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(54) Title: POLYMERIC MEMBRANES FUNCTIONALIZED WITH EGTA LIGANDS

(57) Abstract: Compositions and methods for selectively binding specific metal ions, such as Ca⁺ and Cd²⁺, contained in a source solution are disclosed and described. This is accomplished by the use of a composition comprised of an EGTA ligand covalently bonded to a membrane support. The composition formula of the present invention is M-B-L where M is a membrane having a hydrophilic, partially hydrophilic or a composite membrane with a hydrophilic surface, B is a covalent linkage, and L is an EGTA ligand. The separation is accomplished by passing a source solution containing the ions to be separated through a device containing the membrane-ligand composition, causing the selected ions to be complexed to the EGTA ligands and subsequently removing the selected ions from the device by passing an aqueous receiving solution through the device and quantitatively stripping the selected ions from the EGTA ligand.