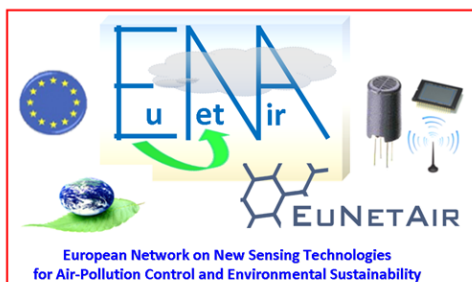


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BOOKLET

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New Trends and Challenges for Air Quality Control

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SPINEL FERRITE GAS SENSORS

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Abstract

Spinel ferrites are highly important electronic materials for more than half a century and offer a suitable ceramic base to move into this market given the simplicity and low cost, and are set apart from other gas sensors with a structural and compositional versatility. Our recent work highlights the developments and reflects the impact of the spinel ferrites on gas sensor technology [1-4]. The sensing mechanisms are explained for n-type, p-type, mixed and doped spinel ferrite gas sensors detecting a range of gases. The change in conduction mechanism is discussed with electronic sensitization. It is explained how some change in stoichiometry of spinel ferrite compounds will support a change in oxidation state and therefore increase the gas response. Spinel type ferrites are very versatile gas sensing materials that with continued development show greater application for industrial applications. Ferrites can offer high gas response and stability (Figure 1).

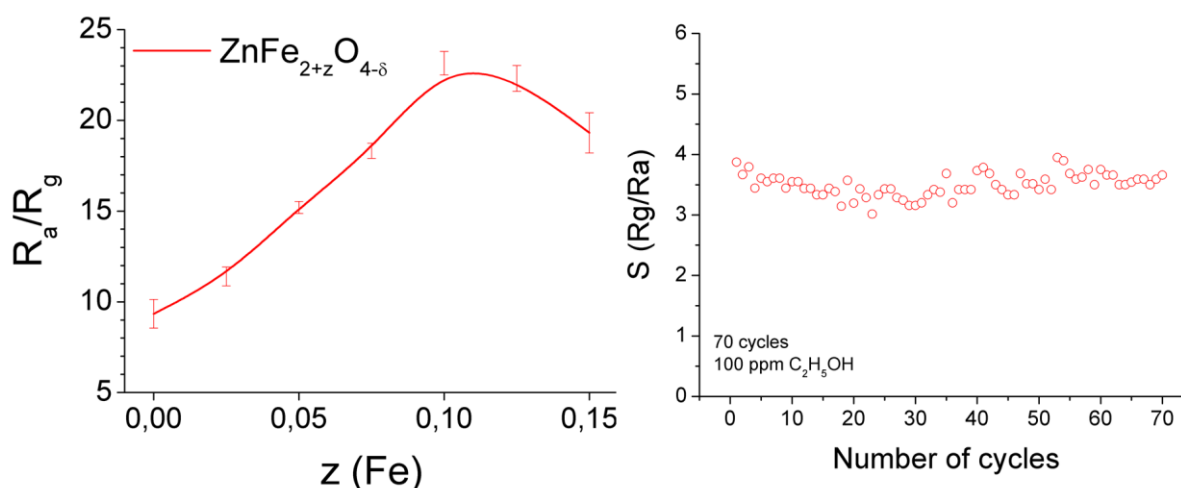


Figure 1. Gas response for zinc ferrite with different iron stoichiometry towards ethanol 500 ppm (left) and response-recovery behavior for $ZnFe_2O_4$ over 70 cycles (right).

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