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## RECOVERY OF GLUE FROM CHROME TANNED LEATHER

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8 Claims. (Cl. 260—118)

This invention relates to the treatment of chrome tanned leather in the manufacture of glue and more particularly to a preparatory treatment to which the leather is subjected to remove the chrome tanning salts and leave the leather in condition for the extraction of glue.

The detanning of chrome leather and chrome leather scrap is an old art, but known methods are slow and wasteful of the glue-yielding material of the leather.

The object of the present invention is to provide an improved method, which requires that the leather remain under treatment for a shorter period of time which conserves the collagen in the leather and insures a substantially larger yield of glue or gelatine, and which permits the production from such leather of a high grade glue or gelatine substantially equivalent to that produced from the best grade of hides or glue-stock.

In carrying out the invention chrome tanned leather is treated with an aqueous alkaline solution to which is added boric acid or water soluble boron salts, followed by the usual acid treatment. The presence of the boron salts substantially reduces the time of this treatment thus avoiding excessive swelling of the leather, and so conserving the collagen in the leather. Lime is the economically preferred alkali but the hydroxides of any of the alkali or alkaline earth groups may be employed and sodium borate is the preferred addition agent. The amount of borate used is 2.5 to 4% of the weight of the leather. Dry leather requires more than that having high moisture content. Heating is not necessary as the reactions involved proceed at normal plant temperatures. When the reaction is complete the treating solution is removed and the leather is washed with water until it is substantially neutral. It is then treated with a mineral acid, preferably sulphuric, washed and rendered neutral or slightly alkaline by the addition of lime or other alkali. It is found that when the leather is subjected to the preliminary treatment described, a 1 to 2% solution of acid is all that is required and thus considerable saving in acid is effected.

The method is illustrated in more detail by the following example:

7000 lbs. chrome tanned leather cut into pieces of suitable size are treated in an ordinary glue stock washer with an aqueous solution containing 600 lbs. of hydrated lime and 250 lbs. of sodium borate. Sufficient water is used to submerge the leather. After two or three days the solution is removed and the stock is well washed with water until the wash water appears substantially neutral. The stock is treated in an agitating tank for about 4 to 16 hours, depending on the thickness of the leather, with a 1 to 2% solution of sulphuric acid. The acid solution should uniformly penetrate the leather. The solution is removed and the stock washed with water to remove remaining acid. This treatment thoroughly removes the tanning reagents without destroying or removing collagen and leaves the leather in condition to yield a maximum quantity of glue of high viscosity and good quality under the usual standard methods of glue extraction from leather.

Chrome splits treated by this method have given a glue yield of about 56% in terms of water free stock. The glue has a viscosity as high as 130 and is equivalent in quality to that made from best grade hides or glue-stock. In sheet form the glue or gelatine may be clear and transparent.

The method is applicable to any chrome tanned leather suitable for the manufacture of glue. The leather may be first treated with lime and thereafter with the borate but it is more economical to use them together in a unitary treatment. The boron salts greatly facilitate the removal of the chrome tanning agent and weaker acid solution is required. The time of treatment is reduced with less swelling of the leather and less loss of the collagen. This results in the higher yield of gelatine or glue and the improved quality appears to be due to the more effective removal of the tanning agent.

I claim:

1. In the treatment of chrome tanned leather for the production of glue or gelatine, the method which comprises subjecting the leather to the action of an aqueous solution comprising an hydroxide selected from the group consisting of the alkali and alkali earth metal hydroxides to which has been added a compound selected from the group consisting of boric acid and its soluble salts.

2. A method of treating chrome tanned leather for the production of glue or gelatine, which comprises treating the leather with an aqueous solution of lime to which has been added a compound selected from the group consisting of boric acid and its soluble salts.

3. A method as set forth in claim 2 wherein the so treated leather is washed, treated with a mineral acid, again washed and rendered neutral.

4. A method of treating chrome tanned leather for the production of glue or gelatine which comprises immersing the leather in a solution of lime to which has been added sodium borate in the

proportion of substantially 2.5 to 4% of the dry weight of the leather.

5. A method as set forth in claim 4 wherein the so treated leather is treated with a weak solution of sulphuric acid and thereafter washed.

6. A method of treating chrome tanned leather for the production of glue or gelatine which comprises immersing the leather in an alkaline solution and thereafter treating the leather with an aqueous solution of one of the group consisting of boric acid and its soluble salts.

7. A method as set forth in claim 1 wherein the so treated leather is subjected to a 1 to 2% solution of sulphuric acid and thereafter washed with water.

8. In the treatment of chrome tanned leather for the production of glue or gelatine, the method which comprises subjecting the leather to the action of a hydroxide selected from the group consisting of the alkali and alkali earth metal hydroxides and a compound selected from the group consisting of boric acid and its soluble salts in aqueous solution, the said compound of the last mentioned group being present in aqueous solution in the proportion of substantially 2.5 to 4% of the weight of the leather.

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