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Gas sniffer (YSZ-based electrochemical gas phase sensor) toward acetone detection

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Highlights

- A series of K_2NiF_4 -type oxides $Sm_{2-x}Sr_xNiO_4$ ($x=0.4, 0.6$ and 0.8) were first developed to fabricate acetone sniffer (YSZ-based mixed-potential type acetone sensors).
- The device utilizing $Sm_{1.4}Sr_{0.6}NiO_4$ -SE performed the largest response of -20 mV to 5 ppm acetone and the lowest limit of detection was 300 ppb.
- The sensor displayed prominent reliability, excellent humidity resistance and good stability.
- The exhaled breathes of the diabetics with different ketone concentrations were gathered to test and the sensor performed a manifest and stable signal during all of tests.

Abstract:

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