

UNITED STATES PATENT OFFICE

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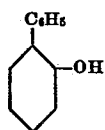
SOAP MANUFACTURE

No Drawing.

Application filed January 31, 1929. Serial No. 336,655.

This invention relates to an improved stabilized soap and to methods of manufacturing the same.

According to this invention, soap is stabilized by the addition of a small amount of an aryl phenol thereto. More particularly, the stabilizers referred to in this application are the hydroxy-diphenyls, such as 2-hydroxy-diphenyl and 4-hydroxy-diphenyl.



2-hydroxy-diphenyl



4-hydroxy-diphenyl

Mixtures of these compounds may be employed.

I have found that the addition of a small amount of such a stabilizer to a soap, as for example a few tenths of a percent, will stabilize the soap against oxidation, will prevent or retard rancidity, will not impart an undesirable color to the soap, and will prevent or retard discoloring of the soap on ageing as on prolonged exposure to the sunlight or air, and will prevent or retard the formation of free fatty acids within the soap when the soap is subjected to the action of air or sunlight.

A small amount of the stabilizer gives good results. A few tenths of a percent is in general satisfactory.

I have found that the stabilizer may be incorporated in the soap in various ways. The stabilizer may be added to the soap stock before saponification in an amount equivalent to about two-tenths of a percent calculated on the weight of the soap stock. The desired amount of the stabilizer is dissolved in the soap stock and the stock is saponified in the usual manner. This method may be employed with those stabilizers which are sufficiently insoluble in water and caustic, and which will be carried by the oils thru the saponification process and will be present in the finished soap.

As an alternative method, the solution of the desired amount of stabilizer in some vola-

tile organic solvent, such as alcohol, benzol, etc., is added to the soap while it is being milled and the stabilizer is thus incorporated into the soap. On milling, the heat of the rolls will volatilize the solvent leaving the anti-oxidant disposed thruout the soap.

Experiment has shown that soap containing two tenths of one percent of an hydroxy-diphenyl will remain relatively sweet and white after exposure to oxygen at a temperature of about 50° C. for 72 hours, and there will be only a relatively small amount of free fatty acid formed whereas a similar soap to which no stabilizer has been added, when subjected to the same test, will darken in color, become rancid and show a marked increase in free fatty acid content. A small amount of an aryl phenol, such as a phenyl-phenol, will prevent or retard the action of sunlight on soap. Tests show that a soap containing a small amount of a phenyl-phenol will remain sweet and white for a much longer time than a soap which contains no stabilizer.

The term "hydroxy-diphenyl" is used in the claims to include hydroxy-diphenyls and salts or derivatives thereof.

I claim:

1. Soap comprising a fatty acid compound and 4-hydroxy-diphenyl.
2. The method of making soap which comprises adding a fraction of a per cent of a hydroxy-diphenyl to the soap stock, saponifying and milling in the usual manner and obtaining as a final product soap comprising a small amount of hydroxy-diphenyl.
3. Soap comprising a fatty acid compound and an hydroxy-diphenyl.
4. Soap comprising a fatty acid compound and a fraction of a percent of an hydroxy-diphenyl.
5. In the process of making soap, the step which comprises adding a fraction of a percent of an hydroxy-diphenyl to the soap stock.
6. In the process of making soap the step which comprises adding a fraction of a percent of an hydroxy-diphenyl to the soap during the milling process.
7. In the process of making soap, the steps which comprise adding a fraction of a per-

cent of a hydroxy-diphenyl dissolved in a suitable solvent to the soap during the milling process and volatilizing the solvent during the milling by the heat of the rolls of the milling machine.

5 8. In the process of making soap, the step which comprises adding a fraction of a percent of 4-hydroxy-diphenyl to the soap stock.

9. In the process of making soap, the step
10 which comprises adding a fraction of a percent of an hydroxy-diaryl compound to the soap stock.

10. In the process of stabilizing soap, the step which comprises adding a fraction of a percent of 4-hydroxy-diphenyl thereto.

11. In the process of stabilizing soap, the step which comprises adding a fraction of a percent of an hydroxy-diaryl compound thereto.

12 In testimony whereof I affix my signature.
CHARLES F. KAEGERBEHN.

CERTIFICATE OF CORRECTION.

Patent No. 1,820,744.

Granted August 25, 1931, to

CHARLES F. KAEGERBEHN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 8, for -oxy-read -hydroxy-; page 2, after line 18, insert the following as claim 12:

12. Soap containing hydroxy-diaryl compounds as oxidation inhibitors.;

and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 15th day of December, A. D. 1931.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.