

【DESCRIPTION】

【Invention Title】

PACKAGING MATERIAL FOR MICROWAVE OVEN

【Technical Field】

5 [1]

The present invention relates to a packaging material for a microwave oven, and more specifically, to a packaging material for a microwave oven that controls the temperature of food using the microwave oven and prevents sparks during use of the microwave oven.

10 **【Background Art】**

[2]

Recently, due to advancements in distribution and processing technologies, distributed food products such as meal kits that may be prepared instantly by microwave cooking at places like convenience stores are gaining popularity in the food industry. Such meal kits consist of a set of pre-prepared ingredients, seasonings, and the like in appropriate quantities necessary for cooking a specific dish, and include a recipe, thereby allowing users to cook conveniently. Such meal kits offer the users the freshness of ingredients and the convenience of cooking, and have the advantage of allowing the users to indirectly experience the cuisine of famous restaurants, and recently, the demand for the meal kits has been increasing significantly in response to the current situation caused by COVID-19.

[3]

Therefore, large corporations have been actively commercializing meal kit products for various dishes, and participation in and interest in the meal kit market by

not only small and medium-sized enterprises but also individuals have been steadily increasing.

[4]

However, distributed food products, including such meal kits, require
5 temperatures to be controlled to or varied at a specific temperature depending on the cooking type, and a conventional packaging material for a microwave oven introduced to date only provides a simple heating function for food contained inside the packaging material, thereby making it difficult to utilize for a wider variety of foods.

【Disclosure】

10 【Technical Problem】

[5]

Therefore, an object of the present invention is to provide a packaging material for a microwave oven that may control the temperature of food during use of the microwave oven.

15 【Technical Solution】

[6]

To achieve the above object, a packaging material for a microwave oven according to the present invention includes: a packaging pack that includes an electromagnetic wave-blocking layer formed of a metal thin film including an
20 electromagnetic wave-blocking control material and forms a food accommodation space for accommodating food; and a temperature control unit that is formed through a plurality of regions of the electromagnetic wave-blocking layer to control a temperature of the food accommodated in the food accommodation space. The temperature of the food may not increase using the electromagnetic wave-blocking
25 layer, and the food may be appropriately heated using the temperature control unit so

that a user may control the temperature of the food at his/her desired temperature and may eat the food, thereby improving the user's satisfaction with food consumption.

[7]

In this case, when the temperature of the food accommodated in the food accommodation space is controlled based on at least one of the penetration area formed through the plurality of regions of the electromagnetic wave-blocking layer and a thickness of the electromagnetic wave-blocking layer, the temperature control unit may select the penetration area and the thickness of the electromagnetic wave-blocking layer according to the type of food, so that the food may be adjusted at a desired temperature.

[8]

In addition, when the temperature control unit is prepared as a plurality of through-holes, if the temperature of the food accommodated in the food accommodation space is controlled according to the number of the plurality of through-holes and a diameter of the plurality of through-holes, the food may be rapidly heated by the microwave oven as the number and the diameter of the through-holes increase, and the heating speed of the food may be reduced by the microwave oven as the number and the diameter of the through-holes decrease.

[9]

In this case, when the temperature control unit is prepared as a plurality of slots at equal intervals, if the temperature of the food accommodated in the food accommodation space is controlled according to the number of the plurality of slots and the intervals of the plurality of slots, the food may be rapidly heated by the microwave oven as the number and the intervals of the slots increase, and the heating speed of the food may be reduced by the microwave oven as the number and the

intervals of the slots decrease.

[10]

In addition, the packaging pack may include: an outer surface film layer on which a print is possible; the electromagnetic wave-blocking layer that is laminated on
5 an inner side of the outer surface film layer and blocks oxygen, moisture, light, and electromagnetic waves; a functional layer that is laminated on an inner side of the electromagnetic wave-blocking layer; and a thermally bonding layer that is thermally bonded to an inner side of the functional layer to make contact with the food, so that the food may be stored cleanly, heated, and consumed hygienically.

10 [11]

In this case, when two thermally bonding layers are thermally bonded to each other so that two packaging packs are thermally bonded in two layers, if two functional layers are disposed between two electromagnetic wave-blocking layers, the two functional layers are spaced apart from each other, so that the movement of electrons
15 may be completely blocked, thereby preventing sparks.

[12]

In addition, when two thermally bonding layers are thermally bonded to each other so that two packaging packs are thermally bonded in two layers, if two functional layers are omitted such that two electromagnetic wave-blocking layers make close
20 contact with each other, the two electromagnetic wave-blocking layers may completely make close contact with each other, so that electrons may move freely without interruption, thereby preventing sparks.

[13]

In this case, when two thermally bonding layers are thermally bonded to each
25 other so that two packaging packs are thermally bonded in two layers, if the

electromagnetic wave-blocking layer is omitted in any one of two packaging packs within a thermally bonded region, the electromagnetic wave-blocking layer provided on one side of a thermally bonded portion may be removed, and the electromagnetic wave-blocking layer may be retained from the point where the contact ends to
5 separate the layers from each other, thereby preventing sparks.

[14]

In addition, when a notch is formed in the packaging pack, if the notch is formed in a shape without sharp portions, sparks generated by the sharp portions may be prevented.

10 [15]

In this case, when a notch is formed in the packaging pack, if the electromagnetic wave-blocking layer is omitted in a region where the notch is formed, sharp portions are not present in the electromagnetic wave-blocking layer and are not exposed to the outside, so that sparks may be prevented.

15 [16]

In addition, when the electromagnetic wave-blocking layer is prepared as a plurality of slots, if the electromagnetic wave-blocking layer is laminated together with the outer surface film layer, the functional layer, and the thermally bonding layer through a rolling operation to form a laminated sheet, the temperature may be
20 controlled in the form of slots rather than the through-holes, thereby improving productivity.

【Advantageous Effects】

[17]

According to the present invention, the temperature of the food may not
25 increase using the electromagnetic wave-blocking layer, and the food may be

appropriately heated using the temperature control unit so that a user may control the temperature of the food at his/her desired temperature and may eat the food, thereby improving the user's satisfaction with food consumption.

[18]

5 In addition, the penetration area and the thickness of the electromagnetic wave-blocking layer may be selected according to the types of food, the food may be adjusted at a desired temperature.

[19]

10 In addition, the food may be rapidly heated by the microwave oven as the number and the diameter of the through-holes increase, and the heating speed of the food may be reduced by the microwave oven as the number and the diameter of the through-holes decrease.

[20]

15 In addition, the food may be rapidly heated by the microwave oven as the number and the intervals of the slots increase, and the heating speed of the food may be reduced by the microwave oven as the number and the intervals of the slots decrease.

[21]

In addition, the food may be stored cleanly, heated, and consumed hygienically.

20 [22]

 In addition, the movement of electrons may be completely blocked by separating the two electromagnetic wave-blocking layers from each other, electrons may move freely without interruption through close contact between the two electromagnetic wave-blocking layers, the electromagnetic wave-blocking layer provided on one side of a thermally bonded portion may be removed, and the

25

electromagnetic wave-blocking layer may be retained from the point where the contact ends to separate the layers from each other, thereby preventing sparks.

[23]

In addition, sparks generated by the sharp portions may be prevented, and sharp portions are not present in the electromagnetic wave-blocking layer and are not exposed to the outside, so that sparks may be prevented.

[24]

In addition, the temperature may be controlled in the form of slots rather than the through-holes, thereby improving productivity.

【Description of Drawings】

[25]

FIG. 1 is an exemplary view illustrating temperature rise according to the number of through-holes, hole diameter, and thickness of a packaging material for a microwave oven according to the present invention.

[26]

FIG. 2 is an exemplary view illustrating use of the packaging material for a microwave oven.

[27]

FIG. 3 is an exemplary view illustrating a structure of a packaging pack.

[28]

FIG. 4 is an exemplary view illustrating a slot-shaped temperature control unit.

[29]

FIG. 5 is an exemplary view illustrating the temperature control unit of the packaging material for a microwave oven.

[30]

FIG. 6 is an exemplary view for preventing sparks.

[31]

FIG. 7 is an exemplary view for preventing sparks at a notch.

[32]

5 FIG. 8 is an exemplary view illustrating various examples of packaging packs.

【Mode for Invention】

[33]

Hereinafter, a packaging material 1 for a microwave oven according to the preferred embodiment of the present invention will be described in detail with
10 reference to the accompanying drawings.

[34]

FIG. 1 is an exemplary view illustrating temperature rise according to the number of through-holes 21, hole diameter, and thickness of a packaging material 1 for a microwave oven according to the present invention, FIG. 2 is an exemplary view
15 illustrating use of the packaging material 1 for a microwave oven, FIG. 3 is an exemplary view illustrating a structure of a packaging pack 10, FIG. 4 is an exemplary view illustrating a slot-shaped temperature control unit 20, FIG. 5 is an exemplary view illustrating the temperature control unit 20 of the packaging material 1 for a microwave oven, FIG. 6 is an exemplary view for preventing sparks, and FIG. 7 is an exemplary
20 view for preventing sparks at a notch.

[35]

A configuration of the packaging material 1 for a microwave oven will be described with reference to FIGS. 1 to 7.

[36]

The packaging material 1 includes the packaging pack 10 and the temperature control unit 20. The packaging pack 10 includes an electromagnetic wave-blocking layer 12 formed of a metal thin film including an electromagnetic wave-blocking control material, and forms a food accommodation space for accommodating food. The packaging pack 10 includes an outer surface film layer 11, the electromagnetic wave-blocking layer 12, a functional layer 13, a thermally bonding layer 14, and a notch 15.

[37]

The outer surface film layer 11 may be formed of a printable material.

[38]

The electromagnetic wave-blocking layer 12 is laminated on an inner side of the outer surface film layer 11 and blocks oxygen, moisture, light, and electromagnetic waves. The electromagnetic wave-blocking layer 12 may block electromagnetic waves by controlling the type of electromagnetic wave-blocking control material, the type of coating material, and the like, and may prevent sparks by using the shape of the packaging material, thereby minimizing the influence of electromagnetic waves on food and enhancing safety during cooking.

[39]

The electromagnetic wave-blocking control material may be at least one of aluminum, stainless steel, and ferrite, but is not limited thereto. The electromagnetic wave-blocking control material may be coated with a non-conductive material having a low dielectric constant. That is, the electromagnetic wave-blocking control material may be coated with a non-conductive material to prevent sparks due to microwaves reflected from the metal. In the case of the non-conductive material, a conventional non-conductive material may be used, and the conventional non-conductive material may be any one of non-conductive materials having a low dielectric constant.

[40]

The electromagnetic wave-blocking control material may have a shape that is cut such that the metal material is positioned inside a coating paper without external exposure of the metal by cutting edges of the metal material. Depending on the shape of the packaging material, it is possible to minimize sparks due to reflection of microwaves generated from the metal thin film. The sparks may be reduced as the surface becomes smoother without protrusions, and may be further reduced as the material becomes thicker. However, even if the material is smooth without protrusions, sparks may be easily generated when a pointed or protruding portion of the material is adjacent to the outside. Therefore, the sparks may be minimized by cutting the packaging material such that the metal material is positioned inside the coating paper without being externally exposed by cutting edges of the metal thin film.

[41]

The functional layer 13 is laminated on an inner side of the electromagnetic wave-blocking layer 12, and may separate the adjacent electromagnetic shielding layer during thermal bonding. In this case, the functional layer 13 may be a heat-resistant insulating layer.

[42]

The thermally bonding layer 14 is laminated on an inner side of the functional layer 13 and thermally bonded when thermal bonding is performed.

[43]

The notch 15 may be formed at an upper edge of the packaging pack 10 such that the packaging pack 10 is easily opened.

[44]

The temperature control unit 20 is formed through a plurality of regions of the electromagnetic wave-blocking layer 12 to control the temperature of the food accommodated in the food accommodation space. The temperature control unit 20 may control the temperature of the food accommodated in the food accommodation space based on at least one of a penetration area formed through the plurality of regions of the electromagnetic wave-blocking layer 12 and a thickness of the electromagnetic wave-blocking layer 12. The temperature control unit 20 includes through-holes 21 and slots 22 (see FIG. 5).

[45]

When the temperature control unit 20 is prepared as the plurality of through-holes 21 at equal diameters, the temperature of the food accommodated in the food accommodation space may be controlled according to the number of the plurality of through-holes 21 and the diameters of the plurality of through-holes 21.

[46]

When the temperature control unit 20 is prepared as a plurality of slots 22 at equal intervals, the temperature of the food accommodated in the food accommodation space may be controlled according to the number of the plurality of slots 22 and the intervals of the plurality of slots 22.

[47]

FIG. 1 is an exemplary view illustrating temperature rise according to the number of through-holes 21, hole diameter, and thickness of the packaging material 1 for a microwave oven according to the present invention.

[48]

In FIG. 1(a), the greater temperature rise by the microwave oven is shown as the number of through-holes 21 of the packaging material 1 for a microwave oven increases and no shielding is applied.

[49]

5 In FIG. 1(b), the higher temperature rise by the microwave oven is shown as the hole diameter of through-holes 21 of the packaging material 1 for a microwave oven increases and no shielding is applied.

[50]

10 In FIG. 1(c), the lower temperature rise is shown because the blocking of electromagnetic waves increases as the thickness of the packaging material 1 for a microwave oven increases.

[51]

FIG. 2 is an exemplary view illustrating use of the packaging material 1 for a microwave oven.

15 [52]

In FIG. 2(a), the frozen kimchi and the frozen ssamjang provided on the upper part are exposed to the microwave oven, so that the temperatures thereof increase to 50°C and 60°C, respectively, due to electromagnetic waves of the microwave oven.

[53]

20 On the other hand, in FIG. 2(b), the frozen kimchi and the frozen ssamjang provided on the upper part are packaged by the packaging material 1 for a microwave oven according to the present invention, the heating amount is relatively small compared to other portions, so that the temperatures thereof do not increase to 10°C and 25°C, respectively.

25 [54]

FIG. 3 is an exemplary view illustrating a structure of the packaging pack 10.

[55]

No through-holes are formed in the functional layer 13 on the left side of FIG. 3, but through-holes are formed in the functional layer 13 on the right side of FIG. 3.

5 Various patterns such as circles, squares, ellipses, lattice patterns, and meshes are possible.

[56]

FIG. 4 is an exemplary view illustrating a slot-shaped temperature control unit 20.

10 [57]

In FIG. 4(a), the electromagnetic wave-blocking layer 12 has the slots 22 formed in a stripe pattern, instead of being punched.

[58]

In FIG. 4(b), the electromagnetic wave-blocking layer 12, which has the slots 15 22 formed in a stripe pattern, instead of being punched, may be laminated together with the outer surface film layer 11, the functional layer 13, and the thermally bonding layer 14 to form a laminated sheet. When the electromagnetic wave-blocking layer 12 is prepared as a plurality of slots, the electromagnetic wave-blocking layer 12 may be laminated together with the outer surface film layer 11, the functional layer 13, and 20 the thermally bonding layer 14 through a rolling operation to form a laminated sheet. In this case, the laminated sheet may be formed using an adhesive.

[59]

FIG. 5 is an exemplary view illustrating the temperature control unit of the packaging material for a microwave oven.

25 [60]

In FIG. 5(a), the temperature control unit 20 may be prepared as the plurality of through-holes 21 at equal diameters.

[61]

In FIG. 5(b), the temperature control unit 20 may be prepared as the plurality of slots 22 at equal intervals. In this case, the packaging material for a microwave oven may be formed as illustrated in FIG. 4.

[62]

FIG. 6 is an exemplary view for preventing sparks.

[63]

When two metals are adjacent to each other, sparks are generated during movement of electrons through a short non-metallic region.

[64]

In FIG. 6(a), when two thermally bonding layers 14 are thermally bonded to each other so that two packaging packs 10 are thermally bonded in two layers, two functional layers 13, which are heat-resistant insulating layers, are disposed between two electromagnetic wave-blocking layers 12 while being spaced apart from each other by a predetermined interval. As an example in which the electromagnetic wave-blocking layers 12 are spaced apart from each other by maintaining the thickness when the packaging packs 10 are thermally bonded in two layers, there is a method for completely blocking the movement of electrons by separating the two electromagnetic wave-blocking layers 12 from each other.

[65]

In FIG. 6(b), when two thermally bonding layers 14 are thermally bonded to each other so that two packaging packs 10 are thermally bonded in two layers, two functional layers 13 are omitted such that two electromagnetic wave-blocking layers

12 make close contact with each other. As an example in which the flow of electrons is prevented from being interrupted through close contact between the two electromagnetic wave-blocking layers 12 in a large area when thermal bonding is performed, there is method for preventing sparks by moving electrons freely without interruption through complete close contact between the two electromagnetic wave-blocking layers 12.

[66]

In FIG. 6(c), when two thermally bonding layers 14 are thermally bonded to each other so that two packaging packs 10 are thermally bonded in two layers, the electromagnetic wave-blocking layer 12 is omitted in any one of two packaging packs 10 within a thermally bonded region. As an example in which the electromagnetic wave-blocking layers 12 are spaced apart from each other using a non-shielding pattern when thermal bonding is performed, there is a method for removing the electromagnetic wave-blocking layer 12 provided on one side of a thermally bonded portion and retaining the electromagnetic wave-blocking layer 12 from the point where the contact ends to separate the layers from each other.

[67]

FIG. 7 is an exemplary view for preventing sparks at the notch 15.

[68]

FIG. 7(a) illustrates an example of a change of the notch shape from an existing angular shape to a curved shape. When the notch 15 is formed in the packaging pack 10, the notch 15 is formed in a shape without sharp portions. As a result, sparks generated by the sharp portions may be prevented.

[69]

In FIG. 7(b), the electromagnetic wave-blocking layer 12 is not applied to the notch 15 by using the non-shielding pattern. When the notch 15 is formed in the packaging pack 10, the electromagnetic wave-blocking layer 12 is omitted in the region where the notch 15 is formed, so that the electromagnetic wave-blocking layer 12 does not have sharp portions and is not exposed to the outside, thereby preventing sparks.

[70]

In this case, a plurality of examples in which the food is heated using the microwave oven will be described.

[71]

Room-temperature food (16°C to 20°C): Korean traditional pastes (Ssamjang, Gochujang, etc.), chocolate, and some desserts (cookies, macarons, etc.)

[72]

Warm food (50°C to 60°C): Hamburgers, bread, boiled meat (such as Suyuk and Jokbal), meat side dishes, stir-fried dishes, fried foods, and Korean savory pancakes

[73]

Moderately hot food (60°C to 70°C): Steak, pizza, coffee, cooked rice, freshly cooked or hot-seasoned vegetables, some soup-based dishes, and warmed-up desserts

[74]

Hot food (65°C to 75°C): Korean traditional soups, Korean traditional stews, soup, ramen, hot tea (black tea, green tea, etc.), and thoroughly heated stew

[75]

Further, it is possible to display a guide on the temperature rise according to areas of the through-holes and slots of the packaging material 1 for a microwave oven.

In addition, it is possible to display a guide on the temperature rise according to a usage time of the microwave oven.

[76]

By using the guides, various types of food may be heated to desired
5 temperatures in a single operation, rather than heating the food repeatedly.

[77]

An example of a guide on the structure of the packaging pack 10 will be described.

[78]

10 The outer surface film layer 11 may be mainly formed of a printable material, including PET, OPP, KRAFT, BOPP, MOPP, SHFNWL, and KRT.

[79]

The electromagnetic wave-blocking layer 12 may be formed of a material including VMPET, AL, and VMCPP to block oxygen, moisture, and light. The VMPET
15 and the VMCPP also exhibit electromagnetic-wave shielding properties, but the VMPET and the VMCPP burn out in the microwave oven because the metal is thinly deposited in normal cases; however, the VMPET and the VMCPP may be utilized if the metal is thickly deposited.

[80]

20 The functional layer 13 may be mainly formed of a material, including PET, LLDPE, NY, CPR, CPP, VMCPP, PP, and EVOH. The functional layer 13 may be utilized in frozen products or vacuum packaging products with a tough film such as nylon (NY). For example, the functional layer 13 may be a heat-resistant insulating layer. Such a heat-resistant insulating layer may prevent sparks by separating the
25 electromagnetic wave-blocking layers from each other. In addition, the heat-resistant

insulating layer may prevent wrinkles and tearing of the electromagnetic wave-blocking layer, thereby preventing sparks. As another example, the functional layer 13 may be a functional layer for a frozen product, a functional layer for high-temperature sterilization, an insulating functional layer, a functional layer for vacuum, or a functional layer for reinforcing mechanical properties.

[81]

The thermally bonding layer 14 may be mainly formed of a material, including LLDPE, CPP VMCPP, LDPE, EVA, PP, and EVOH.

[82]

Basically, the packaging pack 10 may include the outer surface film layer 11 for printing, the electromagnetic wave-blocking layer 12, the functional layer 13 in contact with food for providing additional functions such as freezing, vacuuming, sterilization, and insulation, and the thermally bonding layer 14.

[83]

In this case, PET+LLDPE is used for the most extensive and various purposes, is microwave-safe, and allows for the formation of a transparent window.

[84]

PET+NY+LLDPE is mainly used in frozen food packaging, liquid packaging, and vacuum packaging, is microwave-safe, and allows for the formation of a transparent window.

[85]

PET+NY+CPR is appropriate for high-temperature packaging of contents, sterilization processes, and boiling the packaging directly in water, is microwave-safe, and allows for the formation of a transparent window.

[86]

KRAFT+LLDPE provides a paper texture that expresses a vintage aesthetic, does not allow for the formation of a transparent window, and is not microwave-safe.

[87]

OPP+CPP is mainly used for packaging bread and ice cream, and allows for
5 the formation of a transparent window.

[88]

OPP+VMCPP is mainly used for packaging ramen products and snack products, prevents deterioration of the contents by blocking oxygen, light, and moisture, and does not allow for the formation of a transparent window.

10 [89]

FIG. 8 is an exemplary view illustrating various examples of packaging packs.

[90]

In FIG. 8(a), the packaging pack may be in the form of a three-side seal. In FIG. 8(b), the packaging pack may be in the form of a stand. In FIG. 8(c), the
15 packaging pack may be in the form of an M-seal. In FIG. 8(d), the packaging pack may be in the form of a T-seal. In FIG. 8(e), the packaging pack may be formed in various other forms.

[91]

Modifiable embodiments other than the above embodiments will be described.

20 [92]

A plurality of cut portions are formed in the through-holes and slots of the temperature control unit so that the user may control the temperature. When the cut portions are bent to increase an open region so as to achieve a temperature higher than the guided temperature before placing the packaging pack in the microwave oven,
25 heating may be performed to the temperature higher than the guided temperature.

[93]

In addition, a sticker formed of an electromagnetic wave-blocking layer capable of closing the through-holes and the slots may be further provided. Accordingly, the user may use the sticker to block the through-holes and the slots, thereby lowering the temperature rise.

[94]

In this case, the sticker may close the through-holes and the slots, and may increase the thickness of the packaging pack, thereby preventing temperature rise in various manners.

[95]

According to the packaging material 1 for a microwave oven, the temperature of the food may not increase using the electromagnetic wave-blocking layer, and the food may be appropriately heated using the temperature control unit so that the user may control the temperature of the food at his/her desired temperature and may eat the food, thereby improving the user's satisfaction with food consumption.

[96]

In addition, the penetration area and the thickness of the electromagnetic wave-blocking layer may be selected according to the types of food, the food may be adjusted at a desired temperature.

[97]

In addition, the food may be rapidly heated by the microwave oven as the number and the diameter of the through-holes increase, and the heating speed of the food may be reduced by the microwave oven as the number and the diameter of the through-holes decrease.

[98]

In addition, the food may be rapidly heated by the microwave oven as the number and the intervals of the slots increase, and the heating speed of the food may be reduced by the microwave oven as the number and the intervals of the slots decrease.

5 [99]

In addition, the food may be stored cleanly, heated, and consumed hygienically.

[100]

In addition, the movement of electrons may be completely blocked by allowing the two electromagnetic wave-blocking layers to be spaced apart from each other, 10 electrons may move freely without interruption through close contact between the two electromagnetic wave-blocking layers, the electromagnetic wave-blocking layer provided on one side of a thermally bonded portion may be removed, and the electromagnetic wave-blocking layer may be retained from the point where the contact ends to separate the layers from each other, thereby preventing sparks.

15 [101]

In addition, sparks generated by the sharp portions may be prevented, and sharp portions are not present in the electromagnetic wave-blocking layer and are not exposed to the outside, so that sparks may be prevented.

[102]

20 In addition, the temperature may be controlled in the form of slots rather than the through-holes, thereby improving productivity.

【CLAIMS】

[Claim 1]

A packaging material for a microwave oven, the packaging material comprising:
a packaging pack that includes an electromagnetic wave-blocking layer formed
5 of a metal thin film including an electromagnetic wave-blocking control material and
forms a food accommodation space for accommodating food; and
a temperature control unit that is formed through a plurality of regions of the
electromagnetic wave-blocking layer to control a temperature of the food
accommodated in the food accommodation space.

[Claim 2]

The packaging material of claim 1, wherein the temperature control unit
controls the temperature of the food accommodated in the food
accommodation space based on at least one of a penetration area formed through the
plurality of regions of the electromagnetic wave-blocking layer and a thickness of the
15 electromagnetic wave-blocking layer.

[Claim 3]

The packaging material of claim 2, wherein, when the temperature control unit
is prepared as a plurality of through-holes, the temperature of the food accommodated
in the food accommodation space is controlled according to a number of the plurality
20 of through-holes and a diameter of the plurality of through-holes.

[Claim 4]

The packaging material of claim 2, wherein, when the temperature control unit
is prepared as a plurality of slots at equal intervals, the temperature of the food
accommodated in the food accommodation space is controlled according to a number
25 of the plurality of slots and the intervals of the plurality of slots.

[Claim 5]

The packaging material of claim 1, wherein the packaging pack includes:

an outer surface film layer on which a print is possible;

the electromagnetic wave-blocking layer that is laminated on an inner side of

5 the outer surface film layer and blocks oxygen, moisture, light, and electromagnetic waves;

a functional layer that is laminated on an inner side of the electromagnetic wave-blocking layer; and

a thermally bonding layer that is thermally bonded to an inner side of the
10 functional layer to make contact with the food.

[Claim 6]

The packaging material of claim 5, wherein, when two thermally bonding layers are thermally bonded to each other so that two packaging packs are thermally bonded in two layers, two functional layers are disposed between two electromagnetic wave-
15 blocking layers while being spaced apart from each other by a predetermined interval.

[Claim 7]

The packaging material of claim 5, wherein, when two thermally bonding layers are thermally bonded to each other so that two packaging packs are thermally bonded in two layers, two functional layers are omitted such that two electromagnetic wave-
20 blocking layers make close contact with each other.

[Claim 8]

The packaging material of claim 5, wherein, when two thermally bonding layers are thermally bonded to each other so that two packaging packs are thermally bonded in two layers, the electromagnetic wave-blocking layer is omitted in any one of two
25 packaging packs within a thermally bonded region.

[Claim 9]

The packaging material of claim 1, wherein, when a notch is formed in the packaging pack, the notch is formed in a shape without sharp portions.

[Claim 10]

5 The packaging material of claim 1, wherein, when a notch is formed in the packaging pack, the electromagnetic wave-blocking layer is omitted in a region where the notch is formed.

[Claim 11]

10 The packaging material of claim 5, wherein, when the electromagnetic wave-blocking layer is prepared as a plurality of slots, the electromagnetic wave-blocking layer is laminated together with the outer surface film layer, the functional layer, and the thermally bonding layer through a rolling operation to form a laminated sheet.