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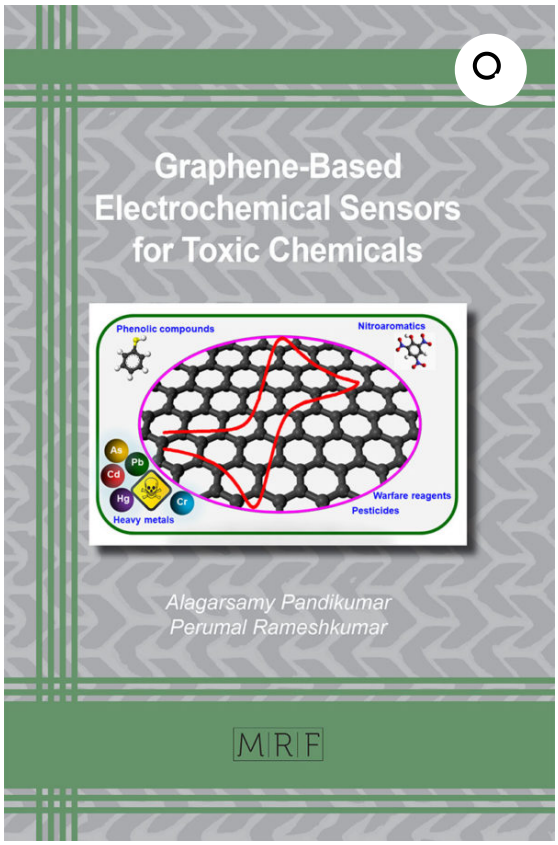

Graphene-Carbon Nitride Based Electrochemical Sensors for Toxic Chemicals

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Description

Graphene-Carbon Nitride Based Electrochemical Sensors for Toxic Chemicals

S. Stanly John Xavier, T.S.T. Balamurugan, S. Ramalingam, R. Ramachandran, N.S.K. Gowthaman

Developing cost effective, rapid and sensitive detection methods for the sensing of toxic chemicals is significant due to their potential application in chemistry like, clinical, industrial and environmental studies. Recently, Graphitic carbon nitrides (g-C3N4) become a new family of next generation in material chemistry courtesy of its peculiar physiochemical nature. The

graphene-based two-dimensional layered structures with efficient intercalation, fine tunable surface, electronic and semiconductor properties of g-C3N4 provide enormous applications in a wide range of recent research. This unique nature of g-C3N4 has been explored in different fields such as sensors, bio-imaging, catalysis and energy storage devices. More specifically, g-C3N4 are extensively used in the detection of toxic chemicals owing to the alluring properties including high surface area, optoelectronic properties, physiochemical features, good water solubility, biocompatibility, non-toxicity etc. This chapter mainly summarizes the latest progress related on various synthetic methods and characterization techniques addressing the nature of g-C3N4 and its hybrids in detail. Furthermore, it deals with current applications of g-C3N4 in the electrochemical sensing of different toxic chemical contaminant in the environment. Finally, future prospects highlight the critical issues that provide innovative future development in this exciting research fields.

Keywords
Graphitic Carbon Nitride, 2D Layered Structures, Electrocatalysts, Electro Chemical Sensors, Toxic Chemicals

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