Supporting Information

Coke free operation of an all porous solid oxide fuel cell (AP-SOFC) used as an O₂ supply device

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Martyrs, 38000 Grenoble, France.

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Table S1 The calculated viscous flow and Knudsen diffusion by the equation as fuctions of differential pressure at 700 ºC.

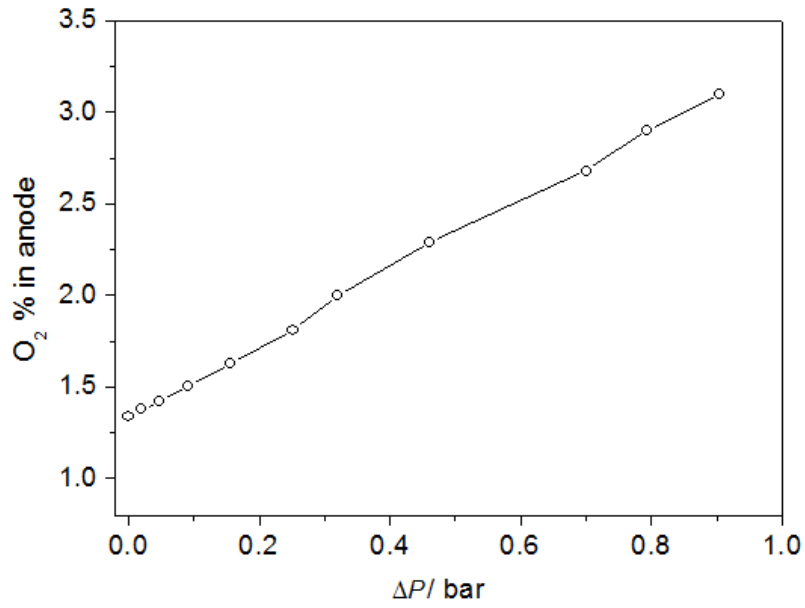| ΔP (bar)	Π_v ($\times 10^6$)	Π_k ($\times 10^6$)	Π ($\times 10^6$)	Π_k/Π (%)
0.02	0.09	9.59	9.68	99.04
0.05	0.22	9.59	9.81	97.74
0.09	0.43	9.59	10.02	95.75
0.16	0.72	9.59	10.31	93.00
0.25	1.17	9.59	10.76	89.15
0.32	1.48	9.59	11.07	86.62
0.46	2.13	9.59	11.72	81.83
0.70	3.24	9.59	12.83	74.74
0.79	3.67	9.59	13.26	72.31
0.91	4.19	9.59	13.78	69.59

Fig. S1 The oxygen concentration in the anode as functions of differential pressure through the CGO electrolyte at 700 °C.
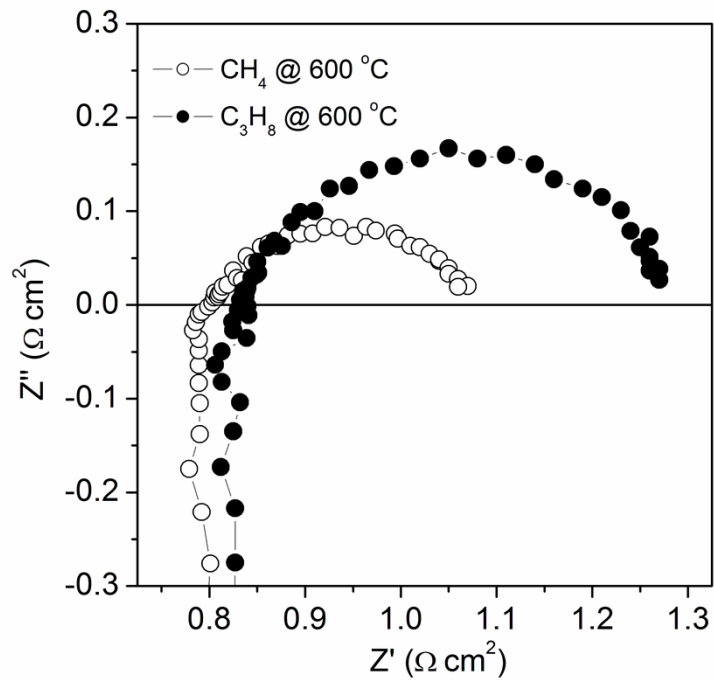

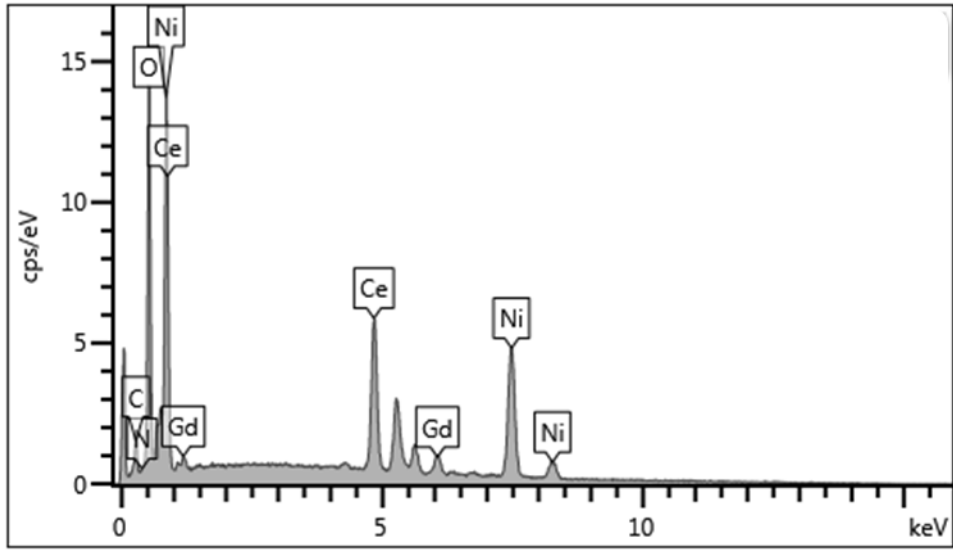Fig. S2 Nyquist plots of AP-SOFC operating in CH_4 and C_3H_8 at 600 °C.

Fig. S3 EDX spectra for the anode of the tested AP-SOFC.