

Cooling Tool

Field

[0001]

The present invention relates to a cooling tool.

BACKGROUND

[0002]

Conventionally, there has been known a cooling tool that includes a main body portion covering at least eyes on a face of a wearer, and a cooling body disposed in the main body portion (for example, Patent Literature 1). This cooling tool is used for reducing eye strain, puffy eyes, and the like of the wearer.

Citation List

Patent Literature

[0003]

Patent Literature 1: Japanese Unexamined Patent Application Publication No. 2002-28176

Summary of Invention

TECHNICAL PROBLEM

[0004]

In order to reduce eye strain, puffy eyes, and the like of a wearer with a cooling tool, it is desired that a cooling body disposed in a cooling tool is in a state of being fitted well on eyes and/or areas around the eyes of the wearer. However, conventional cooling tools including the cooling tool described in Patent Literature 1 tend to neglect a fitting performance of the cooling body on the eyes and/or

the areas around the eyes of the wearer.

[0005]

The present invention relates to a cooling tool that is capable of improving cooling capability for eyes and/or areas around the eyes of a wearer by improving a fitting performance of a cooling body on the eyes and/or the areas around the eyes of the wearer.

SOLUTION TO PROBLEM

[0006]

A cooling tool according to the present invention includes: a main body portion that covers at least eyes and/or areas around the eyes on a face of a wearer; and a cooling body disposed in the main body portion. The main body portion includes: an inner sheet that faces a skin side of the wearer when worn; and an outer sheet disposed so as to face the inner sheet via the cooling body. The cooling body has a water retention layer capable of retaining water, the cooling body is arranged in the main body portion such that at least a part of the cooling body comes in contact with the eyes and/or the areas around the eyes of the wearer via the inner sheet when worn, and the inner sheet has a bending resistance lower than a bending resistance of the outer sheet.

ADVANTAGEOUS EFFECTS OF INVENTION

[0007]

The cooling tool of the present invention is capable of improving cooling capability for eyes and/or areas around

the eyes of a wearer by improving a fitting performance of a cooling body on the eyes and/or the areas around the eyes of the wearer.

BRIEF DESCRIPTION OF DRAWINGS

[0008]

FIG. 1 is a drawing illustrating a cooling tool according to an embodiment.

FIG. 2 is a schematic cross-sectional view of the cooling tool according to the embodiment.

FIG. 3 is a partially enlarged view illustrating a lower-side slit according to the embodiment.

FIG. 4 is a drawing illustrating the cooling body according to the embodiment.

FIG. 5 is a schematic cross-sectional view taken along the line II-II' in FIG. 4.

FIG. 6(a) is a drawing illustrating a state where an ear strap is stretched.

FIG. 6(b) is a drawing illustrating a state where the ear strap is worn.

FIG. 7 is a drawing illustrating a state where the cooling tool according to the embodiment is enclosed in a packaging body.

FIG. 8 is a schematic diagram illustrating a device that measures an amount of water vapor emission.

DETAILED DESCRIPTION

[0009]

Hereinafter, a preferred embodiment for carrying out the present invention will be described by referring to the drawings. Note that, the following embodiment does not limit the present invention according to each of the claims, and all combinations of the characteristics described in the embodiment are not necessarily essential for means for solving the problems of the present invention. In addition, in the embodiment, the scale and dimensions of each component may be exaggerated, or some components may be omitted.

[0010]

[Overall Configuration Of Cooling Tool]

As illustrated in FIG. 1, a cooling tool 1 according to the embodiment includes a main body portion 10 that covers at least eyes and/or areas around the eyes on a face of a wearer, cooling bodies 20 disposed in the main body portion 10, and ear straps 30 disposed at two ends of the main body portion 10 in a width direction. Note that FIG. 1 is a plan view in a state where the main body portion 10 is deployed such that a surface of a non-periocular side (an outer surface) of the wearer faces up.

[0011]

In this embodiment, the cooling tool 1 is stored in a state of being enclosed in a waterproof packaging body 200 (see FIG. 7). Note that it is not necessary that the entire cooling tool 1 is always enclosed in the packaging body 200. For example, when the cooling bodies 20 are not integrated with the main body portion 10 (when they can be added later), it is preferred that at least the cooling bodies 20 are

stored in a state of being enclosed in the packaging body 200. That is, the main body portion 10 and the cooling bodies 20 may be packaged individually or only the cooling bodies 20 may be packaged. When water is added to the cooling bodies 20 for use, the cooling tool 1 to the cooling bodies 20 are not necessarily enclosed in the waterproof packaging body 200.

[0012]

In the description, the "width direction" means a direction that corresponds to a direction in which a first panel portion 10A and a second panel portion 10B described later are aligned in a state where the main body portion 10 is viewed in a plane direction (that is, the state in FIG. 1). In addition, "the two ends of the main body portion 10 in the width direction" means an end portion on a side of an ear strap 30 of the first panel portion 10A and an end portion on a side of an ear strap 30 of the second panel portion 10B.

[0013]

[Basic Configuration of Main Body Portion]

As illustrated in FIG. 2, the main body portion 10 includes an inner sheet 11 that faces a skin side of the wear (an upper side in FIG. 2) when the cooling tool 1 is worn, and an outer sheet 12 arranged so as to face the inner sheet 11 via the cooling bodies 20, and the main body portion 10 is formed into a sheet shape as a whole. The inner sheet 11 and the outer sheet 12 are formed to have the same shape and the same size, and are adhered to one another in a state

where the cooling bodies 20 are arranged between the inner sheet 11 and the outer sheet 12. Note that, while this embodiment has described that the inner sheet 11 and the outer sheet 12 are formed to have the same shape and the same size, the configuration is not limited to this, and the inner sheet 11 and the outer sheet 12 may have different shapes, or may have different sizes.

[0014]

Here, a method for adhering the inner sheet 11 to the outer sheet 12 is described. In this embodiment, an adhesive agent (not illustrated) is applied on the outer sheet 12, and the cooling bodies 20 and the inner sheet 11 are adhered via the adhesive agent. For the adhesive agent, a hot-melt-type adhesive is preferably used, but the adhesive agent is not limited to this, and various known securing means are usable. For example, adhesive agents other than those of a hot-melt-type, sewing, heat fusion, or the like are allowed, and as long as fixation is ensured, the adhesive agent is not limited.

[0015]

Note that, instead of or in addition to the configuration in which the adhesive agent is applied on the outer sheet 12, it is also allowed to employ a configuration in which the adhesive agent is applied on the inner sheet 11. The configuration is also allowed to form openings and housing spaces through which the cooling bodies 20 can be inserted and removed between the inner sheet 11 and the outer sheet 12 by leaving some local areas of the inner sheet 11

and the outer sheet 12 not adhered.

[0016]

[Specific Configuration of Main Body Portion]

The following gives respective descriptions of rigidity, air permeability, moisture-permeable and waterproof properties, basis weight, stretch, material, shape, and the like as specific configurations of the main body portion 10 according to the embodiment.

[0017]

[Rigidity]

In this embodiment, the inner sheet 11 has lower rigidity than that of the outer sheet 12. That is, a bending resistance of the inner sheet 11 is lower than a bending resistance of the outer sheet 12. Specifically, the bending resistance of the inner sheet 11 is preferred to be 95% or less, is more preferred to be 80% or less, and is further preferred to be 65% or less with respect to the bending resistance of the outer sheet 12 from the aspect of making the cooling bodies 20 be in a state of protruding to the inner sheet 11 side to enhance a cooling effect on a skin. The bending resistance of the inner sheet 11 is preferred to be 10% or more, is more preferred to be 20% or more, and is further preferred to be 30% or more with respect to the bending resistance of the outer sheet 12 from the aspect of providing both a fitting performance and the cooling effect on the skin at the same time. The bending resistance of the inner sheet 11 is preferably 10% or more and 95% or less, is more preferably 20% or more and 80% or less, and is further

preferably 30% or more and 65% or less with respect to the bending resistance of the outer sheet 12.

[0018]

The bending resistance of the inner sheet 11 is preferred to be 10 mm or more, is more preferred to be 20 mm or more, and is further preferred to be 30 mm or more from the aspect of enhancing the sheet strength in a balanced manner. The bending resistance of the inner sheet 11 is preferred to be 90 mm or less, is more preferred to be 80 mm or less, and is further preferred to be 70 mm or less from the aspect of pleasant wearability. The bending resistance of the inner sheet 11 is preferably 10 mm or more and 90 mm or less, is more preferably 20 mm or more and 80 mm or less, and is further preferably 30 mm or more and 70 mm or less.

[0019]

The bending resistance of the outer sheet 12 is preferred to be 50 mm or more, is more preferred to be 60 mm or more, and is further preferred to be 70 mm or more from the aspect of stably keeping the shape. The bending resistance of the outer sheet 12 is preferred to be 160 mm or less, is more preferred to be 140 mm or less, and is further preferred to be 120 mm or less from the aspect of providing both an improved fitting performance on the eyes and the areas around the eyes of the wearer and the cooling effect on the skin at the same time. The bending resistance of the outer sheet 12 is preferably 50 mm or more and 160 mm or less, is more preferably 60 mm or more and 140 mm or less, and is further preferably 70 mm or more and 120 mm or less.

[0020]

Here, the bending resistance is a value measured and calculated by the following method, which is compliant to method A (45° cantilever method) of Japanese Industrial Standard L 1096:2010, but has added partial changes to the following method (4).

(1) Five specimens of 20 mm × approximately 150 mm are collected, and short sides of the specimens are placed to align along a scale baseline on a horizontal table with a smooth surface having one end with a 45° inclined surface. Note that when the specimens with the above-described dimensions are not successfully collected, the specimens having dimensions as close as possible to the above-described dimensions are collected.

(2) The specimens are slowly slid in a direction of the inclined surface by an appropriate method, and, when center points of one ends of the specimens come into contact with the inclined surface, positions of the other ends of the specimens are read on the scale.

(3) Bending resistances are indicated by lengths (mm) of movements of the specimens, and front and back of the five specimens are each measured.

(4) Vertical and horizontal values are collectively averaged, and the average values are rounded to integers.

A small value of the bending resistance means that a sheet subject to the measurement is soft (low rigidity), and a large value of the bending resistance means that a sheet subject to the measurement is hard (high rigidity). In this

embodiment, the bending resistance of the inner sheet 11 is lower than the bending resistance of the outer sheet 12, and therefore, the inner sheet 11 is more flexible than the outer sheet 12.

[0021]

[Air permeability]

In this embodiment, the inner sheet 11 is preferred to be made of an air permeable sheet. Specifically, air permeability rate in at least a region between the eyes of the wearer and a water retention layer 22 of the inner sheet 11 is preferred to be 30000 seconds/100 mL or less, is more preferred to be 3000 seconds/100 mL or less, is further preferred to be 300 seconds/100 mL or less, is further more preferred to be 200 seconds/100 mL or less, is further more preferred to be 100 seconds/100 mL or less, is further more preferred to be 5 seconds/100 mL or less, and is the most preferred to be 0 seconds/100 mL from the aspect of accelerating evaporative heat dissipation caused by water evaporation. When such air permeability rate is satisfied, the configuration of the inner sheet 11 is allowed to have some portions without air permeability.

[0022]

Note that, while this embodiment has described that the inner sheet 11 is a sheet having the air permeability, the configuration is not limited to this, and the air permeability rate may be adjusted within a range not affecting the usability, and may be a low-air-permeable sheet or a non-air-permeable sheet.

[0023]

Here, the air permeability rate is a value measured by Japanese Industrial Standard P8117 (version revised in 2009), and is defined as the time it takes for a 100 mL air to pass through an area of 6.42 cm² under a constant pressure. Accordingly, a large value of the air permeability rate means that it takes time for the air to pass through, that is, the air permeability is low. Conversely, a small value of the air permeability rate means that the air permeability is high. Thus, the magnitude of the value of the air permeability rate and the magnitude of the air permeability show an inverse relation. The air permeability rate is measurable using an Oken-type air permeability tester. In the description, the air permeability rate less than 30000 seconds/100 mL is defined as "air permeable," the air permeability rate equal to or more than 30000 seconds/100 mL and less than 80000 seconds/100 mL is defined as "low-air permeability," and the air permeability rate equal to or more than 80000 seconds/100 mL is defined as "non-air permeability."

[0024]

In this embodiment, the air permeability of the outer sheet 12 is not particularly specified, and as long as the performance of the product is not impaired, any material is usable according to the product design. Specifically, any of an air permeable sheet, a low-air-permeable sheet, or a non-air-permeable sheet is allowed. However, the outer sheet 12 is preferred to have low-air permeability or non-

air permeability from the aspect of defining an evaporation release direction of the cooling bodies 20 on the side of the inner sheet 11 (the eye-facing side of the wearer).

[0025]

[Moisture-Permeable and Waterproof Properties]

The inner sheet 11 is preferred to be a moisture-permeable and waterproof sheet that has a combination of moisture permeability and a waterproof performance in addition to the air permeability. Specifically, the moisture permeability of the inner sheet 11 is preferred to be $12000 \text{ g/m}^2 \cdot 24 \text{ hr}$ or less, is more preferred to be $11000 \text{ g/m}^2 \cdot 24 \text{ hr}$ or less, and is further preferred to be $10000 \text{ g/m}^2 \cdot 24 \text{ hr}$ or less from the aspect of reducing stuffiness and wetness when worn. This moisture permeability is preferred to be $2000 \text{ g/m}^2 \cdot 24 \text{ hr}$ or more, is more preferred to be $2500 \text{ g/m}^2 \cdot 24 \text{ hr}$ or more, and is further preferred to be $3000 \text{ g/m}^2 \cdot 24 \text{ hr}$ or more from the aspect of enhancing the cooling effect by evaporative heat dissipation in association with water evaporation. When such moisture permeability is satisfied, the configuration of the inner sheet 11 is allowed to have some portions without the moisture permeability. While the inner sheet 11 has been described to be a sheet having the moisture permeability, the configuration is not limited to this, and the moisture permeability may be adjusted within a range not affecting the usability, and may be a low-moisture-permeable sheet or a non-moisture-permeable sheet. Note that, in a sheet member, such as the inner sheet 11 or the outer sheet 12, when the

sheet member has air permeability, the sheet member also has moisture permeability.

[0026]

Here, the moisture permeability indicates the properties of passing water vapor through. The moisture permeability is a value measured by method A-1 of Japanese Industrial Standard L1099: 2012, and defines a water content that permeates per m^2 in 24 hours in a numerical value (g). Accordingly, a large value of the moisture permeability means high moisture permeability, and conversely, a small value of the moisture permeability means low-moisture permeability. In this description, the moisture permeability equal to or more than $100 \text{ g/m}^2 \cdot 24 \text{ hr}$ is defined to be "moisture-permeable," the moisture permeability less than $100 \text{ g/m}^2 \cdot 24 \text{ hr}$ and equal to or more than $30 \text{ g/m}^2 \cdot 24 \text{ hr}$ is defined to be "low-moisture-permeable," and the moisture permeability less than $30 \text{ g/m}^2 \cdot 24 \text{ hr}$ is defined to be "non-moisture-permeable."

[0027]

A water resistance level of the inner sheet 11 is preferred to be 300 mm or more, is more preferred to be 400 mm or more, and is further preferred to be 500 mm or more from the aspect of avoiding to wet the eyes and/or the areas around the eyes of the wearer. Furthermore, it is the most preferred to be 1000 mm or more. When such a water resistance level is satisfied, the configuration of the inner sheet 11 is allowed to have some portions without the waterproof performance. While the inner sheet 11 has been described to be a sheet having the waterproof performance,

the configuration is not limited to this, and the inner sheet 11 may be a non-waterproof sheet (water-permeable sheet).

[0028]

Here, the waterproof performance indicates properties of avoiding water from permeating. The waterproof performance is evaluable with the water resistance level, and this water resistance level is measurable by method A of Japanese Industrial Standard L 1092. This water resistance level is defined as a height (mm) of a water column per cm² that withstands the water permeation. Accordingly, a large value of the water resistance level means a high waterproof performance, and conversely, a small value of the water resistance level means a low waterproof performance. In this description, a water resistance level equal to or more than 300 mm is defined to be "waterproof," and a water resistance level less than 300 mm is defined to be "non-waterproof" or "water-permeable."

[0029]

[Basis Weight]

A basis weight of the inner sheet 11 is preferred to be 5 g/m² or more, is more preferred to be 10 g/m² or more, is further preferred to be 15 g/m² or more, and is further more preferred to be 20 g/m² or more, from the aspect of enhancing the thickness and the sheet strength in a balanced manner and the aspect of providing both improved fitting on the eyes and/or the areas around the eyes of the wearer and the cooling effect on the skin at the same time. The basis weight of the inner sheet 11 is preferred to be 80 g/m² or

less, is more preferred to be 60 g/m² or less, is further preferred to be 40 g/m² or less, and is further more preferred to be 30 g/m² or less from the aspect of enhancing the heat transfer efficiency from the face of the wearer to the cooling bodies 20 and easily evaporating water vapor generated from the cooling bodies 20, and the aspect of making the coolness easily perceived.

[0030]

A basis weight of the outer sheet 12 is determined from, for example, the aspect of stably keeping the shape of the main body portion 10, stably holding the cooling bodies 20, and furthermore, avoiding the cooling bodies 20 from being shown through to impair the appearance. From such an aspect, the basis weight of the outer sheet 12 is preferred to be 10 g/m² or more, is more preferred to be 15 g/m² or more, is further preferred to be 20 g/m² or more, and is further more preferred to be 25 g/m² or more. The basis weight of the outer sheet 12 is preferred to be 200 g/m² or less, is more preferred to be 160 g/m² or less, is further preferred to be 120 g/m² or less, and is further more preferred to be 80 g/m² or less from the aspect of providing pleasant wearability.

[0031]

[Stretch]

In this embodiment, the inner sheet 11 is preferred to have stretch, and is preferred to have greater stretch than the outer sheet 12. The outer sheet 12 may have stretch, or may be non-stretchy. Examples of the sheet having stretch

include a sheet containing elastic fibers as constituent fibers, a sheet containing elastic filaments, a sheet that develops stretch by a structure of, for example, a rib stitch.
[0032]

Specifically, tensile strength of the inner sheet 11 in the width direction is preferred to be 5 N/5 cm or more and 80 N/5 cm or less, is more preferred to be 10 N/5 cm or more and 60 N/5 cm or less, and is further preferred to be 20 N/5 cm or more and 40 N/5 cm or less from the aspect of providing both an improved fitting performance of the cooling bodies 20 on the eyes and/or the areas around the eyes of the wearer and the cooling effect on the skin at the same time. Tensile strength of the outer sheet 12 in the width direction is preferred to be 15 N/5 cm or more and 115 N/5 cm or less, is more preferred to be 30 N/5 cm or more and 95 N/5 cm or less, and is further preferred to be 45 N/5 cm or more and 75 N/5 cm or less from the aspects of providing both an improved fitting on the eyes and/or the areas around the eyes of the wearer and the cooling effect on the skin at the same time, and arranging a clearance that serves as a passage of the water vapor released from the cooling bodies 20 between the center of a forehead of the wearer and the inner sheet 11. A small value of the tensile strength indicates that the sheet subject to the measurement is high in stretch, and a large value of the tensile strength indicates that the sheet subject to the measurement is low in stretch.

[0033]

Here, the tensile strength is measurable by the following method compliant to the section of, for example, "6.3 tensile strength and elongation ratio (method of International Organization for Standardization)" of Japanese Industrial Standard L 1913:2010.

(1) Five specimens with a length in a width direction of 50 mm and a length in a direction perpendicular to the width direction of 300 mm are collected from a sheet. Note that when the specimens with the above-described dimensions are not successfully collected, the specimens having dimensions as close as possible to the above-described dimensions are collected.

(2) The collected specimens are attached at a grip distance of 200 mm in a tensile tester with an initial load. Note that, when the grip distance is not successfully set to the above-described value, the grip distance is set to a value as close as possible to the above-described value.

(3) The load is applied until the specimens are cut off at a tension speed of 300 mm/min. The maximum value of the tensile load is the tensile strength, and the tensile strength is read.

(4) Respective tensile strengths are measured for the five specimens, the average value of the tensile strengths are obtained, and the mean value is rounded to one decimal place.

[0034]

[Material]

For materials of the inner sheet 11 and the outer sheet

12, those that have conventionally been used in the technical field of the cooling tool covering the eyes and/or the areas around the eyes of the wearer are usable. For example, a fiber sheet, such as a nonwoven fabric, a woven fabric, or a paper, a resin foam sheet, a metal sheet, or a combination thereof is used. Among all, a nonwoven fabric is preferred to be used from the aspect of workability and economic efficiency. For fiber materials of the nonwoven fabric, those constituted of one type or two or more types of fibers selected from, for example, a polyester, such as PET (polyethylene terephthalate); a polyolefin, such as PE (polyethylene), PP (polypropylene), or an ethylene propylene copolymer; rayon; or cotton, are preferred. For the nonwoven fabric, those fabricated using the fibers of the above-described one type or two or more types of materials by an air-through method, spunbonding, needlepunching, a melt blown process, carding, heat fusion, hydroentangling, solvent bonding, or the like are usable, and may be a single-layer structure or a multi-layer structure. Note that the nonwoven fabric may undergo chemical processing corresponding to the object.

[0035]

Each of the inner sheet 11 and the outer sheet 12 may have a single-layer structure made of only one sheet material regardless of a single layer or a multilayer, or may have a multi-layer structure made by laminating two types or more sheet materials. Furthermore, the inner sheet 11 and the outer sheet 12 may have configurations having different

constituent materials. Specifically, for the outer sheet 12 disposed on an outer side when worn, a constituent material appropriate for providing the shape retention performance for the cooling tool may be selected, or a constituent material appropriate for improving the texture or the appearance of the outer surface may be selected. On the other hand, for the inner sheet 11 disposed inside when worn, a constituent material for the purpose of nice feel on the skin may be selected. The inner sheet 11 and the outer sheet 12 may be colored in any color, or may have any design (pattern) by printing or the like. Such configurations improve the texture and the taste, which allows for a cooling tool that matches the preference of a user.

[0036]

[Shape and the Like]

As illustrated in FIG. 1 and FIG. 2, the main body portion 10 has a vertical center line 100 that divides the main body portion 10 into two in the width direction, the first panel portion 10A that constitutes one side in the width direction bordered by the vertical center line 100, and the second panel portion 10B that constitutes the other side in the width direction bordered by the vertical center line 100.

[0037]

The vertical center line 100 is a line that extends in a direction perpendicular to the width direction in the center in the width direction of the main body portion 10 in a state where the main body portion 10 is deployed such that

the surface of the non-periocular side of the wearer (an outer surface) faces up (the state in FIG. 1).

[0038]

The first panel portion 10A is constituted so as to cover one eye (for example, a right eye) of the wearer when the cooling tool 1 is worn. The second panel portion 10B is constituted so as to cover the other eye (for example, a left eye) of the wearer when the cooling tool 1 is worn. The first panel portion 10A and the second panel portion 10B are each formed to be in an approximately square shape, and the main body portion 10 has two end portions in the width direction whose peripheral edges are formed into an arc shape projecting outward. Note that, the first panel portion 10A and the second panel portion 10B may be formed to be in a square shape, may be formed to be in a rectangular shape, or may have another shape.

[0039]

The first panel portion 10A and the second panel portion 10B have a symmetrical shape with the vertical center line 100 serving as a border, and are integrally continuous at the vertical center line 100. In other words, the main body portion 10 is made of a sheet-shaped material having the first panel portion 10A and the second panel portion 10B that have the same shape and the same size arranged in a symmetric manner. Note that, instead of the configuration that has the first panel portion 10A and the second panel portion 10B integrally formed at the beginning, the configuration may, for example, have the first panel portion

10A and the second panel portion 10B formed as separate bodies mechanically combined.

[0040]

The first panel portion 10A and the second panel portion 10B are not respectively connected in an area proximity to an upper edge portion 13, described later, and an area proximity to a lower edge portion 14, described later, of the vertical center line 100, and are connected only at the vertical center line 100. Thus, the main body portion 10 is constituted to be in a planar shape in which the first panel portion 10A and the second panel portion 10B are arranged in parallel in a planar direction when the first panel portion 10A and the second panel portion 10B are deployed with the vertical center line 100 as the center. That is, the main body portion 10 is constituted to be able to deploy the first panel portion 10A and the second panel portion 10B with the vertical center line 100 as the center such that the angles formed by the first panel portion 10A and the second panel portion 10B form 180 degrees as illustrated in FIG. 2. Note that "connection" here includes both the configuration in which the first panel portion 10A and the second panel portion 10B are connected from the beginning by being integrally formed, and the configuration in which the first panel portion 10A and the second panel portion 10B formed as separate bodies are mechanically connected.

[0041]

As illustrated in FIG. 1, the main body portion 10 has

the upper edge portion 13 positioned on the forehead side of the wearer when the cooling tool 1 is worn, the lower edge portion 14 positioned on a side of a nose of the wearer when the cooling tool 1 is worn, an upper-side slit 15 formed from the upper edge portion 13 toward a side of the lower edge portion 14, and a lower-side slit 16 formed from the lower edge portion 14 toward a side of the upper edge portion 13.

[0042]

The main body portion 10 has a first inner edge portion 17 that inclines from the lower edge portion 14 on the first panel portion 10A side toward the vertical center line 100, and a second inner edge portion 18 that inclines from the lower edge portion 14 on the second panel portion 10B side toward the vertical center line 100.

[0043]

The upper-side slit 15 and the lower-side slit 16 are formed on the vertical center line 100. Note that, in this embodiment, "the upper-side slit and the lower-side slit are formed on the vertical center line" means that the upper-side slit 15 and the lower-side slit 16 are formed such that a center portion of the upper-side slit 15 in the width direction and a center portion of the lower-side slit 16 in the width direction are each positioned on an extension of the vertical center line 100.

[0044]

The upper-side slit 15 is a cutout in an approximately triangular shape formed to be tapered off from the upper

edge portion 13 toward the lower edge portion 14 side. The upper-side slit 15 is constituted to be positioned between eyebrows of the wearer or the proximity thereof when the cooling tool 1 is worn.

[0045]

In this embodiment, a length of the upper-side slit 15 along a vertical direction is preferred to be 25% or less, is more preferred to be 20% or less, and is further preferred to be 15% or less with respect to a length of the main body portion 10 along a vertical direction from the upper edge portion 13 to the lower edge portion 14 from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the forehead of the wearer. This length of the upper-side slit 15 along the vertical direction is preferred to be 3% or more, is more preferred to be 5% or more, and is further preferred to be 10% or more with respect to the length of the main body portion 10 along the vertical direction from the upper edge portion 13 to the lower edge portion 14 from the aspect of arranging a clearance that serves as a passage of the water vapor released from the cooling bodies 20 between the center of the forehead of the wearer and the inner sheet 11. The length of the upper-side slit 15 along the vertical direction is preferred to be 3% or more and 25% or less, is more preferred to be 5% or more and 20% or less, and is further preferred to be 10% or more and 15% or less with respect to the length of the main body portion 10 along the vertical

direction from the upper edge portion 13 to the lower edge portion 14.

[0046]

Note that, in this embodiment, "the length of the upper-side slit along the vertical direction" is a straight line length from a starting point (a starting point where the upper edge portion 13 starts to incline toward the lower edge portion 14 side) to an ending point (an upper end of the vertical center line 100) of the upper-side slit 15 in a direction along the vertical center line 100. In addition, "the length of the main body portion along the vertical direction from the upper edge portion to the lower edge portion" is a straight line length from the upper edge portion 13 to the lower edge portion 14 in the direction along the vertical center line 100. Note that, when the upper edge portion 13 and the lower edge portion 14 are not horizontal, for example, when the upper edge portion 13 and the lower edge portion 14 are inclined or parts of the upper edge portion 13 and the lower edge portion 14 have unevenness, a straight line length from the uppermost end of the upper edge portion 13 (the farthest position in an upward direction of the main body portion 10 in the upper edge portion 13) to the lowermost end of the lower edge portion 14 (the farthest position in a downward direction of the main body portion 10 in the lower edge portion 14) is "the length of the main body portion along the vertical direction from the upper edge portion to the lower edge portion."

[0047]

For example, the length of the upper-side slit 15 along the vertical direction is preferred to be 18 mm or less, is more preferred to be 16 mm or less, and is further preferred to be 14 mm or less from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the forehead of the wearer. The length of the main body portion 10 along the vertical direction from the upper edge portion 13 to the lower edge portion 14 is preferred to be 2 mm or more, is more preferred to be 4 mm or more, is further preferred to be 6 mm or more from the aspect of arranging the clearance that serves as the passage of the water vapor released from the cooling bodies 20 between the center of the forehead of the wearer and the inner sheet 11. The length of the upper-side slit 15 along the vertical direction is preferred to be 2 mm or more and 18 mm or less, is more preferred to be 4 mm or more and 16 mm or less, and is further preferred to be 6 mm or more and 14 mm or less.

[0048]

The lower-side slit 16 is a cutout in an approximately inverted triangular shape formed to be tapered off from the lower edge portion 14 toward the upper edge portion 13 side. Specifically, the lower-side slit 16 is a cutout defined by the first inner edge portion 17 and the second inner edge portion 18. The lower-side slit 16 has a distal end formed to be an arc shape curved toward the upper edge portion 13 side.

[0049]

Here, as illustrated in FIG. 3, a cutout angle of the lower-side slit 16, that is, an open angle θ between a first virtual line VL1 along the first inner edge portion 17 and a second virtual line VL2 along the second inner edge portion 18 is preferred to be 36° or less, is more preferred to be 26° or less, and is further preferred to be 16° or less from the aspect of covering the eyes and/or the areas around the eyes of the wearer with the main body portion 10. The cutout angle of the lower-side slit 16, that is, the open angle θ between the first virtual line VL1 along the first inner edge portion 17 and the second virtual line VL2 along the second inner edge portion 18 is preferred to be 1° or more, is more preferred to be 4° or more, and is further preferred to be 8° or more from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the nose of the wearer. The cutout angle θ of the lower-side slit 16 is preferred to be 1° or more and 36° or less, is more preferred to be 4° or more and 26° or less, and is further preferred to be 8° or more and 16° or less. Note that, FIG. 3 omits the illustration of the vertical center line 100.

[0050]

Note that, in this embodiment, "the first virtual line along the first inner edge portion" is a virtual line extending along a straight line portion that converges toward the vertical center line 100 of the first inner edge portion

17. In addition, "the second virtual line along the second inner edge portion" is a virtual line extending along a straight line portion that converges toward the vertical center line 100 of the second inner edge portion 18.

[0051]

The lower-side slit 16 is constituted to be positioned on the bridge of the nose of the wearer or the proximity thereof when the cooling tool 1 is worn.

[0052]

In this embodiment, the lower-side slit 16 is formed to be longer than the upper-side slit 15. Here, the length of the lower-side slit 16 along the vertical direction is preferred to be 750% or less, is more preferred to be 600% or less, and is further preferred to be 450% or less with respect to the length of the upper-side slit 15 along the vertical direction from the aspect of reducing the expansion of the main body portion 10 in the width direction when the cooling tool 1 is used to avoid degradation of the fitting performance. The length of the lower-side slit 16 along the vertical direction is preferred to be 150% or more, is more preferred to be 250% or more, and is further preferred to be 350% or more, with respect to the length of the upper-side slit 15 along the vertical direction from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the nose of the wearer. The length of the lower-side slit 16 along the vertical direction is preferred to be 150% or more and 750% or less,

is more preferred to be 250% or more and 600% or less, and is further preferred to be 350% or more and 450% or less with respect to the length of the upper-side slit 15 along the vertical direction.

[0053]

Note that, in this embodiment, "the length of the lower-side slit along the vertical direction" is a straight line length from a starting point (a base end of the first inner edge portion 17 or the second inner edge portion 18) to an ending point (an distal end of the first inner edge portion 17 or the second inner edge portion 18 to the lower end of the vertical center line 100) of the lower-side slit 16 in the direction along the vertical center line 100.

[0054]

In this embodiment, the length of the lower-side slit 16 along the vertical direction is preferred to be 73% or less, is more preferred to be 63% or less, and is further preferred to be 53% or less with respect to the length of the main body portion 10 along the vertical direction from the upper edge portion 13 to the lower edge portion 14 from the aspect of reducing the expansion of the main body portion 10 in the width direction when the cooling tool 1 is used. The length of the lower-side slit 16 along the vertical direction is preferred to be 23% or more, is more preferred to be 33% or more, and is further preferred to be 43% or more with respect to the length of the main body portion 10 along the vertical direction from the upper edge portion 13 to the lower edge portion 14 from the aspect of enhancing a

cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the nose of the wearer. The length of the lower-side slit 16 along the vertical direction is preferred to be 23% or more and 73% or less, is more preferred to be 33% or more and 63% or less, and is further preferred to be 43% or more and 53% or less with respect to the length of the main body portion 10 along the vertical direction from the upper edge portion 13 to the lower edge portion 14.

[0055]

Furthermore, in this embodiment, the length of the lower-side slit 16 along the width direction is preferred to be 70% or less, is more preferred to be 60% or less, and is further preferred to be 50% or less with respect to the length of the lower-side slit 16 along the vertical direction from the aspect of covering the eyes and/or the areas around the eyes of the wearer. The length of the lower-side slit 16 along the width direction is preferred to be 20% or more, is more preferred to be 30% or more, and is further preferred to be 40% or more with respect to the length of the lower-side slit 16 along the vertical direction from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the nose of the wearer. The length of the lower-side slit 16 along the width direction is preferred to be 20% or more and 70% or less, is more preferred to be 30% or more and 60% or less, and is

further preferred to be 40% or more and 50% or less with respect to the length of the lower-side slit 16 along the vertical direction.

[0056]

For example, the length of the lower-side slit 16 along the vertical direction is preferred to be 61 mm or less, is more preferred to be 52 mm or less, and is further preferred to be 43 mm or less from the aspect of reducing the expansion of the main body portion 10 in the width direction when the cooling tool 1 is used. The length of the lower-side slit 16 along the vertical direction is preferred to be 15 mm or more, is more preferred to be 24 mm or more, and is further preferred to be 33 mm or more from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the nose of the wearer. The length of the lower-side slit 16 along the vertical direction is preferred to be 15 mm or more and 61 mm or less, is more preferred to be 24 mm or more and 52 mm or less, and is further preferred to be 33 mm or more and 43 mm or less.

[0057]

Note that, in this embodiment, "the length of the lower-side slit along the width direction" is a straight line length from the base end of the first inner edge portion 17 to the base end of the second inner edge portion 18.

[0058]

The shapes of the upper edge portion 13, the lower edge portion 14, the upper-side slit 15, and the lower-side slit

16 of the main body portion 10 are appropriately adjusted so as to be easily fitted to the face (in particular, the nose, the eyes, and the forehead) of the wearer, and various kinds of shapes, such as a straight line, an arc shape, or a shape that locally has a projecting portion or a curved portion, are each conveniently employable. For example, while in the above-described embodiment, the upper-side slit 15 and the lower-side slit 16 have been described as the cutouts, the configuration is not limited to this, and the upper-side slit 15 and the lower-side slit 16 may be incision lines.

[0059]

The main body portion 10 including the configurations above has the first panel portion 10A and the second panel portion 10B folded in two along the vertical center line 100 to be folded into a planar shape before use (see FIG. 2 and FIG. 7), and therefore, can be downsized. On the other hand, the main body portion 10 is opened from the edge portion opposite of the vertical center line 100 when it is used, and the main body portion 10 is worn with the folded inner-side surface serving as a surface on the wearer side.

[0060]

The main body portion 10 is constituted to cover the eyes and the areas around the eyes on the face of the wearer when the cooling tool 1 is worn. In this description, "the areas around the eyes" are, for example, a forehead, eyebrows, cheeks, temples, a nose, and the like. Note that, while this embodiment has described that the main body portion 10 is constituted to cover the eyes and the areas around the

eyes on the face of the wearer, the configuration is not limited to this, and it is only necessary that at least the areas around the eyes on the face of the wearer is covered. That is, the main body portion 10 may have opened regions on the opposite of the eyes of the wearer when the cooling tool 1 is worn. The main body portion 10 may be constituted to cover the entire face of the wearer.

[0061]

Note that, while this embodiment has described that the main body portion 10 has the inner sheet 11 and the outer sheet 12, the configuration is not limited to this, and another sheet may be present between the inner sheet 11 and the cooling bodies 20, or another sheet may be present between the outer sheet 12 and the cooling bodies 20.

[0062]

[Configuration of Cooling Body]

As illustrated in FIG. 1 to FIG. 5, the cooling body 20 has the water retention layer 22 that can retain water. In this embodiment, the water retention layer 22 is impregnated with water in advance (before being disposed in the main body portion 10). That is, the water retention layer 22 retains water in a state where the cooling tool 1 is enclosed in the packaging body 200.

[0063]

Examples of the configuration of the cooling body 20 include, for example, the configurations (1) and (2) described below.

(1) One configuration of the cooling body 20 is a

configuration of a sheet-shaped object having the water retention layer 22. In this case, the water retention layer 22 is obtainable by applying a paste obtained by impregnating a water-retentive material in a powder form or fibrous form with water and mixing them on one surface of the sheet. The sheet may be any of a first sheet 23, a second sheet 24, or a base material layer 21 described later.

(2) Another configuration of the cooling body 20 is a configuration in which the water-retentive material itself has a shape to form the water retention layer 22. In this case, the water-retentive material is cut into a desired size, and is impregnated with water, and thus, the cooling body 20 is obtained.

Note that, while in this description, the water-retentive material has a water retention capacity (water absorption effect or water removal effect), the type is not specifically limited as long as water can be held, and one that is excellent in water dispersibility is preferred.

[0064]

In both configurations of (1) and (2) described above, the cooling body 20 may have a configuration in which the water-retentive material is enclosed inside a bag body formed by joining peripheral edge portions of the first sheet 23 and the second sheet 24 to one another. The cooling body 20 can avoid unintended drop off of the constituent materials to further enhance production efficiency by thus constituting the first sheet 23 and the second sheet 24 into the bag body.

[0065]

One configuration of the cooling bodies 20 is a flat body in a rectangular shape as illustrated in FIG. 2, FIG. 4, and FIG. 5, and includes the base material layer 21 and the water retention layer 22 laminated over the base material layer 21. The cooling body 20 further includes the first sheet 23, and the second sheet 24 arranged so as to face the first sheet 23 via the water retention layer 22.

[0066]

[Water Retention Layer]

In the case of the configuration (1) described above, the water retention layer 22 has a water-retentive material dispersed on the base material layer 21, and water held by the water-retentive material. Examples of the water-retentive material include, for example, one type or two or more types selected from carbon components, fiber materials, water-absorbent powder, and the like.

[0067]

In the case of the configuration (2) described above, the water retention layer 22 and the water-retentive material are, for example, possible to be constituted by various kinds of fiber materials, and can be constituted by hydrophilic fibers or a blend of hydrophilic fibers and synthetic fibers. Examples of the fiber materials include, for example, one type or two or more types selected from polyethylene, polypropylene, polyester, rayon, cotton, pulp, and the like.

[0068]

The carbon component has a water retention capacity,

and, for example, one type or two or more types selected from activated carbon, acetylene black, and graphite are usable. For the fiber material, hydrophilic fibers, among all, cellulose fibers are more preferred to be used. For the cellulose fibers, chemical fibers (synthetic fibers) or natural fibers are usable. Furthermore, examples of the water-absorbent powder other than the above include one type or two or more types selected from vermiculite, sawdust, silica gel, calcium silicate, zeolite, pulp powder, and water-absorbent polymer.

[0069]

Examples of the water-absorbent polymer include a hydrophilic polymer having a crosslinked structure that is able to absorb and retain a liquid of 20 times or more of its own weight. The water-absorbent polymer may have any shape of a spherical shape, a lump shape, a botryoidal shape, or a fibrous shape. A mass median diameter of the water-absorbent polymer is preferred to be 1 μm or more, is more preferred to be 10 μm or more, and is further preferred to be 100 μm or more. The mass median diameter of the water-absorbent polymer is preferred to be 1000 μm or less, is more preferred to be 700 μm or less, and is further more preferred to be 500 μm or less. The particle diameters of the water-absorbent polymer are measured by a laser diffraction method.

[0070]

Specific examples of the water-absorbent polymer include, for example, one type or two or more types selected

from the group consisting of a starch, a crosslinked carboxymethyl cellulose, a polymer, a copolymer, or the like of an acrylic acid or an alkali metal acrylate, a polyacrylic acid and a salt thereof, and a polyacrylate graft polymer. Among these, a polymer, a copolymer, or the like of an acrylic acid or an alkali metal acrylate, a polyacrylic acid and a salt thereof, and a polyacrylate graft polymer are preferred because an amount of water supported is easily maintained within a specific range.

[0071]

Examples of an aspect of the water retention layer when the water-absorbent polymer is used include, for example, (a) an aspect of having a single layer formed such that the water-absorbent polymer is interposed between two water-permeable sheets, (b) an aspect of being arranged into a single layer form with the water-absorbent polymer directly laminated on the base material layer 21, or (c) an aspect employing a laminated structure in which a first water-absorbent polymer layer in which the water-absorbent polymers are adjacently arranged into a layer form, and a second water-absorbent polymer layer that is adjacent to the first water-absorbent polymer layer and is formed such that powder of a water-absorbent resin is interposed between two water-permeable sheets are arranged.

[0072]

The water held in the water retention layer 22 may be derived from an electrolyte solution (for example, a solution of an alkali metal, an alkaline earth metal, or the like),

or may be added with an antiseptic agent, a bacteriostatic agent, a fungicide, or an antioxidizing agent of, for example, ethanol, methylparaben, ethylparaben, propylparaben, butylparaben, phenoxyethanol, 1,3-butylene glycol, propylene glycol, or dipropylene glycol.

[0073]

An initial content of the water held in the water retention layer 22 is preferred to be 1 mass% or more, is more preferred to be 2 mass% or more, is further preferred to be 3 mass% or more, and is further more preferred to be 4 mass% or more of the maximum amount of water absorption of the water retention layer 22 from the aspect of maintaining a cooling effect by the cooling body 20 over a long period of time by enhancing persistence of moisture released from the cooling body 20 as well as enhancing the cooling effect at the beginning of wearing of the cooling tool 1. The initial content of the water is preferred to be 20 mass% or less, is more preferred to be 15 mass% or less, is further preferred to be 10 mass% or less, and is further more preferred to be 7 mass% or less of the maximum amount of water absorption of the water retention layer 22 from the aspect of avoiding the cooling tool 1 from falling from the face by reducing the weight of the cooling body 20.

[0074]

[Measuring Method for Maximum Amount of Water Absorption of Water Retention Layer]

The maximum amount of water absorption of the water retention layer 22 is measurable by, for example, the

following method. That is, first, a nylon fabric bag with 250 mesh (61 μm) (100 mm $\times$ 150 mm) and a specimen are weighed to measure a tare weight of the mesh bag and a weight of the specimen. Next, the specimen is put in the above-described mesh bag, the mesh bag is placed standing inside a 300 mL beaker, a 300 mL ion exchanged water is added so as not to directly hit the mesh bag, the mesh bag is immersed for 30 minutes to be fully swollen. Thereafter, the mesh bag is suspended for 10 minutes to undergo drainage, and is weighed to two decimal places with a chemical balance. The maximum amount of water absorption is obtained by using "the mesh bag gross weight," "the mesh bag tare weight," and "the specimen weight" obtained above with the following formula.

"The maximum amount of water absorption" = "the mesh bag gross weight" - "the mesh bag tare weight" - "the specimen weight"

[0075]

The initial content of the water held in the water retention layer 22 (that is, a water content immediately after a wrapping material, such as an oxygen barrier bag, is opened) is preferred to be 0.04 mL or more per cm^2 , is more preferred to be 0.08 mL or more per cm^2 , and is further preferred to be 0.10 mL or more per cm^2 , and additionally, is preferred to be 0.40 mL or less per cm^2 , is more preferred to be 0.30 mL or less per cm^2 , and is further preferred to be 0.25 mL or less per cm^2 from the aspect described above.

[0076]

[Definition of Initial Content of Water]

Note that, the initial content of the water in the water retention layer 22 of the cooling body 20 is defined by the following procedure.

That is, first, the wrapping material is opened to take out the cooling tool 1 from the wrapping material, a part that contains the water of the cooling tool 1, that is, the cooling body 20 is taken out, and thereafter, the cooling body 20 is installed on a moisture meter (Kett moisture meter FD-240, manufactured by Kett Electric Laboratory Co. Ltd.). Measurement of the cooling body 20 by the moisture meter is started in 30 seconds after the start of opening the wrapping material.

A difference in a weight after drying from a weight before drying measured by the moisture meter when the cooling body 20 is dried by heating at 70°C for 10 hours in the above-described method is defined as the initial content of the water.

[0077]

[Base Material Layer]

The base material layer 21 is disposed so as to cover a surface of the water retention layer 22 on an opposite side of the first sheet 23 or the second sheet 24. In this embodiment, the base material layer 21 covers the surface of the water retention layer 22 on the opposite side of the first sheet 23.

[0078]

When the base material layer 21 is arranged to be on the non-periocular side when worn, the base material layer

21 covers the surface of the water retention layer 22 on the opposite side of the first sheet 23. Thus, when the base material layer 21 is arranged to be on the non-periocular side when worn, vapor emission for the eyes and/or the areas around the eyes of the wearer is accelerated, and thus, the heat in evaporation in association with this enables enhancing a cooling effect on the eyes and/or the areas around the eyes of the wearer. By reducing evaporation of the water of the water retention layer 22 toward the non-periocular side, persistence of the vapor released from the cooling body 20 can be enhanced, thereby enabling maintaining a cooling effect by the cooling body 20 over a long period of time.

[0079]

Even when the base material layer 21 described above is arranged on the periocular side or the non-periocular side, the air permeability rate of the base material layer 21 allows for changing of a vapor emission amount to the non-periocular side (the outside of the main body portion 10) or to the periocular side as necessary. For example, when it is desired to accelerate vapor emission by heat in evaporation in accordance with the base material layer 21 so as to further enhance a cooling effect inside the main body portion 10, a sheet with air permeability rate of 50 seconds/100 mL or less, preferably 10 seconds/100 mL or less, or more preferably 1 second/100 mL or less is usable for the base material layer 21. When a lasting effect of the cooling period on the face or inside the main body portion 10 is

desired to be enhanced, a non-air-permeable (air permeability rate of 80000 seconds/100 mL or more) or low-air-permeable (air permeability rate of 30000 seconds/100 mL or more) sheet is usable. The air permeability rate of the base material layer 21 is preferred to be 50000 seconds/100 mL or more, and is more preferred to be 80000 seconds/100 mL or more.

Note that, when the base material layer 21 is arranged to be on the non-eye-facing side, productivity when the cooling body 20 is installed in the main body portion 10 is improved by laminating the water retention layer 22 on the base material layer 21.

[0080]

For such a base material layer 21, for example, a synthetic-resin film is usable, examples of which include a polyethylene film, a polyethylene terephthalate film, and the like. The synthetic-resin film may be a single layer or may be a laminated body of a plurality of layers. A nonwoven fabric, a paper or a film, or a laminated body of two types or more thereof is usable.

[0081]

Note that, while this embodiment has described that the base material layer 21 covers the surface of the water retention layer 22 on the opposite side of the first sheet 23, the configuration is not limited to this, and a configuration with the base material layer 21 disposed to cover the surface of the water retention layer 22 on the opposite side of the second sheet 24 or a configuration

without the base material layer 21 is also allowed.

[0082]

[First Sheet 23 and Second Sheet 24]

The first sheet 23 is disposed on the periorcular side of the wearer. In this embodiment, the first sheet 23 is preferably made of an air permeable sheet. Specifically, the first sheet 23 has air permeability rate in at least a region between the eyes of the wearer and the water retention layer 22 of preferably 350 seconds/100 mL or less, and more preferably 100 seconds/100 mL or less from the aspect of avoiding excessive humidification while slowly releasing the generated vapor. The first sheet 23 is also possible to enhance a cooling effect on the face by heat in evaporation or heat release in association with water evaporation by having such air permeability rate. Note that the first sheet 23 may have a configuration having a part thereof without air permeability when such air permeability rate is satisfied.

[0083]

Note that, in this embodiment, the first sheet 23 has been described as a sheet having air permeability, the configuration is not limited to this, and the air permeability rate may be adjusted within a range not affecting the usability, and may be a low-air-permeable sheet or a non-air-permeable sheet.

[0084]

The first sheet 23 is preferred to be a moisture-permeable and waterproof sheet that has a combination of moisture permeability and a waterproof performance in

addition to the air permeability. Specifically, the first sheet 23 has moisture permeability in at least the region between the eyes of the wearer and the water retention layer 22 of preferably 2000 g/m²·24 hr or more, more preferably 2500 g/m²·24 hr or more, and further preferably 3000 g/m²·24 hr or more from the aspect of enhancing a cooling effect by evaporative heat dissipation in association with evaporation of water vapor. The moisture permeability is preferred to be 12000 g/m²·24 hr or less, is more preferred to be 11000 g/m²·24 hr or less, is further preferred to be 10000 g/m²·24 hr or less, and is further more preferred to be 8000 g/m²·24 hr or less from the aspect of reducing stuffiness and wetness when worn. The first sheet 23 may have a configuration having a part thereof without moisture permeability when such moisture permeability is satisfied. While the first sheet 23 has been described to be a sheet having moisture permeability, the configuration is not limited to this, and may be a low-moisture-permeable sheet and a non-moisture-permeable sheet.

[0085]

The first sheet 23 has a water resistance level in at least the region between the eyes of the wearer and the water retention layer 22 of preferably 300 mm or more, more preferably 400 mm or more, and further preferably 500 mm or more from the aspect of reducing stuffiness and wetness when worn. Furthermore, it is the most preferred to be 1000 mm or more. The first sheet 23 may have a configuration having a part thereof without a waterproof performance when such a

water resistance level is satisfied. While the first sheet 23 has been described to be a sheet having a waterproof performance, the configuration is not limited to this, and may be a non-waterproof sheet (water-permeable sheet).

[0086]

For such a moisture-permeable and waterproof sheet, for example, a porous sheet made of a synthetic resin is preferable. Specifically, a stretched film that contains calcium carbonate in, for example, polyethylene or polypropylene is listed as an example. When such a porous sheet is used, a nonwoven fabric may be laminated on an outer surface of the porous sheet, and thus, the texture of the moisture-permeable and waterproof sheet may be improved. Examples of the nonwoven fabric includes, for example, a needle-punched nonwoven fabric, a through-air nonwoven fabric, and a spunbond nonwoven fabric. As long as it is a sheet that does not pass water through but passes oxygen and water vapor through, and takes leakproof properties into account, the sheet may be other than the porous sheet. For example, a woven fabric, a nonwoven fabric, a paper, a synthetic paper, or the like obtained by mixing one type or two or more types selected from artificial fibers, such as polyamide, vinylon, polyester, rayon, acetate, acrylic resin, polyethylene, polypropylene, and polyvinyl chloride, and natural fibers, such as pulp, cotton, linen, silk, and animal hairs is usable as a moisture-permeable and waterproof sheet.

[0087]

The second sheet 24 is disposed on the non-periocular

side of the wearer. In this embodiment, the second sheet 24 is preferred to be a low-air-permeable sheet or a non-air-permeable sheet. The second sheet 24 has air permeability rate of preferably 50000 seconds/100 mL or more, and more preferably 80000 seconds/100 mL or more. Using such a non-air-permeable or low-air-permeable sheet for the second sheet 24 enables controlling an evaporation amount of the water content in the water retention layer 22 evaporating, and therefore, the persistence of the vapor released from the cooling body 20 is enhanced, thereby enabling to maintain a cooling effect by the cooling body 20 over a long period of time. Note that, while the second sheet 24 has been described as a low-air-permeable sheet and a non-air-permeable sheet, the second sheet 24 is not limited to those, and any material is usable according to the product design, and may be an air permeable sheet.

[0088]

For such a non-air-permeable or low-air-permeable sheet, for example, a film made of a synthetic resin is usable alone or a plurality of the films made of the synthetic resin are laminated and usable. The texture of the non-air-permeable or low-air-permeable sheet can be improved by laminating a nonwoven fabric or the like on the outer surface according to the application. While the nonwoven fabric is selectable from a needle-punched nonwoven fabric, a through-air nonwoven fabric, a spunbond nonwoven fabric, and the like, a laminated film made of a polyethylene film and a pulp sheet is preferable. Note that, a non-air-

permeable or low-air-permeable sheet may have a part thereof with air permeability as long as it is a sheet low in air permeability as a whole.

[0089]

The second sheet 24 may have any of moisture permeability, low-moisture permeability, or non-moisture permeability. However, the second sheet 24 is preferred to have low-moisture permeability or non-moisture permeability from the aspect of defining an evaporation release direction of the water retention layer 22 on the side of the inner sheet 11 (the eye-facing side of the wearer).

[0090]

Furthermore, the second sheet 24 may have a waterproof performance or may have a non-waterproof performance (water permeability).

[0091]

The materials of the first sheet 23 and the second sheet 24 may be the same as those of the inner sheet 11 and the outer sheet 12 or may be different.

[0092]

While in this embodiment, the cooling body 20 has been described to have the first sheet 23 and the second sheet 24, the configuration is not limited to this, and a configuration may have only any one of the first sheet 23 or the second sheet 24. A configuration may secure the base material layer 21 and the water retention layer 22 on the inner sheet 11 or the outer sheet 12 without having the first sheet 23 or the second sheet 24, or a configuration may

enclose the base material layer 21 and the water retention layer 22 between the inner sheet 11 and the outer sheet 12. Furthermore, when the cooling body 20 does not have the base material layer 21 in addition to the first sheet 23 and the second sheet 24, a configuration may secure the water retention layer 22 on the inner sheet 11 or the outer sheet 12, or a configuration may enclose the water retention layer 22 between the inner sheet 11 and the outer sheet 12.

[0093]

[Perfume Ingredient]

The perfume ingredients described in, for example, "the Synthetic Fragrance Chemistry and Product Knowledge Enhancement" (written by Motoichi Indou, The Chemical Daily Co., Ltd.) are allowed to be formulated in or added to any desired positions in the cooling body 20 within a range that does not interfere with the effects of the present invention. Specifically, examples of the perfume ingredients include terpene hydrocarbons, such as myrcene, farnesene, pinene, limonene, camphene, phellandrene, terpinene, terpinolene, p-cymene, cedrene, and caryophyllene; aldehydes, such as hexyl cinnamic aldehyde, 3-(4-tert-Butylphenyl)-2-methylpropanal, 4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-1-carbaldehyde, and vanillin; aromatic alcohols, such as benzyl alcohol, phenylethyl alcohol, pamplefleure (2-methyl-4-phenylpentanol), dimethyl benzyl carbinol, and phenylhexanol (3-methyl-5-phenylpentan-1-ol); phenols, such as anethole and eugenol; and lactones, such as γ -nonalactone and γ -undecalactone.

[0094]

[Refreshing Ingredient]

Refreshing ingredients are allowed to be formulated in or added to any desired positions in the cooling body 20 within a range that does not interfere with the effects of the present invention from the aspect of providing a further more refreshing sensation. The cooling ingredients preferably contain agonists that act on TRPM8 that is a cold receptor of the thermosensitive TRP channels present in a body. Examples thereof include, for example, menthols, such as L-menthol and DL-menthol, menthanediol, cineole, menthyl glyceryl ether, menthone glycerin acetal, butylcyclohexanone, isopulegol, trimethylisopropylbutanamide, menthoxypropanediol, and camphor, and a plant, an essential oil, or the like of, for example, a mint oil, a peppermint oil, a spearmint oil, or a eucalyptus oil containing the TRPM8 agonists may be used. One type of these may be used alone, or a combination of two types or more may be used. Among all, one type or two or more types selected from menthol, methyl lactate, menthyl succinate, menthyl glutarate, trimethylisopropylbutanamide, menthoxypropanediol, and camphor are preferred, and menthol is more preferred from the aspect of comfort, feel of effectiveness, and safety during the application.

[0095]

[Amount of Water Vapor Emission of Cooling Body]

The cooling body 20 including the above-mentioned configurations has an amount of water vapor emission to the

periocular side of the wearer of preferably 2.5 mg/(cm²·hour) or more, more preferably 5.0 mg/(cm²·hour) or more, and is further preferably 7.5 mg/(cm²·hour) or more. Such an amount of water vapor emission allows for efficiently cooling the skin using the water evaporation.

[0096]

The above-described amount of water vapor emission of the cooling body 20 is preferred to be 20.0 mg (cm²·hour) or less, is more preferred to be 15.0 mg (cm²·hour) or less, and is further preferred to be 10.0 mg (cm²·hour) or less. Such an amount of water vapor emission allows for reducing humidity and reducing stuffiness.

[0097]

The amount of water vapor emission to the periocular side of the wearer is a numerical value measured as follows by using a measurement device 40 illustrated in FIG. 8. Note that the following description is intended for the cooling body 20 in a sealed state of being enclosed in a waterproof wrapping material or the like, and a time period it takes from the opening of the waterproof wrapping material or the like is started, which is the start of opening, to the installation on the measurement device 40 illustrated in FIG. 8, that is, the time point after 5 seconds from the start of opening is defined as "water vapor emission starting time point." The measurement device 40 illustrated in FIG. 8 includes a measurement chamber (volume 4.2 L) 41 made of aluminum, an inflow passage 42 through which dehumidified air (humidity of less than 2%, flow rate of 2.1 L/minute) is

flowed in to a lower portion of the measurement chamber 41, an outflow passage 43 through which the air is flowed out from an upper portion of the measurement chamber 41, an inlet thermohygrometer 44 and an inlet flowmeter 45 disposed in the inflow passage 42, an outlet thermohygrometer 46 and an outlet flowmeter 47 disposed in the outflow passage 43, and a thermometer (thermistor) 48 disposed within the measurement chamber 41. For the thermometer 48, a thermometer having a temperature resolution of approximately 0.01°C is used. Note that the vapor emission amount in this description means a total quantity measured for one hour after the "water vapor emission starting time point" of the cooling body 20 as a starting point.

[0098]

[Arrangement of Cooling Body]

The cooling bodies 20 are arranged in the main body portion 10 such that at least a part thereof comes directly or indirectly in contact with the eyes and/or the areas around the eyes of the wearer when the cooling tool 1 is worn. Specifically, the cooling bodies 20 are arranged in the main body portion 10 such that at least a part thereof comes in contact with the eyes and the areas around the eyes of the wearer via the inner sheet 11 when the cooling tool 1 is worn.

[0099]

Note that, while in this embodiment, at least a part of the cooling bodies 20 has been described to come in contact with the eyes and the areas around the eyes of the

wearer via the inner sheet 11, the configuration is not limited to this, and it is only necessary that at least a part of the cooling bodies 20 comes directly or indirectly in contact with the areas around the eyes of the wearer. That is, the cooling bodies 20 may have opened regions on the opposite of the eyes of the wearer when the cooling tool 1 is worn. Furthermore, at least a part of the cooling bodies 20 may be directly or indirectly in contact with the whole region of the face of the wearer.

[0100]

As illustrated in FIG. 1, the cooling bodies 20 according to the embodiment are respectively disposed on the first panel portion 10A and the second panel portion 10B so as to form symmetry with the vertical center line 100 as a border. In the illustrated example, one cooling body 20 is installed on each of the first panel portion 10A and the second panel portion 10B, making a total of two.

[0101]

In this embodiment, a separation distance between the vertical center line 100 and an end portion of the cooling body 20 on the vertical center line 100 side is preferred to be 35 mm or less, is more preferred to be 30 mm or less, and is further preferred to be 25 mm or less from the aspect of providing appropriate locations of the cooling bodies 20 with respect to the eyes and/or the areas around the eyes of the wearer, and accelerating evaporative heat dissipation of water held in the cooling bodies 20. The separation distance between the vertical center line 100 and the end portion of

the cooling body 20 on the vertical center line 100 side is preferred to be 5 mm or more, is more preferred to be 10 mm or more, and is further preferred to be 15 mm or more from the aspect of providing both an improved fitting performance on the eyes and/or the areas around the eyes of the wearer and a cooling effect on the skin at the same time. Therefore, the separation distance between the vertical center line 100 and the end portion of the cooling body 20 on the vertical center line 100 side is preferred to be 5 mm or more and 35 mm or less, is more preferred to be 10 mm or more and 30 mm or less, and is further preferred to be 15 mm or more and 25 mm or less.

[0102]

Note that, in this embodiment, "the separation distance between the vertical center line and the end portion of the cooling body on the vertical center line side" is a straight-line distance from the vertical center line 100 to the end portion of the cooling body 20 on the vertical center line 100 side in the width direction. In addition, "the end portion of the cooling body in the vertical center line side" is the portion at which the separation distance to the vertical center line 100 is the closest in the cooling body 20.

[0103]

While this embodiment has described that one cooling body 20 is disposed in each of the first panel portion 10A and the second panel portion 10B, the configuration is not limited to this, and, for example, two cooling bodies 20 may

be disposed in each of the first panel portion 10A and the second panel portion 10B, or one cooling body 20 may be disposed in the whole main body portion 10. When a plurality of the cooling bodies 20 are disposed, the plurality of cooling bodies 20 may have the same cooling characteristics or may have different cooling characteristics, but it is more preferred when they have the same cooling characteristics.

[0104]

[Shape and Size of Cooling Body]

The cooling body 20 has a planar shape not specifically limited, and may be in a circular shape, a polygonal shape, or the like. The planar shape of the cooling body 20 is preferred to be a quadrilateral shape, such as a rectangular shape and an approximately square shape, from the aspect of production efficiency, handleability, and a cooling effect, and is more preferred to be an approximately square shape from the aspect of handleability.

[0105]

The cooling body 20 has a total area of a facing surface facing the inner sheet 11 of preferably 12000 mm² or less, more preferably 11000 mm² or less, and further preferably 10000 mm² or less from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the eyes and/or the areas around the eyes of the wearer. The total area is preferred to be 3000 mm² or more, is more preferred to be 4000 mm² or

more, and is further preferred to be 5000 mm² or more from the aspect of effectively providing a cooling sensation on the eyes and/or the areas around the eyes of the wearer. Therefore, the total area is preferred to be 3000 mm² or more and 12000 mm² or less, is more preferred to be 4000 mm² or more and 11000 mm² or less, and is further preferred to be 5000 mm² or more and 10000 mm² or less.

[0106]

Note that, in this embodiment, "the facing surface facing the inner sheet" of the cooling body 20 refers to a projected surface of the cooling body 20 as viewed in a direction orthogonal to both the vertical direction and the width direction.

[0107]

As described above, the cooling body 20 is disposed in each of the first panel portion 10A and the second panel portion 10B, the total area of the facing surface facing the first panel portion 10A of the cooling body 20 disposed in the first panel portion 10A and the total area of the facing surface facing the second panel portion 10B of the cooling body 20 disposed in the second panel portion 10B are each preferred to be 6000 mm² or less, is more preferred to be 5500 mm² or less, and is further preferred to be 5000 mm² or less from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance on the eyes and/or the areas around the eyes of the wearer. Each of the total areas is preferred to be 1500 mm² or more,

is more preferred to be 2000 mm² or more, and is further preferred to be 2500 mm² or more from the aspect of effectively providing a cooling sensation on the eyes and/or the areas around the eyes of the wearer. Therefore, each of the total areas is preferred to be 1500 mm² or more and 6000 mm² or less, is more preferred to be 2000 mm² or more and 5500 mm² or less, and is further preferred to be 2500 mm² or more and 5000 mm² or less.

[0108]

Note that, in this embodiment, "the facing surface facing the first panel portion" and "the facing surface facing the second panel portion" of the cooling bodies 20 are projection planes viewing the cooling bodies 20 in a direction orthogonal to both the vertical direction and the width direction.

[0109]

In this embodiment, the total area of the facing surface facing the inner sheet 11 of the cooling body 20 is preferred to be 90% or less, is more preferred to be 80% or less, and is further preferred to be 70% or less with respect to the total area of the inner sheet 11 from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance of the cooling body 20 on the eyes and/or the areas around the eyes of the wearer. The total area of the facing surface facing the inner sheet 11 of the cooling body 20 is preferred to be 10% or more, is more preferred to be 15% or more, and is further preferred

to be 20% or more with respect to the total area of the inner sheet 11 from the aspect of enhancing a cooling effect on the eyes and/or the areas around the eyes of the wearer. Therefore, The total area of the facing surface facing the inner sheet 11 of the cooling body 20 is preferred to be 10% or more and 90% or less, is more preferred to be 15% or more and 80% or less, and is further preferred to be 20% or more and 70% or less with respect to the total area of the inner sheet 11.

[0110]

For example, the total area of the inner sheet 11 is preferred to be 19000 mm² or less, is more preferred to be 17000 mm² or less, and is further preferred to be 15000 mm² or less. The total area of the inner sheet 11 is preferred to be 7000 mm² or more, is more preferred to be 9000 mm² or more, and is further preferred to be 11000 mm² or more. Therefore, the total area of the inner sheet 11 is preferred to be 7000 mm² or more and 19000 mm² or less, is more preferred to be 9000 mm² or more and 17000 mm² or less, and is further preferred to be 11000 mm² or more and 15000 mm² or less.

[0111]

In this embodiment, the total area of the facing surface facing the first panel portion 10A of the cooling body 20 disposed in the first panel portion 10A is preferred to be 90% or less, is more preferred to be 80% or less, and is further preferred to be 70% or less with respect to the total area of the first panel portion 10A. The total area

of the facing surface facing the first panel portion 10A of the cooling body 20 disposed in the first panel portion 10A is preferred to be 10% or more, is more preferred to be 15% or more, and is further preferred to be 20% or more with respect to the total area of the first panel portion 10A. Therefore, the total area of the facing surface facing the first panel portion 10A of the cooling body 20 disposed in the first panel portion 10A is preferred to be 10% or more and 90% or less, is more preferred to be 15% or more and 80% or less, and is further preferred to be 20% or more and 70% or less with respect to the total area of the first panel portion 10A.

[0112]

In this embodiment, the total area of the facing surface facing the second panel portion 10B of the cooling body 20 disposed in the second panel portion 10B is preferred to be 90% or less, is more preferred to be 80% or less, and is further preferred to be 70% or less with respect to the total area of the second panel portion 10B. The total area of the facing surface facing the second panel portion 10B of the cooling body 20 disposed in the second panel portion 10B is preferred to be 10% or more, is more preferred to be 15% or more, and is further preferred to be 20% or more with respect to the total area of the second panel portion 10B. Therefore, the total area of the facing surface facing the second panel portion 10B of the cooling body 20 disposed in the second panel portion 10B is preferred to be 10% or more and 90% or less, is more preferred to be 15% or more and 80%

or less, and is further preferred to be 20% or more and 70% or less with respect to the total area of the second panel portion 10B.

[0113]

For example, the total area of the first panel portion 10A and the total area of the second panel portion 10B are each preferred to be 9500 mm² or less, more preferred to be 8500 mm² or less, and further preferred to be 7500 mm² or less. The total area of the first panel portion 10A and the total area of the second panel portion 10B are each preferred to be 3500 mm² or more, more preferred to be 4500 mm² or more, and further preferred to be 5500 mm² or more. Therefore, the total area of the first panel portion 10A and the total area of the second panel portion 10B are each preferred to be 3500 mm² or more and 9500 mm² or less, more preferred to be 4500 mm² or more and 8500 mm² or less, and further preferred to be 5500 mm² or more and 7500 mm² or less.

[0114]

[Configuration of Ear Strap]

The ear straps 30 are disposed at two ends of the main body portion 10 in the width direction, and are constituted to enable the main body portion 10 to be held on the face of the wearer such that the main body portion 10 covers at least the eyes on the face of the wearer (see FIG. 6).

[0115]

As illustrated in FIG. 2, the ear straps 30 are folded inwardly and housed in the main body portion 10 before the application of the cooling tool 1. As illustrated in FIG.

1 and FIG. 6, the ear straps 30 are deployed outward in the width direction of the main body portion 10 during the application of the cooling tool 1.

[0116]

As illustrated in FIG. 1, the ear straps 30 are disposed to incline to a lower side of the main body portion 10 when worn with respect to the width direction of the main body portion 10. The ear straps 30 are both bonded on the main body portion 10 using bonded portions 50 inclined with respect to the vertical direction of the main body portion 10 when worn.

[0117]

Here, third virtual lines VL3 along the bonded portions 50 are both inclined with respect to the vertical center line 100 so as to converge at the lower side of the main body portion 10 when worn with respect to the center of the vertical center line 100. That is, the third virtual line VL3 is inclined toward the inside and the lower side from the outside in the width direction of the main body portion 10. Note that "the third virtual line along the bonded portion" is a virtual line extending along an end portion of the bonded portion 50 on the vertical center line 100 side. That is, the third virtual line is a virtual line extending along a fold line of the ear strap 30 in the state where the ear strap 30 is deployed (the state of FIG. 1).

[0118]

In this embodiment, the third virtual lines VL3 each have an inclination angle with respect to the vertical center

line 100 of preferably 25° or less, more preferably 20° or less, and further preferably 15° or less from the aspect of reducing oppressive feeling on upper ear portions of the wearer. The inclination angles of the third virtual lines VL3 with respect to the vertical center line 100 are each preferred to be 1° or more, more preferred to be 3° or more, and further preferred to be 5° or more from the aspect of arranging the clearance that serves as the passage of the water vapor released from the cooling bodies 20 between the forehead of the wearer and the inner sheet 11. The inclination angles of the third virtual lines VL3 with respect to the vertical center line 100 are each preferred to be 1° or more and 25° or less, more preferred to be 3° or more and 20° or less, and further preferred to be 5° or more and 15° or less.

[0119]

Examples of the configuration of the bonded portion 50 according to the embodiment include, for example, the following configurations (1) and (2).

(1) When the main body portion 10 and the ear straps 30 are mutually connected via another member, such as an adhesive agent (for example, a hot-melt-type adhesive), the other member, such as the adhesive agent functions as the bonded portion 50.

(2) When the main body portion 10 and the ear straps 30 are mutually bonded not via another member, which is, for example, when the main body portion 10 and the ear straps 30 are mutually connected by heat fusion, a bonded region where

the ear strap 30 is bonded on the main body portion 10 and a bonded region where the main body portion 10 is bonded on the ear strap 30 each function as the bonded portion 50.

[0120]

As illustrated in FIG. 1, each of the ear straps 30 has an ear strap main body 31 and an ear strap hole 32 through which an ear of the wearer is insertable. The ear strap main body 31 has an upper side 31a, a lower side 31b, a free edge 31c on a free side of the ear strap 30 that is not bonded on the main body portion 10, and a bonded edge 31d bonded on the main body portion 10.

[0121]

In this embodiment, the ear strap main body 31 has a planar surface and has an approximately square shape. Specifically, the upper side 31a and the lower side 31b are tapered off toward the free edge 31c from a side of the bonded edge 31d, and are curved at portions connecting to the free edge 31c. The bonded edge 31d has a shape along a peripheral edge of the first panel portion 10A or the second panel portion 10B.

[0122]

The ear strap hole 32 is an arc-shaped incision line formed from the proximity of the bonded edge 31d of the ear strap main body 31 to the proximity of the free edge 31c of the ear strap main body 31. This ear strap hole 32 is constituted such that the ear of the wearer is insertable. Note that the shape of the ear strap hole 32 is not at all limited, and may be an incision line in a straight line, or

may be an opening through which the ear of the wearer is insertable.

[0123]

In this embodiment, the ear strap 30 has a length D1 in the width direction that is preferred to be the same as a length D2 of the first panel portion 10A and the second panel portion 10B in the width direction or shorter than the lengths D2 of the first panel portion 10A and the second panel portion 10B in the width direction. This reduces an opportunity of thickness increase or tangling of the ear straps 30, which may be caused by the ear straps 30 overlapping the main body portion 10 and being unnaturally folded inside the main body portion 10 when the cooling tool 1 is folded in two at the vertical center line 100, and thus, the cooling tool 1 can be kept further compact. When the ear straps 30 are folded inward of the main body portion 10, the ear straps 30 are less likely to be contaminated, which allows for further improved hygiene.

[0124]

Note that, in this embodiment, "the length of the ear strap in the width direction" means an initial length of a straight line connecting a center point of the free edge 31c of the ear strap main body 31 and a center point of the bonded edge 31d of the ear strap main body 31 as illustrated in FIG. 1. In addition, "the initial length" means a length before stretching before external force that stretches the ear strap 30 is added.

[0125]

In this embodiment, "the length of the first panel portion in the width direction" means a straight line length from the vertical center line 100 in the width direction to a peripheral edge of the first panel portion 10A on the outer side in the width direction when the peripheral edge of the first panel portion 10A on the outer side in the width direction is parallel to the vertical center line 100. On the other hand, when the peripheral edge of the first panel portion 10A on the outer side in the width direction is not parallel to the vertical center line 100, for example, when the peripheral edge of the first panel portion 10A on the outer side in the width direction is inclined with respect to the vertical center line 100 or when the peripheral edge of the first panel portion 10A on the outer side in the width direction is formed into an arc shape as illustrated in FIG. 1, "the length of the first panel portion in the width direction" means a straight line length from the vertical center line 100 in the width direction to a tangent line of the peripheral edge of the first panel portion 10A on the outer side in the width direction (a tangent line parallel to the vertical center line 100). These respects are similar to "the length of the second panel portion in the width direction" as well. Note that FIG. 1 only illustrates the length of the second panel portion 10B in the width direction. [0126]

The length D1 of the ear strap 30 in the width direction is preferred to be 100% or less, is more preferred to be 98% or less, and is further preferred to be 96% or

less with respect to the lengths D2 of the first panel portion 10A and the second panel portion 10B in the width direction from the aspect of improving a fitting performance on the ears when the cooling tool 1 is worn. The length D1 of the ear strap 30 in the width direction is preferred to be 60% or more, is more preferred to be 70% or more, and is further preferred to be 80% or more with respect to the lengths D2 of the first panel portion 10A and the second panel portion 10B in the width direction. The length D1 of the ear strap 30 in the width direction is preferred to be 60% or more and 100% or less, is more preferred to be 70% or more and 98% or less, and is further preferred to be 80% or more and 96% or less with respect to the lengths D2 of the first panel portion 10A and the second panel portion 10B in the width direction.

[0127]

For example, the length D1 of the ear strap 30 in the width direction is preferred to be 93 mm or less, is more preferred to be 90 mm or less, and is further preferred to be 88 mm or less from the aspect of improving a fitting performance on the ears when the cooling tool 1 is worn. The length D1 of the ear strap 30 in the width direction is preferred to be 55 mm or more, is more preferred to be 65 mm or more, and is further preferred to be 74 mm or more. The length D1 of the ear strap 30 in the width direction is preferred to be 55 mm or more and 93 mm or less, is more preferred to be 65 mm or more and 90 mm or less, and is further preferred to be 74 mm or more and 88 mm or less.

[0128]

The lengths D2 of the first panel portion 10A and the second panel portion 10B in the width direction are each preferred to be 65 mm or more and 115 mm or less, more preferred to be 75 mm or more and 105 mm or less, and further preferred to be 85 mm or more and 95 mm or less from the aspect of covering the eyes and/or the areas around the eyes of the wearer.

[0129]

The ear straps 30 may be of a material similar to that of the main body portion 10 or may be of a different material, but is preferred to be a stretchable material, and the material likely to stretch in the width direction of the main body portion 10 is preferable from the aspect of improving fitting of the main body portion 10. In this embodiment, the ear straps 30 are preferred to be made of a nonwoven fabric, and is more preferred to be a stretchable nonwoven fabric. Note that the ear straps 30 may have a multi-layer structure in which an elastomer film is laminated on the nonwoven fabric from the aspect of further enhancing stretchability. The ear straps 30 are preferred to include a thermoplastic resin as a constituent fiber from the aspect of bondability with the main body portion 10. Furthermore, from the aspect of workability, it is more preferred to include polypropylene. Note that the ear straps 30 may further include a thermoplastic resin other than polypropylene, for example, is preferred to further include one type or more selected from the group consisting of

urethane, polyethylene, and polyethylene terephthalate, and is more preferred to use a synthetic fiber made of urethane. Such a configuration allows for efficiently developing flexibility and a fitting performance of the ear straps 30 as well as developing sufficient strength when the cooling tool 1 is applied.

[0130]

In this embodiment, the ear straps 30 has a load at 100% extension of preferably 50 g/inch or more and 400 g/inch or less, more preferably 100 g/inch or more and 350 g/inch or less, and further preferably 150 g/inch or more and 300 g/inch or less from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while improving a fitting performance of the main body portion 10 and the cooling bodies 20 on the ears and/or the areas around the ears and the eyes and/or the areas around the eyes of the wearer. Note that the load at 100% extension described above is a value as a stretch property of the material of the ear straps 30.

[0131]

[Measuring Method for Load at 100% Extension]

Here, the load at 100% extension means a load when the ear strap 30 is stretched by 100% in the width direction of the main body portion 10. The load at 100% extension is, for example, compliant to ASTM D882, and is measurable by the following method.

(1) A 25 mm × 150 mm specimen is collected from the

ear strap 30. Note that, when the specimen with the above-described dimensions is not successfully collected, the specimen having dimensions as close as possible to the above-described dimensions is collected.

(2) Two ends of the specimen in a longitudinal direction are fixed on a chuck of a tensile tester such that a distance between chucks measures 100 mm. Note that, when the distance between chucks is not successfully set to the above-described value, the distance between chucks is set to a value as close as possible to the above-described value.

(3) The specimen is pulled until the specimen breaks at the tension speed of 500 mm/min, and a load at the time point where the specimen is stretched by 100% from an initial length is the load at 100% extension.

[0132]

The load at 100% extension described above is achievable by, for example, adjusting physical properties, such as a basis weight of the nonwoven fabric used for the ear strap 30. For example, the basis weights of the ear straps 30 is preferred to be 20 g/m² or more, is more preferred to be 30 g/m² or more, and is further preferred to be 40 g/m² or more from the aspect of enhancing a cooling effect on the face by heat in evaporation or heat release in association with water evaporation while fitting the cooling bodies 20 on the eyes and/or the areas around the eyes of the wearer as well as achieving pleasant wearability on the ears of the wearer, and the aspect of making the cooling bodies 20 be in a state of further more protruding to the

inner sheet 11 side. The basis weights of the ear straps 30 is preferred to be 100 g/m² or less, is more preferred to be 80 g/m² or less, and is further preferred to be 60 g/m² or less. The basis weights of the ear straps 30 is preferred to be 20 g/m² or more and 100 g/m² or less, is more preferred to be 30 g/m² or more and 80 g/m² or less, and is further preferred to be 40 g/m² or more and 60 g/m² or less.

[0133]

Note that the ear straps 30 are not limited to the above-described planar-shaped (sheet-shaped) ear straps as long as the configuration allows the main body portion 10 to be held in front of the eyes of the wearer, and those usually usable for securing the cooling tool are allowed to be conveniently used. For example, various kinds of configurations, such as rubber cord ear straps or one or a plurality of bands bridged across the two end portions of the first panel portion 10A and the second panel portion 10B in the width direction, are employable. The ear straps 30 are not limited to the configuration of different members bonded on the two end portions of the main body portion 10 in the width direction, and may have a configuration of being formed integrally with the main body portion 10.

[0134]

[Hourly Average Relative Humidity and Hourly Average Temperature]

With the cooling tool 1 including the cooling body 20 having the configuration and the water vapor emission performance as described above, it is possible to maintain

the humidity over a long period of time and to cool the face of the wearer over a long period of time.

[0135]

Specifically, with the cooling tool 1 that uses an air permeable sheet for the inner sheet 11 and have it arranged on the periocular side, and uses a non-air-permeable or low-air-permeable sheet for the outer sheet 12 and have it arranged on the non-periocular side, an hourly average relative humidity (that is, an hourly average relative humidity in a region directly or indirectly not in contact with the cooling body 20) can be maintained 80% or more and 95% or less. An hourly average temperature at a portion of the cooling body 20 that comes directly or indirectly in contact with the eyes of the wearer can be kept at 29.5°C or less.

[0136]

More specifically, the hourly average temperature of the cooling tool 1 is more preferred to be 29.5°C or less, and is further preferred to be 29°C or less. The hourly average relative humidity of the cooling tool 1 is more preferred to be 80% or more and 95% or less, and is further preferred to be 85% or more and 90% or less.

[0137]

[Measuring Method for Temperature and Relative Humidity]

Here, the temperature and the relative humidity are measurable by the following method. That is, a humidity and temperature sensor is disposed on an upper eyelid of a female

human head model (width 151.24 mm, depth 206.82 mm, height 233.01 mm) modeled based on female average human head data (the latest data as of the application) manufactured by Digital Human Technology Inc., and is secured to be immobile with a surgical tape. The cooling tool 1 is installed on the female human head model under an environment with 30°C and 40%RH, and temperature and humidity changes are measured for each 10 seconds. Note that, a humidity and temperature sensor SHT71 (manufactured by Sensirion AG) is usable for the humidity and temperature sensor.

[0138]

[Method for Using Cooling Tool]

Next, a method for using the cooling tool 1 according to the embodiment will be described. In this embodiment, as illustrated in FIG. 7, the cooling body 20 is integrated with the main body portion 10, and therefore, the whole cooling tool 1 is stored in a state of being enclosed in the waterproof packaging body 200. In this storage state, the main body portion 10 is folded at the vertical center line 100 as the center. In this storage state (the state of being enclosed in the packaging body), the water retention layer 22 has already been impregnated with water.

[0139]

First, the wearer opens the packaging body 200 when wearing, and takes out the cooling tool 1 from the packaging body 200. After taking out the cooling tool 1 from the packaging body 200, the wearer opens the main body portion 10 folded in two from the sides of the two end portions in

the width direction, and as illustrated in FIG. 6 (a), pulls the ear strap 30 with the fingers with the main body portion 10 being placed against the eyes and inserts the ear in the ear strap hole 32. Thus hooking the pair of ear straps 30 onto the right and left ears of the wearer allows the main body portion 10 to be held on the face of the wearer so as to maintain the state in which the eyes of the wearer are covered by the main body portion 10 as illustrated in FIG. 6 (b).

[0140]

Note that the cooling tool 1 according to the embodiment has the water retention layer 22 already been impregnated with water in the state of being enclosed in the packaging body 200, it is not necessary to damp it by immersing it in water or the like after taking it out of the packaging body 200. Therefore, the cooling tool 1 can be used only by opening, thus being easily usable. In addition, when only one cooling tool 1 is enclosed in the packaging body 200, hygienic advantages are also provided.

[0141]

At least a part of the cooling bodies 20 comes in contact with the eyes and the areas around the eyes of the wearer in such a state where the eyes of the wearer are covered with the main body portion 10, and thus, heat transfers from the eyes and the areas around the eyes of the wearer to the cooling bodies 20 and the eyes and the areas around the eyes of the wearer are cooled down. In particular, the cooling tool 1 according to the embodiment has the

bending resistance of the inner sheet 11 lower than the bending resistance of the outer sheet 12, which renders the cooling bodies 20 be a protruding state to the periorcular side of the wearer (see FIG. 2), thereby providing both a fit of the cooling bodies 20 on the eyes and the areas around the eyes of the wearer and a cooling effect on a skin at the same time. Therefore, it is possible to cause the wearer to feel a cooling sensation in a more effective manner.

[0142]

When the cooling bodies 20 are warmed by the heat of the eyes and the areas around the eyes of the wearer, the water held in the cooling bodies 20 evaporates and the heat is released from the cooling bodies 20 by heat in evaporation in association with the water evaporation. Furthermore, the heat transfer from the cooling bodies 20 to the external air releases the heat from the cooling bodies 20. Therefore, when the inner sheet 11 and the first sheet 23 are made of air permeable sheets, such heat in evaporation or heat release in association with the water evaporation can be accelerated, and therefore, the cooling effect on the eyes and the areas around the eyes of the wearer can be further enhanced. The cooling tool 1 according to the embodiment has a space formed between the center of the forehead of the wearer and the inner sheet 11 depending on the lengths and the angles of the upper-side slit 15 and the lower-side slit 16 and the arrangement of the cooling bodies 20, thereby being able to cause the wearer to feel a cooling sensation compared with the case where there is no space formed between

the center of the forehead of the wearer and the inner sheet 11 even when the inner sheet 11 and the first sheet 23 are made of a low-air-permeable sheet or a non-air-permeable sheet.

[0143]

Such a cooling mechanism enables the cooling tool 1 according to the embodiment to provide the cooling sensation for the wearer over a long period of time. In particular, the cooling tool 1 according to the embodiment has the bending resistance of the inner sheet 11 lower than the bending resistance of the outer sheet 12 as described above, and thus, while appropriately fitting the cooling bodies 20 on the eyes and the areas around the eyes of the wearer, the space formed between the center of the forehead of the wearer and the inner sheet 11 is able to effectively emit the heat in evaporation, thus being possible to more effectively providing the above-described cooling mechanism. Furthermore, the cooling tool 1 according to the embodiment is to provide the cooling sensation for the wearer by such a cooling mechanism, and therefore, it is not necessary to cool the cooling tool 1 in advance in a refrigerator or the like.

[0144]

[Advantages of Cooling Tool According to Embodiment]

Thus, the cooling tool 1 according to the embodiment is the cooling tool 1 including the main body portion 10 that covers at least the eyes and/or the areas around the eyes on the face of the wearer, and the cooling body 20

disposed in the main body portion 10. The main body portion 10 has the inner sheet 11 that faces a side of the skin of the wearer when worn, and the outer sheet 12 disposed so as to face the inner sheet 11 via the cooling body 20. The cooling body 20 has the water retention layer 22 capable of retaining water. The cooling body 20 is arranged in the main body portion 10 such that at least a part thereof comes in contact with the eyes and/or the areas around the eyes of the wearer via the inner sheet 11 when worn. The bending resistance of the inner sheet 11 is lower than the bending resistance of the outer sheet 12.

[0145]

With the cooling tool 1 including such a configuration, the bending resistance of the inner sheet 11 is lower than the bending resistance of the outer sheet 12, which renders the cooling body 20 be a protruding state to the periorcular side of the wearer (see FIG. 2), and therefore, there are advantages of allowing for an improved fitting performance of the cooling body 20 on the eyes and/or the areas around the eyes of the wearer and allowing for effective evaporative heat dissipation in association with the contact between the eyes and/or the areas around the eyes of the wearer and the cooling body 20. Therefore, the eyes and/or the areas around the eyes of the wearer can be effectively cooled.

[0146]

In the cooling tool 1 according to the embodiment, the main body portion 10 has the vertical center line 100 that divides the main body portion 10 into two in the width

direction, the first panel portion 10A that constitutes one side in the width direction with the vertical center line 100 serving as the border, and the second panel portion 10B that constitutes the other side in the width direction with the vertical center line 100 serving as the border. The cooling bodies 20 are respectively disposed in the first panel portion 10A and the second panel portion 10B. With the cooling tool 1 including such a configuration, at least one each of the cooling bodies 20 is disposed for the right and left eyes of the wearer, and therefore, there are advantages of allowing for an improved fitting performance of the cooling body 20 on the eyes and/or the areas around the eyes of the wearer and allowing for effective evaporative heat dissipation in association with the contact between the eyes and/or the areas around the eyes of the wearer and the cooling body 20.

[0147]

Furthermore, in the cooling tool 1 according to the embodiment, the main body portion 10 has the upper edge portion 13 positioned on the forehead side of the wearer when worn, the lower edge portion 14 positioned on the nose side of the wearer when worn, the upper-side slit 15 formed from the upper edge portion 13 toward the lower edge portion 14 side, and the lower-side slit 16 formed from the lower edge portion 14 toward the upper edge portion 13 side. The upper-side slit 15 and the lower-side slit 16 are formed on the vertical center line 100 that divides the main body portion 10 into two in the width direction. With the cooling

tool 1 including such a configuration, the upper-side slit 15 and the lower-side slit 16 increases the degree of freedom of the movement of the main body portion 10, and therefore, there are advantages of allowing for an improved fitting performance of the cooling body 20 on the eyes and/or the areas around the eyes of the wearer and allowing for effective evaporative heat dissipation in association with the contact between the eyes and/or the areas around the eyes of the wearer and the cooling body 20. When the cooling tool 1 is worn, the space can be formed between the center of the forehead of the wearer and the inner sheet 11, and therefore, there is an advantage of allowing the cooling body 20 to effectively use the evaporative heat dissipation.

[0148]

In the cooling tool 1 according to the embodiment, the lower-side slit 16 is formed to be longer than the upper-side slit 15. With the cooling tool 1 including such a configuration, the lower-side slit 16 have the shape that fits the nose of the wearer, and therefore, there are advantages of allowing for an improved fitting performance of the cooling body 20 on the eyes and/or the areas around the eyes of the wearer and allowing for effective evaporative heat dissipation in association with the contact between the eyes and/or the areas around the eyes of the wearer and the cooling body 20.

[0149]

Furthermore, in the cooling tool 1 according to the embodiment, the lower-side slit 16 is the cutout formed to

be tapered off from the lower edge portion 14 toward the side of the upper edge portion 13. With the cooling tool 1 including such a configuration, the movements of the main body portion 10, such as the movement of the first panel portion 10A and the second panel portion 10B expanding outward in the width direction and the movement of the first panel portion 10A and the second panel portion 10B overlapping inward in the width direction, become further smooth, and therefore, there are advantages of allowing for an improved fitting performance of the cooling body 20 on the eyes and/or the areas around the eyes of the wearer and allowing for effective evaporative heat dissipation in association with the contact between the eyes and/or the areas around the eyes of the wearer and the cooling body 20.

[0150]

The cooling tool 1 according to the embodiment further includes the ear straps 30 that are disposed at the two ends of the main body portion 10 in the width direction, and are able to hold the main body portion 10 on the face of the wearer such that the main body portion 10 covers at least the eyes and/or the areas around the eyes on the face of the wearer. The ear straps 30 are disposed to incline to the lower side of the main body portion 10 when worn with respect to the width direction of the main body portion 10. With the cooling tool 1 including such a configuration, when the ear straps 30 are worn on the ears of the wearer, the main body portion 10 attempts to stretch outward in the width direction by being pulled by the ear straps 30, thereby

adding an appropriate oppressive feeling on the eyes and/or the areas around the eyes of the wearer. Therefore, there are advantages of allowing for an improved fitting performance of the cooling body 20 on the eyes and/or the areas around the eyes of the wearer and allowing for effective evaporative heat dissipation in association with the contact between the eyes and/or the areas around the eyes of the wearer and the cooling body 20.

[0151]

[Modification]

The cooling tool according to the present disclosure is not limited to the above-described embodiment, and can be subject to various kinds of modifications within a range not departing from the technical idea of the present invention.

[0152]

For example, while the above-described embodiment has described that the whole cooling tool 1 is enclosed in the packaging body 200, the configuration is not limited to this, and when the cooling body 20 is not integrated with the main body portion 10 (when it can be added later), the main body portion 10 and the cooling body 20 may be individually packed, or only the cooling body 20 may be packed.

[0153]

While the above-described embodiment has described that the water retention layer 22 retains water in the state where the cooling tool 1 is enclosed in the packaging body 200, the configuration is not limited to this, and the configuration may impregnate the water retention layer 22

with water when the cooling tool 1 is applied.

[0154]

Furthermore, while the above-described embodiment has described that the main body portion 10 has the upper-side slit 15 and the lower-side slit 16, the configuration is not limited to this, and the configuration is allowed to have one of the upper-side slit 15 or the lower-side slit 16 or neither of the upper-side slit 15 nor the lower-side slit 16.

[0155]

While the above-described embodiment has described that the lower-side slit 16 is formed to be longer than the upper-side slit 15, the configuration is not limited to this, and the upper-side slit 15 and the lower-side slit 16 may have the same lengths, or the upper-side slit 15 may be formed to be longer than the lower-side slit 16.

[0156]

Furthermore, while the above-described embodiment has described that the ear strap 30 is disposed to incline to the lower side of the main body portion 10 when worn with respect to the width direction of the main body portion 10, the configuration is not limited to this, and, for example, the ear strap 30 may be disposed along the width direction of the main body portion 10.

[0157]

While the above-described embodiment has described that application of a nonwoven fabric as the material of the inner sheet 11 is preferred, the nonwoven fabric may,

furthermore, has hydrophilicity. That is, a hydrophilic nonwoven fabric may be used as the material of the inner sheet 11. Using the hydrophilic nonwoven fabric as the material of the inner sheet 11 causes the inner sheet 11 to absorb and retain the evaporated water, and therefore, there is an advantage of allowing for an improved cooling sensation provided for the wearer.

[0158]

For the hydrophilic nonwoven fabric, for example, a nonwoven fabric made of hydrophilic fibers, a nonwoven fabric on which a hydrophilic treatment with a hydrophilizing agent has been performed, or the like is usable. The hydrophilic fibers preferably include, for example, cellulose fibers or polyacrylonitrile fibers. Examples of the cellulose fiber include fibers of rayon, lyocell (registered trademark), Tencel (registered trademark), cotton, and the like. The hydrophilic fibers preferably include, for example, cellulose fibers or polyacrylonitrile fibers. These are usable alone or in combination of two or more types. It is also preferred to use hydrophilic synthetic fibers. For the hydrophilic synthetic fibers, it is preferred to use acrylic fibers, polyethylene terephthalate fibers hydrophilized in a treatment with a hydrophilizing agent, such as a fiber oiling agent, polyethylene fibers, polypropylene fibers, or the like. Examples of a method for the hydrophilic treatment include a surface adhesion treatment or kneading with a hydrophilizing agent, or the like. For the hydrophilizing agent, a general surfactant for fiber, a hydrophilic oiling

agent, or the like is usable.

[0159]

Note that, in this description, a nonwoven fabric with hydrophilicity of 1% or more is defined as "the hydrophilic nonwoven fabric." This hydrophilicity is measurable by, for example, the method (1) to (7) below.

(1) A nonwoven fabric sample is placed in an environment with a temperature of 25°C and a humidity of 25% for 24 hours, and is dried.

(2) 100 squares each in a size of 1 cm × 1 cm are drawn on the nonwoven fabric.

(3) The nonwoven fabric sample is secured on a desired frame without the backside surface of the nonwoven fabric sample coming in contact with a workbench. At this time, it is made sure that the nonwoven fabric sample does not sag or stretch.

(4) 3 μ L ion exchanged water is collected with a micropipette and is dripped on the nonwoven fabric sample. One drop is dripped in one square. The time is measured from the first dripping, and the dripping is performed at the pace of one drop per 5 seconds.

(5) When the tenth dripping is finished, the first water droplet is evaluated after 60 seconds from the first dripping, and subsequently, the states of the second and subsequent water droplets are evaluated in order at the pace of one drop per 5 seconds. The evaluations are the following three types, **a** to **c**.

a: water droplet stays in spherical shape

b: water droplet fails to keep spherical shape and spreads on nonwoven fabric

c: water droplet soaks through nonwoven fabric

(6) When evaluation of ten water droplets is finished, the above-described (4) and (5) are repeated for ten times to evaluate a total of a hundred water droplets.

(7) In above-described **a** to **c**, **a** is 0 points, **b** is 0.5 points, and **c** is 1 point. The hydrophilicity is calculated using the following formula with the number of water droplets evaluated as **a** being "A," the number of water droplets evaluated as **b** being "B," and the number of water droplets evaluated as **c** being "C."

Hydrophilicity (%) = $\{(0 \times A + 0.5 \times B + 1 \times C)/100\}$
 $\times 100$
[0160]

It is apparent from the description of the claims that the modifications as described above are included in the scope of the present invention.
[0161]

Regarding the above-described embodiment, the present invention further discloses the following cooling tool.
[0162]

<1>

A cooling tool including:

a main body portion that covers at least eyes and/or areas around the eyes on a face of a wearer; and

a cooling body disposed in the main body portion, wherein

the main body portion includes:

an inner sheet that faces a skin side of the wearer when worn; and

an outer sheet disposed so as to face the inner sheet via the cooling body,

the cooling body includes a water retention layer capable of retaining water, wherein

the cooling body is arranged in the main body portion such that at least a part of the cooling body comes in contact with the eyes and/or the areas around the eyes of the wearer via the inner sheet when worn, and

the inner sheet has a bending resistance lower than a bending resistance of the outer sheet.

[0163]

<2>

The cooling tool according to <1>, wherein

the main body portion includes:

a vertical center line that divides the main body portion into two in a width direction;

a first panel portion that constitutes one side in the width direction with the vertical center line serving as a border; and

a second panel portion that constitutes another side in the width direction with the vertical center line serving as the border, and

the cooling body is disposed in each of the first panel portion and the second panel portion.

<3>

The cooling tool according to <2>, wherein
each separation distance between the vertical center
line and an end portion of the cooling body on a side of the
vertical center line is 5 mm or more and 35 mm or less.

<4>

The cooling tool according to <2> or <3>, wherein
the main body portion is constituted to have a planar
shape in which the first panel portion and the second panel
portion are arranged in parallel in a planar direction when
the first panel portion and the second panel portion are
deployed with the vertical center line serving as a center.

[0164]

<5>

The cooling tool according to any one of <1> to <4>,
wherein

the main body portion includes:

an upper edge portion positioned on a side of a
forehead of the wearer when worn;

a lower edge portion positioned on a side of a
nose of the wearer when worn;

an upper-side slit formed from the upper edge
portion toward a side of the lower edge portion; and

a lower-side slit formed from the lower edge
portion toward a side of the upper edge portion, wherein

the upper-side slit and the lower-side slit are formed
on a vertical center line that divides the main body portion
into two in a width direction.

[0165]

<6>

The cooling tool according to <5>, wherein
the lower-side slit is formed to be longer than the
upper-side slit.

<7>

The cooling tool according to <5> or <6>, wherein
a length of the lower-side slit along a vertical
direction is 150% or more and 750% or less with respect to
a length of the upper-side slit along the vertical direction.

<8>

The cooling tool according to any one of <5> to <7>,
wherein

a length of the upper-side slit along a vertical
direction is 3% or more and 25% or less with respect to a
length of the main body portion along the vertical direction
from the upper edge portion to the lower edge portion.

<9>

The cooling tool according to any one of <5> to <8>,
wherein

a length of the lower-side slit along a vertical
direction is 23% or more and 73% or less with respect to a
length of the main body portion along the vertical direction
from the upper edge portion to the lower edge portion.

[0166]

<10>

The cooling tool according to any one of <5> to <9>,
wherein

the length of the upper-side slit along the vertical

direction is 2 mm or more and 18 mm or less.

<11>

The cooling tool according to any one of <5> to <10>,
wherein

the length of the lower-side slit along the vertical
direction is 15 mm or more and 61 mm or less.

<12>

The cooling tool according to any one of <5> to <11>,
wherein

the length of the lower-side slit along a width
direction is 20% or more and 70% or less with respect to the
length of the lower-side slit along the vertical direction.
[0167]

<13>

The cooling tool according to any one of <5> to <12>,
wherein

the upper-side slit is a cutout formed to be tapered
off from the upper edge portion toward the lower edge side.

<14>

The cooling tool according to any one of <5> to <13>,
wherein

the lower-side slit is a cutout formed to be tapered
off from the lower edge portion toward the upper edge side.

<15>

The cooling tool according to <14>, wherein

the main body portion includes:

a first inner edge portion that inclines from
the lower edge portion on a side of the first panel portion

that constitutes the one side in the width direction with the vertical center line serving as the border toward the vertical center line; and

a second inner edge portion that inclines from the lower edge portion on a side of the second panel portion that constitutes the other side in the width direction with the vertical center line serving as the border toward the vertical center line, wherein

the lower-side slit is a cutout defined by the first inner edge portion and the second inner edge portion, and

an open angle between a first virtual line along the first inner edge portion and a second virtual line along the second inner edge portion is 1° or more and 36° or less.

[0168]

<16>

The cooling tool according to any one of <1> to <15>, further including

ear straps disposed on two ends of the main body portion in the width direction, the ear straps being capable of holding the main body portion on the face of the wearer such that the main body portion covers at least the eyes and/or the areas around the eyes on the face of the wearer, wherein

the ear strap is disposed to incline to a lower side of the main body portion when worn with respect to the width direction of the main body portion.

<17>

The cooling tool according to <16>, wherein

each of the ear straps is bonded on the main body portion via a bonded portion inclined with respect to the vertical direction of the main body portion when worn,

each of third virtual lines along the bonded portions inclines with respect to the vertical center line so as to converge in the lower side of the main body portion when worn with respect to a center of the vertical center line that divides the main body portion into two in the width direction, and

each of the third virtual lines with respect to the vertical center line has an inclination angle of 1° or more and 25° or less.

<18>

The cooling tool according to <16> or <17>, wherein the ear straps each have an ear strap main body and an ear strap hole through which an ear of a wearer is insertable, and

the ear strap main body has a planar shape.

[0169]

<19>

The cooling tool according to any one of <16> to <18>, wherein

the main body portion includes:

a vertical center line that divides the main body portion into two in a width direction;

a first panel portion that constitutes one side in the width direction with the vertical center line serving as a border; and

a second panel portion that constitutes another side in the width direction with the vertical center line serving as the border, wherein

a length of the ear strap in the width direction is as long as lengths of the first panel portion and the second panel portion in the width direction, or is shorter than the lengths of the first panel portion and the second panel portion in the width direction.

<20>

The cooling tool according to <19>, wherein

the length of the ear strap in the width direction is 60% or more and 100% or less with respect to the lengths of the first panel portion and the second panel portion in the width direction.

<21>

The cooling tool according to <19> or <20>, wherein

the length of the ear strap in the width direction is 55 mm or more and 93 mm or less.

[0170]

<22>

The cooling tool according to any one of <16> to <21>, wherein,

the ear strap has a load at 100% extension of 50 g/inch or more and 400 g/inch or less.

<23>

The cooling tool according to any one of <1> to <22>, wherein

the water retention layer has an initial content of

water of 0.04 mL or more and 0.40 mL or less per cm².

<24>

The cooling tool according to any one of claims <1> to <23>, wherein

the bending resistance of the inner sheet is 95% or less with respect to the bending resistance of the outer sheet.

<25>

The cooling tool according to any one of <1> to <24>, wherein

the bending resistance of the inner sheet is 20 mm or more and 90 mm or less.

<26>

The cooling tool according to any one of <1> to <25>, wherein

the bending resistance of the outer sheet is 50 mm or more and 160 mm or less.

[0171]

<27>

The cooling tool according to any one of <1> to <26>, wherein

the cooling body has the facing surface facing the inner sheet whose total area is 3000 mm² or more and 12000 mm² or less.

<28>

The cooling tool according to any one of <1> to <27>, wherein

a total area of a facing surface of the cooling body

facing the inner sheet is 10% or more and 90% or less with respect to a total area of the inner sheet.

<29>

The cooling tool according to any one of <1> to <28>, wherein

the main body portion includes:

a vertical center line that divides the main body portion into two in a width direction;

a first panel portion that constitutes one side in the width direction with the vertical center line serving as a border; and

a second panel portion that constitutes another side in the width direction with the vertical center line serving as the border, wherein

the cooling body is disposed in each of the first panel portion and the second panel portion, and

a total area of a facing surface of the cooling body disposed in the first panel portion facing the first panel portion and a total area of a facing surface of the cooling body disposed in the second panel portion facing the second panel portion are both 1500 mm² or more and 6000 mm² or less.

[0172]

<30>

The cooling tool according to any one of <1> to <29>, wherein

the inner sheet is made of an air permeable sheet.

<31>

The cooling tool according to <30>, wherein

the inner sheet has air permeability rate in a region between at least eyes of a wearer and the water retention layer of 30000 seconds/100 mL or less.

<32>

The cooling tool according to any one of <1> to <31>, wherein

the outer sheet is made of a low-air-permeable sheet or a non-air-permeable sheet.

<33>

The cooling tool according to any one of <1> to <32>, wherein

the inner sheet is made of a moisture-permeable sheet.

<34>

The cooling tool according to <33>, wherein

the inner sheet has moisture permeability of 2000 g/m²·24 hr or more and 12000 g/m²·24 hr or less.

[0173]

<35>

The cooling tool according to any one of <1> to <34>, wherein

the inner sheet is made of a waterproof sheet.

<36>

The cooling tool according to <35>, wherein

the inner sheet has a water resistance level of 300 mm or more.

<37>

The cooling tool according to any one of <1> to <36>, wherein

the cooling body includes:

a first sheet disposed on a periorcular side of a wearer; and

a second sheet disposed so as to face the first sheet via at least the water retention layer, wherein

the first sheet is made of the air permeable sheet.

<38>

The cooling tool according to <37>, wherein

the first sheet has air permeability rate in a region between at least eyes of the wearer and the water retention layer of 350 seconds/100 mL or less.

[0174]

<39>

The cooling tool according to <37> or <38>, wherein

the second sheet is made of a low-air-permeable sheet or a non-air-permeable sheet.

<40>

The cooling tool according to any one of <37> to <39>, wherein

the first sheet is made of a moisture-permeable sheet.

<41>

The cooling tool according to <40>, wherein

the first sheet has moisture permeability in a region between at least eyes of a wearer and the water retention layer of 2000 g/m²·24 hr or more and 12000 g/m²·24 hr or less.

<42>

The cooling tool according to any one of <37> to <41>, wherein

the first sheet is made of a waterproof sheet.

<43>

The cooling tool according to <42>, wherein
the first sheet has a water resistance level in a
region between at least eyes of a wearer and the water
retention layer of 300 mm or more.

<44>

The cooling tool according to any one of <1> to <43>,
wherein

the cooling tool is stored in a state of being enclosed
in a waterproof packaging body, and

the water retention layer retains water in a state
where the cooling tool is enclosed in the packaging body.

<45>

The cooling tool according to any one of <1> to <44>,
wherein

a material of the inner sheet is a hydrophilic nonwoven
fabric.

<46>

The cooling tool according to <45>, wherein
the hydrophilic nonwoven fabric is a nonwoven fabric
having hydrophilicity of 1% or more.

DESCRIPTION OF REFERENCE NUMERAL

[0175]

- 1 Cooling tool
- 10 Main body portion
- 10A First panel portion

10B	Second panel portion
11	Inner sheet
12	Outer sheet
13	Upper edge portion
14	Lower edge portion
15	Upper-side slit
16	Lower-side slit
17	First inner edge portion
18	Second inner edge portion
20	Cooling body
21	Base material layer
22	Water retention layer
23	First sheet
24	Second sheet
30	Ear strap
31	Ear strap main body
31a	Upper side
31b	Lower side
31c	Free edge
31d	Bonded edge
32	Ear strap hole
40	Measurement device
41	Measurement chamber
42	Inflow passage
43	Outflow passage
44	Inlet thermohygrometer
45	Inlet flowmeter
46	Outlet thermohygrometer

47	Outlet flowmeter
48	Thermometer
50	Bonded portion
100	Vertical center line
200	Packaging body

Claims

Claim 1. A cooling tool comprising:

- a main body portion that covers at least eyes and/or areas around the eyes on a face of a wearer; and

- a cooling body disposed in the main body portion, wherein

- the main body portion includes:

- an inner sheet that faces a skin side of the wearer when worn; and

- an outer sheet disposed so as to face the inner sheet via the cooling body, wherein

- the cooling body includes a water retention layer capable of retaining water,

- the cooling body is arranged in the main body portion such that at least a part of the cooling body comes in contact with the eyes and/or the areas around the eyes of the wearer via the inner sheet when worn, and

- the inner sheet has a bending resistance lower than a bending resistance of the outer sheet.

Claim 2. The cooling tool according to claim 1, wherein

- the main body portion includes:

- a vertical center line that divides the main body portion into two in a width direction;

- a first panel portion that constitutes one side in the width direction with the vertical center line serving as a border; and

a second panel portion that constitutes another side in the width direction with the vertical center line serving as the border, and

the cooling body is disposed in each of the first panel portion and the second panel portion.

Claim 3. The cooling tool according to claim 2, wherein each separation distance between the vertical center line and an end portion of the cooling body on a side of the vertical center line is 5 mm or more and 35 mm or less.

Claim 4. The cooling tool according to any one of claims 1 to 3, wherein

the main body portion includes:

an upper edge portion positioned on a side of a forehead of the wearer when worn;

a lower edge portion positioned on a side of a nose of the wearer when worn;

an upper-side slit formed from the upper edge portion toward a side of the lower edge portion; and

a lower-side slit formed from the lower edge portion toward a side of the upper edge portion, wherein

the upper-side slit and the lower-side slit are formed on a vertical center line that divides the main body portion into two in a width direction.

Claim 5. The cooling tool according to claim 4, wherein the lower-side slit is formed to be longer than the

upper-side slit.

Claim 6. The cooling tool according to claim 4 or 5, wherein

a length of the upper-side slit along a vertical direction is 3% or more and 25% or less with respect to a length of the main body portion along the vertical direction from the upper edge portion to the lower edge portion.

Claim 7. The cooling tool according to any one of claims 4 to 6, wherein

a length of the lower-side slit along a vertical direction is 23% or more and 73% or less with respect to a length of the main body portion along the vertical direction from the upper edge portion to the lower edge portion.

Claim 8. The cooling tool according to any one of claims 4 to 7, wherein

the lower-side slit is a cutout formed to be tapered off from the lower edge portion toward the upper edge side.

Claim 9. The cooling tool according to claim 8, wherein the main body portion includes:

a first inner edge portion that inclines from the lower edge portion on a side of the first panel portion that constitutes the one side in the width direction with the vertical center line serving as the border toward the vertical center line; and

a second inner edge portion that inclines from the lower edge portion on a side of the second panel portion that constitutes the other side in the width direction with the vertical center line serving as the border toward the vertical center line, wherein

the lower-side slit is a cutout defined by the first inner edge portion and the second inner edge portion, and

an open angle between a first virtual line along the first inner edge portion and a second virtual line along the second inner edge portion is 1° or more and 36° or less.

Claim 10. The cooling tool according to any one of claims 1 to 9, further comprising

ear straps disposed on two ends of the main body portion in the width direction, the ear straps being capable of holding the main body portion on the face of the wearer such that the main body portion covers at least the eyes and/or the areas around the eyes on the face of the wearer, wherein

the ear strap is disposed to incline to a lower side of the main body portion when worn with respect to the width direction of the main body portion.

Claim 11. The cooling tool according to claim 10, wherein

each of the ear straps is bonded on the main body portion via a bonded portion inclined with respect to the vertical direction of the main body portion when worn,

each of third virtual lines along the bonded portions

inclines with respect to the vertical center line so as to converge in the lower side of the main body portion when worn with respect to a center of the vertical center line that divides the main body portion into two in the width direction, and

each of the third virtual lines with respect to the vertical center line has an inclination angle of 1° or more and 25° or less.

Claim 12. The cooling tool according to any one of claims 1 to 11, wherein

the water retention layer has an initial content of water of 0.04 mL or more and 0.40 mL or less per cm².

Claim 13. The cooling tool according to any one of claims 1 to 12, wherein

the bending resistance of the inner sheet is 95% or less with respect to the bending resistance of the outer sheet.

Claim 14. The cooling tool according to any one of claims 1 to 13, wherein

the bending resistance of the inner sheet is 20 mm or more and 90 mm or less.

Claim 15. The cooling tool according to any one of claims 1 to 14, wherein

the bending resistance of the outer sheet is 50 mm or

more and 160 mm or less.

Claim 16. The cooling tool according to any one of claims 1 to 15, wherein

the cooling body has the facing surface facing the inner sheet whose total area is 3000 mm² or more and 12000 mm² or less.