Review

Recent Trends in Electrochemical Detection of NH₃, H₂S and NO_x Gases

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Due to the incorporation of nanomaterials, electrochemical sensors are emerging as a crucial tool for environmental monitoring as they provide flexibility in analysis and monitoring of environmental pollutants away from the sophisticated labs. Among various environmental pollutants, analysis and monitoring of toxic gases is essentially required. In this review, some recent trends have been reviewed and discussed regarding the application of nanomaterials for electrochemical detection of H₂S, NO_x, and NH₃. Precisely, work carried out during the last decade has been studied and the basic quality assurance parameters of these electrochemical gas sensors in terms of operational conditions (sensitivity, selectivity, limit of detection and response time) have been evaluated and presented. Some typical responses data of the developed devices have been discussed. Among various improvements of analytical performance, these nanomaterials based electrochemical systems have shown increased sensitivity and decreased detection limits.

Keywords: electrochemical gas sensors, toxic gases, limit of detection, response time, sensing parameters, nanomaterials

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