

CO-C7H8双功能一体化固体电解质气体传感器的研制

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摘要:

采用溶胶-凝胶法合成NASICON固体电解质, 并以NASICON为基体材料, Y2O3及ZnTiO3为敏感电极制作管式CO-C7H8双功能一体化气体传感器。研究表明, 在350-450℃时, CO及C7H8浓度在 $(5-50) \times 10^{-6}$ 体积分数范围内, 器件的EMF值与CO和C7H8浓度的对数分别呈现较好的线性关系。器件在400℃时对CO和C7H8的灵敏度分别为-40和64 mV/decade。并且器件在此温度下表现出较好的选择性和响应恢复特性。

关键词: 气体传感器; CO; C7H8; NASICON; Y2O3; ZnTiO3; 溶胶-凝胶法

Research on CO-C7H8 Double Function Incorporate Gas Sensor Based on Solid Electrolyte

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Abstract:

NASICON solid electrolyte was synthesized by Sol-gel method. A tubular CO-C7H8 double function incorporate gas sensor was designed based on NASICON electrolyte with Y2O3 and ZnTiO3 sensing electrode. The research showed that the EMF values of the sensor were almost proportional to the logarithm of the CO and C7H8 concentration with a range of CO and C7H8 volume ratio concentration from 5×10^{-6} to 50×10^{-6} at 350-450℃. The sensitivities of the sensor to CO and C7H8 were -40 and 64 mV/decade at 400℃, respectively. Also the sensor exhibited better selectivity and response-recovery characteristics.

Keywords: Gas sensor ; CO; C7H8; NASICON; Y2O3; ZnTiO3; Sol-gel

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