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UNITED STATES PATENT OFFICE

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LAUNDERING METHOD

No Drawing. Application filed October 7, 1924. Serial No. 742,268.

In my application No. 644,818, filed June 11, 1923, I have described a laundering method in which the goods are subjected to a bath containing a bleach such as hypochlorite liquor and an alkali such as sodium bicarbonate, and are subjected to a chlorine reducing agent or antichlor such as sodium sulfite and to an alkali-modifying salt such as ammonium sulfate which converts the alkali into a harmless and easily removable substance. These two agents, the antichlor and the alkali-modifier, may be separate substances added to the same water with or without preliminary mixing.

In order to secure the two effects referred to, I may use a single agent which combines them. For example ammonium sulfite or ammonium thiosulfate will serve not only as an antichlor but also as a modifying agent for the sodium carbonate or other alkali.

The present application is based specifically on the use of such a single agent. In this method, the goods are subjected to the usual baths among which is a bath containing a bleach and an alkali. Thereafter the goods are subjected to a bath containing an ammonium salt such as the sulfite or thiosulfate, or equivalent agent, which serves both to reduce the bleach and to modify the alkali to a less alkaline product.

By an equivalent agent I mean an ammonium salt in which the ammonium group is combined with a reducing sulphur acid to form a salt which will reduce chlorine and hypochlorites and not decompose soap.

The amount of the ammonium salts necessary to give the best results depends, of course, on the previous treatment of the goods, the amount of alkalinity, the amount of bleach and the amount of rinsing. Sufficient ammonium salt should be added to the water to neutralize the oxidizing power of the bleach and turn the stronger alkalies over to the harmless ammonia. An excess of the ammonium salt will do no harm. A typical washing formula would be as follows:

Washer with 300 lbs. white work

		Minutes
1.	60 gallons cold water 1 lb. washing soda	10
2.	60 gallons warm water, sufficient soap for suds	10
3.	60 gallons hot water 36 oz. 12% available chlorine bleach	20
4.	120 gallons hot water ⅔ oz. ammonium sulfite dry	5
5.	120 gallons hot water rinse	5
6.	120 gallons warm water rinse	5
7.	120 gallons cold water rinse	5

Of course, where the bleach has been more thoroughly used up by the stains in the load, not so much neutralizer is necessary. A simple test with starch iodide paper will tell when enough of the neutralizer has been added to take care of all the bleach. To determine whether sufficient has been added to take care of the alkali a sample of the bath may be taken and boiled until no more ammonia distills off; if the sample still reacts red with phenolphthalein, more of the ammonium salt should be added.

What I claim is:

1. In laundering, the method which includes subjecting the goods to a bath containing the usual soap and bleach and an alkali and thereafter, before the soap has been washed out, subjecting the goods to an ammonium salt in which the ammonium group is combined with a reducing acid and which will function as an antichlor for the chlorine and hypochlorites and not decompose soap and which will modify the alkali to a less alkaline product.

2. In laundering, the method which includes subjecting the goods to a bath containing a bleach and an alkali and thereafter subjecting the goods to an ammonium salt in which the ammonium group is combined

with a reducing acid containing sulfur and oxygen.

3. In laundering, the method which includes subjecting the goods to an ammonium salt selected from the group consisting of ammonium sulfite and ammonium thiosulfate.

4. In laundering, the method which includes subjecting the goods to an ammonium sulfite.

5. In laundering, the method which includes subjecting the goods to a bath containing soap, hypochlorite liquor and sodium bicarbonate and thereafter, before the soap has been rinsed out, subjecting the goods to an ammonium salt in which the ammonium group is combined with a reducing acid and which will function as an antichlor for the chlorine and hypochlorites and will not decompose soap and which will modify the alkali to a less alkaline product.

6. In laundering, the method which includes subjecting the goods to a bath containing soap, hypochlorite liquor and sodium bicarbonate and thereafter, before the soap has been rinsed out subjecting the goods to an ammonium salt in which the ammonium group is combined with a reducing acid containing sulfur and oxygen.

In witness whereof, I have hereunto signed my name.

ROBERT A. PHAIR.