

| | | | | |
|--|-------------|---------------------|-------|--|
| Patent Right | Date | September 3, 2020 | Court | Intellectual Property High Court, First Division |
| | Case number | 2019 (Gyo-ke) 10173 | | |
| <p>- A case in which it was found that, in the invention titled "DOUBLE-SIDED ADHESIVE TAPE, DOUBLE-SIDED ADHESIVE TAPE FOR FIXING ONBOARD COMPONENT, AND DOUBLE-SIDED ADHESIVE TAPE FOR FIXING ONBOARD HEADS-UP DISPLAY COVER", the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is 140°C or more" in Claim 1 is not unclear to an extent that could give an unexpected disadvantage to a third party.</p> | | | | |

Case type: Rescission of Patent Revocation Decision

Result: Granted

References: Article 36, paragraph (6), item (ii) of the Patent Act

Related rights, etc.: Patent No. 6370477

Decision of JPO: Opposition No. 2018-700983

Summary of the Judgment

1. Plaintiff had registration of establishment of the patent right granted for the present invention titled "DOUBLE-SIDED ADHESIVE TAPE, DOUBLE-SIDED ADHESIVE TAPE FOR FIXING ONBOARD COMPONENT, AND DOUBLE-SIDED ADHESIVE TAPE FOR FIXING ONBOARD HEADS-UP DISPLAY COVER". The Japan Patent Office decided to revoke the patent by holding that the present invention does not conform to the clarity requirement, enablement requirement, and support requirement. This case is a case where Plaintiff sought rescission of the present decision, and Plaintiff asserted errors in determination of the clarity requirement, errors in determination of the enablement requirement, and errors in determination of the support requirement as reasons for rescission.
2. The judgment held as follows for the errors in the determination of the clarity requirement and found that determination of the enablement requirement and the support requirement also had errors, and rescinded the present decision.

(1) Clarity requirement

In Article 36, paragraph (6), item (ii) of the Patent Act, the purport that the clarity of the invention is required is that, if the invention described in the scope of claims is not clear, the technical scope of the invention which was granted a patent becomes unclear, and it could give an unexpected disadvantage to a third party and thus, such disadvantageous results should be prevented. Whether the invention is clear or not should be determined not only from the recitation in the scope of claims but also by

considering the recitation in the description and the drawings attached to the application and should be determined from a viewpoint on whether or not the recitation in the scope of claims is unclear to the extent to give an unexpected disadvantage to a third party on the basis of the common general technical knowledge of a person ordinarily skilled in the art at the time of filing.

(2) Meaning of the recitation "the crystal melting temperature peak measured by a differential scanning calorimeter is 140 °C or more"

A. The scope of claims in Present Invention 1 has the recitation that "the crystal melting temperature peak of the foamed body measured by a differential scanning calorimeter is 140 °C or more", but does not have further recitation which specifies "the crystal melting temperature peak measured by a differential scanning calorimeter".

Since the term "peak" means "[i] Top of a mountain; [ii] Apex. Climax" (sixth edition of Kojien), the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is 140 °C or more" is naturally understood to mean that a peak (apex) in a graph of a measurement result by the differential scanning calorimeter is present at 140 °C or more.

B. An area of the crystal melting temperature peak indicates a heat absorption amount, and there are a case with one peak and a case with a plurality of peaks, depending on the crystal melting temperature of the contained material, and it is found that the correlation of the area of each peak (heat absorption amount) with the content of the material generating the peak, when there is a plurality of peaks, was a matter of common general technical knowledge at the time of filing of the present patent.

C. The present description has recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter" means a peak temperature when 100 mg of the foamed body is measured under the condition of a temperature rising rate of 10 °C/minute in an atmosphere by using a differential scanning calorimeter. Moreover Embodiments 1 to 7 in the present description have recitation that the foamed body is constituted by a mixture of the polypropylene-based resin (ethylene-propylene random copolymer: by Sumitomo Chemical Co., product name "AD571") and the linear low-density polyethylene (by Tosoh Corp., product name "ZF231"), and the crystal melting temperature peaks thereof are 141.5 to 147.4 °C, respectively. On the other hand, Comparative Embodiments 2 and 3 have recitation that the foamed body is constituted only by the linear low-

density polyethylene (by Tosoh Corp., product name "ZF231"), and the crystal melting temperature peaks thereof are 94 °C and 92 °C.

The present scope of claims does not have recitation that a specific peak is selected when a plurality of peaks are generated or that all the peaks are 140 °C or more, but as described above, the foamed bodies in Embodiments 1 to 7 contain 20 to 60 weight% of the linear low-density polyethylene similar to those in Comparative Embodiments 2 and 3 and thus, a person ordinarily skilled in the art could have easily understood from the common general technical knowledge in the aforementioned B that the foamed bodies has crystal melting temperature peaks lower than 140 °C, in addition to the crystal melting temperature peaks from 141.5 to 147.4 °C (140 °C or more) described in [Table 1].

Then, since the crystal melting temperature peaks for Embodiments 1 to 7 in the present description can be understood such that one peak not lower than 140 °C based on containment of the polypropylene-based resin in the plurality of crystal melting temperature peaks is described, the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is 140 °C or more" is interpreted to mean that there is a peak at 140 °C or more on the premise that a plurality of the crystal melting temperature peaks are measured in some cases, and such interpretation matches the interpretation in the aforementioned A.

Moreover, since Present Invention 1 does not specify the content of the polypropylene-based resin, it is obvious from the recitation in Embodiment 7 that the content of the polypropylene-based resin includes a case where it falls under the content of the linear low-density polyethylene indicating a peak lower than 140 °C. In such a case, a person ordinarily skilled in the art could have understood that the largest peak (maximum peak) can occur at a temperature lower than 140 °C, and it is rational to understand that a magnitude of the peak does not matter when there are a plurality of peaks for the phrase that "the crystal melting temperature peak measured by a differential scanning calorimeter is 140 °C or more".

- D. As described above, the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is 140 °C or more" of Present Invention 1 means that the peak (apex) in the graph of the measurement result by the differential scanning calorimeter is present at 140 °C or more, it is interpreted that the magnitude of the peak does not matter when there is a plurality of peaks,

and the recitation cannot be considered to be unclear to the extent to unreasonably damage an advantage of a third party.

Judgment rendered on September 3, 2020

2019 (Gyo-Ke) 10173 A case of seeking rescission of a decision to revoke a patent

Date of conclusion of oral argument: July 7, 2020

Judgment

Plaintiff: Sekisui Chemical Co., Ltd.

Defendant: Commissioner of the Japan Patent Office

Main text

1. The decision for Opposition No. 2018-700983 case that the JPO made on November 20, 2019 shall be rescinded.
2. The court costs shall be borne by Defendant.

Facts and reasons

No. 1 Claim

The same as the first clause in the main text.

No. 2 Outline of the case

1. Outline of procedures, etc. at the JPO

- (1) Plaintiff filed a patent application of the invention titled "DOUBLE-SIDED ADHESIVE TAPE, DOUBLE-SIDED ADHESIVE TAPE FOR FIXING ONBOARD COMPONENT, AND DOUBLE-SIDED ADHESIVE TAPE FOR FIXING ONBOARD HEADS-UP DISPLAY COVER" (priority date: February 22, 2016, Japan) on February 22, 2017 and was granted registration of establishment of the patent right on July 20, 2018 (Patent No. 6370477, number of claims: 7. Exhibit Ko 1) (hereinafter, this patent is referred to as the "Present Patent").
- (2) A filed opposition to the granted patent for the Present Patent on December 4, 2018, B on February 1, 2019, and Patent Corporation, Asahina Patent Attorney's Office, on the fourth of the same month (Opposition No. 2018-700983).
- (3) The JPO decided that "the patent according to Claims 1 to 7 of Patent No. 6370477 shall be revoked" on November 20, 2019 (hereinafter, referred to as the "Present Decision") and the certified copy thereof was served to Plaintiff on the 29th of the same month.
- (4) Plaintiff instituted the present lawsuit seeking rescission of the Present Decision

on December 24, 2019.

2. Recitation of scope of claims

The recitation of Claims 1 to 7 of the scope of claims of the Present Patent is as follows (Exhibit Ko 1). The symbol "/" indicates a new paragraph in the original (the same applies to the following). Hereinafter, the invention according to each of claims shall be referred to as "Present Invention 1" and the like, and they shall be referred to collectively as the "Present Invention". Moreover, the description of the Present Patent (Exhibit Ko 1) including the drawings shall be referred to as the "Present Description".

[Claim 1]

A double-sided adhesive tape having an acrylic adhesive layer on both surfaces of a base material, wherein/ the base material is made of a foamed body;/ a thickness of the base material is not larger than 1500 μm ;/ the foamed body has a crystal melting temperature peak measured by a differential scanning calorimeter of not lower than 140°C, a foaming rate not larger than 15 cm^3/g , and an aspect ratio of air bubbles (average air bubble diameter of MD / average air bubble diameter of TD) at 0.9 to 3;/ and the foamed body contains a polypropylene-based resin.

[Claim 2]

The double-sided adhesive tape according to Claim 1, wherein the foamed body is a polyolefin foamed body containing 30 to 90 weight% of the polypropylene-based resin.

[Claim 3]

The double-sided adhesive tape according to Claim 1 or 2, wherein the polypropylene-based resin is an ethylene-propylene random copolymer with propylene as a main component.

[Claim 4]

The double-sided adhesive tape according to Claim 1, 2, or 3, wherein the foamed body has 25%-compression strength in a thickness direction of 50 to 1000 kPa.

[Claim 5]

The double-sided adhesive tape according to Claim 1, 2, 3 or 4, wherein a total thickness is 30 to 2000 μm .

[Claim 6]

A double-sided adhesive tape for fixing an onboard component, comprising the double-sided adhesive tape according to Claim 1, 2, 3, 4, or 5.

[Claim 7]

A double-sided adhesive tape for fixing an onboard heads-up display cover, comprising the double-sided adhesive tape according to Claim 1, 2, 3, 4 or 5.

3. Abstract of reasons for the Present Decision

The reason for the Present Decision is as described in the attached written decision (copy). In summary, the Present Invention [i] violates the clarity requirement, since it does not conform to the requirement prescribed in Article 36, paragraph (6), item (ii) of the Patent Act; [ii] violates the enablement requirement, since it does not conform to the requirement prescribed in paragraph (4), item (i) of said Article; and [iii] violates the support requirement, since it does not conform to the requirement prescribed in paragraph (6), item (i) of said Article.

4. Reasons for rescission

- (1) Errors in determination of the clarity requirement (Reason 1 for Rescission)
- (2) Errors in determination of the enablement requirement (Reason 2 for Rescission)
- (3) Errors in determination of the support requirement (Reason 3 for Rescission)

(omitted)

No. 4 Judgment of the court

1. Present Invention

(1) Recitation of the Present Description

The scope of claims according to the Present Invention is as described in the aforementioned No. 2, 2, and the detailed description of the invention in the Present Description has the following recitation.

A. Technical Field

[0001]

The present invention relates to a double-sided adhesive tape which is excellent in heat resistance and repulsion resistance and is particularly hard to peel off even when it fixes an onboard panel or a cover for an onboard heads-up display, a double-sided adhesive tape for fixing an onboard component made of the double-sided adhesive tape, and a double-sided adhesive tape for fixing an onboard heads-up display cover.

B. Background Art

[0002]

A double-sided adhesive tape is used for an application for fixing an onboard

component to a vehicle body in a vehicle such as an automobile. In such application for fixing the onboard component, examination has been made for fixed arrangement of the component or a design of an instrument itself so that the component is not removed or broken even when an impact is applied. As the double-sided adhesive tape used for fixing the onboard component, there is a demand for such a double-sided adhesive tape that the component is not removed and the impact is not applied to the component even when an impact is applied. ...

[0003]

As such double-sided adhesive tape excellent in impact resistance, Patent Documents 1 and 2 describe an impact absorbing tape made of a cross-linked polyolefin resin foamed sheet in which an acrylic adhesive layer is laminated/integrated at least on one surface of a base material layer, and the base material layer has a specific cross-link degree and an air-bubble aspect ratio. However, ... when a double-sided adhesive tape with the conventional foamed sheet as the base material is used, the component is often peeled off. Particularly when a thin double-sided adhesive tape is used, the peeling-off of the component becomes a problem in some cases.

C. Technical Problem

[0005]

The inventor examined the cause of occurrence of peeling-off when the onboard panel or the onboard heads-up display cover is fixed by using the double-sided adhesive tape with the conventional foamed sheet as the base material and paid attention to heat resistance of the double-sided adhesive tape. The onboard panel or the onboard heads-up display is generally installed under a front windshield. Since such a space under the front windshield is directly exposed to sunlight, its temperature can exceed 100°C in summer. With the double-sided adhesive tape with the conventional foamed sheet as the base material, it is considered that the base material is contracted when it is exposed to such a high temperature and as a result, its adhesive force is lowered, which causes peeling-off. Moreover, designs with excellent designs with many curved surfaces are recently employed for the onboard panel or the onboard heads-up display, but when the double-sided adhesive tape is applied to such curved surfaces, the tape can be easily peeled off by a repulsion force.

[0006]

In view of the aforementioned circumstances, the present invention has an object to provide a double-sided adhesive tape which is excellent in heat resistance and

repulsion resistance and is particularly hard to peel off even when it fixes an onboard panel or a cover for an onboard heads-up display, a double-sided adhesive tape for fixing an onboard component made of the double-sided adhesive tape, and a double-sided adhesive tape for fixing an onboard heads-up display cover.

D. Solution to Problem

[0007]

The present invention is a double-sided adhesive tape having an acrylic adhesive layer on both surfaces of a base material, the base material is made of a foamed body, a thickness of the base material is not larger than 1500 μm , the foamed body has a crystal melting temperature peak measured by a differential scanning calorimeter of not lower than 140°C, a foaming rate not larger than 15 cm^3/g , and an aspect ratio of air bubbles (average air bubble diameter of MD / average air bubble diameter of TD) of 0.9 to 3. ...

[0008]

As the result of keen study, the inventor found that, in the double-sided adhesive tape having the acrylic adhesive layers on both surfaces of the base material, heat resistance can be improved even for a thin double-sided adhesive tape so that it is hard to peel off even under a high temperature expected in an application for fixing the onboard component and can exert repulsion resistance when it is applied to a curved surface by using a foamed body as the base material, and by adjusting the crystal melting temperature peak, the foaming rate, and the aspect ratio of the air bubbles of the foamed body within specific ranges, and thus completed the present invention.

[0010]

The aforementioned foamed body is not particularly limited, and a polyolefin foamed body can be used, for example.

As the aforementioned polyolefin foamed body, a polyolefin foamed body containing a polyethylene-based resin or a polypropylene-based resin can be used. Among them, the polyolefin foamed body containing the polypropylene-based resin is preferable. ... The polypropylene-based resin may be used singularly, or two or more kinds can be used at the same time. Particularly, an ethylene-propylene random copolymer with propylene as a main component is preferably contained, since heat resistance and repulsion resistance of the obtained polyolefin foamed body can both be realized easily. ...

[0015]

A preferable lower limit of a content of the polypropylene-based resin in the polyolefin foamed body is 30 weight%, and a preferable upper limit is 90 weight%. When the content of the polypropylene-based resin is within this range, the heat resistance and repulsion resistance of the obtained polyolefin foamed body can both be realized. If the content of the polypropylene-based resin is less than 30 weight%, the obtained polyolefin foamed body cannot exert sufficient heat resistance, while if it exceeds 90 weight%, the obtained polyolefin foamed body becomes hard, and when it is applied to a curved surface, it is repulsed and is easily peeled off. The more preferable lower limit of the content of the polypropylene-based resin is 40 weight% and the more preferable upper limit is 60 weight%. ...

[0016]

The polyolefin foamed body containing the polypropylene-based resin preferably contains a polyolefin-based resin other than the polypropylene-based resin. ... Among others, polyethylene is preferable, since the heat resistance and repulsion resistance of the obtained polyolefin foamed body are further improved.

[0017]

The polyethylene is not particularly limited, but low-density polyethylene, medium-density polyethylene, high-density polyethylene, linear low-density polyethylene, ethylene- α -olefin copolymer with ethylene as a main component, and the like can be cited. ...

[0020]

The crystal melting temperature peak of the foamed body measured by a differential scanning calorimeter is not particularly limited, so long as it is at 140°C or more, but a preferable lower limit is 145°C, and a preferable upper limit is 175°C. If the crystal melting temperature peak is within this range, the heat resistance of the obtained foamed body can be further improved. The more preferable lower limit of the crystal melting temperature peak is at 147°C, the further preferable lower limit is 149°C, and the particularly preferable lower limit is 152°C. The crystal melting temperature peak of the foamed body measured by the differential scanning calorimeter can be adjusted by the material, foaming rate, thickness, and the like of the foamed body. The crystal melting temperature peak measured by the differential scanning calorimeter in this description means a peak temperature when 100 mg of the foamed body is measured in an atmosphere by using the differential scanning calorimeter under the condition of a temperature rising rate of 10°C/minute. ...

[0021]

The upper limit of the foaming rate of the foamed body is 15 cm³/g. If the

foaming rate of the foamed body is within this range, the obtained double-sided adhesive tape can realize both high impact resistance and repulsion resistance. The lower limit of the foaming rate of the foamed body is not particularly limited, but the preferable lower limit is $3 \text{ cm}^3/\text{g}$. If the foaming rate of the foamed body is less than $3 \text{ cm}^3/\text{g}$, the repulsion force as the base material becomes too strong, and the repulsion resistance is lowered, and when the obtained double-sided adhesive tape is applied to a curved surface, it can be easily peeled off in some cases. While if it exceeds $15 \text{ cm}^3/\text{g}$, strength of the base material runs short, and when the obtained double-sided adhesive tape is applied to a curved surface, the base material can be stretched or split in the thickness direction in some cases. The preferable lower limit of the foaming rate of the foamed body is $4 \text{ cm}^3/\text{g}$, and the preferable upper limit is $8 \text{ cm}^3/\text{g}$, the more preferable lower limit is $4.5 \text{ cm}^3/\text{g}$, and the more preferable upper limit is $6 \text{ cm}^3/\text{g}$. The foaming rate of the foamed body can be adjusted by the material, thickness, and the like of the foamed body.

The foaming rate of the foamed body can be calculated from a reciprocal of density of the foamed body. ...

[0022]

The foamed body has an aspect ratio of air bubbles (average air-bubble diameter of MD / average air-bubble diameter of TD) of 0.9 to 3. If the aspect ratio of the air bubbles; that is, the ratio between the average air-bubble diameter of MD and the average air-bubble diameter of TD, is small, the foaming rate is lowered, and the repulsion resistance can be lowered, or the thickness of the foamed body, repulsion resistance, and tension strength can fluctuate. If the aspect ratio of air bubbles is large, the repulsion resistance of the foamed body is lowered. The preferable lower limit of the aspect ratio of air bubbles is 1.2 and the preferable upper limit is 2, and the more preferable lower limit is 1.4, and the more preferable upper limit is 1.5. The aspect ratio of air bubbles of the foamed body can be adjusted by the material, foaming rate, thickness, and the like of the foamed body.

[0023]

The MD (Machine Direction) of the foamed body refers to an extrusion direction when the foamed body is extruded into a sheet state, and the TD (Transverse Direction) of the foamed body refers to a direction orthogonal to the MD (Machine Direction) when seen on a plan view from the thickness direction of the foamed body (the direction where the adhesive layer is laminated with the foamed body as the base material).

[0030]

The foamed body preferably has 25%-compression strength in the thickness direction of 50 kPa or more and 1000 kPa or less. If the 25%-compression strength exceeds 1000 kPa, the repulsion resistance of the foamed body is lowered, which is not preferable. From the viewpoint of the repulsion resistance, the more preferable lower limit of the 25%-compression strength is 100 kPa and the more preferable upper limit is 900 kPa.

The 25%-compression strength in the thickness direction of the foamed body can be adjusted by the material, foaming rate, thickness, and the like of the foamed body.

The 25%-compression strength in the thickness direction of the foamed body can be measured in conformity to the JIS K6767-7.2.3 (JIS2009).

[0031]

As a method for manufacturing the foamed body, there can be used conventional publicly-known methods such as a method of cross-linking a resin composition as a material as necessary and then foaming it, and the like. More specifically, it can be manufactured by a method having the following processes (1) to (3), for example. As the manufacturing method of the foamed body, methods described in International Publication No. 2005-007731 and the like can be also cited other than the above.

Process (1): Process for obtaining a polyolefin resin composition made into a sheet state by supplying resin components such as a polyolefin-based resin and a polyolefin-based resins other than a polypropylene-based resin, a thermal decomposition type foaming agent, and other additives to an extruder for melting/kneading and extruding it into the sheet state from an extruder

Process (2): Process for cross-linking the polyolefin resin composition made into the sheet state

Process (3): Process for heating the cross-linked sheet-state polyolefin resin composition so as to foam the thermal decomposition type foaming agent

[0032]

The thermal decomposition type foaming agent mixed with the polyolefin resin composition in Process (1) is not particularly limited, and azodicarbonamide, N,N-dinitrosopentamethylenetetramine, p-toluenesulfonylsemicarbazide, and the like can be cited, for example. These decomposition type foaming agents may be used singly, or two kinds or more may be used in combination. Among them, azodicarbonamide is preferable.

[0033]

The content of the thermal decomposition type foaming agent is not particularly limited, but a preferable lower limit to 100 weight parts of the resin component is 1

weight part, and a preferable upper limit is 12 weight parts. If the content of the thermal decomposition type foaming agent is within the aforementioned range, foamability of the polyolefin resin composition is improved, and a polyolefin foamed body having a desired foaming rate can be obtained. The more preferable upper limit of the content of the thermal decomposition type foaming agent is 8 weight parts. [0041]

In Process (3), the sheet-state polyolefin resin composition may be stretched in either one or both of MD and TD as necessary. Methods for stretching the sheet-state polyolefin resin composition include a method of foaming the polyolefin resin composition and then stretching the obtained foamed body, a method of stretching while foaming the polyolefin resin composition, and the like. When the polyolefin resin composition is foamed and then the obtained foamed body is stretched, the foamed body is preferably stretched without being cooled but continuously while the melted state at foaming is maintained, but the cooled foamed body may be heated again into a melted or softened state and then the foamed body may be stretched. [0042]

An upper limit of the thickness of the base material is 1500 μm . Even if the thickness of the base material is as small as in this range, the obtained double-sided adhesive tape can realize both high impact resistance and repulsion resistance by adjusting the foamed body as above. The lower limit of the base material is not particularly limited, but the preferable lower limit is 100 μm . If the thickness of the base material is less than 100 μm , the obtained double-sided adhesive tape cannot exert sufficient impact resistance in some cases. The preferable upper limit of the thickness of the base material is 1000 μm . If the thickness of the base material exceeds 1000 μm , the repulsion resistance is lowered, and when the obtained double-sided adhesive tape is applied to a curved surface, it can be easily peeled off in some cases. The more preferable lower limit of the thickness of the base material is 150 μm , the more preferable upper limit is 900 μm , and the further preferable lower limit is 200 μm , and the further preferable upper limit is 800 μm . [0052]

The double-sided adhesive tape of the present invention has a preferable lower limit of the total thickness of the double-sided adhesive tape at 30 μm and a preferable upper limit of 2000 μm . If the total thickness of the double-sided adhesive tape is within this range, it can contribute to thinning of a component in use. Moreover, even with such thin double-sided adhesive tape, high impact resistance, adhesiveness, and repulsion resistance can be exerted. The more preferable lower limit of the total

thickness of the double-sided adhesive tape is 150 μm , and the more preferable upper limit is 1100 μm . The further preferable lower limit of the total thickness of the double-sided adhesive tape is 200 μm , and the further preferable upper limit is 900 μm .

[0055]

... particularly suitable for an adhesive tape for fixing an onboard component or particularly the double-sided adhesive tape for fixing an onboard panel cover, and a double-sided adhesive tape for fixing an onboard heads-up display cover. ...

E. Advantageous Effect of Invention

[0056]

According to the present invention, there can be provided a double-sided adhesive tape which is excellent in heat resistance and repulsion resistance and cannot be peeled off easily even when fixing particularly an onboard panel or a cover of an onboard heads-up display, a double-sided adhesive tape for fixing an onboard component made of the double-sided adhesive tape, and a double-sided adhesive tape for fixing an onboard heads-up display cover.

F. Description of Embodiment

[0058] (Embodiment 1)

(1) Preparation of polyolefin foamed body

To a resin component made of 80 weight parts of a polypropylene-based resin (ethylene-propylene random copolymer: by Sumitomo Chemical Co., product name "AD571", density 0.90 g/cm^3 , MFR 0.5g/10 minutes) and 20 weight parts of linear low-density polyethylene (by Tosoh Corp., product name "ZF231", MFR 2g/10 minutes, density 0.917 g/cm^3), 7.5 weight parts of azodicarbonamide (thermal decomposition type foaming agent) and 3 weight parts of divinylbenzene (crosslinking assistant) were added, and 0.3 weight parts of 2,6-di-t-butyl-p-cresol (antioxidant), 0.3 weight parts of dilauryl thiopropionate (antioxidant), and 0.5 weight parts of methylbenzotriazole (metal inhibitor) were further added, and the obtained polyolefin resin composition was melted/kneaded at a temperature of 185°C by a uniaxial extruder, and an original fabric sheet with a thickness of 600 μm was extruded.

[0059]

Subsequently, the original fabric sheet was cross-linked by irradiating it with 1.5 Mrad of an electron beam at an acceleration voltage of 800 kV on both sides thereof,

and then it was continuously sent into a foaming furnace held at 250°C by hot air and an infrared heater to be heated and foamed so as to obtain a polyolefin foamed body with a thickness of 1000 μm. The foaming rate of the obtained polyolefin foamed body was calculated from density measured by using an electronic specific gravity meter (product name "ED120T") by Mirage Co. in conformity to JISK-6767. Moreover, the crystal melting temperature peak, the air-bubble aspect ratio, and 25%-compression strength of the obtained polyolefin foamed body were acquired.

[0060]

(2) 70 weight parts of butyl acrylate, 27 weight parts of 2-ethylhexylacrylate, 3 weight parts of acrylic acid, 0.2 weight parts of 2-hydroxyethylacrylate, and 80 weight parts of ethyl acetate were added to a reactor including an adhesive-preparation temperature indicator, an agitator, and a cooling pipe and nitrogen-substituted and then, the reactor was heated so as to start reflux. Subsequently, 0.1 weight parts of azobisisobutyronitrile was added into the reactor as a polymerization initiator. Reflux was performed at 70°C for 5 hours so as to obtain a solution of acrylic copolymer. For the obtained acrylic copolymer, ... a weight-average molecular weight was measured and was 710,000.

To 100 weight parts of a solid portion of the acrylic copolymer contained in the obtained solution of acrylic copolymer, 15 weight parts of polymerized rosin ester with a softening point of 150°C, 125 weight parts of ethyl acetate (by Fuji Chemicals Ltd.), and 1.5 weight parts of isocyanate-based cross-linking agent (by Nippon Polyurethane Industry Co., Ltd., product name "coronate L45") were added and agitated so as to obtain an adhesive.

[0061]

(3) Manufacture of double-sided adhesive tape

A release sheet with a thickness of 150 μm was prepared, and an adhesive was applied on a release-treated surface of this release sheet and dried at 100°C for 5 minutes so as to form an acrylic adhesive layer with a thickness of 50 μm. This acrylic adhesive layer was pasted to the surface of the polyolefin foamed body. Subsequently, with a similar procedure, the same acrylic adhesive layer as the above was pasted also to the opposite surface of this polyolefin foamed body. After that, it was cured by heating at 40°C for 48 hours so as to obtain the double-sided adhesive tape.

[0062] (Embodiment 2)

A polyolefin foamed body was obtained similarly to Embodiment 1 except that the weight of azodicarbonamide (thermal decomposition type foaming agent) was

changed to 7 weight parts. ... the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0063] (Embodiment 3)

A polyolefin foamed body was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 70 weight parts, the weight of the linear low-density polyethylene ... was changed to 30 weight parts, and the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 7 weight parts. ... the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0064] (Embodiment 4)

A polyolefin foamed body with the thickness of 500 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 60 weight parts, the weight of the linear low-density polyethylene ... was changed to 40 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 3.8 weight parts, and the thickness of the original fabric sheet was changed to 300 μm the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0065] (Embodiment 5)

A polyolefin foamed body with the thickness of 200 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 60 weight parts, the weight of the linear low-density polyethylene ... was changed to 40 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 3.5 weight parts, and the thickness of the original fabric sheet was changed to 150 μm the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0066] (Embodiment 6)

A polyolefin foamed body with the thickness of 500 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 70 weight parts, the weight of the linear low-density polyethylene ... was changed to 30 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 3.0 weight parts, and the thickness of the original fabric sheet was changed to 400 μm the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0067] (Embodiment 7)

A polyolefin foamed body with the thickness of 800 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was

changed to 40 weight parts, the weight of the linear low-density polyethylene ... was changed to 60 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 4.5 weight parts, and the thickness of the original fabric sheet was changed to 400 μm the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0068] (Comparative Embodiment 1)

A polyolefin foamed body with a thickness of 400 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 70 weight parts, the weight of the linear low-density polyethylene ... was changed to 30 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 4.5 weight parts, and the thickness of the original fabric sheet was changed to 200 μm the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0069] (Comparative Embodiment 2)

A polyolefin foamed body with a thickness of 800 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 0 weight parts, the weight of the linear low-density polyethylene ... was changed to 100 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 4.5 weight parts, and the thickness of the original fabric sheet was changed to 400 μm the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0070] (Comparative Embodiment 3)

A polyolefin foamed body with a thickness of 100 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 0 weight parts, the weight of the linear low-density polyethylene ... was changed to 100 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 2.2 weight parts, and the thickness of the original fabric sheet was changed to 170 μm the double-sided adhesive tape was obtained similarly to Embodiment 1.

[0071] (Comparative Embodiment 4)

A polyolefin foamed body with a thickness of 1000 μm was obtained similarly to Embodiment 1 except that the weight of the polypropylene-based resin ... was changed to 70 weight parts, the weight of the linear low-density polyethylene ... was changed to 30 weight parts, the weight of azodicarbonamide (thermal decomposition type foaming agent) was changed to 13 weight parts, and the thickness of the original fabric sheet was changed to 400 μm the double-sided adhesive tape was obtained

similarly to Embodiment 1.

[0072] (Evaluation)

The following evaluation was made for the double-sided adhesive tapes obtained in the Embodiments and Comparative Embodiments. The results are shown in Table 1.

[0073] (1) Evaluation of heat resistance

The obtained double-sided adhesive tape was cut out into a regular square with a vertical dimension of 10 mm and a lateral dimension of 10 mm so that the MD and the TD make sides so as to obtain a sample. The obtained sample was left in an oven whose temperature had been adjusted to 110°C for 500 hours and then, it was taken out and naturally cooled to 23°C. ...In a case where both MD and TD had a shrinkage rate of 5% or less, it was given an evaluation of "○[Good]" mark, while if either one or both of MD and TD had a shrinkage rate more than 5%, it was given an evaluation of "×[Poor]" mark. For the case with the evaluation of the "○[Good]" mark, another sample was similarly made, ... and if both MD and TD had the shrinkage rate less than 5% even after heat treatment at 120°C, ... it was evaluated to be "◎[Very Good]".

[0074] (2) Evaluation of repulsion resistance

The obtained double-sided adhesive tape was cut out into a rectangular shape with a vertical dimension of 150 mm and a lateral dimension of 25 mm so that the MD became a vertical side and the TD became a lateral side. One surface of the obtained sample was pasted to a polycarbonate plate with a vertical dimension of 150 mm, a lateral dimension of 25 mm, and a thickness of 1 mm, and the other surface was further pasted to a polycarbonate plate with a vertical dimension of 200 mm, a lateral dimension of 25 mm, and a thickness of 1 mm, crimped back and forth by a roller with a weight of 2 kg, and left for 24 hours. After that, the test piece was bent and fixed so as to have a vertical dimension from 200 to 190 mm as a sample.

The sample was left in an oven whose temperature had been adjusted to 110°C for 500 hours and observed, and if no occurrence of "floating" was found, it was given an evaluation of "○[Good]" mark, and if any "floating" was found even partially, it was evaluated to be "×[Poor]".

Moreover, another test piece was made similarly for the case evaluated to be "○[Good]", ...if no occurrence of "floating" was found even when it was bent to 165 mm, it was evaluated ... to be "◎[Very Good]".

[0075] [Table 1]

| | Base material | | | | | | | | Evaluation | |
|--------------------------|---------------------------------------|-----------------------------------|--------------------------|-------------------------------------|-------------------------------------|---|----------------------------|----------------|-----------------|----------------------|
| | Crystal melting temperature peak (°C) | Foaming rate (cm ³ /g) | air-bubbles aspect ratio | MD average air-bubble diameter (μm) | TD average air-bubble diameter (μm) | Polypropylene-based resin content (weight%) | Compression strength (kPa) | Thickness (μm) | Heat resistance | Repulsion resistance |
| Embodiment 1 | 142.6 | 13 | 1.4 | 298 | 217 | 80 | 132 | 1000 | ◎ | ◎ |
| Embodiment 2 | 143.9 | 10 | 2.0 | 251 | 127 | 80 | 268 | 1000 | ◎ | ◎ |
| Embodiment 3 | 147.4 | 10 | 1.2 | 226 | 195 | 70 | 86 | 1000 | ◎ | ◎ |
| Embodiment 4 | 143.3 | 5 | 1.5 | 310 | 210 | 60 | 858 | 500 | ◎ | ◎ |
| Embodiment 5 | 143.1 | 4.5 | 0.9 | 244 | 261 | 60 | 161 | 200 | ○ | ◎ |
| Embodiment 6 | 143.2 | 3.5 | 1.5 | 220 | 150 | 70 | 1100 | 500 | ◎ | ○ |
| Embodiment 7 | 141.5 | 8 | 1.2 | 220 | 190 | 40 | 110 | 800 | ○ | ○ |
| Comparative Embodiment 1 | 143.9 | 8 | 0.5 | 155 | 289 | 70 | 51 | 400 | × | ◎ |
| Comparative Embodiment 2 | 94 | 8 | 2.3 | 223 | 95.8 | 0 | 80 | 800 | × | ◎ |
| Comparative Embodiment 3 | 92 | 3 | 0.5 | 188.5 | 371.3 | 0 | 75 | 100 | × | ◎ |
| Comparative Embodiment 4 | 142 | 20 | 1.4 | 300 | 220 | 70 | 40 | 1000 | ◎ | × |

(2) According to the aforementioned (1), the outline of the Present Invention is as follows.

In a vehicle such as an automobile, when an onboard component is to be fixed to a vehicle body, a double-sided adhesive tape has been conventionally used, but when an

impact was applied to the component, the component could often be peeled off, and particularly when a thin double-sided adhesive tape was used, peeling-off of the components became a problem in some cases ([0002], [0003]).

Particularly, since an onboard panel or an onboard heads-up display is directly exposed to sunlight and a high temperature and employs a design using many curved surfaces, in the case of fixing using the double-sided adhesive tape with the conventional foamed sheet as the base material, there is a problem that peeling-off occurred easily ([0005]).

The present invention has an object to provide a double-sided adhesive tape which is excellent in heat resistance and repulsion resistance even in the case of a thin type (with the thickness at 1500 μm or less) and is hard to peel off even when an onboard panel or an onboard heads-up display cover is to be fixed, and is a double-sided adhesive tape characterized by using a foamed body containing a polypropylene-based resin with a crystal melting temperature peak measured by a differential scanning calorimeter of 140°C or more, a foaming rate of 15 cm^3/g or less, and an aspect ratio of air bubbles at 0.9 to 3 as the base material of the double-sided adhesive tape having an acrylic adhesive layer ([0006] to [0008], [0042]).

The double-sided adhesive tape of the present invention exerts the effects that it is excellent in heat resistance and repulsion resistance and particularly it is hard to peel off even when an onboard panel or an onboard heads-up display cover is to be fixed ([0056]).

2. Reason 1 for Rescission (errors in determination of clarity requirement)

(1) Clarity requirement

In Article 36, paragraph (6), item (ii) of the Patent Act, the purport that clarity of the invention is a requirement is to prevent such a disadvantageous result that, if the invention described in scope of claims is not clear, the technical scope of the invention which was granted a patent becomes unclear, and it can give an unexpected disadvantage to a third party. Whether the invention is clear or not should be determined not only from the recitation in the scope of claims but from a viewpoint of whether the recitation in the scope of claims is unclear enough to give an unexpected disadvantage to a third party by considering the recitation in the description and the drawings attached to the application on the basis of the common general technical knowledge of a person ordinarily skilled in the art at the time of filing.

(2) Meaning of "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140°C or more"

A. The scope of claims in Present Invention 1 has recitation that "the foamed body has the crystal melting temperature peak measured by a differential scanning calorimeter at 140°C or more" but it does not have further recitation which specifies the "crystal melting temperature peak measured by a differential scanning calorimeter".

Since the term peak means "[1] Top of a mountain; [2] Apex. Climax" (sixth edition of Kojien), the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140°C or more" is naturally understood to mean that a peak (apex) in a graph of a measurement result by the differential scanning calorimeter is present at 140°C or more.

B. According to Exhibit Ko 10 (Aichi Center for Industry and Science Technology's Report "Research Note, Measurement of mixing ratio in polyethylene/polypropylene resin" pp. 12 to 13 (2016)), Exhibit Ko 11 ("Film analysis evaluation technology" pp. 52 to 55 (Johokiko Co., Ltd., 2003)) and the entire import of the oral argument, an area of the crystal melting temperature peak indicates a heat absorption amount, and there are a case with one peak and a case with a plurality of peaks, depending on the crystal melting temperature of the contained material, and it is found that the fact that, when there are a plurality of peaks, the correlation of the area of each peak (heat absorption amount) with the content of the material generating the peak was a matter of common general technical knowledge at the time of filing of the Present Patent.

C. The Present Description has recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter" means a peak temperature when 100 mg of the foamed body is measured under the condition of a temperature rising rate of 10°C/minute in an atmosphere by using a differential scanning calorimeter ([0020]). Moreover, Embodiments 1 to 7 in the Present Description have recitation that the foamed body is constituted by a mixture of polypropylene-based resin (ethylene-propylene random copolymer: by Sumitomo Chemical Co., product name "AD571") and linear low-density polyethylene (by Tosoh Corp., product name "ZF231"), and the crystal melting temperature peaks thereof are 141.5 to 147.4°C, respectively. On the other hand, Comparative Embodiments 2

and 3 have recitation that the foamed body is constituted only by the linear low-density polyethylene (by Tosoh Corp., product name "ZF231"), and the crystal melting temperature peaks thereof are 94 °C and 92 °C (for the above, see [0058] to [0067], [0069], [0070], and [Table 1]).

The scope of claims of the Present Patent does not have recitation that a specific peak is selected when a plurality of peaks are generated or that all the peaks occur at 140 °C or more, but as described above, the foamed bodies in Embodiments 1 to 7 contain 20 to 60 weight% of the linear low-density polyethylene similar to those in Comparative Embodiments 2 and 3 and thus, a person ordinarily skilled in the art could have easily understood from the common general technical knowledge in the aforementioned B that the crystal melting temperature peak lower than 140 °C is contained other than the crystal melting temperature peaks from 141.5 to 147.4 °C (140 °C or more) described in [Table 1]. This also matches the drawings of replication study results in Embodiment 2 by Plaintiff (Exhibit Ko 8) and Figure 4 in Exhibit Ko 10.

Then, since the crystal melting temperature peaks for Embodiments 1 to 7 in the Present Description ([Table 1]) can be understood such that one peak not lower than 140 °C based on containment of the polypropylene-based resin in the plurality of crystal melting temperature peaks is described, the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140 °C or more" is interpreted to mean that there is a peak at 140 °C or more on the premise that a plurality of the crystal melting temperature peaks are measured in some cases, and such interpretation matches the interpretation in the aforementioned A.

Moreover, since Present Invention 1 does not specify the content of the polypropylene-based resin, it is obvious from the recitation in Embodiment 7 that the content of the polypropylene-based resin includes a case where it falls under the content of the linear low-density polyethylene indicating a peak lower than 140 °C. In such a case, a person ordinarily skilled in the art could have understood that the largest peak (maximum peak) can occur at a temperature lower than 140 °C, and it is rational to understand that a magnitude of the peak does not matter when there are a plurality of peaks for the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140 °C or more".

D. As described above, the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140 °C or more" in Present Invention 1 means that the peak (apex) in the graph of the measurement result by

the differential scanning calorimeter is present at 140 °C or more, it is interpreted that the magnitude of the peak does not matter when there are a plurality of peaks, and the recitation cannot be considered to be unclear enough to unreasonably damage an advantage of a third party.

(3) Defendant's assertion

Defendant asserts, regarding the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140 °C or more", that there can be a plurality of interpretations such as [i] the interpretation that those that can be considered to be the crystal melting temperature peak are 140 °C or more; [ii] the interpretation that the crystal melting temperature peak on the highest temperature side is at 140 °C or more; [iii] the interpretation that the temperature indicating the maximum peak is 140 °C or more or the top temperature of the heat absorption peak of the largest area is 140 °C or more; [iv] the interpretation that the lowest crystal melting peak temperature is at 140 °C or more; and [v] the interpretation that the peak only needs to be present at 140 °C or more even if it is a slight peak and the like, but it is unclear which one of them is referred to. However, when the interpretations [iii] and [iv] should be employed, it is explicated accordingly (Exhibit Otsu 2/[0032], Exhibit Otsu 3/[0056], Exhibit Otsu 4/[0024], Exhibit Otsu 5/[0025], Exhibit Otsu 6/[0018], Exhibit Ko 5/[0014], Exhibit Otsu 7/[0008], Exhibit Otsu 8/[0091], Exhibit Otsu 9/[0027]), but the Present Description does not have such recitation, and it should be interpreted that if only one peak is at 140 °C or more, it fulfills the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140 °C or more" regardless of the magnitude of the plurality of peaks as taught in the aforementioned (2). Moreover, regarding [v], there is no recitation specifying the magnitude of the peak in the scope of claims and the Present Description and thus, the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140 °C or more" should be considered to be applicable regardless of the magnitude of the peak, and Defendant's assertion that the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140 °C or more" is unclear may not be employed.

Furthermore, Defendant asserts that the case where there is a plurality of the crystal melting temperature peaks is not assumed in Present Invention 1. However, from the teaching in the aforementioned (2)C, it is obvious that the case where there

are a plurality of the crystal melting temperature peaks is assumed in Present Invention 1.

(4) Summary

According to the above, the determination in the Present Decision that the recitation in the scope of claims of the Present Patent does not conform to the clarity requirement on the ground that the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140°C or more" in Present Invention 1 is unclear has an error, and reason 1 for Rescission has grounds.

3. Reason 2 for Rescission (errors in determination of enablement requirement)

(1) Enablement requirement

In order for the recitation in the detailed description of the invention to conform to the enablement requirement, the detailed description of the invention in the description is required to have recitation on structures of the invention and the like to such a degree that a person ordinarily skilled in the art could have worked the invention on the basis of the recitation in the detailed description of the invention in the description and the common general technical knowledge at the time of filing without requiring excessive trials and errors.

(2) Recitation in the Present Description

A. The Present Description describes, in addition to general recitation on the method for manufacturing the foamed body ([0031], [0032] and the like), seven embodiments, and specifically describes raw materials of the foamed body, a mixing ratio, a type of an extruder, a melting/kneading temperature, a thickness of an original fabric sheet, cross-linking conditions (applied voltage and irradiation amount of electron beams), foaming conditions, raw materials of an adhesive, a reflux method, a procedure for manufacturing a copolymer, a procedure of adding a cross-linking agent, a procedure for manufacturing a double-sided adhesive tape, drying temperature/time, curing temperature/time, and the like for each of the Embodiments ([0058] to [0067], [Table 1]).

B. Crystal melting temperature peak

As described in the aforementioned 2(2)C, the crystal melting temperature peak

derives from polypropylene-based resin contained in the foamed body and thus, in order to fulfill the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is 140 °C or more" in Present Invention 1, it is only necessary to contain a certain amount of polypropylene-based resin, which is obvious from the measurement results of Embodiments 1 to 7, Comparative Embodiments 1 and 4, and Comparative Embodiments 2 and 3 not containing the polypropylene-based resin, and this is explained also in [0015].

As described above, it can be understood that adjustment of a content of the polypropylene-based resin in the materials of the foamed body in "the materials of the foamed body, the foaming rate, the thickness and the like" ([0020]) is particularly important for adjustment of the crystal melting temperature peak.

However, it can be understood that a difference can occur in the crystal melting temperature peak depending on the foaming rate, thickness, and the like even if the content of the polypropylene-based resin is the same, by comparing the crystal melting temperature peaks for [i] Embodiment 1 (142.6 °C) and Embodiment 2 (143.9 °C) with 80 weight% of the content of the polypropylene-based resin; [ii] Embodiment 3 (147.4 °C), Embodiment 6 (143.2 °C), Comparative Embodiment 1 (143.9 °C), and Comparative Embodiment 4 (142 °C) with 70 weight% of the content of the polypropylene-based resin; and [iii] Embodiment 4 (143.3 °C) and Embodiment 5 (143.1 °) with 60 weight% of the content of the polypropylene-based resin in which the content of the polypropylene-based resin is the same. However, the difference is only 5.4 °C at the largest (comparison between Embodiment 3 and Comparative Embodiment 4) and thus, it cannot be considered that excessive trials and errors are required when the crystal melting temperature peak is set within the range of 140 °C or more.

C. Foaming rate

In view of the recitation that the preferable lower limit of the content of the thermal decomposition type foaming agent is 1 weight part and the upper limit is 12 weight parts ([0033]) and the recitation that, in Comparative Embodiment 4 using 13 weight parts of azodicarbonamide (thermal decomposition type foaming agent), the foaming rate is 20 cm³/g exceeding 15 cm³/g ([0071], [Table 1]), it can be understood that it is important to keep particularly the content of the foaming agent low in the materials of the foamed body in the "materials, thickness, and the like of the foamed body" ([0021]) for adjustment of the foaming rate.

And the fact that, if the content of the foaming agent is the same, the same foaming rate is indicated regardless of a difference in the content of the polypropylene-based resin, thickness, or the like can be read from [i] comparison between Embodiment 2 and Embodiment 3 and [ii] comparison among Embodiment 7, Comparative Embodiment 1, and Comparative Embodiment 2. Moreover, it can be understood from Embodiments and Comparative Embodiments that the foaming rate tends to be higher as the weight part of the foaming parts increases ([Comparative Table 1]), and it can be understood that the foaming rate depends on the amount of the foaming agent also from Exhibit Ko 20 (Furukawa Electric Times No. 71, page 85, Fig. 9 (March, 1981)).

Then, it cannot be considered that excessive trials and errors are required when the foaming rate is set to $15 \text{ cm}^3/\text{g}$ or less.

D. Aspect ratio of air bubbles

According to the recitation in the Present Description, the aspect ratio of air bubbles is obtained by dividing the average air-bubble diameter in the extrusion direction (MD) by the average air-bubble diameter in the lateral direction (width direction) (TD) when extrusion is performed ([0022] to [0023]), and in Present Invention 1, the aspect ratio of air bubbles is specified at 0.9 to 3 and has a feature in a point that the average air-bubble diameter in the extrusion direction is substantially the same as the average air-bubble diameter in the lateral direction (width direction) or somewhat larger than the average air-bubble diameter in the lateral direction (width direction).

According to Embodiments and Comparative Embodiments in the Present Description, in Comparative Embodiments 1 and 3 with an extremely low aspect ratio of air bubbles at 0.5, the thicknesses of the foamed bodies are $400 \mu\text{m}$ and $100 \mu\text{m}$, respectively, while the thickness of Embodiment 5 indicating the aspect ratio of air bubbles at 0.9, which is a lower limit value of Present Invention 1, is $200 \mu\text{m}$. On the other hand, since all the foamed bodies having the thickness exceeding $500 \mu\text{m}$ indicate numeral values at 1.2 or more, adjustment particularly of the thickness in the "materials, foaming rate, thickness, and the like of the foamed body" ([0022]) is important for adjustment of the aspect ratio of air bubbles, and it can be understood that it is highly probable that the aspect ratio of air bubbles is contained in the range from 0.9 to 3 by setting it to $500 \mu\text{m}$ or more.

However, regarding the aspect ratio of air bubbles, a case in which the aspect ratio

of air bubbles is low can be found as in Comparative Embodiment 1 despite the thickness of the foamed body being larger than that in Embodiment 5, and it is assumed that the aspect ratio of air bubbles can deviate from the numerical-value range from 0.9 to 3 by influences of the material, foaming rate, and the like of the foamed body. However, in view of the recitations in Patent No. 5299596 (Exhibit Ko 24 [0041]), Patent No. 5477517 (Exhibit Ko 25 [0042]), and Patent No. 5851072 (Exhibit Ko 26, [0093]) prior to the date of application of the Present Patent, a person ordinarily skilled in the art at the time of filing of the Present Patent could have performed re-adjustment of the aspect ratio of air bubbles without a special measure by stretching the sheet-state foamed body in either one of or both of MD and TD even in such a case.

Then, it cannot be considered that setting of the aspect ratio of air bubbles within the range from 0.9 to 3 requires excessive trials and errors.

(3) Conformity to the enablement requirement of the Present Invention

According to the above, it can be considered that the detailed description of the invention in the Present Description has recitation on the structure and the like of the invention to such a degree that a person ordinarily skilled in the art could have worked the Present Invention without requiring excessive trials and errors on the basis of the recitation in the detailed description of the invention in the description and common general technical knowledge at the filing.

(4) Defendant's assertion

A. Defendant asserts that the Present Invention does not conform to the enablement requirement on the ground that the Present Invention is not clear, but the determination on the clarity requirement is as described in the aforementioned 2, and Defendant's assertion may not be employed.

B. Defendant makes assertion on the premise that the recitation in the Present Description ([0020], [0022]) describes that the crystal melting temperature peak and the aspect ratio of air bubbles can be adjusted to desired values by adjusting the material, foaming rate, and thickness of the foamed body. However, in view of the recitation that "the material, foaming rate, thickness, and the like of the foamed body" in the paragraph pointed out by Defendant and teachings in the aforementioned (2)B and D, it cannot be found that adjustment of the crystal melting temperature peak and the aspect ratio of air bubbles only by the material,

foaming rate, and thickness of the foamed body is described in the paragraphs.

Moreover, Defendant asserts that the crystal melting temperature peak and the aspect ratio of air bubbles cannot be adjusted to desired values, respectively, by independently adjusting the material, foaming rate, and thickness of the foamed body. However, the numerical-value range specified by Present Invention 1 only specifies an upper limit and a lower limit or specifies a numerical-value range with a certain margin and thus, in order to manufacture the base material of Present Invention 1, it is only necessary for a person ordinarily skilled in the art to be able to understand certain tendencies that the content of the polypropylene-based resin, the content of the foaming agent, thickness, and stretching give to the melting temperature peak, foaming rate, and aspect ratio of air bubbles, and Present Invention 1 can be worked without requiring excessive trials and errors on the basis of the recitation in the Present Description and the common general technical knowledge at the time of filing as taught in the aforementioned (2).

- C. Defendant evaluated Embodiments and Comparative Embodiments as in [Comparative Table 2] and, on the basis of them, asserts that a certain regularity cannot be found in the influences that the material, foaming rate, and thickness give to the melting temperature peak and the aspect ratio of air bubbles from Embodiments and Comparative Embodiments. However, [Comparative Table 2] evaluates a difference in the crystal melting temperature peaks and a difference in the aspect ratio qualitatively such that one of them is high or low or large or small without considering the magnitude of the difference or examining whether or not the difference is within an error range, and the evaluating method is not appropriate. Moreover, as described in the aforementioned (2)D, the adjustment of particularly the thickness is important for the aspect ratio of air bubbles, and since it is deeply related to stretching, it is understood that the relation between the material of the foamed body and the foaming rate is relatively weak, but Defendant's assertion does not consider the importance of such relation in the examination process of the regularity, which is not appropriate, either.
- D. Defendant asserts that since the certain regularity cannot be read in the influences to the crystal melting temperature peak and the aspect ratio of air bubbles even in a case where only the content is changed without changing the type of the polypropylene-based resin, the influence when the polypropylene-based resin different from those in Embodiments is used cannot be expected at all, but the crystal melting temperature peak and the aspect ratio of air bubbles can be

adjusted by adjusting the material, foaming rate, thickness, and the like of the foamed body as taught in the aforementioned (2).

(5) Summary

According to the above, the determination in the Present Decision that the recitation in the detailed description of the invention in the Present Description does not conform to the enablement requirement has an error, and Reason 2 for Rescission has grounds.

4. Reason 3 for Rescission (error in determination on support requirement)

(1) Support requirement

Whether or not the recitation in the scope of claims conforms to Article 36, paragraph (6), item (i) of the Patent Act providing for the support requirement should be determined by comparing the recitation in the scope of claims with the recitation in the detailed description of the invention and by examining whether the invention described in the scope of claims is the invention described in the detailed description of the invention and within a range that a person ordinarily skilled in the art can recognize that he/she can solve problem of the invention by the detailed description of the invention or not or whether it is within a range that a person ordinarily skilled in the art can solve the problem of the invention in view of the common general technical knowledge at the time of filing without the recitation or suggestion.

(2) Recitation in the Present Description

A. The Present Description describes the structure of the Present Invention ([0007], [0010], [0015], [0030], [0052], [0055]).

B. Moreover, Embodiments 1 to 7 in the Present Description describe with experimental data that the double-sided adhesive tape using the foaming base material with the foaming rate set to a range from 3.5 to 13 cm³/g, the aspect ratio of air bubbles from 0.9 to 3, and the crystal melting temperature peak from 141.5 to 147.4 °C and containing 40 to 80 weight% of the polypropylene-based resin and having a thickness from 200 to 1000 μm is excellent in heat resistance and repulsion resistance ([0058] to [0067], [Table 1]).

Furthermore, it is indicated that [i] the double-sided adhesive tape in Comparative Embodiments 1 and 3 with the aspect ratio of air bubbles at 0.5, which is less than 0.9, is poor in heat resistance; [ii] the double-sided adhesive tapes in Comparative

Embodiments 2 and 3 with crystal melting temperature peaks at 94°C and 92°C, which are lower than 140°C, are poor in heat resistance (Comparative Embodiments 1 to 3); and [iii] the double-sided adhesive tape in Comparative Embodiment 4 with the foaming rate of 20 cm³/g, which exceeds 15 cm³/g, is poor in repulsion resistance (Comparative Example 4) ([0068] to [0071], [Table 1]).

(3) Conformity to the support requirement of the Present Invention

It can be considered that the recitation in the Present Description as in the aforementioned (2) on the double-sided adhesive tape of the Present Invention is within such a range that a person ordinarily skilled in the art can recognize that the problem of the Present Invention to provide the double-sided adhesive tape which is excellent in heat resistance and repulsion resistance and is useful for fixing an onboard panel and a cover of an onboard heads-up display can be solved ([0006], hereinafter, referred to as the "Present Problem").

(4) Defendant's assertion

A. Defendant asserts that the Present Invention is a so-called parameter invention and in order to conform to the support requirement, the detailed description of the invention needs to be described to such a degree that a person ordinarily skilled in the art can understand the technical meaning of the relation between the range indicated by the equations thereof and the obtained effects (performance) at the time of filing of the patent application without disclosure of a specific example, or that a specific example needs to be disclosed and described to such a degree that a person ordinarily skilled in the art can recognize that the desired effects (performance) can be obtained if it is within the range indicated by the equations by considering the common general technical knowledge at the filing of the patent application (Intellectual Property High court 2005 (Gyo-ke) 10042, Judgment on November, 11 of said year). However, the Present Invention is not an invention having an article specified with a range indicated by a certain equation using technical variables (parameters) expressing characteristic values as a constituent feature and does not fall under the parameter invention referred to in the court example pointed out by Defendant and thus, Defendant's assertion lacks premise.

B. Defendant asserts that the recitation in the scope of claims in the Present Invention is not clear and lacks the enablement requirement, and Present Invention 1

includes an aspect that cannot be manufactured and thus, the Present Invention does not conform to the support requirement. However, the determinations on the clarity requirement and the enablement requirement are as in the aforementioned 2 and 3, and Defendant's assertion cannot be employed.

- C. Defendant asserts from the recitation in the Present Description ([0020]) that it can be understood to describe that only the crystal melting temperature peak is related to the heat resistance in the four conditions; that is, the thickness, crystal melting temperature peak, foaming rate, and aspect ratio of air bubbles, and the higher this is, the more excellent the heat resistance.

However, there is no recitation in the Present Description that only the crystal melting temperature peak is related to the heat resistance in the four conditions; that is, the thickness, crystal melting temperature peak, foaming rate, and aspect ratio of air bubbles, or that the higher this is, the more excellent the heat resistance. Rather, in view of the fact that, even if the crystal melting temperature peak is 143.9 °C, Comparative Example 1 with the aspect ratio of air bubbles at 0.5, which is outside the range from 0.9 to 3, has a poor result of heat resistance ([Table 1]), it cannot be understood that only the crystal melting temperature peak in the four conditions is related to the heat resistance.

- D. Moreover, Defendant asserts that the conditions related to the repulsion resistance in the four conditions are those three except the crystal melting temperature peak, and on the premise that it is described that the closer the foaming rate is to 15 cm³/g, the closer the aspect ratio of air bubbles is to 0.9 or 3, or the closer the thickness is to 1500 μm, the poorer the repulsion resistance becomes, when a part of the structures in Embodiments 1 and 5 is changed to a numerical value closer to a boundary within the range of Present Invention 1, it cannot be recognized that the problem of Present Invention 1 can be solved.

However, the Present Description does not have the recitation that the closer the foaming rate is to 15 cm³/g, the closer the aspect ratio of air bubbles is to 0.9 or 3, or that the closer the thickness is to 1500 μm, the poorer the repulsion resistance becomes. Moreover, even if the repulsion resistance is lowered by the change in the structure asserted by Defendant, the ground on which the repulsion resistance is lowered to such a degree that cannot even solve the Present Problem is unclear for Embodiments 1 and 5 in which the repulsion resistance was evaluated to be "◎ [Very

Good]" in accordance with the predetermined evaluation method ([0074], [Table 1]), and Defendant's assertion cannot be employed.

E. Defendant asserts that the recitation that the problem of Present Invention 1 can be solved when the polypropylene-based resin other than "AD571" described in Embodiments is used or when the foamed body is manufactured under a condition different from those in Embodiments is not supported by Embodiments.

However, the fact that the polypropylene-based resin is a resin excellent in heat resistance and mechanical strength (impact resistance) was a matter of common general technical knowledge at the time of filing of the Present Patent ("Introduction" clause in Exhibit Ko 10, Exhibit Otsu 11 [0002], Exhibit Otsu 12 [0002], Exhibit Otsu 14 [0002]), and according to that, it should be considered that a person ordinarily skilled in the art can recognize that the double-sided adhesive tape of Present Invention 1 can solve the Present Problem in view of the recitation in the Present Description and the common general technical knowledge at the time of filing of the Present Patent even without Embodiments and Comparative Embodiments in the cases where the polypropylene-based resin other than "AD571" is used or where the foamed body is manufactured under conditions different from those in Embodiments.

F. Defendant asserts that, regarding the recitation that "the crystal melting temperature peak measured by a differential scanning calorimeter is at 140°C or more", if it is only necessary that even a very small crystal melting temperature peak is present at a part not lower than 140°C, it is not possible to recognize that the problem of Present Invention 1 can be solved, if a quantity of the material expressing the peak is very small.

However, as described in the aforementioned C, it can be understood that the heat resistance is related not only to the crystal melting temperature peak but to the aspect ratio of air bubbles according to Comparative Example 1. And as described in the aforementioned E, the polypropylene-based resin is a resin excellent in heat resistance and mechanical strength (impact resistance), and a polypropylene-based resin whose melting point is lower than 140°C was also known to a person ordinarily skilled in the art at the time of filing of the Present Patent (Exhibit Otsu 11 [0008], [0009], Exhibit Otsu 12 [0080], [0097], Exhibit Otsu 14 [0078]). Then, even if the peak at 140°C or more based on the polypropylene-based resin being contained is very small, it can be considered that such recognition can be obtained that the Present Problem

can be solved by adjusting the content of the polypropylene-based resin and adjusting the aspect ratio of air bubbles.

(5) Summary

According to the above, the determination of the Present Decision that the recitation in the scope of claims does not conform to the support requirement has an error, and Reason 3 for Rescission has grounds.

5. Conclusion

According to the above, since Plaintiff's claims have grounds, they are affirmed, and the judgment shall be rendered as in the main text.

Intellectual Property High Court, First Division

Presiding Judge: TAKABE Makiko

Judge: KOBAYASHI Yasuhiko

Judge: TAKAHASHI Aya

(Attached sheet) Defendant's comparison table list

[Comparative Table 1]

| | Foaming agent weight part | Foaming rate cm ³ /g | PP-based resin content, weight% | Thickness μm | Crystal melting temperature peak °C | Air-bubble aspect ratio | Heat resistance | Repulsion resistance |
|--------------------------|---------------------------|---------------------------------|---------------------------------|--------------|-------------------------------------|-------------------------|-----------------|----------------------|
| Embodiment 1 | 7.5 | 13 | 80 | 1000 | 142.6 | 1.4 | ◎ | ◎ |
| Embodiment 2 | 7 | 10 | 80 | 1000 | 143.9 | 2 | ◎ | ◎ |
| Embodiment 3 | 7 | 10 | 70 | 1000 | 147.4 | 1.2 | ◎ | ◎ |
| Embodiment 4 | 3.8 | 5 | 60 | 500 | 143.3 | 1.5 | ◎ | ◎ |
| Embodiment 5 | 3.5 | 4.5 | 60 | 200 | 143.1 | 0.9 | ○ | ◎ |
| Embodiment 6 | 3 | 3.5 | 70 | 500 | 143.2 | 1.5 | ◎ | ○ |
| Embodiment 7 | 4.5 | 8 | 40 | 800 | 141.5 | 1.2 | ○ | ○ |
| Comparative Embodiment 1 | 4.5 | 8 | 70 | 400 | 143.9 | 0.5 | × | ◎ |
| Comparative Embodiment 2 | 4.5 | 8 | 0 | 800 | 94 | 2.3 | × | ◎ |
| Comparative Embodiment 3 | 2.2 | 3 | 0 | 100 | 92 | 0.5 | × | ◎ |
| Comparative Embodiment 4 | 13 | 20 | 70 | 1000 | 142 | 1.4 | ◎ | × |

[Comparative Table 2]

| | Foaming agent | Foaming rate | PP-based resin content | Thickness | Crystal melting temperature peak | Air-bubble aspect ratio |
|---|---------------|--------------|------------------------|-----------|----------------------------------|-------------------------|
| Comparison A, Embodiment 1 vs. Embodiment 2 | Smaller | | | | Higher | Larger |
| Comparison B, Embodiment 2 vs. Embodiment 3 | | | Smaller | | Higher | Smaller |

| | | | | | | | |
|--|----|--|--|--------|---------|--------|---------|
| Comparison Embodiment 3 vs. Embodiment 6 | C, | Smaller | | | Thinner | Lower | Larger |
| Comparison Embodiment 7 vs. Comparative Embodiment 1 | D, | | | Larger | Thinner | Higher | Smaller |
| Comparison Embodiment 3 vs. Comparative Embodiment 1 | E, | Smaller | | | Thinner | Lower | Smaller |
| Comparison Embodiment 3 vs. Comparative Embodiment 4 | F, | Larger | | | | Lower | Larger |
| | | The term "larger" means that, when the former and the latter are compared, the latter is larger. The same applies to the term "higher" and the like. | | | | | |