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CLOTHS FOR ELECTROCHEMICAL DIAPHRAGMS

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The present invention relates to cloths for electrochemical diaphragms.

Various processes are already known for using filter cloths which consist of after-chlorinated polyvinyl chloride as diaphragms for electrochemical purposes. It has, however, been found that in the presence of a strongly acid electrolyte of an oxidizing action the tissue is not sufficiently tight so that even after shrinkage of the fiber in hot water of 90° C the diffusion between the anode liquid and the cathode liquid is not prevented.

Now we have found, and this being surprising, that felt or tissue of fibers from after-chlorinated polyvinyl chloride possess the desired impermeability which have been impregnated with silicic acid and at least one water-insoluble inorganic salt. Insoluble salts of calcium and barium are particularly suitable for that purpose. The impregnation may, for instance, be produced by saturating the felt or tissue with aqueous solutions of salts of silicic acid and with metal salts, for instance barium salts and after-treating them with dilute sulfuric acid.

The after-chlorinated polyvinyl chloride is for instance obtained according to the process described in U. S. Patent No. 1,982,765.

The following examples serve to illustrate the invention, but they are not intended to limit it thereto, the parts being by weight:

(1) After-chlorinated polyvinyl chloride (for instance felt 300/2) is placed for 2 minutes into hot water of 90° C. After drying the shrinked cloth is coated with an intimate mixture of 2 parts of barium sulfate and 1 part of waterglass (commercial) and allowed to dry in the open air. The cloth is then treated with sulfuric acid of about 10 per cent strength and again dried in the open air; the diaphragm is then ready for use.

(2) After-chlorinated polyvinyl chloride (for instance felt 300/2) is placed for 2 minutes into hot water of 90° C. The shrinked cloth is impregnated with a barium chloride solution which has been saturated in the hot condition. The cloth is then allowed to drop off and treated with dilute sulfuric acid for causing the barium sulfate to precipitate. After drying the cloth is soaked with waterglass and the silicic acid is set free by means of dilute sulfuric acid. After having been dried in the open air the diaphragm is ready for use.

(3) After-chlorinated polyvinyl chloride (for instance felt 300/2) is placed for 2 minutes into hot water of 90° C. The shrinked cloth is impregnated with calcium chloride solution and calcium phosphate is precipitated on the fiber by means of tri-sodium phosphate. The cloth is washed for a short time with water for removing the sodium chloride; it is then soaked with commercial waterglass and the silicic acid is set free with phosphoric acid. After having washed it with water and subsequently dried in the open air the diaphragm is ready for use.

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