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PROCESS RELATING TO THE DYEING OF WOOL

Albert Landolt, Basel, Switzerland, assignor to Society of Chemical Industry in Basle, Basel, Switzerland

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It is known that in the production of fast wool dyeings, such as are produced by grounding the wool with an arylide of 2:3-hydroxynaphthoic acid and subsequently developing with a diazo-compound, the dyes on the fibre frequently lack fastness to rubbing. In order to avoid this defect several expedients have been suggested, for instance rinsing the grounded wool with common salt solution or centrifuging the grounded wool.

This invention relates to a process for enhancing the fastness to rubbing of such dyeings as are produced by grounding the wool in an alkaline bath with an arylide of an organic carboxylic acid, capable of coupling, and developing with a diazo-compound. The invention consists in treating the wool, after it has been grounded with the arylide, with a liquid which contains a buffer substance adapted to diminish the alkalinity of the grounded wool. Such buffer substances are, for example, sodium bicarbonate, magnesium sulphate, ammonium salts, acid phosphates, feeble acids and the like. With these bodies in a dissolved state there may be mixed substances having an emulsifying or solvent action, for instance soap or its substitutes, a colloid or the like.

The following examples illustrate the invention:—

Example 1

Wool is grounded with 30 times its weight of a liquor containing 2 per cent. of 2:3-hydroxynaphthoic acid-anilide, 4 per cent. of sodium hydroxide (both calculated on the weight of the wool), 20 grams of anhydrous sodium sulphate and 20 grams of sulphite cellulose liquor (the latter per litre of the grounding liquor), the operation being conducted for ¾ hour at 45° C. The wool is then washed for 10 minutes with 10 times as much liquor, containing per litre 10 grams of sodium bicarbonate. The wool is next developed, without being dried, in a coupling bath (ratio of wool to liquor 1:10) containing 2 per cent. of diazotized 4'-ethoxy-4-amino-diphenylamine and 5 per cent. of sodium bicarbonate (both calculated on the weight of the wool). After rinsing and souring, there is obtained a deep blue dyeing of very good properties of fastness, particularly of very good fastness to rubbing.

Example 2

Wool yarn is handled in a dye-bath which contains 3 per cent. of 2:3-hydroxynaphthoic acid-α-naphthylamide, 6 per cent. of sodium hydroxide. 12 per cent of Turkey red oil (all calculated on the weight of the wool), 20 grams of sulphite cellulose liquor per litre of dye liquor and 50 grams of anhydrous sodium sulphate per litre of dye liquor. The ratio of wool to liquor is 1:20 and the treatment continues for ¾ hour at 20° C., the yarn being handled in the liquor as carefully as possible. The liquor is then run off and the grounded yarn is treated for 10 minutes at ordinary temperature with 15 times its weight of water containing 20 per cent. of sodium bicarbonate and 10 per cent. of the product known in the trade under the registered trade-mark Igepon A (a substitute for soap) or some other washing agent, both calculated on the weight of the wool. The washing liquor is now run off and the wool is developed for 20 minutes in a liquor containing diazotized 4-chloro-2-toluidine amounting to 2 per cent. of the weight of the wool and also 10 per cent, of sodium bicarbonate (calculated on the weight of the wool). There is obtained a deep red of pronounced properties of fastness.

Instead of the above mentioned arylides of 2:3-hydroxynaphthoic acid also other arylides may be used, for example such which derive from the various chloranilines, toluidines, chlorotoluidines, from the ethers of aminophenols and aminonaphthols (for example ortho-anisidine, para-anisidine, cresidine, 1-amino-4-methoxynaphthalene, etc.), from the napththylamines, such as 4-chloro-α-naphthylamine or β-naphthylamine, further from diamines, such as diaminodiphenyl ethers, diaminodiarylmethanes, diaminodiphenyls, etc.

As further carboxylic acids capable of coupling there may be mentioned the 6- or 8-methoxy-2-hydroxynaphthalene-3-carboxylic acid, the 2:3-hydroxyanthracene-carboxylic acid, the hydroxycarbazol- and hydroxyphenanthrene-carboxylic acids, the hydroxycarboxylic acids of the benzene series, such as cresotic acids, carboxylic acids containing a $COCH_2$-group capable of coupling, such as pyrazolone carboxylic acids, acetoacetic acid, etc.

Thus, according to the nature of the diazo-compound deriving from amines of the benzene series, such as chlorotoluidines or chloranilines, or from more complicated amines, such as monoaroyl derivatives of the phenylenediamines, chloraminodiarylethers, or from amino-azo-substances, etc., and according to the selection of the coupling component, there are obtained yellow, orange, red, violet, blue, green, brown and black tints which are distinguished, besides an excellent fastness to rubbing, by further valuable properties.

What I claim is:—

1. In the production of fast tints on wool by grounding the wool with an arylide of a carboxylic

acid capable of coupling and subsequent developing with diazo-compounds, the step which consists in treating the wool, after it has been grounded with the alkaline solution of the arylide capable of coupling, with a liquid which contains a buffer substance adapted to diminish the alkalinity of the grounded wool.

2. In the production of fast tints on wool by grounding the wool with an arylide of 2:3-hydroxynaphthoic acid and subsequent developing with diazo-compounds, the step which consists in treating the wool, after it has been grounded with the alkaline solution of the arylide, with a liquid which contains a buffer substance adapted to diminish the alkalinity of the grounded wool.

3. In the production of fast tints on wool by grounding the wool with an arylide of 2:3-hydroxynaphthoic acid and subsequent developing with diazo-compounds, the step which consists in treating the wool, after it has been grounded with the alkaline solution of the arylide, with a liquid which contains sodium bicarbonate as a buffer substance adapted to diminish the alkalinity of the grounded wool.

ALBERT LANDOLT.