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PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in Processes for Dialysing Latex and Apparatus therefor

We, RUBBER-STICHTING, formerly of Amsterdam, Holland, but now of Julianalaan 91, Delft, Holland, a Foundation incorporated under the laws of the Netherlands, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

In the specification of the British patent application No. 17314, filed June 13th 1939, Serial number 521,436, there is described a process for dialysing, at elevated temperature, latex boiled with alkaline lye, wherein the alkali-treated latex is passed continuously through the interior of appropriate dialysing elements, preferably tubes made of the material known under the Registered Trade Mark "Cellophane," and water is caused to flow over the outside of the dialysing elements.

The apparatus used consisted of flat open receptacles in which the dialysing elements were horizontally disposed at the bottom. It was found, however, that the Cellophane tubes deteriorated after a relatively short period of use. Investigation showed that this deterioration is due to the fact that the Cellophane tubes are resistant to hot alkali-containing latex only in the absence of oxygen. As latex always foams somewhat the chances are that a certain amount of air will enter the tubes with it. This air accumulates in the horizontal elements at certain points causing an accelerated local deterioration of the tubes. Moreover, local accumulation of air promotes the formation of lumps by coagulation of the latex. These lumps grow gradually bigger propagating themselves through the whole of the tube, which finally gets clogged. This makes repeated renewal of the tubes necessary, and gives rise to undue expense both in material and labour.

These drawbacks are obviated by the present invention. According to the invention, the latex is dialysed, preferably at an levated temperature, by passing it through ialysing tubes, for example of seamless ellophane, which extend upwardly or re substantially vertical and are connected, at the upper ends by connections which preferably are open or can be opened.

According to a further feature of the invention the dialysing tubes may be disposed, for example suspended, in a number of receptacles or in a receptacle divided by means of partition walls into compartments, while the water is caused to flow through the different receptacles or compartments in counterflow to the latex.

In order that the invention may be readily understood and easily carried into effect an apparatus constructed in accordance with the invention is illustrated by way of example in the accompanying drawing.

In the drawing, 1 denotes a receptacle wherein a number of dialysing tubes 2, preferably made of seamless Cellophane, are suspended. These tubes are connected at the bottom by connecting-members 3 and at the top by open fork-shaped members 4. The latex, for example hot latex treated with alkali lye, is fed to the apparatus through the inlet basin 5, flows through the tubes 2 and is removed through the outlet basin 6.

The receptacle 1 is divided by partitions 7 into compartments through which, preferably hot, water flows. The water enters at 8 and is discharged at 9. This water can moreover be heated, for example with the aid of steam which is introduced through perforated discs 10. The U-shaped connecting-members 3, the fork-shaped members 4, the inlet basin 5 and outlet basin 6 may be constructed of resistant material, for example of glazed china or of alkali-resistant glass, provided that the inner wall, which comes into contact with the latex, is sufficiently smooth to prevent coagulation.

Instead of using the connecting-members 3 for connecting the tubes 2, the tubes can be made continuous at the bottom in which case the curved bottom parts may if necessary be suitably guided and supported.

If desired, the fork-shaped members 4 and the inlet and outlet basins can be closed by means of a cover or a plug.

The open connecting members 4 between the tops of the substantially vertical Cellophane tubes enable any air which may have been introduced into the apparatus, for example by foaming of the latex, to escape. Moreover any lumps of coagulated rubber which may have been formed collect in the fork-shaped members in the top-part of the apparatus, so that obstruction of the dialysing tubes is prevented. In the unlikely event of a lump of coagulated rubber adhering to the dialysing wall and increasing in size there, it is possible to remove the lump, for example by introducing a metal rod or hook through the opening in the members 4. This is, however, scarcely ever necessary because the lumps usually rise of their own accord and adhere at the top part of the apparatus to the surface film formed in the fork-member. If this film becomes too thick it can easily be removed. Since, however, air strongly promotes coagulation of the latex, the provision made in the apparatus for the escape of air which may be introduced, largely reduces the formation of lumps.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is :—

1. A process for dialysing latex, according to which the latex is caused to flow, preferably at an elevated temperature, through upwardly directed or substantially vertical dialysing members, for example tubes made of seamless Cellophane, which are connected at the upper ends, for example by fork-shaped members, in such a manner that the connections between the tubes are open or can be opened.

2. A process according to claim 1, wherein the dialysing tubes are arranged in a number of receptacles, or in a receptacle divided into a number of compartments by means of one or more partition-walls, and the water passes through the different receptacles or compartments in counterflow to the latex.

3. Apparatus for use in carrying out the process claimed in Claim 1 or Claim 2, comprising a receptacle, which may be divided into compartments by partition walls, in which substantially upright dialysing tubes, for example of seamless Cellophane, are arranged, each tube being connected to the adjacent tube at the bottom by a closed connection and at the top by a connection which is open or can be opened.

4. Apparatus according to claim 3, having means for heating the dialysing liquid, for example perforated members arranged in the bottom part of the receptacle or compartments for the introduction of steam.

5. Apparatus for dialysing latex substantially as described with reference to the accompanying drawing.

Dated this 10th day of September, 1940.

For the Applicants :—
GILL, JENNINGS & EVERY,
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2. A process according to claim 1, wherein the dialysing tubes are arranged in a number of receptacles, or in a receptacle divided into a number of compartments by means of one or more partition-walls, and the water passes through the different receptacles or compartments in counterflow to the latex.

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