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TOBACCO

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2 Claims. (Cl. 131—142)

This invention relates to the treatment of tobacco in order to improve its color and aroma. More particularly, it relates to the treatment of tobacco with an ammoniacal solution of hydrogen peroxide for the purpose of bleaching the tobacco and improving its quality, which treatment is carried out by spraying on the tobacco a cooled ammoniacal solution of hydrogen peroxide.

In the past it has been proposed to treat tobacco with solutions of hydrogen peroxide by spraying the tobacco leaves with a solution of the peroxide rendered alkaline by the presence of ammonia therein. It has now been found that when this ammoniacal solution of hydrogen peroxide is applied in the cold state to the tobacco to be bleached the quality and color of the resulting product are much improved over that of tobacco which has been bleached with ammoniacal solutions of hydrogen peroxide applied at room temperature or at temperatures more elevated than room temperature.

Accordingly, it is an object of this invention to secure the maximum beneficiation of tobacco which is to be subjected to the action of an ammoniacal solution of hydrogen peroxide by spraying on the tobacco to be bleached a cooled solution of the treating agent. This invention involves, therefore, the use of cooled solutions of hydrogen peroxide, solutions cooled to 10° C. or below, for the purpose of securing the maximum improvement in the tobacco treated with these solutions as regards the color, aroma, and taste of the resulting product.

I have found that the ammoniacal solution of hydrogen peroxide should be cooled to a temperature of 10° C. (50° F.) or below in order that maximum improvement in quality of the tobacco treated with the ammoniacal solution of hydrogen peroxide may be secured. In order to secure the most noticeable improvement in the quality of the treated product over that of tobacco which has been treated at room temperature or higher with an ammoniacal solution of hydrogen peroxide, a temperature of 5° C. (41° F.) or below is usually preferable. However, I have secured improved bleaching results over those obtainable by the use of ammoniacal hydrogen peroxide solutions at room temperature when the solution of hydrogen peroxide has been cooled only to a temperature within the range 10 to 20° C.

In the past, wherever ammoniacal solutions of hydrogen peroxide have been employed, the temperature of those solutions has been at least room temperature (25° C. or higher), or in many cases above room temperature. In the commercial bleaching of tobacco with ammoniacal solutions of hydrogen peroxide it had, in fact, been ordinarily supposed that the higher the temperature of the ammoniacal solution of hydrogen peroxide applied, the more efficient were the bleaching and aroma improving results obtained. This conclusion was based on the general chemical knowledge that reactions between oxidizing agents and materials capable of oxidation proceeded more rapidly at higher temperatures.

Surprisingly enough, I have now discovered that the cooler the ammoniacal solution of hydrogen peroxide applied to the tobacco to be bleached, the more effective is the treatment as regards the improvement in quality of the tobacco. This discovery contravenes both general chemical principles and prior established practice in this industry, which had regarded a temperature of at least room temperature or, where possible, temperatures higher than room temperature as essential in order to secure most satisfactory utilization of the hydrogen peroxide for the bleaching and improvement of the tobacco.

The ammoniacal solution of hydrogen peroxide may be cooled to a temperature of 10° C. or below in any convenient manner. For example, the solution may be prepared by using refrigerated water, or water cooled to a temperature as close to 0° C. as possible. After the preparation of the solution by the addition of the ammonia or ammonia water to the dilute solution of hydrogen peroxide, satisfactory cooling may be secured by introducing a block of ice into the solution, or the solution may be prepared in a tank provided with suitable refrigeration coils. In many cases where a source of cooled water is available, no special cooling of the solution may be necessary, as the solution may have after preparation a temperature of 10° C. or below simply because of the low temperature of the water used in preparing it.

As examples of my improved process for improving the quality of tobacco by spraying that tobacco with an ammoniacal solution of hydrogen peroxide, which ammoniacal solution has a temperature of 10° C. or below, the following may be given:

Example 1

A solution was prepared by mixing 65 pounds of commercial 100 Volume hydrogen peroxide solution with 65 pounds of tap water having a temperature of about 15 to 20° C. Commercial hydrogen peroxide solutions are usually sold in solutions of 100 Volume Concentration, i. e. 1 cubic centimeter of the solution measured at 20°

C. will yield 100 Volumes of oxygen gas measured at 0° C. and 760 mm. mercury pressure. A solution of 100 Volume Concentration contains 27.6% H_2O_2 by weight and substantially 30.0% H_2O_2 by volume. It is evident that the solution as prepared, containing equal amounts of commercial 100 Volume hydrogen peroxide solution and water had an H_2O_2 concentration by weight of approximately 13.8%.

To the solution of hydrogen peroxide there was then added 5 pounds of aqua ammonia (the aqua ammonia solution having a specific gravity of 0.91). This resulted in an ammoniacal solution of hydrogen peroxide having a pH of approximately 9.5.

The resulting solution was then cooled by the introduction of a piece of ice to a temperature of substantially 8° C. The solution, thus cooled, was then used to spray 500 pounds of steamed and stemmed burley fermented tobacco, the entire spraying process requiring approximately one hour. During this entire period care was taken to insure the maintenance of a temperature of approximately 8° C. in the ammoniacal solution of hydrogen peroxide sprayed on the tobacco. In any event, during the major portion of the spraying, care was taken to insure a temperature of 10° C. or below.

It may be remarked that if the temperature is 10° C. or below during the major portion of the spraying step, the temperature may safely be permitted to go somewhat above this figure especially during the latter portion of the spraying without interfering with the improved results obtained with my process.

The tobacco was then piled on the floor, covered with canvas, and allowed to react. After several hours, it was thoroughly dried to the bone-dry condition (6 to 8% moisture content) and subsequently remoistened prior to its utilization in the manufacture of pipe tobacco and cigarettes.

Although the original tobacco was relatively dark in color and harsh in quality, the tobacco, at the conclusion of the bleaching step, was bleached to a very satisfactory light color. Moreover, its quality had been much improved, the resulting product being mild in character and very pleasant in aroma.

Example 2

As a comparison experiment, the same solution described in Example 1 was prepared, but the solution was not cooled to a temperature below 10° C., but was utilized to spray the same burley tobacco at room temperature which was 20.5° C. (69° F.). No means were provided for cooling the tobacco, either before or during the spraying, so that the temperature rose somewhat above this value during the spraying process.

After spraying, the tobacco was piled, covered with canvas, and allowed to react as in the preceding example. After several hours' reaction, it was thoroughly dried to the bone-dry state (6 to 8% moisture content) and subsequently remoistened by the addition of water, exactly as in the preceding example.

Upon examination, the tobacco had not been improved very much in color and was distinctly darker than the tobacco prepared in accordance with Example 1. Moreover, when manufactured into cigarettes and smoked, the tobacco was found to be harsh and the aroma was much less pleasant than that of the tobacco prepared in accordance with Example 1.

It will be apparent that while I have described certain preferred embodiments of my invention, many changes and modifications may be made therein without departing from the spirit of the invention. It is therefore my desire that the scope of the invention be determined in accordance with the prior art and the appended claims.

I claim:

1. A process for improving the quality of tobacco which comprises spraying said tobacco with an ammoniacal solution of hydrogen peroxide maintained, during the major portion of the spraying process, at a temperature below 10° C.

2. A process for improving the quality of tobacco which comprises spraying said tobacco with an ammoniacal solution of hydrogen peroxide maintained, during the major portion of the spraying process, at a temperature below 5° C.

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