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SOURING COMPOSITION AND METHOD.

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To all whom it may concern:

Be it known that I, ROBERT A. PHAIR, a citizen of the United States, residing in Allendale, New Jersey, have invented certain new and useful Improvements in Souring Compositions and Methods, of which the following is a specification.

In a previous application No. 568,650, (Patent No. 1,483,519, granted February 12, 1924) I have described the use of certain improved compositions for laundering and treating textile materials having a souring or acid reaction for neutralizing the alkali in the water and having also a reducing reaction to neutralize the destructive effect on the fabric and color of chlorine, hypochlorite and other products of the acid decomposition of the hypochlorites or other chlorine compounds which have generally been used as a bleach; the specific example of the improved composition described being a mixture of sodium acid fluoride, sodium silico-fluoride or other acid compound of fluorine with sodium sulfite or sodium bisulfite.

In the commercial use of such a composition, I have found that the anti-chlor effect of the sodium compounds stated is diminished in the course of time and that it should be used within about nine months after the making up of the composition in order to get a satisfactory effect. Also, they have a very bad odor because of the giving off of sulphurous acid gas.

I have found that the same combination of alkali-neutralizing effect and anti-chlor effect can be obtained by using one or more of a certain class of chlorides or metal salts as the anti-chlor. This has longer stability and is also free from the bad sulphurous acid odor.

As an example of the present invention, I combine stannous chloride ($SnCl_2$) with any unusual sour. In use it is converted into stannic chloride ($SnCl_4$). The percentages should be about 90% of the sour and 10% of the anti-chlor.

I prefer to mix the stannous chloride with sodium silico-fluoride or other soluble acid compound of fluorine alone; or with an addition of a smaller quantity of oxalic acid. Various other materials commonly known as laundry sours may be used with the stannous chloride. Examples are acetic acid, oxalic acid, muriatic acid, sulphuric acid, phosphoric acid, tartaric acid, citric acid, sodium bisulphate and various combinations of two or more souring agents.

The composition may be produced as a commercial product made in either a dry or a liquid form.

After the usual laundrying operations, it is customary to bleach the goods and then to rinse them in order to remove the bleaching material. Such removal is not completely accomplished by rinsing, and the goods should be treated to a subsequent operation with the souring and anti-chlor composition of this invention. In such an operation, the advantages are substantially the same as those described in my previous application above referred to. Even if the composition is not entirely rinsed out of the goods subsequently, it is not destructive. The destructive effect of the bleach is avoided by removing or neutralizing the decomposition products thereof. Any of the bleach in more or less loose combination with stains in the fabric and which ordinarily causes holes therein in time, is neutralized. Also the destructive effect of the bleach on the colors, particularly on printed goods, is avoided by the anti-chlor of the composition.

Any alkali which is present, either free or in combination, is neutralized and the goods are thereby whitened. Any insoluble lime-magnesium soaps which may remain on or in the goods are so modified as to be rendered soluble in aklaline solutions.

Thus by treating with this composition the goods are put in the best shape for the bluing operation which follows and which is succeeded by the final rinsing in clear water.

Similar advantages are found in the use of this composition in the treatment of textile materials after the boiling out of the unbleached vegetable fibers and the subsequent bleaching, mercerizing and dyeing.

Instead of the stannous chloride referred to, I may use any one or more of various other chlorides or metallic salts which have a reducing reaction due to the metallic ingredient. In the example given, it is the tin in the stannous chloride which has the reducing effect, taking from the bleach additional chlorine and changing from $SnCl_2$ to $SnCl_4$. Preferably I use a me-

tallic salt of a metal which forms a white compound in the washing solutions, such as stannous chloride or titanous chloride. But many other metallic chlorides may be used without staining the goods if care be used to see that the other materials of the bath are of the right character and in the right proportion to avoid discolorization of the goods by depositing the colored metal compounds thereon.

Instead of combining these ingredients beforehand as a commercial compound, they may be applied separately to the solution in which the goods are to be treated, by merely adding them to such solution in approximately the percentages above stated.

Though I have described with great particularity of detail certain embodiments of my invention, yet it is not to be understood therefrom that the invention is restricted to the particular steps and materials described. Various modifications thereof may be made by those skilled in the art without departing from the invention as defined in the following claims.

What I claim is:

1. In the laundering or treating of textile materials, the method which consists in subjecting the goods to a bleach and to a laundry sour and a metallic salt having a reducing action due to the metallic ingredient.

2. In the laundering or treating of textile materials, the method which consists in subjecting the goods to a bleach and to a laundry sour and a chloride of a metal having a reducing action.

3. In a laundering or treating of textile materials, the method which consists in subjecting the goods to a bleach and to a laundry sour and a metallic salt having a reducing action due to the metallic ingredient and forming a white compound in the solution.

4. In the laundering or treating of textile materials, the method which consists in subjecting the goods to a bleach and to a laundry sour and stannous chloride.

5. A composition for use in laundering and treating textile materials containing a laundry sour and an anti-chlor consisting of a metallic salt with a reducing action due to the metallic ingredient.

6. A composition for use in laundering and treating textile materials containing a laundry sour and a metallic salt having a reducing action due to the metallic ingredient.

7. A composition for use in laundering and treating textile materials containing an acid compound of fluorine and a metallic salt having a reducing action due to the metallic ingredient.

8. A composition for use in laundering and treating textile materials containing sodium silico-fluoride and a metallic salt having a reducing action due to the metallic ingredient.

9. A composition for use in laundering and treating textile materials containing sodium silico-fluoride and stannous chloride.

10. A composition for use in laundering and treating textile materials containing sodium silico-fluoride, oxalic acid and a metallic salt having a reducing action due to the metallic ingredient.

11. A composition for use in laundering and treating textile materials containing sodium silico-fluoride, oxalic acid and stannous chloride.

In witness whereof, I have hereunto signed my name.

ROBERT A. PHAIR.