

ALIEN PROPERTY CUSTODIAN

MANUFACTURE OF FIBERS AND FOILS

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This invention relates to the manufacture of fibers and foils.

It is an object of this invention to produce fibers and foils of special properties.

A further object is to produce these fibers and foils from viscose solutions treated with superpolyamides.

A still further object is the provision of fibers and foils from ammoniacal copper oxyde solutions treated with superpolyamides.

These and other objects will appear from the detailed specification following hereinafter.

It has been found that fibers and foils of excellent properties are obtained, if solutions of viscose and cellulose in ammoniacal copper oxyde treated with alkali-soluble superpolyamides containing sulfamide groups, are spun or worked up into foils. Alkali-soluble superpolyamides are obtained according to the German Patent Application I. 64 124 IVd/12o, filed March 20, 1939, by condensing diamines containing sulfamide groups and/or dicarboxylic acids or their functional derivatives or salts of these acids with the diamines or amino carboxylic acids containing sulfamide groups or their functional derivatives, especially lactams.

Solutions of viscose or of cellulose in ammoniacal copper oxyde are preferably mixed with alkaline solutions of these superpolyamides and then spun in a known manner or worked up into foils. Hereby the usual coagulation agents like salt solutions or acids may be employed. The quantity of the superpolyamides, to be given to the spinning solution, may vary within wide limits. Preferably there are added not less than 5 per cent superpolyamide (related to cellulose), as otherwise the admixture of superpolyamides is of no practical value. On the other hand a multiple of superpolyamide compared with cellulose may be employed.

The fibers obtained are faster to wrinkling and possess a far higher "Bauschelastizität" (bolster-elasticity) and a more elastic grip than viscose-fibers. The grip, moreover, on account of the good "Bauschelastizität" resembles wool. Also the dyeing properties of the fibers and foils thus obtained are better than those of fibers and foils from pure viscose or pure ammoniacal copper oxyde cellulose. They absorb dyestuffs for instance much easier and can be dyed in darker shades than pure viscose or pure ammoniacal copper oxyde cellulose. Contrary to these they may be dyed with acid dyestuffs, for instance with wool dyestuffs and also with acetate silk dyestuffs. On account of the excellent dyeing

properties the fibers are very much adapted for the manufacture of mixed fabrics.

Example I

A 20 per cent solution of a superpolyamide consisting of hexamethylenediamine and N,N'-dipropyl - carboxylic - acid-p-sulfo-benzoic-acid-diamide (see Example I of the German Patent Application I. 64 124 IVd/12 o, filed March 20, 1939) in a caustic soda solution of about 8 per cent is added to a viscose solution capable of being spun in such a quantity, that after spinning and coagulating filaments containing about 10 per cent superpolyamide are obtained. The elasticity of these filaments is far greater than that of pure viscose filaments. The filaments, moreover, possess contrary to the others a wool-like grip and excellent "Bauschelastizität".

The filaments may be dyed by boiling one hour with 2 per cent acid anthracene red 3 BL (Schultz Dyestuff Tables, Year 1932, Vol. II, Page 187) ratio of the weights of filaments and water 1:50, by adding 10 per cent Glauber salt and 4 per cent formic acid. It is then washed with lukewarm water and afterwards dried. The shades obtained are distinctly darker than on viscose silk without addition of the superpolyamide, whereby the degree of fastness is for both kinds at least the same. If the filaments are dyed in the same way with 2 per cent palatine fast blue GGN (Schultz Dyestuff Tables, Year 1932, Vol. II, Page 108) by adding 6 per cent formic acid or with 2 per cent sirius light blue BRR (Schultz Dyestuff Tables, Year 1934, Vol. I, Page 131) by adding 20 per cent Glauber salt, also distinctly darker, but more brilliant shades are obtained than on cellulose free from superpolyamides.

Example II

An alkaline solution of a condensation product consisting of hexamethylenediamine and N,N'-dipropyl-carboxylic-acid-diphenylether-4,4'-disulfonic-acid-di-amide (see Example II of the German Patent Application I. 64 124 IVd/12o) is added to a viscose solution as described in Example I in such a quantity, that the finished filaments spun from the solution contain 15 per cent of the superpolyamide. They are spun in the way usually adapted for pure viscose. The filaments are very elastic and show a wool-like grip. If they are boiled one hour with 2 per cent fast-mordant-blue E (Schultz Dyestuff Tables, Year 1934, Supplementary Volume I, Page 90) ratio of the weights of filaments and water 1:50, by adding 10 per cent Glauber salt and 4 per cent

formic acid and, if afterwards treated for 45 minutes with 1 per cent potassium chromate, distinctly darker and also faster shades are obtained than on filaments consisting of superpolyamid-free viscose.

In the same way also fols can be obtained and dyed. They also possess darker shades than fols from pure viscose.

Viscose containing 20 per cent of the condensation product obtained from N,N'-dipentacarboxylic-acid-diphenylether-4.4'-di-sulfonic-acid-damide is dyed, by boiling one hour and adding 3 per cent soap, with 1.5 per cent celliton fast blue BF (Cellitonechtblau BF), concentrated powder, ratio of the weights of filaments and water 1:50. The shades are far darker than those on filaments from superpolyamide-free viscose solution, whereby the degree of fastness for both kinds is very much the same.

Example III

An alkaline solution of a superpolyamide consisting of 1 mol N,N'-dipropanecarboxylic-acid-p-sulfobenzolic-acid-diamide, 1 mol adipic acid and 2 mols hexamethylenediamine is added to a viscose solution capable of being spun in such a quantity, that the finished filaments contain about 20 per cent superpolyamide. The filaments are dyed by boiling one hour with 2 per cent sirius fast blue BRR (Siriussechtblau BRR) (Schultz Dyestuff Tables, Year 1934, Supplementary Volume I, Page 131) ratio of the weights of filaments and water 1:50, by adding 20 per cent Glauber salt. Far darker shades than on filaments consisting of superpolyamide-free viscose are thus obtained.

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