Characterization of a DIPEX Coated ZnS:Ag Disk for Quantification of Actinides in Groundwater

Description:

This technology features materials and systems useful in determining the existence of radionuclides in an aqueous sample. The materials provide the dual function of both extraction and scintillation to the systems. The systems are both portable and simple to use and, as such, can beneficially be utilized to determine the presence and concentration of radionuclide contamination in an aqueous sample at any desired location and according to a relatively simple process without the necessity of complicated sample handling techniques. These systems include a one-step process, providing simultaneous extraction and detection capability, and a two-step process providing a first extraction step that can be carried out in a remote field location followed by a second detection step that can be carried out in a different location. Compared to current technology, these systems are more sensitive to radiation, involve a simplified analytical method, incorporate the measurement device with the media and are more conducive to quantification in the field.

Applications:

- Applicable to environmental monitoring of groundwater and surface water
- Applicable to homeland security activities related to the vulnerability of watershed management and water distribution system management
- Important to the new EPA rule regarding the acceptable uranium concentration in drinking water

Benefits:

- Portable and simple to use
- More sensitive to radiation than current technologies
- Involves a simplified analytical method
- More conducive to quantification in the field

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