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(71) Applicant: DIAMOND SHAMROCK CORPORATION [US/US]; 717 North Harwood Street, Dallas, TX 75201 (US).

(72) Inventors: BACZEK, Stanley, K. ; 11740 Christian Avenue, Painesville, OH 44077 (US). McCAIN, G., Howard ; 250 Orton Road, Painesville, OH 44077 (US).

(74) Agents: TINKLER, Timothy, E. et al.; Diamond Shamrock Corporation, Patent Department, P.O. Box 348, Painesville, OH 44077 (US).

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(54) Title: METHOD OF DEPOSITING CATION EXCHANGE MEMBRANE ON A FORAMINOUS CATHODE

(57) Abstract

Normally solid copolymers of a fluorinated vinyl monomer and a perfluorinated vinyl compound having a carboxyl and/or sulfonyl group attached directly to the perfluorinated vinyl group or indirectly through an alkyl or ether linkage have been found to be soluble in low molecular weight polymers of perhalogenated alkyl ethers, low molecular weight polymers of perhalogenated alkyls and perfluoro kerosenes, each of said solvent materials having boiling points between about 200°C and 350°C. The copolymeric material dissolved in acordance with the instant invention can readily be resolidified by solvent removal and hydrolyzed or converted to the salt form to become a cation exchange material having an equivalent weight in the range of 1000 to 1600. Membrane coated cathodes can be formed using the dissolved copolymeric material and may be made by casting or coating a foraminous cathode followed by removal of the solvent to result in a continuous, pore-free coating of membrane on the cathode. Multiple coatings or other techniques can be used to build up the desired thickness of the membrane. Reinforced membrane may be produced by similar manufacturing techniques wherein the casting or coating of the membrane is upon a reinforcing backing fabric, which can be polytetrafluoroethylene mesh or the like is first wrapped around the foraminous cathode. The copolymeric material which is used in making the membrane coated cathode can be a single material or it can be of various equivalent weights, structures (carboxyl or sulfonyl, mixtures of same, or can be layers of the same or different materials).