Supporting information

Development of potentiometric sensors to C_2H_4

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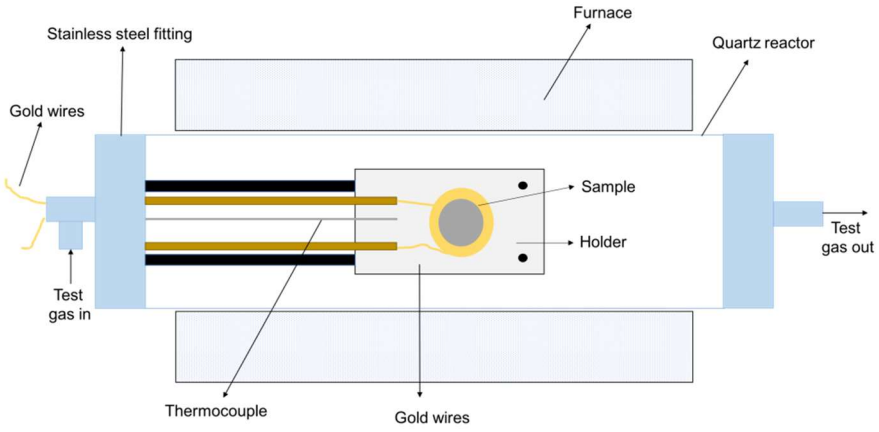

Figure S1 Experimental set-up used to measure sensor response

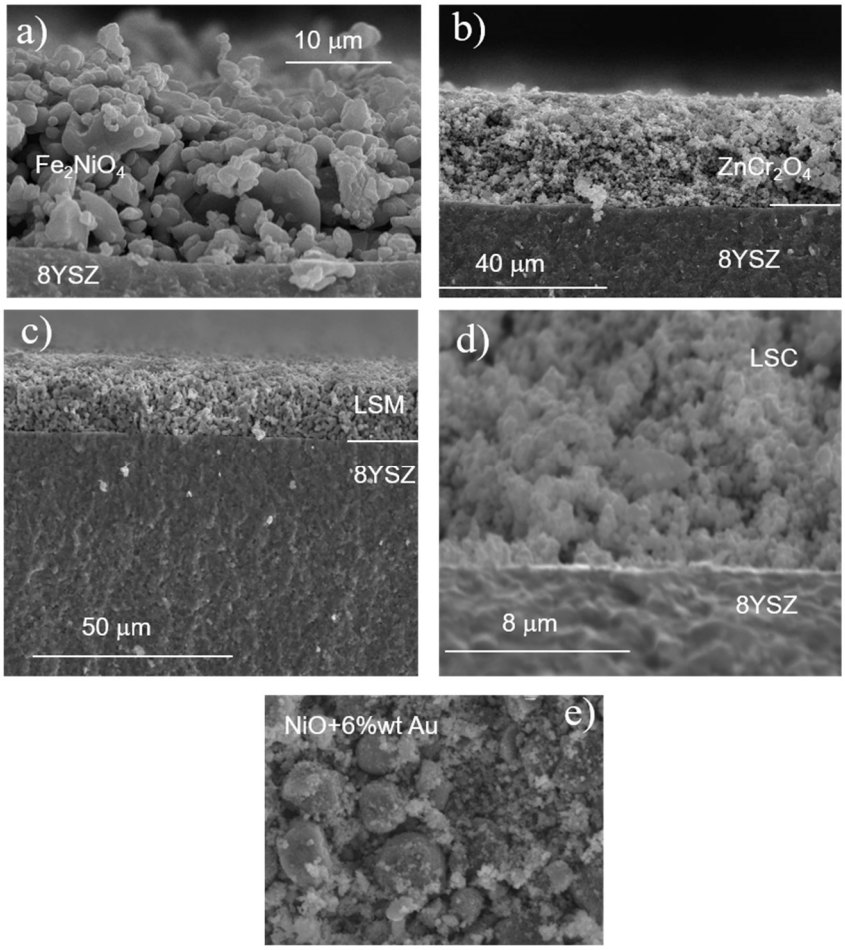

Figure S2 SEM image of the device cross-section showing the interface WE-electrolyte corresponding to a) $FeNiO_4$, b) $ZnCr_2O_4$, c) LSM and d) LSC. On the other hand, e) shows the NiO+5%wt Au surface.

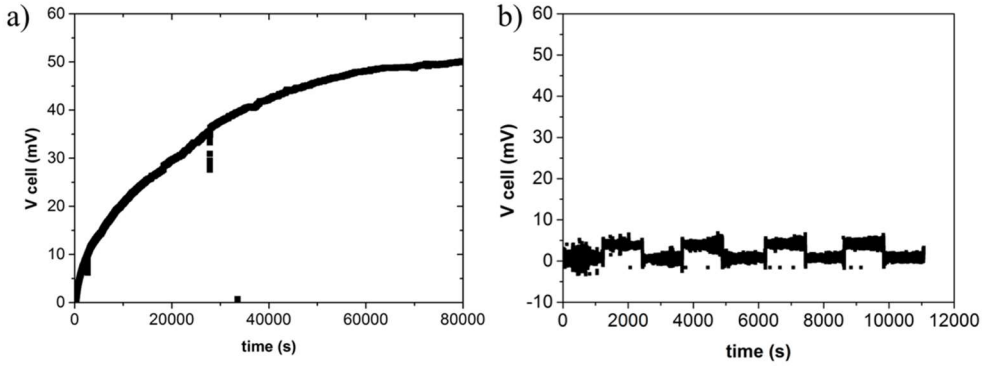

Figure S3 Response curves for changes in concentration of $ZnCr_2O_4$ with fresh ink and 1 month ink: a) response to 400 ppm C_2H_4 with fresh paste, b) response to changes in concentration from 50 to 200 ppm of C_2H_4. The sensor consists of $ZnCr_2O_4$ as WE and Pt as RE and at 550ºC with a 6% of O_2 and balanced with Ar. A lower sensor response can be observed after 1 month of paste storage. Thus, the material reproducibility does not fit the requirements about stability and reproducibility with time.

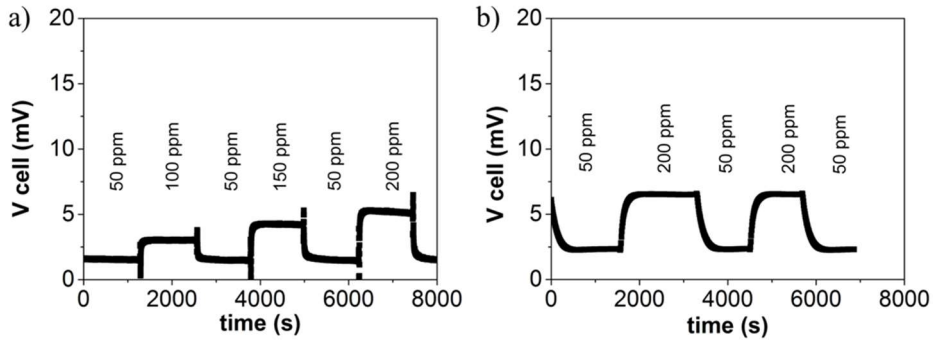

Figure S4 Response transient to C_2H_4 of the sensor employing as WE: a) LSC and b) LSC/8YSZ (1:1 vol.)

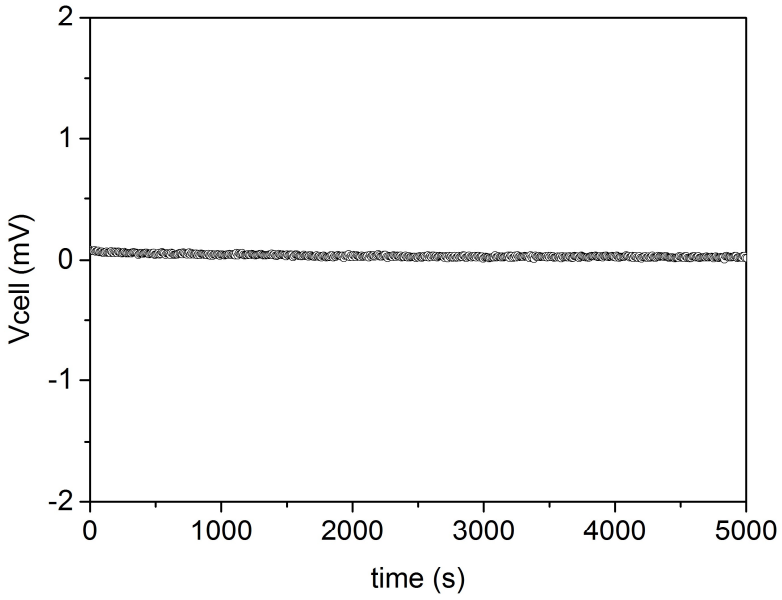

Figure S5 Sensor baseline when exposed to 6% of O_2 balanced with argon at 550 ºC. The sensor consists of $Fe_{0.7}Cr_{1.3}O_3$/8YSZ as WE and Pt as RE