

氧化锡气敏传感器动态响应特性用于农药残留检测的研究

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摘要:

介绍了氧化锡气敏传感器参杂金属(Sb,Ca,Sr)的制备及检测农药残留检测装置的原理,通过对氧化锡气敏传感器,在动态与静态条件下,检测农药残留的响应特性影响因素进行了研究,如采用电压、占空比、电压波形(矩形波、正弦波、锯齿波、脉冲波)的变化,比较研究了农药残留检测的动态与静态响应特征,结果动态的测量方法比静态方法可以得到更多的信息,用这种动态测量方法检测对硫磷等有机磷类农药残留具有良好效果。

关键词: 材料学、二氧化锡传感器、电化学、动态响应特征、影响因素、农药残留、检测

Oscillating behavior of tin oxide gas sensor and its application for pesticide residues determination

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Abstract:

It introduced that M(Sb,Ca,Sr) was added to doped SnO₂ and the principle of device detected pesticide residues. The oscillating behavior of a single tin oxide gas sensor was investigated by comparison with the static measurements. The factors influencing oscillating behaviors such as applied potential, duty ratio, and applied potential waveform (rectangular, sinusoidal, saw-tooth, pulse, and others) were also studied. Experimental data showed the dynamic measurements of the oxide tin sensor had been suggested that could provide more information from a single sensor than did static measurements. The organophosphorus pesticide residues such as parathion could be determined by using this oscillating measurement method.

Keywords: Materials; Oxide tin sensor; Electrochemistry; Oscillating behavior; influencing factors; pesticide residues; determination

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