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Exceptionally Stable Polymer-Germania Hybrid Extraction Media

Researchers at the University of South Florida have invented a hybrid extraction media for chemical analysis.

Chromatographic separation technique is one of the most used analytical techniques in separating mixtures, identifying their components and/or quantifying their components. Various sorbent media have been developed to accomplish analytical tasks. The most predominant is silica-based sorbent material which has been observed to have poor stability under acidic and/or basic pH conditions.

In modern analytical practice, pH manipulation is frequently necessary to achieve desired isolation, fractionation, and/or separation of complex mixtures into individual components. Titania-zirconia-based sol-gel materials were developed to achieve higher pH stability however, its derivatization with chromatographic ligands present extremely difficult tasks. As a result of the inadequacies, our researchers developed an organic - inorganic hybrid sol gel Germania-based sorbents and stationary phases, which closely resembles its silica-based counterparts.

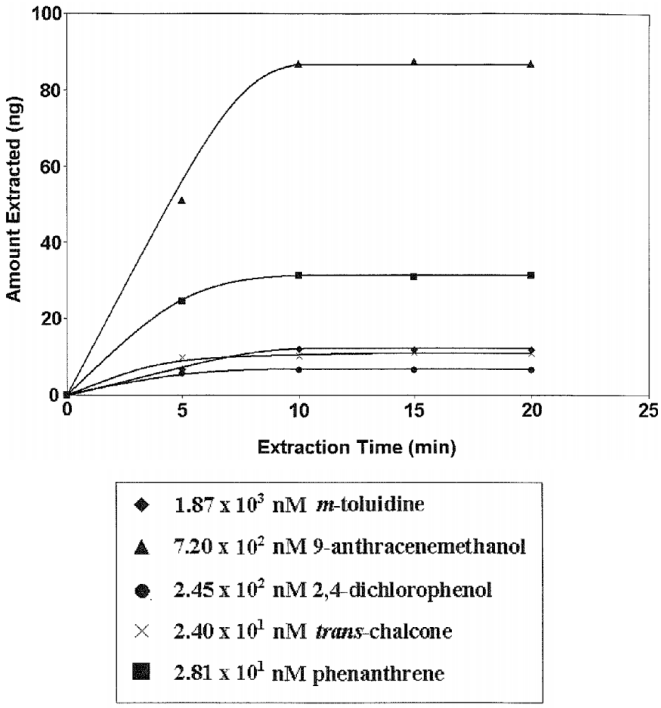
USF inventors created a hydroxyl-terminated tri-block copolymer that was covalently bonded into a sol-gel Germania matrix to achieve a highly stable surface coating which serves as an effective extracting phase for the pre-concentration of a wide range of polar and non-polar analytes with nanomolar and picomolar detection limits. The resulting sol-gel Germania tri-block polymer coating is highly stable under extreme pH and temperature conditions.

ADVANTAGES:

- **Highly Stable in Extreme pH Conditions**
- **Highly Stable in Extreme Temperature**

Highly Stable in Extreme Physical Conditions

Extraction Profiles with sol-gel Germania Matrix



Liquid Chromatography Capillary Column Packing

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