

ALIEN PROPERTY CUSTODIAN

PROCESSES FOR THE MANUFACTURE OF ARTIFICIAL TEXTILE FIBRES

Antonio Ferretti, Milan, Italy; vested in the
Allen Property Custodian

No Drawing. Application filed July 31, 1940

This invention concerns improvements in or relating to processes for the manufacture of artificial textile fibres.

In co-pending U. S. Patent Application Serial N. 96470 of 1936, processes are described and claimed by which a casein and a colloidal solution thereof may be produced which are suitable for use in the manufacture of artificial textile fabrics. The present invention concerns the treatment of such casein for spinning.

According to the present invention there is provided in a process for the manufacture of artificial textile fibres, the step of passing an alkaline solution of casein derived from milk through a spinning nozzle and coagulating the fibres obtained thereby in an aqueous solution of an acid and at least one other substance which renders the coagulated fibres insoluble. The process may be effected with the addition of aluminium salts and/or tin salts and/or formaldehyde with or without sodium salts to the acid coagulating bath.

Example of coagulating baths which may be employed are as follows:

Example A

An aqueous solution of sulphuric acid and sodium sulphate is made, the proportions being such that the bath contains 140 cubic centimetres of 66° Bé sulphuric acid and 400 grammes of sodium sulphate for each litre of the bath. To this solution, aluminium salts are added, preferably aluminium sulphate or potassium alum. It is also advantageous to add small quantities of tin salts, for example tin acetate.

Example B

An aqueous solution of sulphuric acid, alumin-

ium sulphate (or potassium alum) and sodium chloride is made, the proportions being such that the bath contains, for each litre thereof, 150 cubic centimetres of 66° Bé sulphuric acid, 150-200 grammes of aluminium sulphate and 75 grammes of sodium chloride. The quantity and proportion of aluminium sulphate and sodium chloride may be varied according to the effects required, bearing in mind that the function of the aluminium salts is to harden rapidly the filaments as soon as they have been coagulated, and that the presence of the sodium chloride in the bath assists the action of the aluminium salts in making filaments insoluble. In preparing this solution, care should be taken not to heat it unduly, so as to avoid the transformation of a portion of the sulphuric acid into hydrochloric acid. There may likewise be added to this solution small quantities, up to 10% of the solution by weight, of other salts, such as for example, magnesium sulphate, zinc sulphate, ammonium sulphate or the like in order to increase the efficiency of the coagulation.

When the colloidal solution of casein contains carbon sulphide, it is preferable to employ the first bath indicated above as the coagulating agent.

For the mixed solutions of casein and viscose, the first bath is likewise preferable and the amount of sulphuric acid employed can be gradually reduced to 55% of the amount indicated above according to the higher or lower percentage of viscose added to the casein solution. The higher the percentage of viscose, the lower can be the amount of acid in the coagulating bath. Also, the bath temperature may be slightly lower.

ANTONIO FERRETTI.