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METHOD OF STRIPPING DYES FROM FIBERS.

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Hydrosulphites of the alkali-forming metals, principally sodium hydrosulphite, have been used for stripping dyes from fabrics. With these materials it is, however, necessary to keep the bath alkaline, as otherwise the material decomposes. I have discovered that if the stripping is carried on in a bath comprising zinc hydrosulphite and a hydrosulphite such as sodium hydrosulphite held in equilibrium by the presence of a soluble zinc salt and a soluble sodium salt, the use of an alkaline stabilizer is unnecessary, and it is even possible to maintain the bath slightly acid. The result is much more efficient than when an alkaline solution is used and the injurious effect of alkalis on animal fibers can be avoided.

The simplest way of obtaining a bath comprising the equilibrium referred to is to dissolve together the soluble zinc salt and the hydrosulphite of an alkali-forming metal such as sodium hydrosulphite, though the hydrosulphites of other alkaline or earth alkaline metals may be used, and for the purposes of this application, ammonium hydrosulphite is to be considered as an equivalent. The soluble zinc salt may be the chloride, sulphate acetate or other similar salt.

When two such salts are mixed together apparently an equilibrium reaction is established according to the following formulas:

$$Me'_2S_2O_4+ZnSO_4 \rightleftarrows ZnS_2O_4+Me'_2SO_4 \text{ or}$$
$$Me''S_2O_4+ZnSO_4 \rightleftarrows ZnS_2O_4+Me''SO_4$$

In these formulas Me′ is intended to represent a monovalent alkali-forming metal and Me″ represents a similar bivalent metal. The zinc hydrosulphite formed in these equilibriums is much more stable than the salts of the alkaline or earth alkaline metals and serves as a stabilizer of the latter so that the bath may even be brought to the boiling point while on the acid side without decomposition setting in.

If a commercial powder is to be sold adapted for ready use in preparing a stripping bath, it is advantageous to use a partially anhydrous zinc salt in order to prevent a reaction starting in before the bath is prepared. For example, I may use zinc sulphate containing approximately 12% of water of crystallization.

The following example illustrates my invention:

Picked wool shoddy was covered with water which was brought to a boil and there was then added 2½% of the weight of the wool in sodium hydrosulphite and a like weight of zinc sulphate containing approximately 12% of water of crystallization. The boiling was continued until color had disappeared. The goods were then rinsed thoroughly and finished in the usual manner. The action was very efficient and there was substantially no tendency for decomposition of the bath.

It is to be understood that the two salts may be added simultaneously in the form of a mixture, or they may be added separately, or they may be put first into solution. There is also a wide latitude in regard to the temperature of the bath, the time of boiling and the percentages of materials used. It is, however, important that the bath should not be permitted to become alkaline, if its full efficiency is to be maintained.

This bath may be used on all commercial fibers such as those used in making fabrics and also on leather and other fibrous materials, which may be in the raw, intermediate or finished state.

What I claim is:

1. The method of stripping dyes from fibers which comprises the steps of treating the fibers in a bath comprising zinc hydrosulphite and the hydrosulphite of an alkali-forming metal in equilibrium with a soluble zinc salt and a salt of such alkali-forming metal.

2. The method of forming a bath for stripping dyes from fibers which comprises the step of dissolving together a hydrosulphite of an alkali-forming metal, and a soluble zinc salt.

3. A new product adapted to form a stripping bath, a mixture of a hydrosulphite of an alkali-forming metal and a soluble zinc salt having less than the full amount of the water of crystallization.

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