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Petty et al.

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- (54) **DEVICE FOR THE REMOVAL AND CONCENTRATION OF IONIC METAL SPECIES FROM WATER**
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- (*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(57) **ABSTRACT**

A device is provided for capturing ionic metal species (e.g., Cd, Cu, Ni, Pb and Zn) dissolved in water. The device includes a nonporous polymeric tube for capturing the dissolved ionic metal species. The tube is formed from a membrane having transient cavities therein having an average pore size greater than 10 Å. A sequestration medium, contained within the tube, transforms the ionic metal species captured by the tube into a complexed, non-mobile metal species. The sequestration medium is capable of diffusing through the nonporous polymeric membrane at a controlled rate to form the complexed, non-mobile species and can comprise a mixture and metal complexing agent (e.g., a quinoline) and a long chain organic acid (e.g., oleic acid).

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(58) **Field of Search** 210/747, 170, 210/644, 688, 634, 638, 502.1, 209; 436/73, 79, 80, 81, 178; 73/61.42, 61.41, 864.71

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20 Claims, 2 Drawing Sheets

