

## UNITED STATES PATENT OFFICE

2,148,842

PROCESS FOR BLEACHING MERCERIZED  
COTTON AND RAYON YARNS

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No Drawing. Original application March 11,  
1937, Serial No. 130,417. Divided and this ap-  
plication March 2, 1938, Serial No. 193,603

## 4 Claims. (Cl. 8—108)

This invention relates to bleaching processes, more particularly to a process for bleaching mer-  
cerized cotton and rayon yarns, and is a divi-  
sion of my co-pending application for patent filed  
5 March 11, 1937, Serial Number 130,417.

Standard bleaching processes are relatively complicated and lengthy as, for example, the  
bleaching of cotton yarn, which involves sub-  
stantially seven steps, as follows: boiling in caustic,  
10 as 2% caustic soda, 1% silicate and 1% sulphonated oil or the like, dropping the above bath and washing in hot water, dropping and running through hypochlorite solution,  $\frac{1}{2}$  to 2 TW, dropping and washing in warm water, dropping and  
15 souring in a hydrochloric acid or sulphuric acid solution or the like, dropping and washing in warm water, dropping and washing in water to which is added bluing.

An object of this invention is to provide a  
20 bleaching process which is much shorter than standard processes, and involves fewer steps.

Another object is to provide a bleaching process employing a compound containing oxygen and chlorine which process will inhibit the character-  
25 istic action of the chlorine upon the fibers without interfering with the action of the nascent oxygen.

Still another object is to provide an improved  
bleaching process which will be efficient, even if  
30 the material to be bleached contains insoluble oils.

Another object is to provide a bleaching process which will leave the material free of oil stains, chafe marks and so-called niger beads.

35 Yet another object is to provide a bleaching process which is considerably less expensive than most standard bleaching processes for like material.

Other objects and advantages of the invention  
40 will be apparent during the course of the following detailed description thereof.

After the material has undergone any preliminary desirable treatment, such as boiling out in order to remove insoluble oils and the like, the  
45 material is treated, preferably, to a bath containing water, trisodium phosphate, soda ash and sodium stearate. For example, in the bleaching of mercerized cotton and rayon yarns of substantially 100 pound weight, the material may be  
50 boiled out in a bath containing:—

200 to 250 gallons water  
2% by wgt. trisodium phosphate  
4% by wgt. soda ash  
2% by wgt. sodium stearate (such as green soap  
55 145).

This treatment preferably continues for substantially five minutes, whereupon the bath may or may not be dropped and the material treated to a bath containing sodium hypochlorite and a buffer. The latter may be glues, saponified  
5 and/or emulsified fats and oils, sulphonated oils, dextrines, glucose, sugar, fatty alcohols, alkali and alkaline salts.

The sodium hypochlorite and buffer may be mixed together in substantially the following pro-  
10 portions:

95% by weight sodium hypochlorite  
5% by weight buffer.

However, the percentages of sodium hypochlorite  
15 may vary between 95% and 99% while the percentages of buffer may vary between 1% and 5%.

As required, the sodium hypochlorite-buffer mixture may be employed already mixed, since  
20 it has been found that this mixture does not lose strength even after being kept for a considerable period.

In the event the sodium hypochlorite-buffer mixture is not added to the first bath, the latter  
25 is dropped and the material treated to a bath containing substantially:

100 to 250 gallons water  
2% by weight trisodium phosphate  
2% by weight sodium stearate (such as green  
30 soap 145)  
10% by weight sodium hypochlorite-buffer mixture.

It is preferred that, at the start, this bath be  
at a temperature of substantially 100° F. and  
35 maintained at a temperature of between 100° F. and 110° F. for about fifteen minutes, whereupon the bath is brought to a boil and boiling maintained for twenty minutes, after which the bath is dropped and the material rinsed in a bath containing about:  
40

100 to 250 gallons water  
2% sodium stearate  
If and as required bluing.

45 With the treatment described, the chlorine does not attack the material being bleached, due to the proportions of buffers employed and the temperatures maintained.

Various changes may be made to the forms of the invention herein described, without departing from the spirit of the invention or the scope of the claims.

I claim:

1. A bleaching process for mercerized cotton  
55 and rayon yarns, which consists in boiling said



- material for substantially five minutes in a bath including trisodium phosphate, soda ash and sodium stearate, dropping said bath, subjecting said material to a bath, at between 100° F. and 110° F., consisting of trisodium phosphate, sodium stearate, sodium hypochlorite and a buffer, for substantially fifteen minutes, raising said temperature to the boiling point and boiling for twenty minutes, dropping said bath and rinsing said material.
2. A bleaching process for mercerized cotton and rayon yarns which consists in boiling said material for substantially five minutes in a bath including 2% by weight trisodium phosphate, 4% by weight soda ash and 2% by weight sodium stearate, dropping said bath, subjecting said material to a bath, at between 100° F. and 110° F., consisting of trisodium phosphate, sodium stearate, sodium hypochlorite and a buffer, for substantially fifteen minutes, raising said temperature to the boiling point and boiling for twenty minutes, dropping said bath and rinsing said material.
3. A bleaching process for mercerized cotton and rayon yarns which consists in boiling said

- material for substantially five minutes in a bath including 2% by weight trisodium phosphate, 4% by weight soda ash and 2% by weight sodium stearate, dropping said bath, subjecting said material to a bath, at between 100° F. and 110° F., consisting of 2% by weight trisodium phosphate, 2% by weight sodium stearate, and 10% by weight hypochlorite-buffer mixture for substantially fifteen minutes, raising said temperature to the boiling point and boiling for twenty minutes, dropping said bath and rinsing said material.
4. A bleaching process for mercerized cotton and rayon yarns, which consists in boiling said material for substantially five minutes in a bath including trisodium phosphate, soda ash and sodium stearate, dropping said bath, subjecting said material to a bath, at between 100° F. and 110° F., consisting of 2% by weight trisodium phosphate, 2% by weight sodium stearate, and 10% by weight hypochlorite-buffer mixture for substantially fifteen minutes, raising said temperature to the boiling point and boiling for twenty minutes, dropping said bath and raising said material.

EDWIN P. SHERMAN.

## CERTIFICATE OF CORRECTION.

Patent No. 2,148,842.

February 28, 1939.

EDWIN P. SHERMAN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 24, claim 4, for the word "raising" read rinsing; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of May, A. D. 1939.

(Seal)

Henry Van Arsdale  
Acting Commissioner of Patents.