the diameter of the large-diameter fibers (the regions indicated by reference numeral 2A in Fig. 3).

[0035]

As the member that is pressed against the scraping layer, for example, a synthetic resin film, a metal plate, natural fiber threads or synthetic fiber threads can be used. Among them, in particular, it is preferable to use a synthetic resin film.

[0036]

After it has been made that substantially no abrasive particles 6 are present in the surface region 5A including the outermost surface of the scraping layer 5 by the pressing, the coating is dried. After the coating has been dried, the surface of the scraping layer 5 is wiped with a wiping member. As a result of wiping the surface in this way, virtually no abrasive particles 6 are present in the surface region 5A including the outermost surface of the scraping layer 5. As the wiping member, for example, a fiber sheet such as any non-woven or woven fabric, a brush made with synthetic resin fibers, or a brush made with natural fibers can be used.

[0037]

Next, the water absorbing layer 4 of the cleaning sheet 1 will be described. The water absorbing layer 4 is a layer capable of absorbing and retaining water. For this purpose, the water absorbing layer 3 preferably contains hydrophilic fibers 3. As the hydrophilic fibers, for example, cellulosic fibers are preferably used. Examples thereof include pulp fibers, cotton fibers and rayon fibers, and in particular, it is preferable to use pulp fibers. It is preferable to use pulp fibers derived from a conifer as the cellulosic fibers from the viewpoint of preventing the escape of the fibers 3 and providing an appropriate sheet strength.

[0038]

As the fiber length of the hydrophilic fibers 3 contained in the water absorbing layer 4, an appropriate length can be selected according to the method for producing the water absorbing layer 4. For example, in the case where the water absorbing layer 4 is produced using a wet-laid method, the hydrophilic fibers 3 preferably have a fiber length

CLAIMS

1. A cleaning sheet in which a scraping layer and a water absorbing layer containing hydrophilic fibers are stacked,

wherein the scraping layer is made of an air-laid non-woven fabric in which fiber intersection points of large-diameter fibers are joined, a plurality of the large-diameter fibers stand upright, and tip portions of the large-diameter fibers are present on a surface of the scraping layer,

the large-diameter fibers have a fineness of 10 dtex or more and 150 dtex or less, and are contained in the scraping layer in an amount of 10% by mass or more,

the scraping layer includes spaces between the large-diameter fibers,

abrasive particles are detachably present in the spaces, and

the abrasive particles are not substantially attached to tip regions including the tip portions of the large-diameter fibers that are present on the surface of the scraping layer.

2. The cleaning sheet according to claim 1,

wherein the scraping layer contains the large-diameter fibers and small-diameter fibers having a smaller fineness than that of the large-diameter fibers.

3. The cleaning sheet according to claim 1 or 2,

wherein the large-diameter fibers of the scraping layer are heat-fusible fibers.

4. The cleaning sheet according to any one of claims 1 to 3,

wherein elevations and depressions are formed on the surface of the scraping layer.

5. The cleaning sheet according to any one of claims 1 to 4,

wherein perforations are formed.

6. The cleaning sheet according to any one of claims 1 to 5,

wherein the cleaning sheet is for cleaning a hard surface, and the cleaning sheet is a dry-type cleaning sheet and does not contain a liquid component such as a washing

liquid.

7. The cleaning sheet according to claim 6,

wherein a proportion of the liquid component in the cleaning sheet is 3% by mass or less.

8. The cleaning sheet according to any one of claims 1 to 7,

wherein, in a thickness direction of the cleaning sheet, the abrasive particles are present in a relatively large amount at a position close to a back side of the scraping layer and in a relatively small amount or not at all on a surface side.

9. A cleaning method including:

when the cleaning sheet according to any one of claims 1 to 8, which is a dry-type cleaning sheet before use and is used in a dry state or wetted before use, is used wetted,

cleaning a wet surface to be cleaned that has been wetted with water, with the scraping layer; and then

wiping a dirty liquid containing a stain including moisture on the wet surface to be cleaned, with the water absorbing layer.

10. The cleaning method according to claim 9,

wherein a scraping layer-side face of the cleaning sheet according to any one of claims 1 to 8 is pressed against and rubbed over a wet hard surface, which is a hard surface to be cleaned and has been wetted with water, so as to release the abrasive particles from the scraping layer to supply the abrasive particles to the surface to be cleaned,

a stain that is present on the surface to be cleaned is abraded and scraped away by the released abrasive particles and the tip portions of the plurality of large-diameter fibers present on the surface of the scraping layer to remove the stain from the surface to be cleaned, and

the removed stain is dissolved or dispersed in water and absorbed into the water absorbing layer together with the water, so as to make the surface to be cleaned clean.

11. A cleaning sheet package in which a plurality of the cleaning sheets according to any one of claims 1 to 8 are stacked and stored in a packaging material,

wherein the packaging material includes an opening portion through which each of the cleaning sheets is taken out, and

the cleaning sheets are stacked in the packaging material, with the water absorbing layers thereof facing toward the opening portion.

12. The cleaning sheet package according to claim 11,

wherein the packaging material is a separate package enclosed in a separate packaging material having a hole or a hook provided in a peripheral portion thereof.

13. A cleaning sheet package in which the cleaning sheets according to any one of claims 1 to 8 are individually packaged, each cleaning sheet being stored in a packaging material,

wherein a hole or a hook is provided in a peripheral portion of the packaging material, and

the packaging material is configured to be capable of being suspended by the hole or the hook.

14. A cleaning sheet production method for producing the cleaning sheet according to any one of claims 1 to 8, the method comprising:

forming a coating on the scraping layer of the cleaning sheet before the abrasive particles are attached by applying a slurry containing the abrasive particles onto the scraping layer; and

removing the slurry from a surface region of the scraping layer by pressing a member having a smooth surface against the scraping layer while the coating is wet.

15. The cleaning sheet production method according to claim 14, further comprising:

wiping the surface region of the scraping layer with a wiping member made of fibers after the coating has been dried.

the diameter of the large-diameter fibers (the regions indicated by reference numeral 2A in Fig. 3).

[0035]

As the member that is pressed against the scraping layer, for example, a synthetic resin film, a metal plate, natural fiber threads or synthetic fiber threads can be used. Among them, in particular, it is preferable to use a synthetic resin film.

[0036]

After it has been made that substantially no abrasive particles 6 are present in the surface region 5A including the outermost surface of the scraping layer 5 by the pressing, the coating is dried. After the coating has been dried, the surface of the scraping layer 5 is wiped with a wiping member. As a result of wiping the surface in this way, virtually no abrasive particles 6 are present in the surface region 5A including the outermost surface of the scraping layer 5. As the wiping member, for example, a fiber sheet such as any non-woven or woven fabric, a brush made with synthetic resin fibers, or a brush made with natural fibers can be used.

[0037]

Next, the water absorbing layer 4 of the cleaning sheet 1 will be described. The water absorbing layer 4 is a layer capable of absorbing and retaining water. For this purpose, the water absorbing layer 4 preferably contains hydrophilic fibers 3. As the hydrophilic fibers, for example, cellulosic fibers are preferably used. Examples thereof include pulp fibers, cotton fibers and rayon fibers, and in particular, it is preferable to use pulp fibers. It is preferable to use pulp fibers derived from a conifer as the cellulosic fibers from the viewpoint of preventing the escape of the fibers 3 and providing an appropriate sheet strength.

[0038]

As the fiber length of the hydrophilic fibers 3 contained in the water absorbing layer 4, an appropriate length can be selected according to the method for producing the water absorbing layer 4. For example, in the case where the water absorbing layer 4 is produced using a wet-laid method, the hydrophilic fibers 3 preferably have a fiber length

CLAIMS

1. A cleaning sheet in which a scraping layer and a water absorbing layer containing hydrophilic fibers are stacked,

wherein the scraping layer is made of an air-laid non-woven fabric in which fiber intersection points of large-diameter fibers are joined, a plurality of the large-diameter fibers stand upright, and tip portions of the large-diameter fibers are present on a surface of the scraping layer,

the large-diameter fibers have a fineness of 10 dtex or more and 150 dtex or less, and are contained in the scraping layer in an amount of 10% by mass or more,

the scraping layer includes spaces between the large-diameter fibers,

abrasive particles are detachably present in the spaces, and

the abrasive particles are not substantially attached to tip regions including the tip portions of the large-diameter fibers that are present on the surface of the scraping layer.

2. The cleaning sheet according to claim 1,

wherein the scraping layer contains the large-diameter fibers and small-diameter fibers having a smaller fineness than that of the large-diameter fibers.

3. The cleaning sheet according to claim 1 or 2,

wherein the large-diameter fibers of the scraping layer are heat-fusible fibers.

4. The cleaning sheet according to claim 2,

wherein the small-diameter fibers of the scraping layer are heat-fusible fibers.

5. The cleaning sheet according to any one of claims 1 to 4,

wherein elevations and depressions are formed on the surface of the scraping layer.

6. The cleaning sheet according to claim 5,

wherein a total area of the depressions is 5% or more of an area of a cleaning surface of the cleaning sheet.

7. The cleaning sheet according to any one of claims 1 to 6,
wherein perforations are formed.

8. The cleaning sheet according to any one of claims 1 to 7,
wherein the cleaning sheet is for cleaning a hard surface, and the cleaning sheet is a dry-type cleaning sheet and does not contain a liquid component.

9. The cleaning sheet according to claim 8,
wherein a proportion of the liquid component in the cleaning sheet is 3% by mass or less.

10. The cleaning sheet according to any one of claims 1 to 9,
wherein the large-diameter fibers have a fineness of 20 dtex or more.

11. The cleaning sheet according to any one of claims 1 to 10,
wherein crimpable fibers are used as the large-diameter fibers, and a form of crimping of the crimpable fibers is spiral, zigzag or U shaped.

12. The cleaning sheet according to any one of claims 1 to 11,
wherein when fibers other than the large-diameter fibers are contained in the scraping layer, small-diameter fibers having a smaller fineness than that of the large-diameter fibers are used as the other fibers,
the small-diameter fibers hav4 a smaller fineness than that of the large-diameter fibers, and have a fineness of 0.5 dtex or more, and
a proportion of the small-diameter fibers in the scraping layer is 1% by mass or more.

13. The cleaning sheet according to any one of claims 1 to 12,
wherein the abrasive particles are not substantially attached to tip regions including the tip portions of those of the large-diameter fibers whose tip portions are present on the surface of the scraping layer.

14. The cleaning sheet according to any one of claims 1 to 13,

wherein the abrasive particles are not substantially attached to tip regions including the tip portions of those of the large-diameter fibers whose tip portions are present on the surface of the scraping layer,

the number of abrasive particles observed when the tip regions of the large-diameter fibers are magnified is 10% or less of the number of abrasive particles observed in the large-diameter fibers in a central portion in a thickness direction of the scraping layer.

15. The cleaning sheet according to any one of claims 1 to 14,

wherein water-insoluble particles are used as the abrasive particles,

the particles have a Mohs hardness of 3 or more and 7 or less,

the abrasive particles are made of one or a combination of two or more of calcium carbonate, zeolite and silica, and

the abrasive particles have an average particle size of 5 μm or more.

16. The cleaning sheet according to any one of claims 1 to 15,

wherein, in a thickness direction of the cleaning sheet, the abrasive particles are present in a relatively large amount at a position close to a back side of the scraping layer and in a relatively small amount or not at all on a surface side.

17. A cleaning method including:

when the cleaning sheet according to any one of claims 1 to 16, which is a dry-type cleaning sheet before use and is used in a dry state or wetted before use, is used wetted,

cleaning a wet surface to be cleaned that has been wetted with water, with the scraping layer; and then

wiping a dirty liquid containing a stain including moisture on the wet surface to be cleaned, with the water absorbing layer.

18. The cleaning method according to claim 17,

wherein a scraping layer-side face of the cleaning sheet according to any one of claims 1 to 8 is pressed against and rubbed over a wet hard surface, which is a hard

surface to be cleaned and has been wetted with water, so as to release the abrasive particles from the scraping layer to supply the abrasive particles to the surface to be cleaned,

a stain that is present on the surface to be cleaned is abraded and scraped away by the released abrasive particles and the tip portions of the plurality of large-diameter fibers present on the surface of the scraping layer to remove the stain from the surface to be cleaned, and

the removed stain is dissolved or dispersed in water and absorbed into the water absorbing layer together with the water, so as to make the surface to be cleaned clean.

19. A cleaning sheet package in which a plurality of the cleaning sheets according to any one of claims 1 to 16 are stacked and stored in a packaging material,

wherein the packaging material includes an opening portion through which each of the cleaning sheets is taken out, and

the cleaning sheets are stacked in the packaging material, with the water absorbing layers thereof facing toward the opening portion.

20. The cleaning sheet package according to claim 19,

wherein the packaging material is a separate package enclosed in a separate packaging material having a hole or a hook provided in a peripheral portion thereof.

21. A cleaning sheet package in which the cleaning sheets according to any one of claims 1 to 16 are individually packaged, each cleaning sheet being stored in a packaging material,

wherein a hole or a hook is provided in a peripheral portion of the packaging material, and

the packaging material is configured to be capable of being suspended by the hole or the hook.

22. A cleaning sheet production method for producing the cleaning sheet according to any one of claims 1 to 16, the method comprising:

forming a coating on the scraping layer of the cleaning sheet before the abrasive particles are attached by applying a slurry containing the abrasive particles onto the

scraping layer; and

removing the slurry from a surface region of the scraping layer by pressing a member having a smooth surface against the scraping layer while the coating is wet.

23. The cleaning sheet production method according to claim 22, further comprising:

wiping the surface region of the scraping layer with a wiping member made of fibers after the coating has been dried.