Electrical Transport Properties of In-doped $Ce_{1-x}In_xO_{2-\delta}$ (x = 0.1; 0.2)

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Supporting Information

Table S1 Fitting Parameters of Impedance Plots of $Ce_{0.8}In_{0.2}O_{1.9}$ in the Temperature Range 400-700 ^{o}C at Various Atmospheres.

Atmosphere	T (^{o}C)	ρ_b (Ω cm)	CPE_b (F/cm^2)	n	ρ_{gb} (Ω cm)	CPE_{gb} (F/cm^2)	n
air	400	9.21×10^6	3.30×10^{-10}	0.75	9.87×10^6	1.20×10^{-9}	0.55
	450	9.93×10^6	6.61×10^{-10}	0.71	2.46×10^6	7.09×10^{-8}	0.56
	500	1.56×10^6	9.05×10^{-10}	0.70	6.46×10^5	2.15×10^{-8}	0.69
	550	8.91×10^5	9.79×10^{-10}	0.73	4.38×10^5	1.54×10^{-7}	0.49
N_2	400	3.94×10^7	3.08×10^{-10}	0.76	1.22×10^7	3.48×10^{-8}	0.56
	450	9.99×10^6	3.77×10^{-10}	0.77	4.03×10^6	6.90×10^{-8}	0.56
	500	2.13×10^6	4.75×10^{-10}	0.77	9.75×10^5	1.29×10^{-8}	0.53
	550	6.10×10^5	6.03×10^{-10}	0.77	3.09×10^5	2.03×10^{-7}	0.51
	600	1.02×10^5	3.61×10^{-10}	0.86	1.63×10^5	1.34×10^{-7}	0.47
	650	1.40×10^4	2.84×10^{-10}	0.96	7.78×10^4	8.61×10^{-8}	0.48
	700	4.12×10^3	4.55×10^{-9}	0.87	2.74×10^4	2.19×10^{-7}	0.42
Ar	450	9.27×10^6	3.93×10^{-10}	0.77	3.74×10^6	6.83×10^{-8}	0.55
	500	1.99×10^6	5.10×10^{-10}	0.77	7.90×10^5	2.14×10^{-7}	0.50
	550	6.04×10^5	6.12×10^{-10}	0.77	3.11×10^5	1.99×10^{-7}	0.51
	600	1.51×10^5	5.56×10^{-10}	0.81	1.56×10^5	1.70×10^{-7}	0.47
	650	2.15×10^4	6.94×10^{-10}	0.87	7.24×10^4	1.40×10^{-7}	0.45
	700	6.94×10^3	7.02×10^{-9}	0.76	2.75×10^4	1.46×10^{-7}	0.47

ρ_b and CPE_b represent resistivity and constant phase element due to high-frequency part, respectively; ρ_{gb} and CPE_{gb} represent resistivity and constant phase element due to low frequency semicircle, respectively; and n value shows deviation of pure capacitance (for ideal capacitor n has value of unity).