By leading hot paraffin oil into the axial opening of the nozzle, an elastic hydrogel tube was obtained which was cut to about 35 long pieces. After a thorough washing the tubes could be used as tracheal sounds. The tubes with high swelling capacity could be imbibed with antibiotics, anaesthetics and other drugs, to achieve atraumatic properties and a long time tolerability, avoiding the danger of a secondary infection.

EXAMPLE 7

The solution from Example 1 was, after having added the base, kept 120 hours at 5° C. Then it was poured into an excess of water, the coagulate washed and molded at 130° C in a closed mold to a mushroom-like prosthesis of a joint head.

EXAMPLE 8

The solution from Example 4 was coagulated after 48 hours at 75° C, washed and redissolved to a 5% solution in a 60% sodium rhodanide solution. The solution was dispersed while stirring in paraffin oil and the dispersion stirred into excess of water. By separating the oil and the diluted rhodanide solution, highly swellable multiblock copolymer in the form of small spheres, similar to a suspension polymer, was obtained. It could be used as a molecular sieve, or as a weakly acidic cation exchanger, or also as a carrier of various biologically active substances.

EXAMPLE 9

A thin-walled tube with 2.5 mm calibre, made according to Example 5, was filled with powdered l-ascorbic acid and closed in short intervals by means of a pair of pincers heated to 75° C and cut in the welded sections, forming small soft, permeable containers which could be easily gulped down. Their size was 4×4×2 mm when dried. Ascorbic acid was gradually eluated through the swelled wall during its passage through the gastro-intestinal tract. The swelling capacity and permeability was much lower in the acid medium of the stomach than in the alkaline medium of the intestines, and the gradually liberated drug was better utilized than in the usual form of tablets.

EXAMPLE 10

Multiblock-copolymer obtained according to Example 4 and redissolved in neutral rhodanide solution according to Example 8 was brought onto a knitted polyester fabric and the whole was dried at 60° C until the excessive rhodanide crystallized. By washing the rhodanide rapidly in water a thin spongy foil, reinforced by the knitted fabric, was obtained, easily permeable for water and aqueous solutions but impermeable for non-polar liquids such as mineral oils and gasoline. It could be used for filtering waste waters containing mineral oils.

The spongy foil was considerably less easily penetrated by alkaline and neutral water than by acidified one. This behavior can be used e.g. for avoiding alkalies to penetrate into sewage or similar.

The above Examples can be combined and modified within the scope of the invention. Evidently, the hydrogels of the invention can be utilized for many further purposes not mentioned expressively here.

What I claim is:

1. Method of manufacturing ionogenic, water-insoluble, water-swelled polymers of acrylonitrile comprising:

(a) forming a homogeneous, aqueous rhodanide solution of 2–50 wt%, based on the total solution, of an acrylic polymer containing at least 80% (molar) of acrylonitrile units, together with comonomer units selected from the group consisting of arcylic acid, methacrylic acid, itaconic acid, citraconic acid, mesaconic acid, aconitic acid, fumaric acid, maleic anhydride, acrylamide, isobutyl acrylate and 2-hydroxyethyl methacrylate, said rhodanide being selected from the group consisting of lithium, sodium and calcium rhodanide and mixtures thereof and being present in an amount of 30 wt% to saturation;

(b) hydrolyzing said homogeneous solution of said polymer, the homogeneity being maintained during the whole reaction, in the presence of 0.05–7.5 wt%, based on the total solution, of a base selected from the group consisting of alkali metal hydroxides and carbonates, ammonium hydroxide, dimethyl amine and trimethyl amine at a temperature of from −15° to +130° C.; and

(c) recovering the product of hydrolysis, after having reached the desired degree of hydrolysis, by washing out said rhodanide and by washing out and/or neutralizing said base.

2. Method according to claim **1**, wherein water, as solvent, is at least partly replaced by a lower aliphatic alcohol with 1–4 carbon atoms.

3. Method according to claim **1** (covered in previous amendment), wherein the hydrolysis is carried out at temperatures ranging 0° to 25° C.

4. Method according to claim **1**, wherein the hydrogel is subsequently crosslinked by reaction of said hydrogel in an anhydrous solution in dimethyl sulfoxide with hexamethylene diisocyanate or toluylene triisocyanate

5. A hydrolyzed acrylonitrile-containing polymer produced by the method as defined in claim **1**.

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