-shaped non-seal section 9b are not separated by the bottom line 9a3, but are united; and the bottom line 9a3 is a portion to configure the discharge outlet from which vapor or the like is discharged to the outside.

[0053]

<Operation and effects of packing pouch 100 of present embodying mode>

As above, the packing pouch 100 of the present embodying mode includes, as shown in FIG. 2, the vapor exhaust seal section 7 formed by inflecting and by projecting

in substantially a V shape toward an inner direction of the packing pouch 100 and the non-seal section 9 (9a, 9b) which is formed to be adjacent to the vapor exhaust seal section 7 without sealing on an outer side thereof; and when the internal pressure of the packing pouch 100 goes up and the packing pouch 100 expands, the vapor exhaust seal section 7 opens as shown in FIG. 3(b) and the opened area and the non-seal section 9 (9a, 9b) form the vapor discharge section to discharge vapor or the like from the packing pouch 100. The vapor exhaust seal section 7 configuring the vapor discharge section of the present embodying mode is formed by heat-sealing to include the inner inflection contour 7a1 near an inner side of the packing pouch 100 not adjacent to the non-seal section 9 and the outer inflection contours 9a1 and 9a2 near an outer side of the packing pouch 100 adjacent to the non-seal section 9, and includes a portion of the packing pouch 100 in an inner side direction relative to a line connecting two start points 71, 71 at which the inflection contour starts to each other. Further, the width β_1 , β_2 of the area heat-sealed in the vapor exhaust seal section 7 is smaller on the tip end 70 side of the vapor exhaust seal section 7 ($\beta_1 < \beta_2$).

[0054]

Hence, when the packing pouch 100 of the present embodying mode is heated by a microwave to be expanded, the tip end section configuring the vapor exhaust seal section 7 peels off as shown in FIG. 4 and the other portion other than the tip end section connects to the band-shaped end seal section 8a and remains, and the remaining other portion forms the edge section 7a projecting from the band-shaped end seal section 8a to the inner side direction. Further, between the edge sections 7a, the cylindrical vapor discharge outlet is formed. As a result, when vapor or the like in the packing pouch 100 is discharged from the cylindrical vapor discharge outlet to the outside, it is possible to make a sound “pee”. Also, the sound can be made only by the seal contour of the vapor exhaust seal section 7.

[0055]

Further, in the packing pouch 100 of the present embodying mode, without changing the contour of the inner inflection contour 7a1 of the vapor exhaust seal section 7, it is possible, by changing the positions of the edge sections 91, 91 of the projection contour line 9a1 on the predetermined projection contour line 9a1, to change the opening area α formed by linking the edge sections 91, 91 to each other as shown in FIG. 5, to thereby control the discharge quantity per unitary time of vapor or the like to be discharged to the outside. Hence, by efficiently perform concentration of stress due to vapor, it is possible to control the opening area α without causing the busting of the packing pouch

100 and to conduct cooking under appropriate pressure.

[0056]

Incidentally, the two link lines 9a2 configuring the polygonal non-seal section 9a of the packing pouch 100 of the present embodying mode described above are configured such that the width of the opening area α formed by linking the edge sections 91, 91 to each other is equal to the width of the bottom line 9a3 (width between the link lines 9a2). However, the two link lines 9a2 may also be configured such that the width of the bottom line 9a3 (width between the link lines 9a2) is less than the width of the opening area α formed by linking the edge sections 91, 91 to each other. This makes it possible to narrow the discharge outlet to discharge vapor or the like generated in the packing pouch 100 to the outside; hence the pressure in the packing pouch 100 can be increased.

[0057]

Further, the projection contour line 9a1 configuring the tip end 90 side of the polygonal non-seal section 9a in the packing pouch 100 of the present embodying mode described above is configured, as shown in FIG. 2, to be equal in the contour to the inner inflection contour 7a1 configuring the tip end 70 side of the vapor exhaust seal section 7, to thereby fix the seal width $\beta 1$ of the vapor exhaust seal section 7. However, if the variation quantity of the seal width $\beta 1$ of the vapor exhaust seal section 7 is within a predetermined range, it is not required that the projection contour line 9a1 of the polygonal non-seal section 9a is equal in the contour to the inner inflection contour 7a1 of the vapor exhaust seal section 7, and may be configured to be substantially equal in the contour to the inner inflection contour 7a1 of the vapor exhaust seal section 7. In this regard, “substantially equal in the contour” indicates that a contour slightly different from that of the inner inflection contour 7a1 is included.

[0058]

(Example 2 of first embodying mode)

Next, description will be given of example 2 of the first embodying mode.

[0059]

The band-shaped end seal section 80a of example 2 of the first embodying mode is configured in a taper shape as shown in FIG. 6 and width γ of the band-shaped end seal section 80a becomes wider beginning at the start point 71 of the vapor exhaust seal section 7 toward the edge section in the longitudinal direction of the film joining section 6 ($\gamma 1 < \gamma 2$).

[0060]

Hence, at expansion of the space defined by the vapor exhaust seal section 7, the

band-shaped end seal section 8a, and the band-shaped side seal section 8b of the film joining section 6, it is possible to more locally apply force onto the portion of the tip end 70 of the vapor exhaust seal section 7 as compared with example 1 of the first embodying mode. As a result, the vapor exhaust seal section 7 can be more easily peeled off than in example 1 of the first embodying mode.

[0061]

Moreover, width γ of the band-shaped end seal section 80a becomes wider beginning at the start point 71 of the vapor exhaust seal section 7 toward the edge section in the longitudinal direction of the film joining section 6; hence, the flow of vapor varies more as compared with the contour shown in FIG. 2, and eddies can be easily generated, to more easily make a sound. Also, when the vapor discharge section is formed, vapor or the like in the packing pouch 100 is more easily collected in the vapor discharge section; hence, it is possible to easily make a sound. As a result, the opening of the packing pouch 100 can be more efficiently notified when compared with example 1 of the first embodying mode.

[0062]

Incidentally, in the packing pouch 100 of the present embodying mode, since the band-shaped end seal section 80a is configured in a taper shape, the heat seal area of the band-shaped end seal section 80a is larger than that of example 1 of the first embodying mode. Hence, a seal-free section 80b is configured in the area in which the band-shaped end seal section 80a is formed. This makes it possible to suppress creation of bubbles, wrinkles, and the like taking place in the area of the band-shaped end seal section 80a when the band-shaped end seal section 80a is heat-sealed; hence, it is possible to retain stable seal strength.

[0063]

<Operation and effects of packing pouch 100 of present embodying mode>

As above, in the packing pouch 100 of the present embodying mode, width γ of the band-shaped end seal section 80a connecting to both edges of the vapor exhaust seal section 7 is configured to become wider in a taper shape beginning at positions of the start points 71, 71 of both edges of the vapor exhaust seal section 7 toward the side section of the packing pouch 100 ($\gamma_1 < \gamma_2$). This makes it possible to more locally apply force onto the portion of the tip end 70 of the vapor exhaust seal section 7 as compared with example 1 of the first embodying mode. Also, the vapor exhaust seal section 7 can be more easily peeled off than in example 1 of the first embodying mode and it is possible to easily make a sound.

[0064]

Further, since the seal-free section 80b is disposed in the area of the band-shaped end seal section 80a, it is possible that bubbles taking place in the area of the band-shaped end seal section 80a are absorbed by the seal-free section 80b; and since wrinkles or the like can be suppressed, it is possible to retain stable seal strength.

[0065]

Incidentally, in the band-shaped end seal section 80a of the present embodying mode described above, if width γ is configured to become wider in a taper shape beginning at positions of the start points 71, 71 of both edges of the vapor exhaust seal section 7 toward the side section of the packing pouch 100 ($\gamma_1 < \gamma_2$), the contour of the band-shaped end seal section 80a is not limited to the contour shown in FIG. 6, but it may be configured in an arbitrary contour. For example, in FIG. 6, the band-shaped end seal section 80a is configured in a linear contour, but it may be configured in a contour partly including a curved line.

[0066]

(Example 3 of first embodying mode)

Next, description will be given of example 3 of the third embodying mode.

[0067]

The vapor exhaust seal section 7 of example 3 of the first embodying mode includes, for example as shown in FIG. 7(a), seal width β_2 including a fixed width of the area interposed between the inner inflection contour 7a1 and the second outer inflection contour 9a2 and seal width β_1 including a fixed width of the area interposed between the inner inflection contour 7a1 and the first outer inflection contour 9a1, and is further configured such that seal width β_1 is less than seal width β_2 . Also in the situation of the contour of FIG. 7(a), as in examples 1 and 2 of the first embodying mode described above, width β_1 of the area interposed between the inner inflection contour 7a1 and the first outer inflection contour 9a1 is less than width β_2 of the area interposed between the inner inflection contour 7a1 and the second outer inflection contour 9a2; hence, when the packing pouch 100 is heated by a microwave to be expanded, only the thin portion of the tip end section β_1 configuring the vapor exhaust seal section 7 peels off, and the other portion β_2 other than the tip end section β_1 connects to the band-shaped end seal section 8a and remains, and the remaining other portion β_2 forms the edge section projecting from the band-shaped end seal section 8a to the inner side; hence, when vapor or the like in the packing pouch 100 is discharged to the outside, it is possible to make a sound "pee".

[0068]

Also, in the vapor exhaust seal section 7 of example 3 of the first embodying mode, as shown in FIG. 7(b), the outer inflection contour 9a2 includes one inflection contour 9a2, and the seal widths $\beta 1$, $\beta 2$ of the area interposed between the inner inflection contour 7a1 and the outer inflection contour 9a2 are configured to be smaller toward the tip end of the vapor exhaust seal section 7. Hence, seal widths $\beta 1$, $\beta 2$ of the area interposed between the inner inflection contour 7a1 and the outer inflection contour 9a2 can be sequentially smaller toward the tip end of the vapor exhaust seal section 7. Also in the situation of the contour shown in FIG. 7(b), as in examples 1 and 2 of the first embodying mode described above, widths $\beta 1$, $\beta 2$ of the area interposed between the inner inflection contour 7a1 and the outer inflection contour 9a2 of the vapor exhaust seal section 7 become smaller toward the tip end of the vapor exhaust seal section 7; hence, when the pouch is heated by a microwave to be expanded, the portion configuring the vapor exhaust seal section peels of up to substantially the central section, and the remaining vapor exhaust seal section 7 connects to the band-shaped end seal section 8a to form the edge section; hence, when vapor or the like in the packing pouch 100 is discharged to the outside, it is possible to make a sound “pee”.

[0069]

Further, in the vapor exhaust seal section 7 of example 3 of the first embodying mode, for example as shown in FIG. 7(c), seal width $\beta 1$ of the tip end area of the vapor exhaust seal section 7 at least interposed between the inner inflection contour 7a1 and the first outer inflection contour 9a1 is configured to be less than the other seal width $\beta 2$. Also, the second outer inflection contour 9a2 includes a plurality of straight lines, to configure a vapor convection section, which is a wide area having substantially a rectangular contour, at the center of the polygonal non-seal section 9a, and at the upper and lower positions of the polygonal non-seal section 9a, a narrow area narrower than the wide area in the center is configured. Also in the situation of the contour of FIG. 7(c), as in examples 1 and 2 of the first embodying mode described above, width $\beta 1$ of the area interposed between the inner inflection contour 7a1 and the first outer inflection contour 9a1 is less than width $\beta 2$ of the other area; hence, when the pouch is heated by a microwave to be expanded, the tip end section $\beta 1$ configuring the vapor exhaust seal section 7 peels off, and the other portion $\beta 2$ other than the tip end section $\beta 1$ connects to the band-shaped end seal section 8a and remains, and the remaining other portion $\beta 2$ forms the edge section projecting from the band-shaped end seal section 8a to the inner side direction. Further, in the situation of the contour of FIG. 7(c), the vapor convection

section which is a wide area having substantially a rectangular contour is configured at the center of the polygonal non-seal section 9a, and at the upper and lower positions of the polygonal non-seal section 9a, a narrow area narrower than the wide area in the center is configured; hence, when the tip end section $\beta 1$ configuring the vapor exhaust seal section 7 peels off to discharge vapor from the polygonal non-seal section 9a to the outside, eddies are generated, as shown in FIG. 8, on both sides of the vapor convention section which is the wide area of the polygonal non-seal section 9a. As a result, due to eddies generated on both sides of the wide area of the polygonal non-seal section 9a, it is possible to make a sound “pee”. Incidentally, the contour of the vapor convention section is not necessarily formed using straight lines, and it may be formed, for example, in a curved surface contour such that a narrow seal-free section is disposed at the upper and lower positions and a wide seal-free section is formed in the center.

[0070]

<Operation and effects of packing pouch 100 of present embodying mode>

As above, the vapor exhaust seal section 7 of the packing pouch 100 of the present embodying mode includes, for example as shown in FIG. 7(a), seal width $\beta 2$ having a fixed width of the area interposed between the inner inflection contour 7a1 and the second outer inflection contour 9a2 and seal width $\beta 1$ having a fixed width of the area interposed between the inner inflection contour 7a1 and the first outer inflection contour 9a1, and is further configured such that seal width $\beta 1$ is less than seal width $\beta 2$. Also, as shown in FIG. 7(b), seal widths $\beta 1$, $\beta 2$ of the area interposed between the inner inflection contour 7a1 and the outer inflection contour 9a2 are configured to be smaller toward the tip end of the vapor exhaust seal section 7. Moreover, as shown in FIG. 7(c), seal widths $\beta 1$, $\beta 2$ of the area interposed between the inner inflection contour 7a1 and the outer inflection contours 9a1, 9a2 differ from each other, and the tip end section $\beta 1$ is configured to be less in the seal width than the other section $\beta 2$.

[0071]

Hence, when the packing pouch 100 is heated by a microwave to be expanded, the tip end section $\beta 1$ configuring the vapor exhaust seal section 7 peels off, and the other portion $\beta 2$ other than the tip end section $\beta 1$ connects to the band-shaped end seal section 8a and remains, and the remaining other portion $\beta 2$ forms the edge section projecting from the band-shaped end seal section 8a to the inner side direction; hence, when vapor or the like in the packing pouch 100 is discharged to the outside, it is possible to make a sound “pee”.

[0072]

(Exemplary embodiments)

Next, referring to FIGS. 9 and 10, description will be given of exemplary embodiments of the embodying modes described above. However, the exemplary embodiments below are examples, and the technical idea of the present embodying mode is not limited only to the exemplary embodiments below. FIG. 9 shows a configuration example of the vapor exhaust seal section, before and after the peeling-off, of the packing pouch in exemplary embodiments 1 to 5, which will be described below, and FIG. 10 shows a configuration example of the vapor exhaust seal section, before and after peeling-off, of the packing pouch in comparison examples 1 and 2. Incidentally, FIGS. 9 and 10 show states of the vapor exhaust seal section before and after peeling-off, and portions peeled off in the seal section of the vapor exhaust seal section are indicated by dotted lines.

[0073]

A layered film including an outer layer of 15 μm nylon and an inner layer of 60 μm linear low-density polyethylene is employed and the sealing is conducted by use of a seal bar, to form a packing pouch including an opening 4 on one side as shown in FIG. 1(a). A piece of cloth soaked with water is placed as the contained item in the formed packing pouch; thereafter, the opening 4 is sealed to create a packing pouch including a vapor exhaust seal section 7 in a film joining section 6 as shown in FIG. 1(b). For the respective 20 packing pouch samples, tests are conducted for the seal contour and the making of a whistle sound “pee” after vapor exhaust at heat-cooking of each sample by a microwave.

(Exemplary embodiment 1)

In the packing pouch of exemplary embodiment 1, the vapor exhaust seal section 7 is configured such that as shown in FIG. 9(a) “before peeling-off”, it projects in substantially a V contour and only the seal width of the tip end is narrow.

[0074]

After heat-cooking by a microwave, as shown in FIG. 9(b) “after peeling-off”, the whistle sound “pee” is made in 15 samples of the 20 samples, and there is formed an edge section projecting from the band-shaped end seal section to the inner side direction.

[0075]

(Exemplary embodiment 2)

In the packing pouch of exemplary embodiment 2, as shown in FIG. 9(c) “before peeling-off”, the band-shaped end seal section is configured in a taper contour. The other configuration is similar to exemplary embodiment 1 shown in FIG. 9(a) “before

peeling-off”.

[0076]

After heat-cooking by a microwave, the pressure in the packing pouch goes up and the packing pouch expands; then, as shown in FIG. 9(d) “after peeling-off”, the whistle sound “pee” is made in 18 samples of the 20 samples, and there is formed an edge section projecting from the band-shaped end seal section to the inner side direction.

[0077]

(Exemplary embodiment 3)

In the packing pouch of exemplary embodiment 3, as shown in FIG. 9(e) “before peeling-off”, the seal width is small in the tip end of the vapor exhaust seal section, and there is included a pair of linear outside seal sections parallel to the vapor exhaust direction such that the vapor path (non-seal section) after the peeling-off has a cylindrical contour; and the non-seal section on the outside of the vapor exhaust seal section is configured in the home base contour. The other configuration is similar to that of exemplary embodiment 2.

[0078]

After heat-cooking by a microwave, the whistle sound “pee” is made in 19 samples of the 20 samples, and as shown in FIG. 9(f) “after peeling-off”, there is formed an edge section projecting from the band-shaped end seal section to the inner side direction. (17/20).

[0079]

(Exemplary embodiment 4)

In the packing pouch of exemplary embodiment 4, as shown in FIG. 9(g) “before peeling-off”, the seal width is configured to be gradually reduced toward the tip end of the vapor exhaust seal section. The other configuration is similar to that of exemplary embodiment 2.

[0080]

After heat-cooking by a microwave, the whistle sound “pee” is made in 14 samples of the 20 samples, and as shown in FIG. 9(h) “after peeling-off”, there is formed an edge section projecting from the band-shaped end seal section to the inner side direction.

[0081]

(Exemplary embodiment 5)

In the packing pouch of exemplary embodiment 5, as shown in FIG. 9(i) “before peeling-off”, the seal width is configured to be reduced toward the tip end of the vapor exhaust seal section 7. In the vapor path (in the center of the polygonal non-seal

section) after the peeling-off, a vapor convection section which is a substantially rectangular wide area is configured, and at upper and lower positions of the polygonal non-seal section, a narrow area less in width than the wide area in the center is configured. The other configuration is similar to that of exemplary embodiment 1.

[0082]

After heat-cooking by a microwave, the whistle sound “pee” is made in 20 samples of the 20 samples, and as shown in FIG. 9(j) “after peeling-off”, there is formed an edge section projecting from the band-shaped end seal section to the inner side direction.

[0083]

(Comparison example 1)

In the packing pouch of comparison example 1, the seal width is kept unchanged throughout the vapor exhaust seal section. The other configuration is similar to that of exemplary embodiment 1.

[0084]

After heat-cooking by a microwave, the whistle sound “pee” is made in 6 samples of the 20 samples; and in the samples not making the sound, as shown in FIG. 10(l) “after peeling-off”, there is not formed the edge section projecting from the band-shaped end seal section to the inner side direction.

[0085]

(Comparison example 2)

In the packing pouch of comparison example 2, as shown in FIG. 10(m) “before peeling-off”, the seal width is kept unchanged throughout the vapor exhaust seal section. And, a linear split is arranged in the non-seal section of the layered film the circumference of which is surrounded by the band-shaped end seal section and the vapor exhaust seal section such that vapor is discharged from the slit to the outside.

[0086]

After heat-cooking by a microwave, the whistle sound “pee” is made in 3 samples of the 20 samples; and in the samples not making the sound, as shown in FIG. 10(n) “after peeling-off”, there is not formed the edge section projecting from the band-shaped end seal section to the inner side direction.

[0087]

(Test results)

As can be seen from the test results described above, in the packing pouches of exemplary embodiments 1 to 5 in which the edge section is formed when the vapor exhaust seal section peels off, it is found that the whistle sound “pee” is made in almost

all samples at heat-cooking by a microwave. This is because when vapor in the packing pouch is discharged to the outside, the vapor collides with the edge section and the flow of vapor changes and eddies are generated, to thereby make the sound.

[0088]

Moreover, as in the packing pouches of exemplary embodiments 2 to 4, it is found that when the band-shaped end seal section is configured in the taper contour, the whistle sound “pee” can be more easily made. This is because when the band-shaped end seal section is configured in the taper contour, the flow of vapor more changes when compared with the contour shown in exemplary embodiment 1 and eddies are easily caused, and the whistle sound “pee” can be easily made. Further, this is because when the vapor discharge section to discharge vapor to the outside is formed, vapor or the like in the packing pouch easily collects in the vapor discharge section; hence, it is easy to make the sound.

[0089]

Also, as in the packing pouch of exemplary embodiment 5, it is found that when the substantially rectangular wide area is configured in the center of the polygonal non-seal section in which the vapor discharge section is formed and the vapor convection section which is a narrow area less in width than the wide area in the center is configured at the upper and lower positions of the polygonal non-seal section, the whistle sound “pee” is securely made. This is because when vapor is discharged from the polygonal non-seal section configuring the vapor discharge section to the outside, eddies are generated on both sides of the wide area of the polygonal non-seal section, and the generated eddies securely make the whistle sound “pee”.

[0090]

Incidentally, the embodying modes and the exemplary embodiments described above are favorable embodying modes and exemplary embodiments of the present invention, and the scope of the present invention is not limited only to these embodying modes and exemplary embodiments, but various changes may be made therein without departing from the gist of the present invention.

[0091]

For example, in the embodying modes described above, the film joining section 6 is disposed in the packing pouch 100 and the vapor exhaust seal section 7 and the non-seal section 9 are disposed at edges of the film joining section 6, to form the vapor discharge section at an edge of the film joining section 6. However, it is also possible that without disposing the film joining section 6 in the packing pouch 100, the vapor exhaust seal

section 7 and the non-seal section 9 are disposed at edges of the packing pouch 100 including the lower surface section 1 and the upper surface section 2, to form the vapor discharge section at an edge of the packing pouch 100. Also in this case, a similar effect as for the embodying modes described above can be obtained. However, in a situation of the packing pouch 100 in which the film joining section 6 is disposed as in the embodying modes described above, when the packing pouch 100 is heated by a microwave and the packing pouch 100 expands as shown in FIG. 3(a), the expansion of the space defined by the vapor exhaust seal section 7, the band-shaped end seal section 8a, and the band-shaped side seal section 8b of the film joining section 6 overlaps the expansion of the main body portion of the packing pouch 100 including the lower surface section 1 and the upper surface section 2; hence, the portion of the film joining section 6 becomes a portion which most easily expands due to vapor or the like. Therefore, as in the embodying modes described above, when the vapor exhaust seal section 7 and the non-seal section 9 are disposed at an edge of film joining section 6 to form the vapor discharge section, the peeling-off of the tip end 70 of the vapor exhaust seal section 7 is facilitated by the vapor or the like generated in the packing pouch 100, and it is possible to easily form the vapor discharge section and to easily make the sound. Also, the discharge quantity per unitary time of the vapor or the like generated in the packing pouch 100 can be efficiently suppressed.

[0092]

Further, for the tip end section of the vapor exhaust seal section 7 interposed between the inner inflection contour 7a1 and the outer inflection contour 9a1, in addition to the method in which the tip end section is less in width than the other section to be preferentially peeled off, for example, a method in which the easy peel is formed via easy peel resin in only the tip end section is applicable if it is the mode in which regardless of the size of the seal width, the peeling-off strength is lowered only in the tip end section and only the tip end section peels off when pressure due to vapor is applied, to thereby form the edge section 7a.

[0093]

Additionally, the contour of the vapor exhaust seal section 7 is not limited to the V contour, for example, an arc contour or the like may be applicable. Further, in the vapor exhaust seal section 7, the section in which the peeling-off strength is weak is not limited to the tip end section (an intermediate position of the band-shaped side seal sections 8a on both sides) of the vapor exhaust seal section 7, and it may be formed, for example, at an edge section of the vapor exhaust seal section 7 in which the edge section

is formed only on one side.

[0094]

In accordance with the present invention, it is possible to make a sound in a simple configuration including only the contour of the seal section formed by sealing films.

[0095]

[Second embodying mode]

The present embodying mode is for improvement associated with a sound made at discharge of vapor and aims at suppressing the sound.

[0096]

In patent document 1 and 3 described above, the vapor generated in the packing pouch is discharged to the outside, to thereby avoid increase of the pressure in the packing pouch. For example, in patent document 1 described above, the vapor exhaust seal section is preferentially peeled off, to discharge vapor therefrom to the outside. Also, in patent document 3 described above, the vapor is exhausted from vapor passage facilitation means disposed in the seal section to the outside.

[0097]

However, according to patent document 1 and 3 described above, when the vapor generated in the packing pouch is discharged to the outside, the sound “pee” is made, which surprises the user in some cases.

[0098]

In consideration of such situation, it has been needed to develop a packing pouch in which no sound is made when the vapor generated in the packing pouch is discharged to the outside.

[0099]

The present embodying mode is realized under the circumstances above and aims to provide a packing pouch in which when the vapor generated in the packing pouch is discharged to the outside, the making of the sound can be suppressed.

[0100]

<Outline of packing pouch 200 of present embodying mode >

First, referring to FIGS. 11 to 13, description will be given of an outline of the packing pouch 200 in the present embodying mode.

[0101]

In the packing pouch 200 of the present embodying mode, when the internal pressure of the packing pouch 200 goes up and the packing pouch 200 expands, the vapor exhaust seal section 7 peels off and opens, and the opened area and non-seal sections 9

(9a, 9b) form a first vapor discharge section 101 (reference is to be made to FIG. 13) from which vapor in the packing pouch 200 is discharged to the outside. Further, in the non-seal sections 9 (the polygonal non-seal section 9a in the present embodying mode), a second vapor discharge section 102 is formed.

[0102]

Hence, in the packing pouch 200 of the present embodying mode, as shown in FIG. 13(a), vapor generated in the packing pouch 200 is discharged at least from the first vapor discharge section 101 and the second vapor discharge section 102 to the outside, and it is possible to discharge vapor in at least a two-dimensional direction. As a result, when the vapor generated in the packing pouch 200 is discharged to the outside, the making of the sound can be suppressed.

[0103]

In the conventional packing pouch, since the vapor generated in the packing pouch is discharged in the one-dimensional direction to the outside, the sound is easily made in the configuration. In contrast, in the packing pouch 200 of the present embodying mode, the vapor generated in the packing pouch 200 can be discharged at least in the two-dimensional direction (the first vapor discharge section 101, the second vapor discharge section 102) to the outside; hence, the making of the sound can be suppressed. Next, referring to the accompanying drawings, description will be given in detail of the packing pouch 200 of the present embodying mode.

[0104]

(Second embodying mode)

<Configuration example of packing pouch 200>

First, referring to FIGS. 11 to 13, description will be given of a configuration example of the packing pouch 200 of the present embodying mode. FIG. 11 is a diagram showing a configuration example of the packing pouch 200 in the present embodying mode, FIG. 11(a) is a perspective view of the packing pouch 200 before an opening 4 is sealed up, and FIG. 11(b) is a perspective view of the packing pouch 200 in which a contained item D is put into the packing pouch 200 and then the packing pouch 200 is sealed up by heat-sealing the opening 4. FIG. 12 is a diagram showing a configuration example of the vapor exhaust seal section 7 and the non-seal section 9 (the polygonal non-seal section 9a, the band-shaped non-seal section 9b) disposed in the film joining section 6 shown in FIG. 1. FIG. 13 shows a configuration example of the packing pouch 200 in a state in which the packing pouch 20 shown in FIG. 1(b) is heated by a microwave and expands, FIG. 13(a) is a side view of the packing pouch 200 and FIG.

13(b) is a diagram showing a state in which the tip end 70 of the vapor exhaust seal section 7 opens and a first vapor discharge section 101 is formed.

[0105]

In the polygonal non-seal section 9a, a second vapor discharge section 102 is formed. The second vapor discharge section 102 is formed at least in one of two films (the opening side upper surface section 2a, the depth side upper surface section 2b) configuring the polygonal non-seal section 9a; and as shown in FIG. 13(a), vapor or the like is discharged from the second vapor discharge section 102 to the outside in a direction other than the direction in which vapor or the like is discharged from the first vapor discharge section 101 to the outside.

[0106]

Hence, in the packing pouch 200 of the present embodying mode, vapor or the like in the packing pouch 200 can be discharged in the two-dimensional direction to the outside. As a result, even in a situation wherein the internal pressure of the packing pouch 200 goes up and the packing pouch 200 expands, since the vapor or the like in the packing pouch 200 can be discharged at least from the first vapor discharge section 101 and the second vapor discharge section 102 to the outside, it is possible to prevent the packing pouch 200 from bursting. Further, when the vapor or the like generated in the packing pouch 200 is discharged to the outside, the making of the sound can be suppressed.

[0107]

Incidentally, the contour of the second vapor discharge section 102 formed in the polygonal non-seal section 9a is not particularly restricted, and if the vapor or the like in the packing pouch 200 can be discharged to the outside, it may be configured in an arbitrary contour and is formed by punching or the like. For example, the second vapor discharge section 102 may be configured using a split having the shape of an arc, a straight line, V, U, or the like or using a notch having the shape of a circle, a triangle, a rectangle, a trapezoid, a polygon, or the like. Incidentally, it is favorable to use a polygonal contour or a circular contour, not the linear contour, since the quantity of vapor exhausted in the unitary time becomes larger. Also, in the present embodying mode, the second vapor discharge section 102 is formed in the same contour in both of the opening side upper surface section 2a and the depth side upper surface section 2b configuring the polygonal non-seal section 9a; however, it may be formed in either one of the opening side upper surface section 2a and the depth side upper surface section 2b or it is also possible to form the second vapor discharge sections 102 in mutually

different contours.

[0108]

Incidentally, in the packing pouch 20 of the present embodying mode, the link line 9a20 is disposed for convenience to explain the contour of the polygonal non-seal section 9a and is not disposed in an actual packing pouch 200. Further, in the packing pouch 200 of the present embodying mode, the polygonal non-seal section 9a and the band-shaped non-seal section 9b are not separated by the link line 9a20, but are united; and the link line 9a20 is a portion to configure the discharge outlet from which vapor or the like is discharged to the outside.

[0109]

<Operation and effects of packing pouch 200 of present embodying mode>

As above, the packing pouch 200 of the present embodying mode includes, as shown in FIG. 12, the vapor exhaust seal section 7 projecting in an inflection contour in an inner direction of the packing pouch 200 and the non-seal section 9 (the polygonal non-seal section 9a, the band-shaped non-seal section 9b) formed to be adjacent to the vapor exhaust seal section 7 without sealing on an outer side thereof; and when the internal pressure of the packing pouch 200 goes up and the packing pouch 100 expands, the vapor exhaust seal section 7 opens as shown in FIG. 13(b) and the opened area and the non-seal section 9 (the polygonal non-seal section 9a, the band-shaped non-seal section 9b) form the first vapor discharge section 101. Further, in the non-seal section 9 (the polygonal non-seal section 9a in the present embodying mode), the second vapor discharge section 102 is formed.

[0110]

In the packing pouch 200 of the present embodying mode, it is possible that vapor or the like generated in the packing pouch 200 is discharged at least from the first vapor discharge section 101 and the second vapor discharge section 102 to the outside, and vapor or the like is discharged in at least a two-dimensional direction to the outside. As a result, the vapor can be discharged in quantity to the outside, and when the vapor or the like generated in the packing pouch 200 is discharged to the outside, the making of the sound can be suppressed.

[0111]

Incidentally, a projection contour line 9a10 configuring the tip end 90 side of the polygonal non-seal section 9a of the packing pouch 200 in the present embodying mode described above is configured, as shown in FIG. 12, in the same contour as for the inner inflection contour 7a1 configuring the tip end 70 side of the vapor exhaust seal section 7;

and the seal width of the vapor exhaust seal section 7 is fixed. However, if the variation quantity of the seal width of the vapor exhaust seal section 7 is within a predetermined range, it is not required that the projection contour line 9a10 of the polygonal non-seal section 9a is equal in the contour to the inner inflection contour 7a1 of the vapor exhaust seal section 7, and may be configured to be substantially equal in the contour to the inner inflection contour 7a1 of the vapor exhaust seal section 7. In this regard, “substantially equal in the contour” indicates that a contour slightly different from that of the inner inflection contour 7a1 is included.

[0112]

Moreover, in conjunction with the embodying mode above, description has been given of a configuration example in which vapor or the like in the packing pouch 200 is discharged at least from the first vapor discharge section 101 and the second vapor discharge section 102 to the outside, to discharge vapor or the like generated in the packing pouch 200 at least in the two-dimensional direction to the outside. However, the two-dimensional direction is not limitative, and it is also possible to discharge, by disposing a new vapor discharge section in the packing pouch 200, vapor generated in the packing pouch 200 in a multidimensional direction.

[0113]

[Third embodying mode]

The present embodying mode is for improvement associated with the peeling-off performance of the vapor exhaust seal section.

[0114]

In the packing pouch 200 including the vapor exhaust seal section of patent document 1 and 4 described above, there has been a problem in which when pressure goes up, stress locally concentrates onto a corner section or the like formed by connecting the seal sections to each other, and the peeling-off takes place beginning at an undesired portion such as the corner section or the like, and leakage of the contained item or the like occurs.

[0115]

The present embodying mode has been made under the circumstances described above and aims at providing a packing pouch including a vapor exhaust seal section, the packing pouch being capable of suppressing the peeling-off beginning at an undesired portion.

[0116]

(Outline of packing pouch 300 in accordance with present invention)

Referring to FIG. 11, description will be given of a packing pouch 300 in accordance with the present embodying mode. The packing pouch 300 is a packing pouch 300 including a vapor exhaust seal section 7, and is characterized in that peeling-off strength is highest in a seal section (for example, the portion 8b) of the corner section configured when a band-shaped first seal section 8a consecutive to the vapor exhaust seal section 7 is connected to a band-shaped second seal section 8b intersecting the first seal section 8a.

[0117]

In the packing pouch 300 in accordance with the present invention, since the peeling-off strength is highest in the seal section of the corner section onto which stress locally concentrates when the internal pressure of the packing pouch 300 goes up, it is possible to suppress the peeling-off which takes place beginning at an undesired portion such as the corner section or the like. As a result, leakage of the contained item D of the packing pouch 300 can be prevented. Next, referring to the accompanying drawings, description will be given in detail of the packing pouch 300 in accordance with the present invention.

[0118]

(Example 1 of third embodying mode)

<Configuration example of packing pouch 300>

The peeling-off strength of the vapor exhaust seal section 7 is less than that of the heat-sealed portion of the first seal section 8a consecutive to the vapor exhaust seal section 7. Also, the peeling-off strength of the heat-sealed portion of the first seal section 8a is less than that of the heat-sealed portion of the second seal section 8b intersecting the first seal section 8a.

[0119]

That is, in the film joining section 6, the peeling-off strength of the respective heat-sealed portions 7, 8a, 8b is configured to meet condition (1) below.

[0120]

Condition (1)

Peeling-off strength of vapor exhaust seal section 7 < peeling-off strength of first seal section 8a < peeling-off strength of second seal section 8b

[0121]

Since the packing pouch 300 of the present embodying mode is configured to meet condition (1) above, it is possible that the peeling-off strength is highest in the seal section of the corner section configured when the first seal section 8a is connected to the

second seal section 8b. Hence, when the internal pressure of the packing pouch 300 goes up and the packing pouch 300 expands, it is possible to prevent the peeling-off from taking place beginning at the sealed portion of the corner section in which stress is likely to increase due to vapor kept staying therein. As a result, it is possible that when the packing pouch 300 expands, the peeling-off taking place beginning at the undesired portion is beforehand suppressed; the peeling-off takes place beginning at the tip end 70 side of the vapor exhaust seal section 7 to easily form the first vapor discharge section 101, and the leakage of the contained item D from an undesired portion is securely prevented.

[0122]

Incidentally, if the peeling-off strength of the respective heat-sealed portions 7, 8a, 8b in the film joining section 6 can meet condition (1) described above, the film joining section 6 may be configured in an arbitrary configuration. As a method to vary the peeling-off strength for the respective portions 7, 8a, 8b, there can be cited, for example, a method in which heat, pressure, the seal width of the seal section, or the like is changed during the heat-sealing.

[0123]

By changing at least one of the heat, pressure, the seal width of the seal section, and the like during the heat-sealing, it is possible to vary the peeling-off strength for the respective heat-sealed portions 7, 8a, 8b. For example, by lowering the heat and pressure during the heat-sealing, the peeling-off strength can be reduced. Contrarily, by increasing the heat and pressure during the heat-sealing, the peeling-off strength can be increased. Also, by reducing the seal width of the seal section, the peeling-off strength can be lowered. Contrarily, by increasing the seal width, the peeling-off strength can be increased.

[0124]

Further, for example as shown in FIGS. 14 and 15, it is also possible that printing is conducted on portions of the opening side upper surface section 2a and the depth side upper surface section 2b configuring the film joining section 6 to form a print layer, and the heat-sealing is conducted by changing the layer thickness of the respective heat-sealed portions 7, 8a, 8b forming the vapor exhaust seal section 7, the first seal section 8a, and the second seal section 8b, to thereby vary the peeling-off strength for the respective portions 7, 8a, 8b formed by heat-sealing. FIG. 14 shows a configuration example of the film joining section 6 formed by heat-sealing the opening side upper surface section 2a and the depth side upper surface section 2b in which the print layer is

formed, FIG. 15 is a diagram showing a layer configuration example in the respective portions 7, 8a, 8b configuring the film joining section 6 shown in FIG. 14; FIG. 15(a) shows a layer configuration example in the second seal section 8b in a cross section taken along line A-A' of the film joining section 6 shown in FIG. 14, FIG. 15(b) shows a layer configuration example in the first seal section 8a in a cross section taken along line B-B' of the film joining section 6 shown in FIG. 14, and FIG. 15(c) is a diagram showing a layer configuration example in the vapor exhaust seal section 7 in a cross section taken along line C-C' of the film joining section 6 shown in FIG. 14.

[0125]

For example, as shown in FIG. 15(c), two layers of print layers 2b2, 2b3 are formed in a portion to form the vapor exhaust seal section 7 in the depth side upper surface section 2b; as shown in FIG. 15(b), one layer of a print layer 2b2 is formed in a portion to form the first seal section 8a; and as shown in FIG. 15(a), no print layer is formed in a portion to form the second seal section 8b, to thereby vary the layer thickness for the respective portions 7, 8a, 8b. Also, as shown in FIG. 15(c), two layers of print layers 2a2, 2a3 are formed in a portion to form the vapor exhaust seal section 7 in the opening side upper surface section 2a; as shown in FIG. 15(b), one layer of a print layer 2a2 is formed in a portion to form the first seal section 8a; and as shown in FIG. 15(a), no print layer is formed in a portion to form the second seal section 8b, to thereby vary the layer thickness for the respective portions 7, 8a, 8b. Thereafter, the depth side upper surface section 2b and the opening side upper surface section 2a are made to overlap each other and are then heat-sealed, to form the film joining section 6 shown in FIG. 14. Hence, since the layer thickness varies for the respective portions 7, 8a, 8b configuring the film joining section 6, it is possible that the peeling-off strength of the heat-sealed portions meets condition (1) described above. Incidentally, it is favorable that the print layers 2b2, 2a2 formed in the portion to form the vapor exhaust seal section 7 and the portion to form the first seal section 8a are not formed, as shown in FIG. 14, in the portion to form the second seal section 8b, and are apart from the portion to form the second seal section 8b. Hence, the print layers 2b2, 2a2 are formed, as shown in FIG. 14, in a range less than the distance sandwiched by the second seal sections 8b, 8b configuring both edges of the film joining section 6. Therefore, even when the forming positions of the print layers 2b2, 2a2 are shifted, it is possible that the print layers 2b2, 2a2 are not formed in the portion to form the second seal section 8b; hence, it is possible that the peeling-off strength is highest in the seal section of the corner section configured when the first seal section 8a is connected to the second seal section 8b. Further, since the print layers 2b2,

2a2 are apart from the portion to form the second seal section 8b, it is possible that the peeling-off strength is increased in the edge section on the second seal section 8b side of the first seal section 8a, to widen the area having high peeling-off strength in the seal section of the portion in which the first seal section 8a is connected to the second seal section 8b.

[0126]

The film joining section 6 shown in FIGS. 14 and 15 is formed in the method below.

First, printing is conducted with ink on a substrate (for example, nylon) 2b1 configuring the film of the depth side upper surface section 2b, to form the first print layer 2b2. Next, printing is conducted with ink on the first print layer 2b2, to form the second print layer 2b3. In this situation, for the second print layer 2b3, material less in adhesion strength than that of the first print layer 2b2 is employed. This makes it possible to lower the peeling-off strength of the vapor exhaust seal section 7. Incidentally, in the present embodying mode, if the peeling-off strength of the second print layer 2b3 can be made less than that of the first print layer 2b2, the ink to form the first print layer 2b2 and the second print layer 2b3 and the material of adhesive agent are not particularly restricted, and it is possible to use ink of an arbitrary material. For example, by making the material of ink to form the first print layer 2b2 and the material of ink to form the second print layer 2b3 differ from each other, it is also possible to make the second print layer 2b3 weaker than the first print layer 2b2. Also, by equalizing the material of ink to form the first print layer 2b2 to the material of ink to form the second print layer 2b3 and by adding an adhesive agent to improve adhesive force to the ink to form the first print layer 2b2, it is possible to make the peeling-off strength of the first print layer 2b2 more than that of the second print layer 2b3, and to make the peeling-off strength of the second print layer 2b3 relatively less than that of the first print layer 2b2. Moreover, by adding a peeling agent to lower adhesive force to the ink to form the second print layer 2b3, it is possible to make the peeling-off strength of the second print layer 2b3 less than that of the first print layer 2b2. In this fashion, when the print layers 2b2, 2a2 are formed by using materials to vary the peeling-off strength or inks to which such materials are added, it is possible to make the peeling-off strength of the second print layer 2b3 less than that of the first print layer 2b2.

[0127]

Next, the substrate 2b1 on which the two print layers 2b2, 2b3 are formed and a sheet having heat-seal performance (for example, low-density polyethylene) 2b4 are dry-laminated onto each other. As a result, the film of the depth side upper surface

section 2b is formed.

[0128]

Further, printing is conducted with ink on the substrate (for example, nylon) 2a1 to configure the film of the opening side upper surface section 2a, to form the first print layer 2a2. Next, printing is conducted with ink on the first print layer 2a2, to form the second print layer 2a3. In this situation, the second print layer 2a3 is less in the peeling-off strength than the first print layer 2a2.

[0129]

Next, the substrate 2a1 on which the two print layers 2a2, 2a3 are formed and a sheet having heat-seal performance (for example, low-density polyethylene) 2a4 are dry-laminated onto each other. As a result, the film of the opening side upper surface section 2a is formed.

[0130]

Next, the film of the opening side upper surface section 2a and the film of the depth side upper surface section 2b are heat-laminated, to form the film joining section 6 including the vapor exhaust seal section 7, the first seal section 8a, and the second seal section 8b shown in FIG. 14.

[0131]

As a result, the film joining section 6 shown in FIG. 14 is obtained.

[0132]

Incidentally, the film joining section 6 shown in FIG. 14 is configured such that no print layer is formed in the second seal section 8b and the layer thicknesses of the respective portions 7, 8a, 8b configuring the film joining section 6 meet condition (1) described above. However, if condition (1) described above can be satisfied, a print layer may be formed also on the second seal section 8b. In this situation, the print layers of the first seal section 8a and the vapor exhaust seal section 7 are increased.

[0133]

Also, in the film joining section 6 shown in FIG. 14, a multilayer print layers are formed, as shown in FIG. 15, in portions of the opening side upper surface section 2a and the depth side upper surface section 2b forming the film joining section 6, and are heat-sealed by varying the layer thickness forming the respective sections 7, 8a, 8b shown in FIG. 14, to thereby vary the peeling-off strength of the respective sections 7, 8a, 8b shown in FIG. 14. However, when one-layer print layers having different peeling-off strength values are formed on the opening side upper surface section 2a and the depth side upper surface section 2b forming the film joining section 6, and are heat-sealed, it is

also possible to vary the peeling-off strength of the respective sections 7, 8a, 8b shown in FIG. 14. For example, when a print layer having low peeling-off strength is formed in the portion to form the vapor exhaust seal section 7 in the depth side upper surface section 2b, a print layer having high peeling-off strength is formed in the portion to form the first seal section 8a, and no print layer is formed in the portion to form the second seal section 8b, and then these portions are heat-sealed, it is possible to vary the peeling-off strength of the respective sections 7, 8a, 8b to meet condition (1) described above. In this situation, first, printing is conducted with ink having high peeling-off strength only in the area of the portion to form the first seal section 8a by thinning out the area of the portion to form the vapor exhaust seal section 7. Next, printing is conducted with ink having low peeling-off strength only in the area of the portion to form the vapor exhaust seal section 7. As a result, even by using the one-layer print layer, it is possible to vary the peeling-off strength of the respective sections 7, 8a, 8b shown in FIG. 14.

[0134]

<Operation and effects of packing pouch 300 of present embodying mode>

As above, the packing pouch 300 of the present embodying mode is configured such that the peeling-off strength of the respective portions 7, 8a, 8b of the vapor exhaust seal section 7, the first seal section 8a, and the second seal section 8b configuring the film joining section 6 meets the following condition.

[0135]

Peeling-off strength of vapor exhaust seal section 7 < peeling-off strength of first seal section 8a < peeling-off strength of second seal section 8b

[0136]

Therefore, the peeling-off strength is highest in the seal section of the corner section configured when the first seal section 8a is connected to the second seal section 8b; hence, when the internal pressure of the packing pouch 300 goes up and the packing pouch 300 expands, it is possible to prevent the peeling-off from taking place beginning at the seal section of the corner section. As a result, the peeling-off takes place beginning at the tip end 70 side of the vapor exhaust seal section 7 in which the peeling-off strength is lowest, and the first vapor discharge section 101 can be easily formed; hence, it is possible to prevent the contained item D in the packing pouch 300 from leaking from an undesired portion.

[0137]

Moreover, in the film joining section 6 of the present embodying mode, by making the peeling-off strength of the substantially V-shaped seal section relatively low, it is

possible to further suppress the peeling-off from an undesired portion.

[0138]

(Example 2 of third embodying mode)

Next, description will be given of the example 2 of the third embodying mode.

[0139]

In the packing pouch 300 of example 2 of third embodying mode, a strong seal section 8ab having the highest peeling-off strength is formed, as shown in FIG. 16, in the link section in which the first seal section 8a is connected to the second seal section 8b. Hence, since the configuration includes the strong seal section 8ab in the section configured by connecting the first seal section 8a to the second seal section 8b, it is possible to prevent the peeling-off from taking place beginning at the strong seal section 8ab.

[0140]

As a result, when the internal pressure of the packing pouch 300 goes up and the packing pouch 300 expands, the peeling-off does not take place beginning at the strong seal section 8ab having the highest peeling-off strength, but it takes place beginning at the tip end 70 of the vapor exhaust seal section 7 having the lowest peeling-off strength up to the line linking to each other the two start points 71, 71 at which the substantially V contour starts. And, the opened area and the non-seal section 9 (the polygonal non-seal section 9a, the band-shaped non-seal section 9b) form the first vapor discharge section 101 to discharge vapor or the like of the packing pouch 300 to the outside. Hence, it is possible that when the packing pouch 300 expands, the peeling-off beginning at an undesired portion is beforehand suppressed, and the peeling-off takes place beginning at the tip end 70 of the vapor exhaust seal section 7, to thereby easily form the first vapor discharge section 101.

[0141]

Incidentally, the embodying mode described above is a favorable embodying mode of the present invention, and the scope of the present invention is not limited only to the embodying mode, but various changes may be made therein without departing from the gist of the present invention.

[0142]

[Fourth embodying mode]

The present embodying mode relates to a housing container to be used for a pouch for microwaves including a vapor exhaust mechanism.

[0143]

The packing pouch for microwaves the cross section of which is substantially a rectangular contour and which is to be placed in the vertical state as described in patent document 5 is complex and difficult to produce when compared with the packing pouch for microwaves four sides of which are sealed and which is to be placed in the flat state. Also, when it is used in the vertical state in the microwave, it is feared that the pouch falls down during use of the microwave; hence, it is used in the flat state. However, when the vertical state-type packing pouch for microwaves is used in the flat state, it becomes substantially a triangular contour the side surface (bottom section) of which is widened, and the vapor exhaust section which opens due to increase in pressure during use of the microwave is placed at a position lower or slightly lower than the overall height; hence, stress due to the increase in pressure cannot be efficiently reflected in the vapor exhaust section, and the vapor exhaust performance is lowered.

[0144]

Further, the pouch for microwaves of this type does not include a portion to be used as a handle; and the entire packing pouch is at a high temperature after use of the microwave, which leads to a fear of burns when the pouch is taken out of the microwave. Further, since the packing pouch does not fully stably stand; hence, even when the pouch is placed in the vertical state after use of the microwave and an upper portion thereof is cut away to be opened, it is difficult, due to dangerousness of the fall-down or the like, to eat food directly from packing pouch, and the advantage of the vertical state cannot be completely utilized.

[0145]

The present embodying mode and the invention are made under the circumstances described above and aim at providing a microwave pouch housing container which can be easily produced and in which the packing pouch for microwaves forming a vapor exhaust in association with increase in the internal pressure due to the vapor pressure can be employed, without dangerousness of the fall-down or the like, in the vertical state up to the end of use of the microwave.

[0146]

(Example 1 of fourth embodying mode)

First, referring to FIGS. 17 to 19, description will be given of a container in the present embodying mode.

[0147]

FIG. 17 is a perspective view of a microwave pouch housing container 400 in accordance with the present embodying mode. The microwave pouch housing

container 400 of the present embodying mode is made of paper and includes a bottom surface 402 and a side surface 403, the container being substantially a cylindrical container the upper section of which is opened.

[0148]

The microwave pouch housing container 400 includes the side surface 403 standing perpendicularly with respect to the bottom surface 402 in substantially an elliptic contour to surround the bottom surface 402 as shown in FIG. 19. The height of the side surface 403 is height not to cover a vapor exhaust seal section to exhaust vapor from the packing pouch, which will be described later. The line of intersection between the bottom surface 402 and the side surface 403 includes a crease 405 both ends of which are linked to each other, and an arc-shaped gap 406 is disposed in the center along the crease 405 on both ends. In this fashion, in the bottom surface 402 and the side surface 403, only portions of both ends are linked to each other, and it is possible to smoothly and easily fold them. Also, the bottom surface 402 is in a bridge shape the central section of which projects upward such that both ends stand on the standing plane for the container. Further, the bottom surface 402 is in an oblate shape so that when a packing pouch is housed, the packing pouch is supported at least by the side surface 403 to stand against the side surface 403, to thereby keep the state of the vertical state.

[0149]

Next, description will be given of a method of forming the microwave pouch housing container 400. FIG. 18 is a developed view of the microwave pouch housing container 400 in accordance with the present embodying mode. The microwave pouch housing container 400 is formed by folding a single sheet of paper.

[0150]

The bottom surface 402 which is positioned at the center when the microwave pouch housing container 400 is developed has substantially an elliptic contour including a straight-line section 411 which stands on the standing plane when assembled and an arc-shaped curved-line section 412 which connects to the side surface 403. The curved-line section 412 includes, at both ends thereof, a crease 405 to link the bottom surface 402 to the side surface 403, and between the creases 405 at both ends, a notch corresponding to the gap 406 is disposed along the substantially arc-shaped contour, to link the creases 405 to each other. When the side surface 403 is folded along the crease 405, it can stand almost perpendicularly with respect to the bottom surface 402. When the side surfaces 403 are made to stand perpendicularly, the bottom surface 402 warps at the same time in the bridge shape as described above; hence, it is possible to improve the

design and rigidity. Also, it is possible to place the packing pouch at a high temperature apart from the standing plane to the maximum extent; hence, heat insulation of the packing pouch can be enhanced and it is possible to suppress an event in which heat is transferred from the packing pouch to the installation place and the installation place has a high temperature.

[0151]

Further, one of the side surfaces 403 includes a projected section 414 to engage with a notch 415 disposed in the other side surface 403. The projected section 414 is disposed at each of both ends of the side surface 403 and is formed in a contour projecting toward the bottom surface 402 not to expand in the circumferential direction when assembled. The notch 415 disposed at a position corresponding to the projected section 414 in the other side surface 403 is disposed in an arc shape inclined with respect to the bottom surface 402 so that the projected section 414 is easily inserted. Moreover, at the position adjacent to the projected section 414, a crease 413 is disposed in the perpendicular direction with respect to the bottom surface 402. As a result, also when assembled in the arc shape, it is possible to easily engage the projected section 414 with the notch 415. The projected section 414 is inserted from the outside of the side surfaces 403 which overlap each other when the side surfaces 403 are made to stand, and the projected section 414 in the tip end passes to the inside of the side surfaces 403 and is fixed.

[0152]

FIG. 19 is a top view of the microwave pouch housing container 400 in accordance with the present embodying mode. In both ends in the longitudinal direction of the bottom surface 402 having substantially an elliptic contour, there is disposed a hole 421 at which the bottom surface 402 is apart from the side surface 403. The hole 421 is configured using the straight-line section 411 of the bottom surface 402 and the arc shape of the side surface 403, to be in substantially a semicircle contour. Due to this configuration, it is possible to smoothly bend the side surface 403 and to easily engage the projected section 414 with the notch 415.

[0153]

Now, description will be given of a packing pouch to be housed in the microwave pouch housing container 400 in accordance with the present embodying mode. FIG. 20 is a diagram showing a configuration example a packing pouch 31 of the present embodying mode and a perspective view of the packing pouch 31 in a state in which a contained item 40 is put into the packing pouch 31 and the packing pouch 31 is sealed up

by heat-sealing the opening.

[0154]

The packing pouch 31 of the present embodying mode is a packing pouch 31 including seal sections 34, 27, 28 formed by sealing the circumferential section of a film to configure an upper surface section 32 and a film to configure a lower surface section 33.

[0155]

The packing pouch 31 of the present embodying mode includes a vapor exhaust seal section 35 formed by inflecting and by projecting the substantially central portion of a seal section 34 in substantially a V shape toward an inner direction of the packing pouch 31 and a non-seal section 36 formed to be adjacent to the vapor exhaust seal section 35 without sealing on an outer side thereof; and when the internal pressure of the packing pouch 31 goes up and the packing pouch 31 expands, stress concentrates onto the vapor exhaust seal section 35 and the vapor exhaust seal section 35 peels off and opens, and the opened area and the non-seal section 36 form a vapor discharge section to discharge vapor from the packing pouch 31.

[0156]

The packing pouch 31 of the present embodying mode includes a lower surface section 33, an upper side upper surface section 32a overlapping the upper side, and a lower side upper surface section 32b overlapping the lower side of the lower surface section 33. In the packing pouch 31 of the present embodying mode, the upper side upper surface section 23a and the lower side upper surface section 32b configure an upper surface section 32.

[0157]

In the packing pouch 31 of the present embodying mode, both side edges of the lower surface section 33 and the upper surface section 32 are heat-sealed to form a portion of a side seal section 37. Further, three side edges of the lower surface section 33 and the upper side upper surface section 32a are heat-sealed to form a portion of the side seal section 37 and an end seal section 38. Also, the upper side upper surface section 32a and the lower side upper surface section 32b are folded to overlap each other and are heat-sealed, to form the film joining section 39.

[0158]

The film joining section 39 includes, in the central portion in the longitudinal direction of the film joining section 39, a vapor exhaust seal section 35 inflecting and projecting in substantially a V contour toward the inner direction of the packing pouch 31,

and a band-shaped seal section 34 on both sides of the vapor exhaust seal section 35 along edges in the longitudinal direction and the vertical direction of the film joining section 39. The vapor exhaust seal section 35 and the band-shaped seal section 34 are portions in which the upper side upper surface section 32a and the lower side upper surface section 32b overlap each other and are heat-sealed, and the vapor exhaust seal section 35 and the band-shaped seal section 34 are linked to each other.

[0159]

The film joining section 39 includes a non-seal section 36 on an outer side of the vapor exhaust seal section 35. The non-seal section 36 is an outside section not heat-sealed, enclosed by the seal section 34 and the vapor exhaust seal section 35 formed in a manner in which the upper side upper surface section 32a and the lower side upper surface section 32b overlap each other and are heat-sealed. The vapor exhaust seal section 35 of the present embodying mode is configured in a contour inflecting and projecting in substantially a V shape toward an inner direction of the packing pouch 31.

[0160]

The vapor exhaust seal section 35 is formed by heat-seal including an inner inflection contour projecting in a V shape near an inner side of the packing pouch 31 not adjacent to the non-seal section 36 and an outer inflection contour near an outer side of the packing pouch 31 adjacent to the non-seal section 36, and the tip end side of the vapor exhaust seal section 35 is narrow. Hence, when the internal pressure of the packing pouch 31 goes up and the packing pouch 31 expands, only the tip end side of the vapor exhaust seal section 35 peels off and opens, and the opened area and the non-seal section 36 form the vapor discharge section to discharge vapor or the like from the packing pouch 31. And, from the vapor discharge section, the vapor or the like in the packing pouch 31 is discharged. Hence, even in a situation wherein the internal pressure of the packing pouch 31 goes up and the packing pouch 31 expands, since the vapor or the like in the packing pouch 31 is discharged from the vapor discharge section, it is possible to prevent the packing pouch 31 from bursting.

[0161]

FIG. 21 is a diagram showing an embodiment of the microwave pouch housing container 400 in an embodying mode of the present invention. The microwave pouch housing container 400 and the packing pouch 31 described above are set up in a unit, as shown in FIG. 21, such that the vapor exhaust seal section 35 of the packing pouch 31 is exposed from an opening 404 of the microwave pouch housing container 400. Further, FIG. 22 shows a state in which the microwave pouch housing container 400 and the

packing pouch 31 are heated by a microwave to be expanded, FIG. 22(a) shows a perspective view of the microwave pouch housing container 400 and the packing pouch 31, and FIG. 22(b) shows a side view of the microwave pouch housing container 400 and the packing pouch 31.

[0162]

As shown in FIG. 21, by placing the microwave pouch housing container 400 with the bottom surface 402 facing downward and with the opening 404 of the side surface 403 facing upward, when the packing pouch 31 is housed from the opening 404 of the microwave pouch housing container 400, it is possible to make the packing pouch 31 stand. The microwave pouch housing container 400 and the packing pouch 31 may be adhered onto each other by use of known adhesive agent according to necessity. Since the vapor exhaust seal section 35 of the packing pouch 31 is at an upper position relative to the opening 404 of the microwave pouch housing container 400, the vapor exhaust seal section 35 cannot be blocked by the microwave pouch housing container 400.

[0163]

When the packing pouch 31 in a sealed state is heated by a microwave, vapor or the like is generated in the packing pouch 31 and the packing pouch 31 becomes in a high-temperature and high-pressure state, and the packing pouch 31 expands. Then, as shown in FIG. 22, the horizontal cross section of the portion of the body of the packing pouch 31 including the lower surface section 33 and the upper surface section 32 expands into an elliptic contour, and the space defined by the vapor exhaust seal section 35 and the band-shaped seal section 34 of the film joining section 39 expands. As a result, force is applied in a concentrated fashion onto the tip end portion of the vapor exhaust seal section 35 configuring the film joining section 39, and the peeling-off of the heat-seal takes place beginning at the tip end of the vapor exhaust seal section 35, and the tip end of the vapor exhaust seal section 35 opens, and then the opened area and the non-seal section 36 form the vapor discharge section to discharge vapor or the like from the packing pouch 31. Hence, the vapor or the like generated in the packing pouch 31 can be discharged from the vapor discharge section to the outside.

[0164]

In accordance with the present embodying mode, in a state in which the packing pouch 31 is housed in the microwave pouch housing container 400 such that at least the vapor exhaust seal section 35 of the packing pouch 31 is exposed from the microwave pouch housing container 400, when the contained item 40 is warmed up, it is possible, without waiting for the contained item to cool, to safely take out it from the microwave

by using the microwave pouch housing container 400 as a handle; also, by opening the packing pouch 31 by cutting it beginning at a cut section 41 formed in an upper portion of the packing pouch 31, it is possible to make the packing pouch 31 and the microwave pouch housing container 400 stand, to directly each the contained item.

[0165]

Further, in the packing pouch 31 of the present embodying mode, the vapor exhaust seal section 35 to form the vapor discharge section is disposed in the film joining section 39 which is at an upper position relative to the upper surface level of the contained item 40 in the packing pouch 31; hence, it is possible to prevent boiling-over of the contained item 40 of the packing pouch 31 and to prevent leakage of the contained item 40 of the packing pouch 31.

[0166]

Incidentally, the microwave pouch housing container 400 of the present embodying mode is not limited to the present embodying mode; it is only required that at least the vapor exhaust seal section 35 of the packing pouch 31 is exposed from the microwave pouch housing container 400; for example, when the height of the side surface of the microwave pouch housing container 400 is similar to or more than that of the packing pouch 31, it is possible to employ, according to necessity, a contour or the like formed by cutting away a portion of the upper side relative to the vapor exhaust seal section 35, that is, a portion of the corresponding section such that the vapor is exhausted.

[0167]

(Example 2 of fourth embodying mode)

In a microwave pouch housing container 51 of the present embodying mode, after a packing pouch 31 is housed in the container 51, it is possible to warm up the container 51, for example, in a flat state by a microwave; thereafter, when taken out of the microwave, the container 51 can be immediately set to the vertical state so that the contained item is easily taken out, to thereby improve serviceability of the container; description will be given of the container. FIG. 23(a) is a perspective view showing a folded state of the microwave pouch housing container 51 in accordance with the present embodying mode, and (b) is a cross-sectional diagram taken along lines with arrows A-A of (a).

[0168]

As shown in FIG. 23, the microwave pouch housing container 51 includes a container body 52 which can be developed from a folded state into a cylindrical contour by pushing side edges on both sides toward each other, and a bottom member 53 disposed in a lower edge section of the container body 52; and in cooperation with the

folding and the development of the container body 52, the folding and the development take place also in the bottom member 53 of the bottom surface.

[0169]

For the container body 52, sheet materials such as thick paper and a synthetic resin sheet are employed, and it includes, as shown in FIG. 24(a), two sidewalls 54; and both sidewalls 54 are formed using one sheet such that both sidewalls 54 are linked to each other in one side edge; both sidewalls 54 are folded along a folding line 55 and the other side edge is adhered to be fixed by an adhesive slip 56; hence, the container body 52 in the oval, folded state can be developed into a cylindrical shape through one simple operation by pushing both side edges.

[0170]

In this container body 52, the lower edges of both sidewalls 54 are formed to be horizontal straight line edges substantially perpendicular to the vertical axis line of the container body 52. At the central position in the width direction in the lower edges of both sidewalls 54 described above, a band-shaped connection slip 57 to connect to the bottom member 53 is disposed to project downward in the extending manner.

[0171]

For the bottom member 53, similar sheet materials as for the container body 52 are employed, and it is formed as shown in FIG. 24(a) such that a pair of bottom walls 62 contiguous to each other with a folding line 61, which is a straight line, between them can be developed from the folded state toward both sides; both bottom walls 62 are in a plate shape in which the outer edges opposite to the folding line 61, which is a straight line, are arc-shaped expanding edges; the length of both bottom walls 62 in the direction along the folding line 61 is set to the length which is housed between both edges of the folded container body 52; in the folded state, the folding line 61 side is positioned in the inside of the container body 52, and it is housed in the container body 52 in an arrangement in which part of the bottom walls 62 project from the lower edges of the side walls 54 to the outside.

[0172]

In both bottom walls 62 of the bottom member 53 described above, a central long hole 63 is disposed on the folding line 61 and outer long holes 64 are disposed at positions apart an equal distance from each other with the folding line 61 sandwiched therebetween in an arrangement in which the holes are parallel to each other; in a state in which the bottom member 53 is developed, the band-shaped connection slip 57 continuously formed in the lower edge of each sidewall 54 of the container body 52 is

fed from above through the outer long hole 64 and is then bent in the lower surface of the bottom wall 62, and the tip end section thereof is bent to be fed from below through the central long hole 63, to thereby connect the sidewall 54 and the bottom wall 62 to each other.

[0173]

The microwave pouch housing container 51 of the present embodying mode is configured as above, and when it is used in the flat state, the container body 52 is folded as shown in (a) and (b) of FIG. 23 such that both sidewalls 54 overlap each other, and the bottom member 53 in the folded state is inserted in the lower edge section between both sidewalls 54 such that the overall thereof is in an oblate contour. In this state, the connection slips 57 disposed in both sidewalls 54 are bent inward due to the folding of the bottom member 53.

[0174]

FIG. 25 is a perspective view showing a state in which the microwave pouch housing container 51 and the packing pouch 31 are united and are placed in the flat state. For the microwave pouch housing container 51 and the packing pouch 31, the housing is conducted such that at least the vapor exhaust seal section of the packing pouch 31 is exposed from the microwave pouch housing container 51. The housed packing pouch 31 may be adhered onto the microwave pouch housing container 51 by use of known adhesive agent or the like.

[0175]

The microwave pouch housing container 51 in the present embodying mode can be, when the contained item is warmed up by a microwave, placed in the microwave with the packing pouch 31 kept in the flat state; hence, during the operation of the microwave, there exists no fear of fall-down, and it can be stably placed in the microwave. Also, at removal of the container 51 from the microwave, it is possible, by holding the microwave pouch housing container 51, to take out the microwave pouch housing container 51 and the packing pouch 31 without worrying about burn and the like.

[0176]

Moreover, for the microwave pouch housing container 51 and the packing pouch 31 taken out of the microwave, by pushing the side edges of the microwave pouch housing container 51, both bottom walls 62 of the bottom member 53 are drawn out in one simple operation as shown in FIG. 26 such that they can be easily placed in the vertical state. Thereafter, by cutting out the upper portion of the packing pouch 31, the contained item 40 can be easily taken out, and it is hence possible to improve serviceability when the

contained item 40 is eaten.

[0177]

In accordance with the present embodying mode, after the microwave pouch housing container 51 and the packing pouch 31 are warmed up in the flat state, it is possible to easily place the microwave pouch housing container 51 and the packing pouch 31 in the vertical state; hence, it is possible to eat the contained item 40 immediately after the warming thereof without worrying about burn or the like.

[0178]

Incidentally, the embodying mode described above is a favorable embodying mode of the present invention, and the scope of the present invention is not limited only to the embodying mode, but various changes may be made therein without departing from the gist of the present invention.

[0179]

The techniques described in the first to fourth embodying modes above may be combined with each other according to necessity. For example, in the second and third embodying modes, it is possible that the seal width is formed in a taper shape as in the first embodying mode; and in the third embodying mode, it is possible that the polygonal seal section is employed as in the first and second embodying modes.

DESCRIPTION OF REFERENCE NUMERALS

[0180]

100, 200, 300	Packing pouch
6	Film joining section
7	Vapor exhaust seal section
101	First vapor discharge section
102	Second vapor discharge section
2a2	First print layer
2a3	Second print layer
400	Container
31	Packing pouch
35	Vapor exhaust seal section

Claims:

1. A packing bag having a seal section formed by sealing films, wherein the seal section is peeled off by inner vapor pressure generated inside and vapor is discharged to an outside of the packing bag, comprising;

a vapor exhaust seal section projecting by inflecting a part of the seal section in an inward direction, wherein the vapor exhaust seal section is substantially V-shaped,

a non-seal section formed outside the vapor exhaust seal section, and

a cut or a notch formed in a film of the non-seal section, wherein

in a state before the packing bag expands, an inward end the cut or notch is disposed in a position inside of the packing bag than a line connecting start points of the substantially V shape,

the vapor exhaust seal section is sandwiched by a pair of band-shaped end seal sections,

the pair of band-shaped end seal sections are connected to side seal sections sealing side edges of the packing bag, respectively,

the start points are points where an extension of an inner boundary line of each of the pair of band-shaped end seal sections crosses the vapor exhaust seal section, and

a width of the vapor exhaust seal section is smaller than width of the pair of band-shaped end seal sections.

2. The packing bag according to claim 1, wherein

a gap between the films which are not sealed each other in the non-seal section communicate with the outside of the packing bag, and

the vapor exhaust seal section and the non-seal section are disposed in a joining section formed through folding and overlapping of the films.

3. A packing bag having a seal section formed by sealing films, wherein the seal section is peeled off by inner vapor pressure generated inside and vapor is discharged to an outside of the packing bag, comprising;

a vapor exhaust seal section projecting by inflecting a part of the seal section in an inward direction, wherein the vapor exhaust seal section is substantially V-shaped,

a non-seal section formed outside the vapor exhaust seal section, wherein a gap between the films which are not sealed each other in the non-seal section communicate with the outside of the packing bag,

wherein the vapor exhaust seal section and the non-seal section are provided in a joining section formed by folding and overlapping of the films,

wherein the packing bag further comprising;
a first vapor discharge section and a second vapor discharge section
wherein the first vapor discharge section is composed of an opening area and the non-seal section, and the opening area is an area where the vapor exhaust seal section is peeled off and opened when the packaging bag expands, and
wherein the second vapor discharge section is formed by a cut or a notch formed in the non-seal section, wherein
in a state before the packing bag expands, an inward end of the cut or notch is disposed in a position inside of the packing bag than a line connecting start points of the substantially V shape.
the vapor exhaust seal section is sandwiched by a pair of band-shaped end seal sections, and
a width of the vapor exhaust seal section is smaller than width of the pair of band-shaped end seal sections.

4. The packing bag according to any one of claims 1 to 3, wherein
link seal sections connected to both ends of the vapor exhaust seal section, respectively are tapered so that widths of the link seal sections increase from both ends of the vapor exhaust seal section toward side edges of the packing bag, respectively, and
a seal free section is provided in an area of the link seal section, the seal free section is a non-sealed area surrounded by a sealed area.