

DESCRIPTION

Title of Invention: **FACE MASK FOR COMBINED USE WITH SANITARY MASK**

Technical Field

[0001]

The present invention relates to a face mask for combined use with a sanitary mask.

Background Art

[0002]

Sanitary masks have been widely used to protect against hay fever and prevent colds. Recently, the use of a sanitary mask has become indispensable as a measure to prevent infection with the novel coronavirus.

However, when a sanitary mask is continuously worn, the covered area of the face, particularly the cheek area, comes into contact with and rubs against the sanitary mask over a long period of time, thus causing the skin to lose moisture and become dry, which condition is called "mask irritation" and has become a problem. This "mask irritation" is caused by the following mechanism: accumulation of exhaled air in the mask increases humidity to make the keratin on the skin surface swollen, and when the mask is removed, even moisture to be stored evaporates to make the skin dry. When this happens, the skin loses its barrier function to become susceptible to ultraviolet rays, pollen, bacteria, etc., and

this can be a major cause of skin problems.

[0003]

The use of a cosmetic face mask is known as a measure against dry skin, and various cosmetic face masks have been proposed (for example, PTLs 1 and 2). Since moisturization of the skin is the first important step to solve the skin problems caused by "mask irritation", the use of a cosmetic face mask is an effective means.

However, considering the frequency of wearing sanitary masks, it is necessary to increase the frequency of using cosmetic face masks as well, but since it is difficult to perform living activities such as walking and talking while a cosmetic face mask is attached to the face, it is difficult to secure time to use cosmetic face masks, thus resulting in that the frequency of using cosmetic face masks cannot be increased.

Under such circumstances, there is a demand for simple measures that can solve "mask irritation" caused by wearing a sanitary mask.

Citation List

Patent Literature

[0004]

PTL 1: Japanese Unexamined Patent Application
Publication No. 2003-135146

PTL 2: Japanese Unexamined Patent Application

Publication No. 2003-199619

Summary of Invention

Technical Problem

[0005]

An object of the present invention is to provide a face mask for combined use with a sanitary mask. The face mask produces a moisturizing effect as a measure against dry skin problems such as "mask irritation" while a sanitary mask is worn and further does not bring a feeling of strangeness if worn when going out.

Solution to Problem

[0006]

As a result of intensive studies to solve the above problems, the present inventors have found that when a cosmetic sheet which is excellent in stretchability and in which a resin film is laminated on one surface of a nonwoven fabric is provided with openings at positions where a nose, a mouth, and ears are located when worn, there is no feeling of strangeness in appearance if a sanitary mask is worn over the sheet, and if the nonwoven fabric is impregnated with a moisturizing cosmetic product, the resin film does not allow the moisturizing cosmetic product to adhere to the sanitary mask, thereby solving the above problems.

[0007]

Specifically, the gist of the present invention is as

follows.

1. A face mask for combined use with a sanitary mask includes

a cosmetic sheet in which a nonwoven fabric (A) and a resin film (B) are laminated with each other

such that part of fibers constituting the nonwoven fabric (A) is included inside the resin film (B).

The face mask has openings at least at positions where a nose, a mouth, and ears are located when worn.

2. In the face mask for combined use with a sanitary mask according to 1., the cosmetic sheet is subjected to a load of 0.75 to 3.5 N/25 mm at 50% elongation.

3. In the face mask for combined use with a sanitary mask according to 1. or 2., the nonwoven fabric (A) and the resin film (B) satisfy requirements below.

[Requirements]

(A): A nonwoven fabric containing heat-fusible fibers and having a transverse tensile elongation and a longitudinal tensile elongation in a ratio (transverse tensile elongation/longitudinal tensile elongation) of 1 to 5. (B): A resin film containing 60 to 80 mass% of a thermoplastic elastomer and 20 to 40 mass% of a thermoplastic resin and having a thickness of 5 to 15 μm , the thermoplastic resin being polyethylene or polypropylene. 4. In the face mask for combined use with a sanitary mask according to 3., in the

cosmetic sheet, the thermoplastic resin is low-density polyethylene. Advantageous Effects of Invention [0008]

Since a cosmetic sheet in which a resin film is laminated on one surface of a nonwoven fabric is provided with openings at positions where a nose, a mouth, and ears are located when worn, the face mask for combined use with a sanitary mask according to the present invention does not bring a feeling of strangeness in appearance if a sanitary mask is worn over the face mask, does not cause difficulty in breathing and allows conversation without any problem, and can be used during normal daily-life hours.

The face mask for combined use with a sanitary mask according to the present invention can prevent "mask irritation" due to wearing of a sanitary mask and can also produce a lift-up effect by using a nonwoven fabric excellent in stretchability.

When the nonwoven fabric is impregnated with a moisturizing cosmetic product, the face mask for combined use with a sanitary mask according to the present invention can quickly improve the conventional "mask irritation" due to wearing of a sanitary mask through an occlusion effect. Moreover, the resin film laminated on the nonwoven fabric does not allow the moisturizing cosmetic product to adhere to the sanitary mask, which is useful.

Brief Description of Drawings

[0009]

[Fig. 1] Fig. 1 is a perspective view of a face mask portion of a face mask for combined use with a sanitary mask according to one embodiment of the present invention.

[Fig. 2] Fig. 2 is a front view of the face mask portion of the face mask for combined use with a sanitary mask according to one embodiment of the present invention.

[Fig. 3] Fig. 3 shows a front photograph (left) and a side photograph (right) of a mannequin wearing a face mask for combined use with a sanitary mask according to the present invention.

[Fig. 4] Fig. 4 shows a front photograph of a mannequin wearing a face mask for combined use with a sanitary mask according to the present invention and a sanitary mask.

Reference Signs List

[0010]

1: Face mask of face mask for combined use with sanitary mask according to present invention

2: Openings at positions where ears are located when worn

3: Opening at position where nose and mouth are located when worn

Description of Embodiments

[0011]

The present invention is an invention related to a face mask for combined use with a sanitary mask. The face mask includes a cosmetic sheet in which a nonwoven fabric (A) and a resin film (B) are laminated with each other such that part of fibers constituting the nonwoven fabric (A) is included inside the resin film (B), and the face mask has openings at least at positions where a nose, a mouth, and ears are located when worn.

The face mask for combined use with a sanitary mask according to the present invention is used with the nonwoven fabric (A) facing the inner side (the side in contact with the skin).

The present invention will now be described in detail.

[0012]

<Cosmetic sheet>

In the cosmetic sheet in the present invention, the nonwoven fabric (A) and the resin film (B) are laminated with each other, and at the time of the lamination, part of the fibers constituting the nonwoven fabric (A) is included inside the resin film (B).

The cosmetic sheet in such a form can be obtained, for example, as follows: using a nonwoven fabric containing heat-fusible fibers as the nonwoven fabric (A) and a film containing a thermoplastic elastomer as the resin film (B), the nonwoven fabric (A) and the resin film (B) are laminated

with each other while being heated, whereby the heat-fusible fibers contained in the nonwoven fabric (A) and the resin film (B) are fused and integrated.

[0013]

Since the nonwoven fabric (A) and the resin film (B) are laminated with each other such that part of the fibers constituting the nonwoven fabric (A) is included inside the resin film (B), the cosmetic sheet in the present invention is excellent in stretchability and conformity between the nonwoven fabric and the film and is also excellent in lift-up effect.

The load at 50% elongation of the cosmetic sheet in the present invention is preferably in the range of 0.75 to 3.5 N/25 mm, more preferably in the range of 0.75 to 3 N/25 mm, still more preferably in the range of 0.75 to 2.5 N/25 mm. When this cosmetic sheet is used for the face mask for combined use with a sanitary mask according to the present invention, the effect of being able to pull up the cheeks and facial line of a human face with moderate force is produced.

The elongation percentage after 50% elongation of the cosmetic sheet in the present invention is preferably 20% or less. When this cosmetic sheet is used for the face mask for combined use with a sanitary mask according to the present invention, the effect of being able to keep pulling

up the human face along the cheeks and facial line is produced.

[0014]

As the fibers constituting the nonwoven fabric (A), heat-fusible fibers are preferably used, and heat-infusible fibers may be contained to the extent that the object of the present invention is not interfered with.

Examples of heat-infusible fibers include rayon fibers, cotton, pulp, hemp, aromatic polyamide fibers, phenol fibers, carbon fibers, ceramic fibers, and metal fibers, but the present invention is not limited to these examples only. These heat-infusible fibers may be used alone or in combination of two or more. Among these heat-infusible fibers, from the viewpoint of imparting moderate strength and stretchability to the cosmetic sheet in the present invention, rayon fibers, cotton, and pulp are preferred, rayon fibers and cotton are more preferred, and rayon fibers are still more preferred.

From the viewpoint of firmly fusing and integrating the nonwoven fabric (A) and the resin film (B), the content of the heat-fusible fibers suitable as the fibers constituting the nonwoven fabric (A) in the entire nonwoven fabric (A) is preferably 10 mass% or more, more preferably 15 mass% or more, still more preferably 20 mass% or more, and the upper limit thereof is 100 mass%.

[0015]

The fiber length and fineness of the fibers constituting the nonwoven fabric (A) are not particularly limited. Typically, the fiber length is preferably about 20 to 100 mm, more preferably about 40 to 80 mm, and the fineness is preferably about 1 to 30 deniers, more preferably about 3 to 10 deniers. The fibers constituting the nonwoven fabric may include, for example, short fibers having a fiber length of preferably about 0.5 to 20 mm, more preferably about 1 to 15 mm, to the extent that the object of the present invention is not interfered with.

From the viewpoint of imparting moderate strength and stretchability to the cosmetic sheet in the present invention, the basis weight of the nonwoven fabric (A) is preferably 5 to 200 g/m², more preferably 10 to 180 g/m², still more preferably 20 to 150 g/m², yet still more preferably 30 to 100 g/m².

Examples of the method for producing the nonwoven fabric (A) include, but are not limited to, known production methods such as needlepunching, hydroentangling, spunbonding, meltblowing, wet papermaking, and high-pressure steam entangling.

[0016]

From the viewpoint of pulling up the cheeks and facial line of a human face with moderate force and maintaining the

pulled-up state, the nonwoven fabric (A) is preferably easily stretchable in one direction.

In general, the direction of elongation of a nonwoven fabric includes a longitudinal direction and a transverse direction. Generally, the longitudinal direction of elongation of a nonwoven fabric refers to a machine direction of the nonwoven fabric in the production of the nonwoven fabric, and the transverse direction of elongation of a nonwoven fabric refers to a direction perpendicular to the machine direction of the nonwoven fabric. From the viewpoint of pulling up the cheeks and facial line of a human face with moderate force and maintaining the pulled-up state, the nonwoven fabric (A) in the present invention is preferably a nonwoven fabric easily stretchable in one direction and is preferably used such that the transverse direction of the nonwoven fabric and the transverse direction of the human face are the same.

[0017]

From the viewpoint of pulling up the cheeks and facial line of a human face with moderate force and maintaining the pulled-up state, the longitudinal tensile elongation and the transverse tensile elongation of the nonwoven fabric (A) are preferably 40% to 110% (longitudinal) and 120% to 220% (transverse), more preferably 45% to 105% (longitudinal) and 125% to 215% (transverse), respectively.

The tensile elongation of the nonwoven fabric (A) is determined in accordance with "6.3.1" of JIS L 1913 (2010). More specifically, the longitudinal and transverse tensile elongations of the nonwoven fabric (A) are each determined as follows: three rectangular test pieces of 50 mm × 150 mm are cut out from the nonwoven fabric (A), and using a tensile tester, the test pieces were measured for their elongation at break at a tensile speed of 300 mm/min with their initial length (test piece length) set to 100 mm to determine tensile elongations (ratios of elongated lengths to the original length), and the tensile elongations of the three test pieces are averaged to determine the tensile elongation of the nonwoven fabric (A).

From the viewpoint of pulling up the cheeks and facial line of a human face with moderate force and maintaining the pulled-up state, the ratio between the transverse tensile elongation and the longitudinal tensile elongation (transverse tensile elongation/longitudinal tensile elongation) of the nonwoven fabric (A) is preferably 1 to 5, more preferably 1.5 to 3.5, still more preferably 2 to 3.

The nonwoven fabric easily stretchable in either the longitudinal direction or the transverse direction is commercially readily available. Examples thereof include the product number DFS (SH) R5-50 (longitudinal tensile elongation: 70% ± 25%, transverse tensile elongation: 170% ±

45%) and the product number DFS (SH) R5-70 (longitudinal tensile elongation: $80\% \pm 25\%$, transverse tensile elongation: $170\% \pm 45\%$) manufactured by Daiwabo Polytec Co., Ltd., but the present invention is not limited to these examples only.

[0018]

<Resin film (B)>

The resin film (B) in the present invention is laminated with the nonwoven fabric (A) such that part of the fibers constituting the nonwoven fabric (A) is included inside the resin film (B). In a preferred embodiment, the resin film (B) containing a thermoplastic elastomer is fused and integrated with the heat-fusible fibers included in the nonwoven fabric (A) to thereby form the cosmetic sheet in the present invention. The cosmetic sheet in the present invention is excellent in stretchability and conformity between the nonwoven fabric (A) and the resin film (B), and in this preferred embodiment, an excellent lift-up effect can also be produced.

[0019]

Examples of the thermoplastic elastomer include polyolefin elastomers such as polyethylene elastomers, polypropylene elastomers, ethylene-propylene elastomers, and ethylene-octene elastomers, polyurethane elastomers, polystyrene elastomers, polyester elastomers, polyamide

elastomers, and vinyl chloride resin elastomers. These elastomers may be used alone or in combination of two or more. Among the elastomers, from the viewpoint of providing a cosmetic sheet excellent in stretchability, conformity between the nonwoven fabric and the film, and lift-up effect, polyolefin elastomers are preferred, polyethylene elastomers, ethylene-propylene elastomers, and ethylene-octene elastomers are more preferred, and polyethylene elastomers and ethylene-octene elastomers are still more preferred. These polyolefin elastomers may be used alone or in combination.

The resin film (B) containing a thermoplastic elastomer may be composed only of the thermoplastic elastomer or may be composed of a mixture of the thermoplastic elastomer and a thermoplastic resin.

[0020]

Examples of the thermoplastic resin include polyolefin resins such as polyethylenes including low-density polyethylene, medium-density polyethylene, and high-density polyethylene, polypropylene, ethylene-propylene copolymers, ethylene-butene copolymers, ethylene-pentene copolymers, ethylene-hexene copolymers, propylene-butene copolymers, propylene-pentene copolymers, propylene-hexene copolymers, ethylene-vinyl acetate copolymers, and ethylene-(meth)acrylic acid copolymers; styrene resins such as

polystyrene and acrylonitrile-butadiene-styrene copolymers (ABS resins); polyamide resins such as 6-nylon, 66-nylon, and 12-nylon; polyamide-imide; polyurethane; polyimide; polyetherimide; acrylic resins; vinyl chloride resins; polyester resins such as polyethylene terephthalate and polybutylene terephthalate; and polycarbonates such as bisphenol A polycarbonate. These thermoplastic resins may be used alone or in combination of two or more. Among these thermoplastic resins, from the viewpoint of imparting moderate strength and stretchability to the cosmetic sheet of the present invention, polyolefin resins such as polyethylene and polypropylene are preferred, and low-density polyethylene is more preferred.

[0021]

From the viewpoint of providing a cosmetic sheet that is excellent in stretchability and conformity between the nonwoven fabric (A) and the resin film (B) and is also excellent in lift-up effect, the content of the thermoplastic elastomer in the resin film (B) is preferably 10 mass% or more, more preferably 20 mass% or more, still more preferably 30 mass% or more, yet still more preferably 40 mass% or more, and the content of the thermoplastic resin in the resin film (B) is preferably 90 mass% or less, more preferably 80 mass% or less, still more preferably 70 mass% or less, yet still more preferably 60 mass% or less. From

the viewpoint of providing a cosmetic sheet that is excellent in stretchability and conformity between the nonwoven fabric and the film and is also excellent in lift-up effect, the content of the thermoplastic elastomer in the resin film (B) is preferably 100 mass% or less, more preferably 95 mass% or less, still more preferably 90 mass% or less, and the content of the thermoplastic resin in the film is preferably 0 mass% or more, more preferably 5 mass% or more, still more preferably 10 mass% or more.

[0022]

From the viewpoint of imparting moderate strength, flexibility, and stretchability to the cosmetic sheet in the present invention, the thickness of the resin film (B) is preferably 1 to 50 μm , more preferably 3 to 30 μm , still more preferably 5 to 15 μm .

The resin film (B) can be produced by, for example, heating and melting a thermoplastic elastomer and an optional thermoplastic resin as raw materials, and subjecting the resulting melt to extrusion molding using a T-die or the like.

[0023]

<Lamination>

The nonwoven fabric (A) and the resin film (B) can be laminated with each other by any known method. Examples of preferred methods include a method in which the resin film

(B) containing a thermoplastic elastomer in a hot-molten state freshly extruded from an extruder or the like and the nonwoven fabric (A) are integrated (extrusion lamination), and a method in which the nonwoven fabric (A) and the resin film (B) containing a thermoplastic elastomer are separately prepared, and the nonwoven fabric (A) in which heat-fusible fibers are heated and melted and the resin film (B) in a molten state or a non-molten state, preferably in a molten state, are laminated with each other and hot-pressed to be integrated. In the present invention, an anchoring effect can be produced by embedding part of the fibers constituting the nonwoven fabric (A) inside the resin film (B), and, in addition, the fibers and the resin film (B) can be firmly bonded together by softening or melting the fibers constituting the nonwoven fabric with heat of the resin film (B) so that the softened or melted fibers and other fibers constituting the nonwoven fabric (A) are further welded together. For example, from the viewpoint of providing a cosmetic sheet in which the nonwoven fabric (A) and the resin film (B) conform to each other and do not readily delaminate even when the cosmetic sheet in the present invention is elongated by 50%, it is preferable to laminate the nonwoven fabric (A) and the resin film (B) with each other by, for example, integrating the resin film (B) containing a thermoplastic elastomer in a hot-molten state

freshly extruded from an extruder or the like with the nonwoven fabric. When the resin film (B) and the nonwoven fabric (A) are integrated as described above, the cosmetic sheet in the present invention has the advantage of being excellent in stretchability and lift-up effect.

[0024]

<Cosmetic sheet>

The cosmetic sheet in the present invention is less likely to experience delamination of the nonwoven fabric (A) and the resin film (B) when stretched because the nonwoven fabric (A) and the resin film (B) are fused and integrated. In a preferred embodiment, since the resin film (B) containing a thermoplastic elastomer is excellent in stretchability, the cosmetic sheet has excellent characteristics of being excellent in stretchability and also having a small elongation percentage after 50% elongation. In particular, when the nonwoven fabric (A) and the resin film (B) are laminated with each other by extrusion lamination, the cosmetic sheet in the present invention is even less likely to experience delamination of the nonwoven fabric (A) and the resin film (B) when stretched because the nonwoven fabric (A) and the resin film (B) can be firmly bonded together, and in a preferred embodiment, since the resin film (B) containing a thermoplastic elastomer is excellent in stretchability, the

cosmetic sheet has excellent characteristics of being excellent in stretchability and also having a small elongation percentage after 50% elongation.

From the viewpoint of providing a cosmetic sheet excellent in stretchability and conformity between the nonwoven fabric (A) and the resin film (B) and also excellent in lift-up effect, the basis weight of the cosmetic sheet in the present invention is preferably about 10 to 250 g/m², more preferably about 15 to 200 g/m², still more preferably about 20 to 150 g/m², yet still more preferably about 25 to 120 g/m².

From the viewpoint of providing a cosmetic sheet excellent in stretchability and conformity between the nonwoven fabric (A) and the resin film (B) and also excellent in lift-up effect, the load at 50% elongation of the cosmetic sheet in the present invention is preferably 0.75 to 3.5 N/25 mm, more preferably 0.75 to 3 N/25 mm, even more preferably 0.75 to 2.5 N/25 mm, still more preferably 0.8 to 2.3 N/25 mm, yet still more preferably 0.9 to 2.2 N/25 mm.

The phrase "at 50% elongation of the cosmetic sheet" means "when a sheet having a length of 100 mm is elongated to 150 mm", and the unit "N/25 mm" means a stress (N) required to elongate a sheet having a width of 25 mm by 50%. The load at 50% elongation of the cosmetic sheet means an

average value of loads at 50% elongation of three test pieces, the load at 50% elongation of each test piece being measured as follows: after a test piece is impregnated with water in an amount 10 times the mass of the test piece, the test piece is elongated using a universal material testing machine (manufactured by Instron, Model 5582) at a chuck width of 100 mm and a tensile speed of 500 mm/min in an atmosphere at room temperature (about 23°C), and the load at 50% elongation is measured.

[0025]

From the viewpoint of providing a cosmetic sheet excellent in stretchability and conformity between the nonwoven fabric (A) and the resin film (B) and also excellent in lift-up effect, the elongation percentage after 50% elongation of the cosmetic sheet in the present invention is preferably 20% or less, more preferably 15% or less, and from the viewpoint of providing a cosmetic sheet excellent in lift-up effect, the elongation percentage after 50% elongation is preferably 7% or more, more preferably 7.5% or more, still more preferably 8% or more. The elongation percentage after 50% elongation of the cosmetic sheet in the present invention means an average value of loads at 50% elongation of three test pieces, the load at 50% elongation of each test piece being measured as follows: after a test piece is impregnated with water with a mass 10

times the mass of the test piece, the test piece is elongated using a universal material testing machine (manufactured by Instron, Model 5582) at a chuck width of 100 mm and a tensile speed of 500 mm/min in an atmosphere at room temperature (about 23°C), and the load at 50% elongation is measured.

[0026]

<Openings>

The face mask for combined use with a sanitary mask according to the present invention has openings at least at positions where a nose, a mouth, and ears are located when worn. The opening at a position where a nose and a mouth are located when worn may be a single common opening for the nose and the mouth or may be openings in which the nose and the mouth are independent from each other.

The shapes of the openings are not particularly limited. The openings at positions where ears are located when worn preferably have a shape that allows the entire ear to be exposed, such as a semicircular shape or an elliptical shape, so that the face mask can be hung over the ears similarly to a sanitary mask. The position where a nose and a mouth are located when worn preferably has a shape that does not cause difficulty in breathing and allows conversation without any trouble in both cases of a single common opening for the nose and the mouth and openings in

which the nose and the mouth are independent from each other. For example, in the case of a single common opening for the nose and the mouth, the opening is substantially triangular, and in the case of openings in which the nose and the mouth are independent from each other, the opening at the nose is preferably substantially triangular, and the opening at the mouth is preferably elliptic.

Figs. 1 and 2 show a perspective view and a front view, respectively, of a face mask portion of a face mask for combined use with a sanitary mask according to one embodiment of the present invention. Referring to Fig. 2, a face mask 1 of the face mask for combined use with a sanitary mask according to the present invention is configured such that two openings 2 at positions where ears are located when worn are substantially semicircular and an opening 3 at a position where a nose and a mouth are located when worn is substantially triangular as a single common opening. Since the upper side and the lower side of the face mask 1 in Fig. 2 correspond to the top and bottom of the face mask during wearing, when putting on the face mask, the wearer can place the root of the nose at an upper portion of the opening 3 and pass the ears through the two openings 2 to wear the face mask for combined use with a sanitary mask according to the present invention.

[0027]

The openings in the face mask for combined use with a sanitary mask according to the present invention can be formed by cutting and punching a cosmetic sheet in which the nonwoven fabric (A) and the resin film (B) are laminated with each other.

Specifically, the openings can be formed by hollowing means such as a Thomson blade or an engraving blade or various physical means such as high-pressure fluid treatment or laser cutting.

[0028]

The nonwoven fabric (A) of the cosmetic sheet in the present invention may be impregnated with a cosmetic liquid as needed. Examples of active ingredients contained in the cosmetic liquid include ingredients that impart flexibility to the skin, ingredients that impart moisture retention properties, nutritional ingredients, and medicinal ingredients, but the present invention is not limited to these examples only. The cosmetic liquid is in the form of, for example, aqueous solution, emulsion, oil, or cream.

Any cosmetic liquid may be used as long as it contains an ingredient effective in preventing or improving wrinkles and sagging. The active ingredient may be any ingredient that has an activating effect on skin cells, and examples thereof include mucopolysaccharides, collagen, elastin, ribonucleic acids and salts thereof, deoxyribonucleic acids

and salts thereof, α - and γ -linolenic acids, xanthine and derivatives thereof (e.g., caffeine), amino acids and derivatives thereof (e.g., serine, glutamic acid, theanine, hydroxyproline, and pyrrolidonecarboxylic acid), docosaheptaenoic acid and derivatives thereof, eicosapentaenoic acid and derivatives thereof, citric acid, lactic acid, malic acid, succinic acid, extracts of plants such as almond, apricot (apricot kernel), ginkgo, amur corktree (phellodendron bark), barley (malt), kiwi fruit, cucumber, burdock, prince's feather, shiitake mushroom, field horsetail, swertia herb, soybean, jujube (zizyphi fructus), pennywort, capsicum, calendula, tomato, garlic, carrot, tuckahoe, grape seed, beech tree, beech bud, peach, eucalyptus, lily, lettuce, lemon, rosemary, and malt root, animal-derived extracts (e.g., mollusk extract such as cephalopod ink, seashell extract, shellfish meat extract, fish meat extract, fish skin extract, cockscomb extract, royal jelly, silk protein and degradation products thereof, placenta extract, deproteinized serum extract, and lactoferrin and degradation products thereof), yeast extract, microbial fermentation metabolites (derived from lactic acid bacteria and bifidobacteria), and ganoderma extract. It is preferable to contain one or more ingredients selected from this group.

The amount of active ingredient blended in the cosmetic

liquid is preferably about 0.001 mass% to 3 mass% relative to the amount of the cosmetic liquid from the viewpoint of effectiveness and economic efficiency.

In addition to the above active ingredients, a natural polymeric substance such as sodium alginate, xanthan gum, aluminum silicate, quince seed extract, tragacanth gum, starch, collagen, or sodium hyaluronate; a semisynthetic polymeric substance such as methylcellulose, hydroxyethylcellulose, carboxymethylcellulose, soluble starch, or cationized cellulose; a synthetic polymeric substance such as carboxyvinyl polymer or polyvinyl alcohol; or the like may be blended as a thickener.

In addition, vitamins, whitening agents, surfactants, moisturizers, pH adjusters, bactericides, antiseptics, keratolytic agents, antioxidants, perfumes, dyes, ultraviolet absorbers, pigments, and the like may be blended as appropriate.

Specifically, for example, 1,3-butylene glycol, glycerol, and water may be contained in an amount of 95 to 99 mass% relative to the total amount of the cosmetic liquid, and active ingredients known to be added to cosmetics, such as citric acid (salts), niacinamide, xanthan gum, hyaluronic acid (salts), hydrolyzed collagen, ascorbyl tetrahexyldecanoate, bis-ethoxydiglycol cyclohexane-1,4-dicarboxylate, ethanol, phenoxyethanol, tocopherol acetate,

tocopherol, EDTA-2Na, methylparaben, propylparaben, plant extracts such as morus alba root bark extract, saxifrage extract, passion fruit extract, and mandarin orange peel extract, (glycerylamidoethyl methacrylate/stearyl methacrylate) copolymer, and polyglyceryl-10 laurate, may be blended as other ingredients.

[0029]

A sanitary mask in the present invention may be any of planar flat type, pleated type, which is the mainstream of nonwoven fabric-type masks, or three-dimensional type shaped in conformance with a face line, as long as it is mainly made of a woven and knitted fabric or nonwoven fabric of natural fibers or chemical fibers and is shaped to cover a mouth and a nose. Specific examples include commercially available products such as three-layered pleated type masks made of nonwoven fabrics, masks made of fabrics such as gauze, and three-dimensional type masks made of urethane. Among them, three-layered pleated type masks made of nonwoven fabrics are suitable in that they can cover the entire face mask for combined use with a sanitary mask according to the present invention.

EXAMPLES

[0030]

Hereinafter, the present invention will be described with reference to Examples, but the technical scope of the

present invention is not limited by these Examples.

[0031]

<Production of face mask for combined use with sanitary mask>

On one surface of a nonwoven fabric (heat-fusible fibers: split fibers of polyethylene, heat-fusible fiber content: 24.5 mass%, manufactured by Daiwabo Polytec Co., Ltd., trade name: DFS (SH) R5-50, basis weight: 50 g/m²) composed of 40 mass% of rayon fibers and 60 mass% of a mixture of polyethylene terephthalate (PET) and polyethylene (PE), a resin component composed of 20 mass% of low-density polyethylene (manufactured by Tosoh Corporation, trade name: PETROTHENE 212) and 80 mass% of an ethylene-octene elastomer (manufactured by DuPont Dow Elastomers Japan, trade name: ENGAGE) was extrusion-laminated to obtain a cosmetic sheet in which a resin film having a thickness of 6 μm was formed on the surface of the nonwoven fabric. The cosmetic sheet obtained was observed to confirm that part of the fibers constituting the nonwoven fabric of the cosmetic sheet was included inside the resin film.

This cosmetic sheet was cut, and portions to be openings 2 and 3 shown in Figs. 1 and 2 were punched to obtain a face mask for combined use with a sanitary mask according to the present invention.

[0032]

<Confirmatory evaluation test on moisture retention improving effect>

For the moisture retention of cheeks during wearing provided by using the face mask for combined use with a sanitary mask according to the present invention in combination with a sanitary mask, a sensory evaluation test was performed.

(Materials used)

The materials used are as follows.

Mask A: a three-layered pleated type sanitary mask made of a nonwoven fabric (commercially available product, made of a meltblown nonwoven fabric, 9.5 cm × 17.5 cm)

Face mask B: a face mask obtained by forming a nonwoven fabric (manufactured by Daiwabo Polytec Co., Ltd., trade name: DFS (SH) R5-70, basis weight: 70 g/m²) into the same shape as the face mask for combined use with a sanitary mask obtained in "Production of face mask for combined use with sanitary mask" above

Combined-use face mask C: the face mask for combined use with a sanitary mask obtained in "Production of face mask for combined use with sanitary mask" above

Cosmetic liquid D: a cosmetic liquid which contains 1,3-butylene glycol, glycerol, and water in an amount of 98.8 mass% relative to the total amount of the cosmetic liquid and in which 1.2 mass% of active ingredients known to

be added to cosmetics are blended

[0033]

(Test method)

Five expert panelists each wore the face mask B and the combined-use face mask C each impregnated with 8 g of the cosmetic liquid D in the combinations shown in Table 1 below, and the moisturized feeling on cheeks at 10 minutes, 30 minutes, and 60 minutes after the start of wearing was evaluated according to the following evaluation criteria.

[Evaluation criteria for moisturized feeling]

Score 5: Feels very moisturized

Score 4: Feels moisturized

Score 3: Normal

Score 2: Slightly lacks moisturized feeling

Score 1: Lacks moisturized feeling

The combinations of the materials, together with average panelists' evaluation values at 10 minutes, 30 minutes, and 60 minutes after the start of wearing, are shown in Table 1.

In Table 1, "A" means that only the mask A was worn, "B" means that only the face mask B was worn, "C" means that only the combined-use face mask C was worn, "A + B" means that the face mask B was worn and the mask A was worn thereon, and "A + C" means that the combined-use face mask C was worn and the mask A was worn thereon.

[0034]

[Table 1]

Combination	Results of evaluation of moisture retention		
	After 10 minutes	After 30 minutes	After 60 minutes
A	2.0	1.4	1.2
B	3.0	1.6	1.4
C	3.4	4.2	3.8
A + B	3.0	2.0	1.6
A + C	4.2	4.6	4.8

[0035]

As shown in Table 1, it became clear that the combined-use face mask C impregnated with the cosmetic liquid D, when worn in combination with the mask A (A + C), had improved moisture retention due to the occlusion effect even at 10 minutes after the start of wearing and maintained the high moisture retention at 30 minutes and 60 minutes thereafter.

It was found that the combined-use face mask C impregnated with the cosmetic liquid D, when worn in combination with the mask A (A + C), maintained the high moisture retention also after the end of the evaluation test (after 60 minutes or more).

On the other hand, it became clear that the face mask B impregnated with the cosmetic liquid D, even when worn in combination with the mask A (A + B), showed no difference in moisture retention compared to the face mask B alone impregnated with the cosmetic liquid D (B) at 10 minutes

after the start of wearing, and showed decreases in moisture retention at 30 minutes and 60 minutes thereafter similarly to the face mask B alone impregnated with the cosmetic liquid D (B). That is, the face mask B impregnated with the cosmetic liquid D was found to have no combined effect with the mask A in terms of moisture retention.

It was also found that the combined-use face mask C impregnated with the cosmetic liquid D, when worn in combination with the mask A (A + C), had higher moisture retention at 10 minutes after the start of wearing than the combined-use face mask C alone impregnated with the cosmetic liquid D (C) and thus immediately produced a moisture retention improving effect.

It became clear from the above results that the face mask for combined use with a sanitary mask according to the present invention, when used in combination with a sanitary mask, immediately produced a moisture retention improving effect and maintained the moisturizing effect over a long period of time.

Considering that the face mask B imitating a conventional face mask had no combined effect with the mask A, the immediate moisture retention improving effect and the effect of maintaining the moisture retention over a long period of time due to the combined use of the face mask for combined use with a sanitary mask according to the present

invention and a sanitary mask are remarkable effects.

[0036]

<Confirmatory evaluation test on drying properties of face mask>

For the drying properties of the face mask B and the combined-use face mask C at nonwoven fabric portions touching the skin when worn in "Confirmatory evaluation test on moisture retention improving effect" above, a sensory evaluation test was performed.

(Materials used)

The materials used are the same as in "Confirmatory evaluation test on moisture retention improving effect" above.

[0037]

(Test method)

Five expert panelists each wore the face mask B and the combined-use face mask C each impregnated with 8 g of the cosmetic liquid D in the combinations shown in Table 2 below, and the drying properties of the face mask B and the combined-use face mask C at nonwoven fabric portions coming into contact with cheeks at 10 minutes, 30 minutes, and 60 minutes after the start of wearing were evaluated according to the following evaluation criteria.

[Evaluation criteria for drying properties of nonwoven fabric]

Score 5: Not dried at all

Score 4: Hardly dried

Score 3: Normal

Score 2: Slightly dried

Score 1: Dried

The combinations of the materials, together with average panelists' evaluation values at 10 minutes, 30 minutes, and 60 minutes after the start of wearing, are shown in Table 2.

"B", "C", "A + B", and "A + C" in Table 2 have the same meanings as in Table 1.

[0038]

[Table 2]

Combination	Results of evaluation of drying properties		
	After 10 minutes	After 30 minutes	After 60 minutes
B	2.2	1.4	1.2
C	3.8	3.8	3.6
A + B	2.6	2.4	1.4
A + C	4.6	4.8	4.8

[0039]

As shown in Table 2, it became clear that when the combined-use face mask C impregnated with the cosmetic liquid D was worn in combination with the mask A (A + C), the drying of the face mask at the nonwoven fabric portion touching the skin when worn was suppressed very well at any of 10 minutes, 30 minutes, and 60 minutes after the start of

wearing.

On the other hand, it became clear that the face mask B impregnated with the cosmetic liquid D, even when worn in combination with the mask A (A + B), dried to the same degree as the face mask B alone impregnated with the cosmetic liquid D (B) at 10 minutes after the start of wearing, and continued to dry at 30 minutes and 60 minutes thereafter similarly to the face mask B alone impregnated with the cosmetic liquid D (B). That is, the face mask B impregnated with the cosmetic liquid D was found to have no combined effect with the mask A also in terms of drying properties.

It also became clear that when the combined-use face mask C impregnated with the cosmetic liquid D was worn in combination with the mask A (A + C), as compared to when the combined-use face mask C impregnated with the cosmetic liquid D was worn alone (C), the drying of the face mask at the nonwoven fabric portion touching the skin when worn was greatly suppressed at 10 minutes to 60 minutes after the start of wearing.

It was found from the above results that when the face mask for combined use with a sanitary mask according to the present invention was used in combination with a sanitary mask, the drying of the face mask at the nonwoven fabric portion touching the skin when worn was suppressed very well

over a long period of time from the start of wearing.

Considering that the face mask B imitating a conventional face mask had no combined effect with the mask A, the long-lasting drying suppression effect due to the combined use of the face mask for combined use with a sanitary mask according to the present invention and a sanitary mask is believed to be a remarkable effect.

Industrial Applicability

[0040]

The face mask for combined use with a sanitary mask according to the present invention, when used in combination with a sanitary mask, does not bring a feeling of strangeness in appearance, does not cause difficulty in breathing and allows conversation without any problem, and can be used during normal daily-life hours.

Moreover, the face mask for combined use with a sanitary mask according to the present invention, when used in combination with a sanitary mask with a nonwoven fabric being impregnated with a moisturizing cosmetic product, can quickly improve the conventional "mask irritation" due to wearing of a sanitary mask through an occlusion effect, which is very useful.

CLAIMS

[Claim 1]

A face mask for combined use with a sanitary mask, the face mask comprising

a cosmetic sheet in which a nonwoven fabric (A) and a resin film (B) are laminated with each other

such that part of fibers constituting the nonwoven fabric (A) is included inside the resin film (B),

wherein the face mask has openings at least at positions where a nose, a mouth, and ears are located when worn.

[Claim 2]

The face mask for combined use with a sanitary mask according to Claim 1, wherein the cosmetic sheet is subjected to a load of 0.75 to 3.5 N/25 mm at 50% elongation.

[Claim 3]

The face mask for combined use with a sanitary mask according to Claim 1 or 2, wherein the nonwoven fabric (A) and the resin film (B) satisfy requirements below:

[Requirements]

(A): A nonwoven fabric containing heat-fusible fibers and having a transverse tensile elongation and a longitudinal tensile elongation in a ratio (transverse tensile elongation/longitudinal tensile elongation) of 1 to 5, and

(B): A resin film containing 60 to 80 mass% of a thermoplastic elastomer and 20 to 40 mass% of a thermoplastic resin and having a thickness of 5 to 15 μm , the thermoplastic resin being polyethylene or polypropylene.

[Claim 4]

The face mask for combined use with a sanitary mask according to Claim 3, wherein in the cosmetic sheet, the thermoplastic resin is low-density polyethylene.