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ALIEN PROPERTY CUSTODIAN

PROCESS FOR MANUFACTURING CASEIN FILAMENTS

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This invention concerns the manufacture of artificial textile fibers or filaments consisting essentially of casein, as well as improvements in or regarding the operations of washing and/or making the filaments and fibers insoluble.

It is established in the specification of the Italian Patent 348,661 of the same inventor, that in the manufacture of casein filaments or mixed casein and cellulose filaments, the subsequent treatment of the filaments after they have been coagulated, must be carried out in the baths of sodium chloride and/or aluminium salts with the immediate following addition of formaldehyde to avoid having the filaments spoilt.

It has now been found that spoiling the filaments as mentioned can be avoided also by using other solutions, for instance soluble salts of ammonium, of alkaline metals and/or of earthy alkaline metals, with the immediate or following addition of formaldehyde and eventually with the addition of aluminium salts.

From the foregoing comes the fundamental principle that to avoid spoiling the casein filaments as soon as they are coagulated, they must not be washed with water and/or made insoluble in aqueous solutions containing more or less high percentages of formaldehyde alone, but that they must be washed and/or made insoluble in neutral and/or acid saline solutions to which the formaldehyde is added either at once or later on.

Examples of performance

A—100 kg. of washed and dried casein is swelled in water and then dissolved for instance with a caustic alkali equivalent to 20 liters of sodium hydrate at 35 Bé after which the volume of the solution is brought up to 500 liters in all; the solution is filtered once or more than once and after suitable maturation, it is passed on to the spinning, the filaments being coagulated in a bath containing for instance: 250 gm. of sodium sulphate, 150 gm. of zinc sulphate and 100 gm. of sulphuric acid per liter of the bath and then the coagulated filaments are treated in one or more saline baths containing for instance: 150 gm. of sodium sulphate, 50 gm. of zinc sulphate and 30 gm. of magnesium sulphate with additions or not of aluminium salts and sodium chloride; the formaldehyde can be added even in the first bath or in one of the following saline baths of the same composition, or by varying the salts and the respective amounts.

B—The coagulated filaments are treated in one or more saline baths containing for instance: 30 gm. of ammonium chloride, 100 gm. of sodium chloride and 150 gm. of aluminium sulphate; the formaldehyde can be added in the first following saline bath of the same composition, or by varying the salts and the respective amounts.

The contents of salts in the baths as per Examples A and B can vary within wide limits and even arrive at saline saturation of the baths, and other salts of alkaline metals and earthy alkaline metals, ammonium, and the like, for instance acetates, formates, chlorides, sulphates, etc. can be used too.

A very low salt content is possible if other substances are added to the baths which increase the density of the baths, but of course such substances must not be casein solvents, but neutral, i. e., acid or coagulants of casein.

The process likewise applies to mixed casein and cellulose fibers.

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