Chemistry Seminar

Functionalization and Polymerization of a Fluorous Oligoether for use in Ion-Selective Electrodes

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Ion-selective electrodes (ISEs) are used daily in clinical chemistry, the food industry, and environmental monitoring. Over time, the membranes of these electrodes experience biofouling and leach into the sample reducing the selectivity, range, lifetime, and reliability of the electrode. Currently work is being done to develop a more mechanically stable membrane matrix. Fluorous compounds are ideal materials to use because they have unique properties such as low polarity, and they are chemically inert, which may help reduce the extraction of undesired compounds into the membrane. Recently the Buhlmann group has demonstrated that fluorous matrices increase the selectivity and measuring range of ISEs. Here, a plasticizer free matrix has been successfully developed by functionalizing and cross-linking a styrene-modified perfluoropolyether (sPFPE). Further work will utilize this fluoroelastomer in ISEs.