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(54) Title: SEMULTANEOUS POLYMERIZATION OF TWO VINYL MONOMER MIXTURES TO OPPOSITE FACES OF A FLAT POROUS SUBTRATE

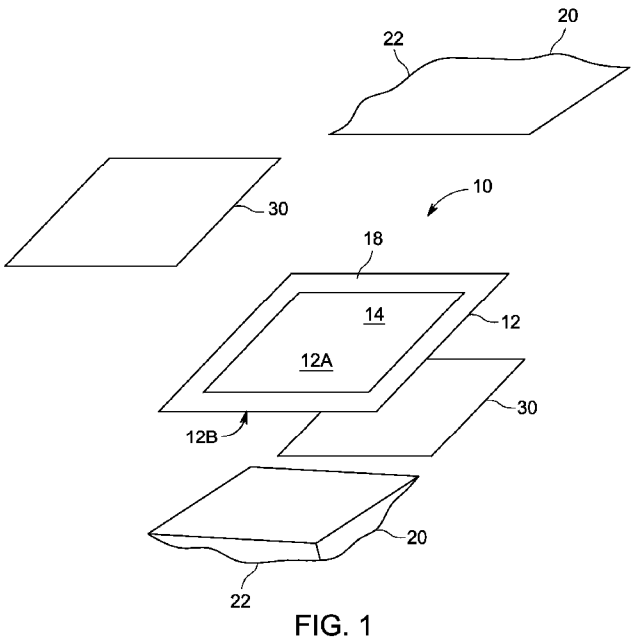


FIG. 1

(57) Abstract: A bi-polar electrode having ion exchange polymers on opposite faces of a porous substrate is formed using a method that includes providing an electrode substrate with activated carbon layers on opposite faces of the electrode substrate, wherein said faces have an outer perimeter band void of the activated carbon layers. The electrode substrate is placed in a thermoplastic envelope formed by a pair of polyethylene films. A Mylar sheet is placed in each side of the envelope against the electrode substrate, and the envelope is thermally sealed to the outer perimeter band of the electrode substrate void of activated carbon to form a first pocket on one side of the electrode substrate and a second pocket on the opposite side of the electrode substrate. The method also includes inserting a first polymerizable monomer mixture having an anion exchange group into the first pocket of the envelope and inserting a second polymerizable monomer mixture having a cation exchange group into the second pocket of the envelope. The first and second polymerizable monomers mixtures are then polymerized in an oven.

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SIMULTANEOUS POLYMERIZATION OF TWO VINYL MONOMER MIXTURES TO OPPOSITE FACES OF A FLAT POROUS SUBSTRATE

ABSTRACT

A bi-polar electrode having ion exchange polymers on opposite faces of a porous substrate is formed using a method that includes providing an electrode substrate with activated carbon layers on opposite faces of the electrode substrate, wherein said faces have an outer perimeter band void of the activated carbon layers. The electrode substrate is placed in a thermoplastic envelope formed by a pair of polyethylene films. A Mylar sheet is placed in each side of the envelope against the electrode substrate, and the envelope is thermally sealed to the outer perimeter band of the electrode substrate void of activated carbon to form a first pocket on one side of the electrode substrate and a second pocket on the opposite side of the electrode substrate. The method also includes inserting a first polymerizable monomer mixture having an anion exchange group into the first pocket of the envelope and inserting a second polymerizable monomer mixture having a cation exchange group into the second pocket of the envelope. The first and second polymerizable monomers mixtures are then polymerized in an oven.

[Fig.1]