

# Electrochemical Sensors: From Fluorous Polymers to Nanoporous Carbon and Lipophilic Redox Buffer Polymers

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Chemical sensors are highly sensitive and selective analytical tools that offer a variety of advantages, such as simplicity of measurement, high analysis throughput, rapid detection, and low cost of analysis. While such sensors are used in clinical laboratories for billions of measurements every year, applications in biomedical sciences, the food industry, and environmental monitoring are hindered by biofouling and the frequent need for recalibration. This talk will address the use of fluorous phases, nanoporous carbon materials and redox buffers for electrochemical sensing. Fluorous phases are the least polar of all condensed liquid phases and offer significant advantages over conventional sensing membrane materials because they are extremely poor solvents for hydrophobic lipids and oils ubiquitous in biological systems. Moreover, the fluorous nature of the sensing membranes provides for extraordinary selectivities and chemical robustness. A special goal of our group is to make such sensors calibration-free, which not only simplifies the use of these devices but also makes it possible for untrained users to benefit from their application.

## Polymeric Fluorous Phases: From the Ultimate Limits of Low Polarity to Biocompatibility

