PRINTING PROCESS FOR PATTERNED WRAPPER PAPER

FIELD OF THE DISCLOSURE:

This disclosure relates generally to a process for making cigarette wrapper paper having an applied pattern of add-on material. More particularly, the disclosure concerns a process for making cigarette wrapper paper with a specially formulated oxidized starch material.

SUMMARY:

A wrapper paper for cigarettes may be fashioned with a pattern of add-on material to reduce the ignition propensity characteristics of a smoking article fashioned using the wrapper. Reduced ignition propensity characteristics reflect a lowered capability of a smoking article to cause a substrate to ignite when a smoldering smoking article is left inadvertently unattended on a substrate.

According to a first aspect, there is provided a process for making patterned wrapper paper comprising the steps of: preparing a printing solution including at least water and an oxidized starch having: room temperature viscosity no greater than about 50 centipoises (50 mPa·s); particles in the range of about 4 to about 40 microns when dry and about 90% in the range of about 10 microns to about 100 microns when wet; and a pH in the range of about 6 to about 6.5; the starch further being capable of forming solution with about 20% to about 24% oxidized starch content; the printing solution having a surface tension of at least about 65 dynes per centimeter ($6.5.10^{-2}Nm^{-1}$); and providing a base web of wrapper paper; applying the printing solution to the wrapper paper in a predetermined pattern.

According to a second aspect, there is provided a smoking article comprising a tobacco rod, said tobacco rod including a wrapper constructed in accordance with a process that is in accordance to the first aspect.

In accordance with this disclosure, a predetermined pattern of add-on material containing an aqueous starch solution may be applied to a base web of wrapper paper. The predetermined pattern may comprise a plurality of transverse bands, a plurality of longitudinal bands, a two-dimensional array of treated regions, or any other suitable pattern. Preferably, the predetermined pattern may be applied using a printing technique, such as, for example, gravure printing, offset printing, inkjet printing, spraying, die printing, or the like. Most preferably, gravure printing may be used.

To improve the ignition propensity characteristics of a smoking article fashioned from the wrapper paper, the pattern is preferably applied with a printing solution containing an oxidized starch. Preferred printing characteristics may be attained using an aqueous starch solution having a room temperature viscosity no greater than about 50mPa·s (centipoise, cP), and prepared from particles having a size in the range of about 4 microns to about 40 microns when dry, and about 90% of the particles having a size in the range of about 10 microns to about 100 microns when wet. Moreover, it is further desirable that the starch solution be slightly acidic with a pH in the range of about 6 to about 6.5. Starch employed for the printing solution preferably may be mixed with water to form a printing solution having a starch concentration of about 20% to about 24% (by weight). Another desirable characteristic of the printing solution is a relatively high surface tension, for example, on the order of $6.5.10^{-2}Nm^{-1}$ (65 dynes/centimeter) or more.

If desired, the printing solution may be applied to the base web in two or more layers. Those layers may be vertically registered with one another, offset from one another, have portions