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STACK OF WET SHEET

The present invention relates to a stack of wet sheets such as wet tissues, cloths or towelettes for wiping stains or the like.

It is known to impregnate sheets made of nonwoven fibrous sheet with liquid medium to obtain wet sheets which are, in turn, alternately folded so as to form a stack and to store this stack in a container so that the wet sheets can be picked out through a dispensing slot thereof one by one from the container.

When it is allowed to provide the container with a relatively small dispensing slot for a single wet sheet, the wet sheet will be easily picked out through the dispensing slot from the container in which the wet sheets are alternately folded and stacked. When such small dispensing slot is not allowed, on the other hand, it is difficult to pick out the wet sheet through the dispensing slot reliably one by one from the stack of wet sheets stucked one to another due to wetness. For example, in the case of the wet sheets intended to wipe a baby's bottom, the dispensing slot of the container must be relatively large in order to facilitate his or her mother to refill the container so long

as the container is of refillable type. Of the stack of wet sheets stored in the container, a tip of the first sheet must be previously projected out through the dispensing slot and this previous operation of partial projection will be easily performed when the dispensing slot is sufficiently large. However, with the container provided with such large dispensing slot, it will be difficult to pick out the wet sheet through the dispensing slot one by one from the container and sometimes the desired wet sheet may be picked out together with the wet sheet to be picked out next time or at least the latter may be projected through the dispensing slot over an excessive extent.

In view of the problem as mentioned above, it is a principal object of the invention to assure that a wet sheet can be easily and reliably picked out one by one from a plurality of wet sheets alternately folded to form a stack.

The object set forth above is achieved, according to the invention, by a stack of wet sheets obtained by impregnated with liquid medium and alternately folded in a Z-shape with top and/or bottom sections of each folded sheet being interposed between each pair of adjacent sections of the preceding or following folded sheet so that the

individual wet sheet can be picked out one by one from a container in which the stack of wet sheets is stored, wherein:

the wet sheet comprises top and bottom layers containing hydrophobic fiber of 100 ~ 50% by weight and hydrophilic fiber of 0 ~ 50% by weight and an intermediate layer disposed between the top and bottom layers and containing hydrophobic fiber of 0 ~ 20% by weight and hydrophilic fiber of 100 ~ 80% by weight.

In an embodiment of the invention, the top and bottom layers and the intermediate layer are respectively held in the form thereof by mechanically entangling of the fibers therein.

In an another embodiment, the top and bottom layers and the intermediate layer are integrally jointed by mechanically entangling of the fibers thereof.

In the stack of wet sheets according to the invention, each pair of adjacent sheets do not stick to each other due to wetness of the liquid medium and the wet sheets can be picked out one by one from the stack because the top and bottom sides of each wet sheet substantially comprise the hydrophobic fiber.

Other objects, advantages and features of the invention

will become apparent from the following description.

Fig. 1A is a perspective view of a container and Fig. 1B is a schematic side view of a stack of wet sheets stored in a container; and

Fig. 2 is a fragmentary side view showing, in an enlarged scale, a wet sheet.

Of Fig. 1, A is a perspective view of a refillable container 1 for wet sheets 2 such as wet tissues, cloths or towelettes and B is a schematic side view showing the wet sheets 2 stored in the container 1 as partially broken away. The container 1 comprises a body 3 and a stationary lid 4. The stationary lid 4 is detachably mounted on the body 3 and centrally provided with a dispensing slot 5 which is sufficiently large to receive two fingers and can be opened or closed by a movable lid 6 formed integrally with the stationary lid 4. The wet sheets 2 are alternately folded in a Z-shape to form a stack 7 and stored in the container 1 with a tip of the uppermost wet sheet 2 projecting out through the dispensing slot 5. The uppermost wet sheet 2 can be picked out from the container 1 separately of the wet sheet to be picked out next time by lightly picking up the

tip and thereupon the tip of the following wet sheet 2 projects through the dispensing slot 5.

The wet sheet 2 shown by Fig. 2 in a fragmentary side view is obtained by impregnating the sheet made of nonwoven fibrous sheet with desired liquid medium such as liquid medicine and this wet sheet 2 comprises top and bottom layers 11, 12 and an intermediate layer 13 disposed therebetween. Each of the top and bottom layers 11, 12 comprises hydrophobic fiber of 100 ~ 50% by weight and hydrophilic fiber of 0 ~ 50% by weight while the intermediate layer 13 comprises hydrophobic fiber of 0 ~ 20% by weight and hydrophilic fiber of 100 ~ 80% by weight. Each layer 11, 12, 13 has a basic weight of 5 ~ 50g/m². Among the respective layers, may be mechanically entangled or intertwined and/or welded to hold an integrated form of nonwoven fibrous sheet. To obtain the wet sheet of comfortable touch, it is preferred that the fibers of the respective layers are mechanically entangled or intertwined. The hydrophobic fiber may be thermoplastic synthetic fiber such as polyethylene, polypropylene, nylon or polyester or conjugated fibers thereof and the hydrophilic fiber may be rayon fiber, vegetable fiber such pulp or cotton or thermoplastic synthetic fiber treated so as to become hydrophilic by the

well known technique.

Composition of liquid medium with which the nonwoven fibrous sheet is impregnated may be selected depending on particular application of the wet sheet. For example, it is desired to use the wet sheet to wipe a baby's behind, the sheet may be impregnated with a mixture of propylene glycol of 10% by weight and water of 90% by weight or a mixture of propylene glycol of 7% by weight, paraben of 0.3% by weight and water of 92.7% by weight. Amount of impregnation is preferably 150% ~ 300% by weight of the sheet in a dry state.

In the wet sheet 2 constructed as described above, most of the liquid medium with which the sheet has been impregnated is held by the intermediate layer 13 having a relatively high hydrophilicity and a moisture content in the top and bottom layers 11, 12 containing a relatively large amount of hydrophobic fiber is relatively poor. With a consequence, the wet sheets piled in the stack 7 are not stucked one to another due to the wetness of the liquid medium and the individual wet sheets can be picked out smoothly one by one from the container 1 without an excessive projection of the following wet sheet out of the dispensing slot 5. In actual use of the wet sheet picked out from the container 1, the liquid medium partially exuding from the

intermediate layer 13 under a pressure effectively moistens a surface to be wiped.

While it is not illustrated, the wet sheet 2 may be subjected to the known embossing treatment to for irregularities on upper and lower (front and rear) sides thereof not only to improve the wiping effect but also to facilitate the individual wet sheets to be separated from one another when it is picked out from the container compared to the sheets subjected to no embossing treatment since the irregularities reduce the contacting areas among the sheet in the stack.

WHAT IS CLAIMED IS:

1. A stack of wet sheets obtained by impregnating sheets with liquid medium alternately folded in a Z-shape with top and/or bottom sections of each folded sheet being interposed between a pair of adjacent sections of the adjacent folded sheet so that the individual wet sheets can be picked out one by one from the stack of wet sheets stored in a container, wherein:

the wet sheet comprises top and bottom layers containing hydrophobic fiber of 100 ~ 50% by weight and hydrophilic fiber of 0 ~ 50% by weight and an intermediate layer disposed between the top and bottom layers and containing hydrophobic fiber of 0 ~ 20% by weight and hydrophilic fiber of 100 ~ 80% by weight.

2. A stack of wet sheets according to Claim 1, wherein the top and bottom layers and the intermediate layer are respectively held in the form thereof by mechanically entangling of fibers therein.

3. A stack of wet sheets according to Claim 1, wherein the top and bottom layers and the intermediate layer are



integrally joined together by mechanically entangling of the fibers thereof.

