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Biosensors as detectors in high performance separation techniques

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Biosensors are analytical devices incorporating a biological material e.g. tissue, microorganisms organelles, cell receptors, electrochemical, thermometric, or piezoelectric properties. They have a solid place in contemporary analytical chemistry, which is evident from their very strong position on the market of analytical instruments, mass production of many of them, uncounted applications in various fields, and a very large research potential directed for this field in academia and industry. This is field of modern science and technology, which immediately adapts current achievements and discoveries in various branches of science, electronics, material science and micromechanics. Hyphenation of biosensing with separation methods can be realized practically with all types of biosensors, and many different electro migration and chromatographic methods. This can be a very efficient way for improvement of selectivity of biosensing, and with suitable design of the flow-through cell and whole measuring setup with online sample processing, it allows also improving sensitivity of whole analytical procedure. Another especially valuable application of this concept is design of multi-analyte detection systems with application of enzymes that catalyze reactions of a group of products, or are inhibited by a group of similar compounds. Especially interesting examples of such systems include, for instance electro-antennographic detection in liquid chromatography, olfactory detection in gas chromatography, or single-cell based detection in capillary electrophoresis.

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Enhancing molten sulfur filtration

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The filtration of liquid sulfur is a key operation in sulfuric acid production. It is used to remove solids, which might plug the sulfur spray nozzles and shorter operating durations. Upon liquid sulfur filtration, the filter has to be pre-coated with a filter aid mainly diatomaceous earth. The aim of this conference is to share the results of the substitution of silica filter aid based, with cellulose filter aid based. The results show the same performance, for both quality filter aid, in terms of ash content in liquid sulfur. An increase in operating cycle time from 24 h to 72 h with an easy removal of cake without risk and no leaf degradation due to the abrasion was obtained by the use of cellulose filter aid.

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