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MANUFACTURE AND PRODUCTION OF ARTIFICIAL THREADS, FILAMENTS, FILMS, AND THE LIKE

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3 Claims. (Cl. 18—54)

This invention relates to the manufacture and production of artificial threads, filaments, films and the like, which I will hereinafter refer to as threads, from an alkaline solution of cellulose xanthate and casein.

I have found that after the threads have been formed by projecting the mixture into a bath containing dilute acid, the re-conversion of the cellulose xanthate to cellulose hydrate is delayed, so that it is not complete even if the threads be allowed to stand at ordinary temperature for a considerable time. Consequently, if the threads are finished by the normal processes generally used for viscose threads, they contain considerable proportions of undecomposed sulphur compounds.

The object of the present invention is to provide a process for the production of threads from casein viscose solutions, wherein the decomposition of the cellulose xanthate is completed and the threads can be successfully subjected to the purifying and finishing processes usually used for threads prepared from viscose alone.

According to the present invention the process for the manufacture and production of artificial threads comprises extruding an alkaline solution of cellulose xanthate and casein into a bath containing dilute acid, and treating the so formed threads with water or with a dilute solution of a weak acid at or near the boiling point for a short time. Suitable weak acids which may be used are acetic acid and tartaric acids. The nearer the liquid is to the boiling point the shorter the time of treatment required.

The following example illustrates one method of carrying out the process according to the present invention but the invention is not restricted to this example.

Example

An aqueous solution containing 0.5 per cent of ammonia and 15 per cent of casein is mixed with viscose containing 7.5 per cent of cellulose and 6.5 per cent of sodium hydroxide in such proportions that there is four times as much cellulose as casein in the mixtures.

Within 24 hours the mixture is filtered, evacuated and extruded into a bath containing:

Sulphuric acid	Per cent	50
Sodium sulphate	8.5	
Glucose	15	
Zinc sulphate	6.5	
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at a temperature of 42° centigrade to form filaments of 4 denier titre.

The yarn so formed is washed until free from acid, desulphurised, washed again, treated with dilute sulphuric acid and washed until neutral. It is then immersed for 15 minutes in water containing 0.1 per cent of acetic acid maintained at 90° to 100° centigrade. The yarn is then finally washed and dried.

What I claim is:

1. A process for the manufacture and production of threads which comprises extruding an alkaline solution of cellulose xanthate and casein into a coagulant thereby forming threads and treating the so-formed threads with an aqueous solution of acetic acid substantially at the boiling point thereof.

2. In a process for the manufacture and production of threads which comprises extruding an alkaline solution of cellulose xanthate and casein into a coagulant comprising dilute acid, thereby forming threads, the casein being present in substantial amount and the reconversion of the cellulose xanthate to cellulose hydrate being incomplete when the threads are finished by the normal liquid treatment processes generally used for viscose threads and comprising washing free of acid, desulphurizing, acidifying and neutralizing, and the so-formed threads contain considerable proportions of undecomposed sulphur compounds, the improvement which comprises completing the decomposition of the cellulose xanthate by treating the so-formed threads with water substantially at the boiling point thereof.

3. In a process for the manufacture and production of threads by extruding an alkaline solution of cellulose xanthate and casein into a lukewarm dilute acid coagulant, thereby forming threads, and wherein the reconversion of the cellulose xanthate to cellulose hydrate is incomplete when the threads are finished by the normal liquid treating processes generally used for viscose threads and comprising washing free of acid, desulphurizing, acidifying and neutralizing, and the so-formed threads contain considerable proportions of undecomposed sulphur compounds, the improvement which comprises immersing the so-formed neutralized threads in an aqueous liquid at or near the boiling point thereof, said liquid being selected from the group consisting of water and dilute aqueous solutions of acetic and tartaric acids, and thereafter washing and drying the threads.

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