CLAIMS

1. A coreless roll of an absorbent sheet product made of a spirally wound continuous web of absorbent material having a first end and a second end, the web of absorbent material being wound such as to define an axial hollow passageway centrally positioned relative to the coreless roll and extending from one edge to another edge of the coreless roll and such that the first end is located on the outer side of the roll and the second end is located at the axial hollow passageway;

   wherein the second end of the continuous web of absorbent material comprises a coating composition comprising a polymer, wherein the polymer has:

   (i) a glass transition temperature lower than 20°C, preferably lower than 15°C, more preferably lower than 10°C, more preferably lower than 5°C, more preferably lower than 0°C, more preferably lower than -5°C, and more preferably lower than -10°C; and

   (ii) a melting point greater than 20°C, more preferably greater than 25°C, more preferably greater than 30°C, more preferably greater than 35°C, more preferably greater than 40°C, and more preferably greater than 45°C; and

   wherein the coating composition is free of saccharide.

2. The coreless roll according to claim 1 wherein the polymer has:
   (i) a glass transition temperature lower than 0°C, preferably lower than -5°C, and more preferably lower than -10°C; and
   (ii) a melting point greater than 35°C, preferably greater than 40°C, and more preferably greater than 45°C, and
   (iii) optionally a solubility in water at 25°C of at least 40g/l.

3. The coreless roll according to claim 1 or 2 wherein the coreless roll is obtained by applying the coating composition to the second end of the continuous web.

4. The coreless roll of any of claims 1 to 3 wherein the coating composition comprises:

   (a) at least 50 wt.-%, preferably at least 65 wt.-%, more preferably at least 80 wt.-% of the polymer;

(b) not more than 50 wt.-%, preferably not more than 35 wt.-%, more preferably not more than 20 wt.-% of further additives such as plasticizers, reinforcing agents, fragrance, and dyes;

(c) optionally water in an amount of not more than 10 wt.-%, preferably in an amount of not more than 5 wt.-%;

each based on the total weight of the coating composition.

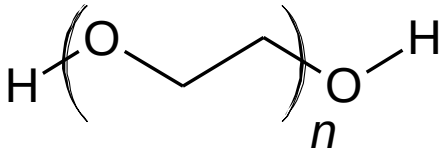
5. The coreless roll of any of claims 1 to 4 wherein the coating composition is applied in molten form or, after the addition of water, as an aqueous solution.

6. The coreless roll of any of claims 1 to 5, wherein the polymer is a polyether polyol, preferably a polyether polyol selected from polyethylene glycol, polypropylene glycol, and mixtures thereof, more preferably polyethylene glycol.

7. The coreless roll of any of claims 1 to 6 wherein the polymer has a number-average molecular weight of 800 to 250000, preferably of 1000 to 50000, more preferably of 1500 to 15000, more preferably of 1500 to 10000, more preferably of 2000 to 7500, e.g. 2500 to 4000.

8. The coreless roll of claim 6 or 7, wherein the polymer is polyethylene glycol having a number-average molecular weight of 800 to 250000, preferably of 1000 to 20000, more preferably of 1500 to 10000, more preferably of 2000 to 7500, more preferably of 2500 to 6500, even more preferably of 2500 to 4000.

9. The coreless roll of any of claims 1 to 8 wherein the polymer conforms to the following formula:



wherein, in the above formula, n represents an integer having an average value of 10 to 5000, preferably of 10 to 2500, more preferably of 20 to 1000, more preferably of 30 to 200, more preferably 50 to 150, or 50 to 100.

10. The coreless roll of any of claims 1 to 9, wherein the axial hollow passageway has a circumference and the coating composition is circumferentially applied and is preferably applied such that the resulting coating covers at least 10% of

the second end, preferably at least 20%, more preferably at least 50%, and even more preferably at least 75%, e.g. at least 95%, of the second end.

11. The coreless roll of any of claims 1 to 10, wherein the coating composition is applied continuously in the machine and axial direction or intermittently in the machine and/or axial direction.

12. The coreless roll of any of claims 1 to 11, wherein the second end consists of at least one turn, preferably of at least two turns, preferably at least three turns, for instance 3 to 50 turns, for instance 3 to 30 turns or 4 to 40 turns, preferably 3 to 30 turns, a turn being one circumvolution of the spirally wound continuous web about the axial hollow passageway.

13. The coreless roll of any of claims 1 to 12, wherein the amount of polymer is from 0.1 to 20 g/roll, preferably 0.1 to 10 g/roll, more preferably 0.1 to 5 g/roll, in particular 0.5 to 2 g/roll.

14. The coreless roll of any of claims 1 to 13, wherein the web of absorbent material is composed of 1 tissue paper ply or 2 to 6, in particular 2 to 5 superposed tissue paper plies.

15. The coreless roll of any of claims 1 to 14 being in a compressed form.

16. The coreless roll of any of claims 1 to 15, which is an absorbent product chosen among the group comprising napkins, towels such as household towels, kitchen towels or hand towels, toilet papers, wipes, handkerchiefs, and facial tissues, wherein this absorbent product is preferably a toilet paper.

17. A manufacturing method for manufacturing a coreless roll of an absorbent sheet product comprising the steps of:
    - conveying a continuous web of absorbent material having a first end and a second end, which is preferably composed of 1 tissue paper ply or 2 to 6, in particular 2 to 5 superposed tissue paper plies;
    - optionally severing the continuous web of absorbent material substantially transversally to the machine direction to produce single but coherent sheets;
    - applying a coating composition as defined in any of claims 1 to 13 to the second end;

- spirally winding the continuous web of absorbent material so as to produce a log of web of absorbent material, the web of absorbent material being wound such as to define an axial hollow passageway centrally positioned relative to the log and extending from one edge to another edge of the log and such that the first end is located on the outer side of the log and the second end is located at the axial hollow passageway;
- cutting the log into multiple coreless rolls.

18. The manufacturing method of claim 17, comprising the further step of
    - subjecting the coreless roll to compression in a direction perpendicular to the axial hollow passageway to produce a coreless roll in a compressed form.

19. Use of the coreless roll of any of claims 1 to 15 as toilet paper, household towel, kitchen towel, wipe, facial tissue, handkerchief or napkin.