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PROCESS FOR REFINING AND DISCOLORING OF RAW SULPHATE SOFT SOAP

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The invention relates to refining of the black evil-smelling raw soap solution or soap obtained as by-product in the producing of sulphate pulp the object of the refining being to procure soft soap suitable for different purposes in the practical life, in doing which the soda used in the production of the sulphate pulp is utilized in the soap in such a manner that the evil-smelling and black substances present in the raw material for the most part are removed and that the remaining substances are destroyed or converted into substances easily volatilized by boiling while the soap is getting lighter. According to the invention the soap solution—either the natural one or the soap solution produced from the raw soap by solution in water—is cleansed from pulp fibres by filtration or in any other way and then treated with ½% of hydrogen peroxide of a strength of 30% or with any other means of oxidation, subsequently named, preferably in hot or boiling condition while mixing constantly. Hereby the evil-smelling and black substances present in the sulphate raw soap are transformed into compounds which for the most part are very soluble in water and in salt solutions so that they by addition of either common salt or sodium sulphate can be caused to remain in the black bottom water collected from the soap solution under the separated (salted) soap, the bottom water being then removed. The partly refined soap obtained by the treatment is dissolved in water for instance in proportion 1 : 1 while mixing and heating. The lumpless clear soap solution thus obtained is treated in hot or boiling condition with peroxides, either their solutions such as hydrogen peroxide of 30% strength or their mixtures or with other oxygen emitting substances such as perborates or oxygen-gas as well as with alkali hypochlorites or alkali hyposulphites or with any other substances acting in the same manner as these, the treating of these substances being performed in one single or in several operations. The substances developed by the different operations from the impurities can be removed in the above-mentioned manner of salting and by tapping of the bottom water whereat the removing operation is to be performed before the subsequent treatment with the above-mentioned reagents.

The refined discolored soap obtained by the present process can be vaporized in the customary manner to the consistence required.

When putting the invention in practice one can proceed in the undermentioned manner.

(1) The clear fibreless sulphate soap solution of 50% strength is heated to 80°–90° C. or to the boiling point additioning to the same in separate doses about ½% of hydrogen peroxide of 30% strength (calculated on the quantity of soap in the solution) while mixing constantly. Hereafter to the soap solution is additioned such a great quantity of salt that the soap after some cooling of the soap solution, differs to a separate layer under which the black bottom water has collected. After a most careful tapping of this bottom water to the soap being treated water is additioned while mixing and heating so that a soap solution of about 50% strength is obtained. To the hot or boiling soap solution thus obtained a quantity in total of 2½% of hydrogen peroxide of 30% strength calculated on the quantity of the soap is additioned in several doses while mixing constantly. A smaller or greater quantity of hydrogen peroxide can be used owing to the quality of the soap desired. During the additioning of hydrogen peroxide the heating can be interrupted and the reaction mixtures can remain standing for a shorter or longer period. After this the soap is salted and the separated bottom water is tapped in the same way as previously. Finally the soap can be washed by mixing it with a small quantity of cold water which then is separated by admixture of salt and tapped away as bottom water.

(2) Referring to the above-mentioned treatment with 2–5% e. g. 2½% of hydrogen peroxide of 30% strength the same can be divided into two operations of 1, 2–1, 3% hydrogen peroxide of 30% strength in separate doses resp. with corresponding other operations already mentioned.

(3) The raw soap obtained from water solutions of sulphate raw soap according to the mode of procedure 1 by treatment with ½% of hydrogen peroxide or by salting di-

rectly once or several times is dissolved while mixing and heating in water to a soap solution of about 50% strength into which is additioned while mixing for instance 100% of a solution of sodium hypochlorite containing about 2½% of active chlorine. Hereafter the bleached soap is salted and the separated bottom water is tapped away.

(4) The soap obtained according to the mode of procedure described in the clauses 1, 2 or 3 is emulsed in a water solution either in cold, hot or boiling condition with for instance a more or less strong or preferable concentrated solution of sodium hyposulphite. In doing this the soap is furthermore bleached and the finally bleached soap-product separates automatically when the emulsion is left standing if a solution of concentrated sodium hyposulphite has been used, a case in which accordingly there is no need of salting. The separated solution of the bottom water can be reused for treatment of new quantities of soap until it has lost its effect.

What I claim as my invention and desire to secure by Letters-Patent is:

1. A process for refining and discoloring of raw sulphate soft soap, comprising treating a solution of raw soap, or a solution of e. g. 50% strength, produced by redissolving of the raw soft soap, preferably in boiling condition with about ½% of peroxides, for instance hydrogen peroxide of 30% strength, calculated on the quantity of raw soap, mixing constantly and subsequently salting the reaction solution, tapping of the bottom water, washing of the soap with a small quantity of water, salting and then tapping the washing water from the separated soap refined and discolored.

2. A process for refining and discoloring of raw sulphate soft soap, comprising treating a solution of raw soap of e. g. 50% strength with ½% peroxides preferably dissolved, calculated on the quantity of raw soap, salting the reaction solution, tapping the bottom water, treating the separated soap redissolved with 2–5% e. g. 2½% of peroxides, for instance hydrogen peroxide of 30% strength, while mixing constantly, where upon salting and then tapping the bottom water from the separated soap refined and discolored.

3. A process for refining and discoloring of raw sulphate soft soap, comprising prerefining a solution of raw soap with ½% of peroxides preferably dissolved, calculated on the quantity of raw soap, salting-separating of the soap, refining this soap redissolved with 2–5% of hydrogen peroxide and salting-separating of this soap, treating of the redissolved soap so obtained with hypochlorites, for instance sodium hypochlorite with 2½% of active chlorine calculated on the quantity of soap being treated salting the reaction solution and tapping off the bottom water from the refined-discolored soap so separated.

4. A process for refining and discoloring of raw sulphate soft soap in the cases, when a partial oxydation already has taken place by the cooking of the sulphate pulp so that the evil-smelling black substances by salting only can be removed from the soap, as being soluble in the bottom water to be tapped away, comprising treating a solution of the redissolved soap with 2½% of peroxides preferably dissolved, calculated on the quantity of the soap being treated, salting and then separating the refined discolored soap from the bottom water to be tapped away.

5. A process for refining and discoloring of raw sulphate soft soap, comprising prerefining-discoloring the raw soap solution with about ½% of peroxides preferably dissolved calculated on the quantity of the soap being treated salting and then separating the prerefined soap, dissolving this soap, treating the soap solution with 2–5% of peroxides preferably dissolved calculated on the quantity of the soap so attained, redissolving of this soap and treating the same with a concentrated solution of hyposulphites, separating of the refined-discolored soap from the emulsion of soap and hyposulphites after standing and cooling, and reusing of the bottom water tapped away by discoloring of new quantities of soap.

6. Refined and discolored sulphate soft soap produced by treatment of a raw soap solution according to the foregoing claims and comprising the soda, co-operating at the cooking of the sulphate pulp, bound to the refined and discolored soap.

In testimony whereof I have affixed my signature.

EVALD PYHÄLÄ.