

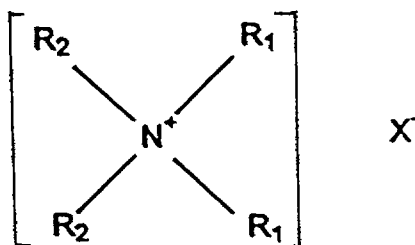


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What is claimed is:

1. A multi-ply facial tissue paper product comprising:

- a) paper making fibers;
- b) from about 0.01% to about 3.0% of a quaternary ammonium compound having the formula



wherein

each R_2 substituent is a C1-C6 alkyl or hydroxyalkyl group, or mixture thereof,

each R_1 substituent is a C14-C22 hydrocarbyl group, or mixture thereof; and

X^- is a suitable anion;

- c) from about 0.01% to about 3.0% of a water soluble polyhydroxy compound;
- d) from about 0.01% to about 3.0% of a wet strength binder, either permanent or temporary; and
- e) from about 0.01% to about 3.0% of a dry strength binder;

wherein said facial tissue paper product comprises two plies in juxtaposed relation, wherein each of said plies comprises at least two superposed layers, an inner layer and an outer layer contiguous with said inner layer, said plies being oriented in said facial tissue so that said outer layer of each ply forms one exposed surface of said multi-ply facial tissue and each of said inner layers of said plies are disposed toward the interior of said facial tissue paper product, and wherein the majority of the quaternary ammonium



compound and the polyhydroxy compound is contained in at least one of said outer layers of said plies.

2. The multi-ply facial tissue paper products of claim 1 wherein the majority of the wet strength binders and dry strength binders is contained in at least one of said inner layers.

3. The multi-ply facial tissue paper product of claim 1 wherein the majority of the quaternary ammonium compound and the polyhydroxy compound is contained in both of said outer layers.

4. The multi-ply facial tissue paper product of claim 2 wherein the majority of the binders is contained in both of said inner layers.

5. The multi-ply facial tissue paper product of claim 3 wherein the majority of the binders is contained in both of said inner layers.

6. The multi-ply facial tissue paper product of claim 1 wherein each of two said inner layers comprises relatively long paper making fibers having an average length of at least about 2.0 mm and wherein each of two said outer layers comprises relatively short paper making fibers having an average length between about 0.2 mm and about 1.5 mm.

7. The multi-ply facial tissue paper product of claim 6 wherein said inner layers comprise softwood fibers and said outer layers comprise hardwood fibers.

8. The multi-ply facial tissue paper product of claim 7 wherein said softwood fibers are northern softwood Kraft fibers and wherein said hardwood fibers are eucalyptus fibers.

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9. The multi-ply facial tissue paper product of claim 6 wherein said inner layers comprises softwood fibers or mixtures of softwood fibers and low cost fibers, and at least one of said outer layers comprises low cost fibers or mixtures of hardwood fibers and low cost fibers.

10. The multi-ply facial tissue paper product of claim 9 wherein said low cost fibers are selected from the group consisting of sulfite fibers, thermomechanical pulp fibers, chemi-thermomechanical pulp fibers, recycled fibers, and mixtures thereof.

11. The multi-ply facial tissue paper product of claim 1 wherein said wet strength binders are permanent wet strength binders selected from the group consisting of polyamide-epichlorohydrin resins, polyacrylamide resins, and mixtures thereof.

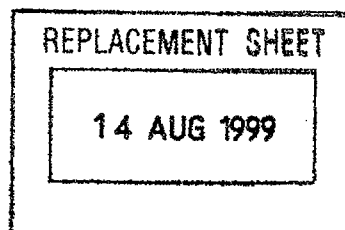
12. The multi-ply facial tissue paper product of claim 11 wherein said permanent wet strength binders are polyamide-epichlorohydrin resins.

13. The multi-ply facial tissue paper product of claim 1 wherein said wet strength binders are temporary wet strength binders selected from the group consisting of cationic dialdehyde starch-based resins, dialdehyde starch resins and mixtures thereof.

14. The multi-ply facial tissue paper product of claim 13 wherein said temporary wet strength binders are cationic dialdehyde starch-based resins.

15. The multi-ply facial tissue paper product of claim 1 wherein said dry strength binders are selected from the group consisting of carboxymethyl cellulose resins, starch based resins, and mixtures thereof.

16. The multi-ply facial tissue paper product of claim 15 wherein said dry strength binders are carboxymethyl cellulose resins.





17. The multi-ply facial tissue paper product of claim 1 wherein each R_2 is selected from C1-C3 alkyl and each R_1 is selected from C16-C18 alkyl.

18. The multi-ply facial tissue paper product of claim 17 wherein each R_2 is methyl and X^- is chloride or methyl sulfate.

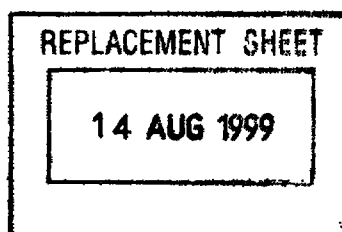
19. The multi-ply facial tissue paper product of claim 18 wherein the quaternary ammonium compound is di(hydrogenated)tallow dimethyl ammonium chloride.

20. The multi-ply facial tissue paper product of claim 18 wherein the quaternary ammonium compound is di(hydrogenated)tallow dimethyl ammonium methyl sulfate.

21. The multi-ply facial tissue paper product of claim 1 wherein said polyhydroxy compound is selected from the group consisting of glycerol, polyglycerols having a weight average molecular weight of from about 150 to about 800, polyoxyethylene glycols and polyoxypropylene glycols having a weight average molecular weight from about 200 to 1000, and mixtures thereof.

22. The multi-ply facial tissue paper product of claim 1 wherein the weight ratio of the quaternary ammonium to the polyhydroxy compound ranges from about 1.0:0.1 to about 0.1:1.0.

23. The multi-ply facial tissue paper product of claim 21 wherein the polyhydroxy compound is polyoxyethylene glycols having a weight average molecular weight of from about 200 to about 600.





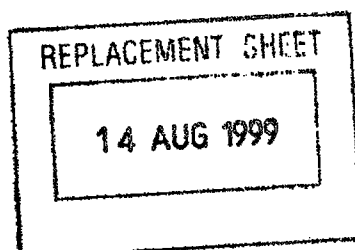
24. The multi-ply facial tissue paper product of claim 1 wherein said quaternary ammonium compound is di(hydrogenated)tallow dimethyl chloride or methylsulfate, said polyhydroxy compound is polyoxyethylene glycol having a weight average molecular weight of from about 200 to about 600, said permanent wet strength binder is polyamide-epichlorohydrin resin and said dry strength binder is carboxymethyl cellulose resin, wherein the majority of said quaternary ammonium compound and said polyhydroxy compound are contained in both of said outer layers, and wherein the majority of said binder materials is contained in both of said inner layers.

25. The multi-ply facial tissue paper product of claim 1 wherein said facial tissue paper product comprises three plies in juxtaposed relation, two outer plies and one inner ply, said inner ply being located between two said outer plies and wherein each of said three plies comprises a single layer web, wherein the majority of the quaternary ammonium compound and the polyhydroxy compound is contained in two said outer plies, and the majority of said permanent wet strength binders and dry strength binders is located in said inner ply.

26. The multi-ply facial tissue paper product of claim 25 wherein each of said two outer plies comprises two superposed layers.

27. The multi-ply facial tissue paper product of claim 25 wherein said inner ply comprises long softwood fibers and said outer plies comprise short hardwood fibers.

28. The multi-ply facial tissue paper product of claim 25 wherein said quaternary ammonium compound is di(hydrogenated)tallow dimethyl chloride or methylsulfate, said polyhydroxy compound is polyoxyethylene glycol having a weight average molecular weight of from about 200 to about 600, said permanent wet strength binder is polyamide-epichlorohydrin resin and said dry strength binder is carboxymethyl cellulose resin.





29. The multi-ply facial tissue paper product of claim 26 wherein said quaternary ammonium compound is di(hydrogenated)tallow dimethyl chloride or methylsulfate, said polyhydroxy compound is polyoxyethylene glycol having a weight average molecular weight of from about 200 to about 600, said permanent wet strength binder is polyamide-epichlorohydrin resin and said dry strength binder is carboxymethyl cellulose resin.

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