PREPARATION OF STRONG CATION EXCHANGE RESIN ON THE BASE OF STYREN – DIVINYLBENZENE COPOLYMER FOR WATER TREATMENT

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The aim of this work is the preparation of mechanically and chemically resistant polymer sorbent based on the styrene-divinylbenzene copolymer that is furthermore functionalized to a strong cation exchange resin.
The preparation of the strong cation exchange resin is divided into two steps - suspension polymerization of the polymer beads and subsequent chemical functionalization. Suspension polymerization is performed in a heated reactor where mixture of monomer with initiator are disperse in a solution of a suspension agent. The viscosity of monomers solutions was controlled by addition of linear polystyrene. The polymer droplets are cured into sub-500 µm spherical beads, which are insoluble in water and organic solvents, are obtained using the proposed procedure.
The functionalization is performed by sulfonation in sulfuric acid or chlorsulfonation in chlorsulfuric acid. The sorption capacity of the prepared strong cation exchange resins is tested on the use case of sorption of cadmium and zinc ions in a water solution in batch experiments. The sorption capacity of prepared strong cation exchange resin prepared by optimal conditions is comparable to commercial resins (around 2meq/L).