Design of online monitoring system for heavy metal mercury in industrial wastewater based on ZigBee wireless network

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ABSTRACT

Aiming at the problems of long monitoring time, low reliability of monitoring results and insufficient data collection in traditional methods, an online monitoring system for heavy metal mercury in industrial wastewater based on ZigBee wireless network was designed. According to the overall architecture of the monitoring system, the hardware modules are divided into network coordinator structure, data management and maintenance module, distributed monitoring node module and coordinator node, etc., according to the connection between each module to achieve effective heavy metal mercury pollution in industrial wastewater monitor. Based on the hardware design, the source of heavy metal mercury pollution in industrial wastewater is located, and the BP neural network is used to monitor the total discharge of heavy metal mercury pollutants in industrial wastewater. The monitoring results are displayed on the main monitoring interface to facilitate visual inspection of pollution changes. The simulation experiment results show that the system designed in this paper has obvious advantages in the monitoring time, the accuracy of the monitoring results, and the method of collecting pollution data, indicating that the system has higher application value.

Keywords: ZigBee wireless network; Industrial wastewater; Heavy metal mercury; Monitoring system; Network coordinator