

UNITED STATES PATENT OFFICE

2,369,256

BATING COMPOSITION

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No Drawing. Application July 13, 1940,
Serial No. 345,416

5 Claims. (Cl. 195—63)

This invention relates to bating compositions for the treatment of hides.

Numerous attempts have been made to avoid the objectionable and time-consuming conventional bating operations in the production of leathers. It has been found that the old fashioned bating solutions which contained various dungs have serious drawbacks as these materials are not uniform and are sometimes strongly influenced by rapid changes in temperature. In these bating operations it frequently happens that the enzymatic agents heretofore proposed cause the collagen fibers to be hydrolyzed, thereby weakening the structure of the resulting leathers and at the same time adversely affecting its texture and grain. Moreover, these deleterious effects are more noticeable on some hides than on others, particularly on the rather fine-grained hides used in producing garment, novelty, and top leathers for shoe manufacture. In such hides the inner layers are usually loosened in the bating bath to an extent which prevents the final leather product from having the requisite strength.

Numerous bating compositions have been proposed wherein the primary enzymatic action is provided by various animal pancreatins, especially those derived from domesticated animals such as hogs, cattle and the like, preferably in mixture with ammonia salts. Such bating compositions have frequently proved unsatisfactory because of their destroying or weakening effect on the leather forming fibers, when the bating is too much prolonged or when too large amounts of these bating agents are used.

In accordance with the present invention improved and better balanced bating compositions are provided, especially for the treatment of sensitive hides. The enzymatic properties of these compositions can be regulated to remove effectively the undesirable fibers of skins without adversely affecting the quality of the resulting leathers. These compositions preferably contain pancreatins, a soluble salt of a sulphuric acid ester of a higher molecular fatty alcohol and a buffer salt. Sometimes it is advantageous to include an inert ingredient such as wood flour to facilitate thorough mixing of the several components.

The preferred fatty alcohol sulphuric acid esters are those derived from saturated alcohols of 12 to 14 carbon atoms or those derived from unsaturated fatty alcohols of a higher molecular weight. The amount of soluble salt of fatty alcohol sulphuric acid ester used varies with the

type of pancreas used and the hides being treated. One part of soluble salt of fatty alcohol sulphuric acid ester to three parts of the pancreatin, usually proves quite adequate. The amount of the buffer salt will depend upon the salt used, the type and condition of the hide and the nature of the treatment bath. A composition which has proven quite successful for the bating of hides has contained the several ingredients in the approximate ratio, by weight, of 3.6 parts of suitable pancreas, 1 part of soluble salt of a fatty alcohol sulphuric acid ester of 12 to 14 carbon atoms, and 32 parts of ammonium sulfate. The homogeneity of this composition was improved when it contained approximately 44 parts of wood flour.

The compositions of the present invention have an excellent balance being very effective in the removal of undesirable fibers without deleteriously affecting the collagen. This balance seems to be imparted by improving the enzymatic action of the bating compositions on elastins and other undesirable constituents of the skin without a concomitant increase in their activity on the collagen. This theory seems to be borne out by the fact that bating compositions incorporating pancreatins having mild enzymatic properties, such as whale pancreas, have proven to be very effective in the bating of certain sensitive hides.

For instance, in accordance with a special embodiment of the invention whale pancreas is used to provide the essential enzymatic action in bating compositions. This enzymatic agent is provided in a bating composition containing a neutral salt, a soluble salt of a fatty alcohol sulphuric acid ester, and an appropriate extender or dispersing medium. The enzymatic effect of whale pancreas is exerted mainly upon the upper layer, i. e. the grain, of the hides or skins. The pigment and hair roots being present in the grain layer are removed therefrom very completely but without impairing the strength and fullness of the final leather product. Where the enzymatic action of the whale pancreas does not penetrate sufficiently into the inner parts of the hides or skins, it sometimes proves desirable to add minor proportions of other pancreatins, such as beef pancreas, to promote the enzymatic effect on the inner sheets of the hides or skins. This is especially desirable in the bating of skins destined for manufacture of gloves. A very satisfactory bating pancreatin has been provided for bating sensitive skins used for top leathers by combining 8 parts of whale pancreas with 2 parts of beef

pancreas. A bating composition which has found wide acceptability in the leather treating arts consists of the following ingredients:

	Parts by weight
Whale and beef pancreas in the ratio of 8:2 -----	27
Wood flour -----	33
Ammonium sulfate -----	240
Sodium or ammonium salts of highly concentrated commercial higher molecular fatty alcohol sulphuric acid esters of 12 to 14 carbon atoms -----	7.5

The composition is prepared by intimately mixing the wood flour and the pancreatins in a suitable mixing chamber, such as a four-cornered aluminium drum, and then adding finely pulverized ammonium sulfate and the powdered salt of fatty alcohol sulphuric acid ester to this mixture. The mixture is agitated over a period of about 30 minutes whereby a homogeneous distribution is attained. Such a composition has been shown to possess 1,000 to 1,050 enzymatic test units when evaluated in accordance with the Kubelka-Wagner method.

The enzymatic bating compositions of the instant invention are particularly suitable for the treatment of sensitive skins such as those derived from sheep and calves. The hides bated with the enzymatic agents of the present invention produce leathers showing a fine strong grain and adequate fullness. The bating compositions are especially suitable for treating meagre calf skin for the manufacture of box calf, and for making Chevettes from lamb skins. However, the bating compositions are also suitable for cattle and horse hides, and skins from goats, reptiles and fishes. It is necessary to regulate the ratio of pancreatin to buffer salt according to the characteristics of the original hides or skins. For example, when bating a cow hide to produce sole leather, a great quantity of a buffer salt, such as ammonium sulfate and only very little pancreatin is necessary, whilst when bating a goat skin much more pancreatin than ammonium sulfate is to be used. For example, a mixture possessing an enzymatic test of 2,000 to 2,500 units, when evaluated by the Kubelka-Wagner method, is necessary for bating goat skins.

The bating process using the enzymatic agent of the present invention is best carried out in a fresh bath of mild alkalinity having a pH value between 8 and 9 and at a temperature of about 20° to 38° C. The amount of the enzymatic agent added to the bating bath will depend upon the effect desired, the kind of hides being treated and the length of treatment. The appropriate concentration can easily be determined under practical operating conditions.

It is to be understood that the examples dis-

closed herein are illustrative of the invention and that equivalents may be used. The applicant desires that his invention be accorded a scope commensurate with his contribution to the art, as limited only by the appended claims.

I claim:

1. A bating composition for treating the skins of sheep and calves and like sensitive skins for the production of top grain leather, which composition is capable of effectively bating the top grain without appreciably loosening the inner fibers, comprising an enzymatic agent composed primarily of a whale pancreatin, and a soluble salt of a sulfuric acid ester of a higher molecular fatty alcohol of at least 12 carbon atoms.

2. A bating composition for treating the skins of sheep and calves and like sensitive skins for the production of top grain leather, which composition is capable of effectively bating the top grain without appreciably loosening the inner fibers, comprising an enzymatic agent composed primarily of a whale pancreatin, a soluble salt of a sulfuric acid ester of a higher molecular fatty alcohol of 12 to 14 carbon atoms, and a buffer salt.

3. A bating composition for treating the skins of sheep and calves and like sensitive skins for the production of top grain leather, which composition is capable of effectively bating the top grain without appreciably loosening the inner fibers, comprising a composition containing, by weight, approximately 3.6 parts of pancreatin composed primarily of a whale pancreas, 1 part of a water soluble salt of a fatty alcohol of at least 12 carbon atoms, and 32 parts of ammonium sulfate.

4. A bating composition for treating the skins of sheep and calves and like sensitive skins for the production of top grain leather, which composition is capable of effectively bating the top grain without appreciably loosening the inner fibers, comprising an enzymatic agent composed primarily of a whale pancreatin and secondarily of a beef pancreatin, a water soluble salt of a higher molecular sulfuric acid ester of an aliphatic alcohol of 12 to 14 carbon atoms, and ammonium sulfate.

5. A bating composition for treating the skins of sheep and calves and like sensitive skins for the production of top grain leather, which composition is capable of effectively bating the top grain without appreciably loosening the inner fibers, containing, by weight, approximately 27 parts of pancreatin consisting of whale and beef pancreatin in the ratio of about 4 to 1, 240 parts of ammonium sulfate, 33 parts of wood flour, and 7.5 parts of a water soluble salt of a sulfuric acid ester of 12 to 14 carbon atoms.

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