Supplementary Information for

Effect of Metal Composition and Carbon Support on the Durability of the Reversal Tolerant Anode with IrRu Alloy Catalyst

Eunyoung You [1], Daejong You [1], Seung Woo Lee [2], Bongho Lee [2] and Chanho Pak [2,*]

[1] Fuel Cell Engineering Team, Hyundai Mobis Co. Ltd., Uiwang 16082, Republic of Korea
[2] Graduate Program of Energy Technology, School of Integrated Technology, Institute of Integrated Technology, Gwangju Institute of Science and Technology, Gwangju 61005, Republic of Korea

Corresponding Author

* E-mail: chanho.pak@gist.ac.kr (C. Pak)

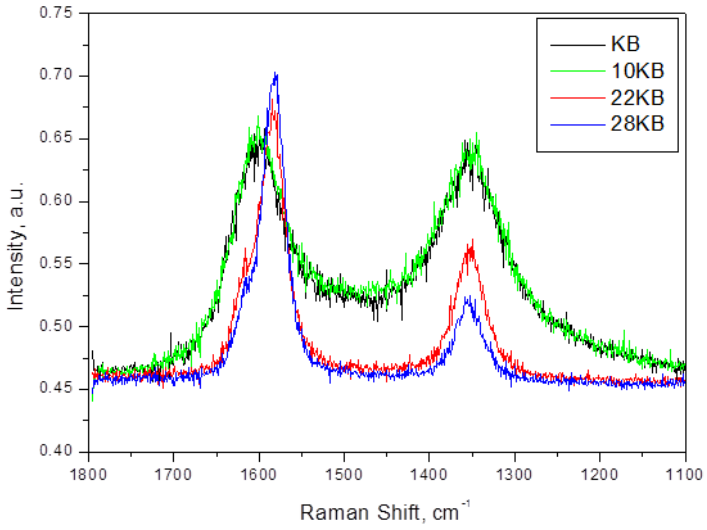

Figure S1. Raman spectra of KB, 10KB, 22KB, and 28KB carbon supports, normalized to the same maximum peak height.

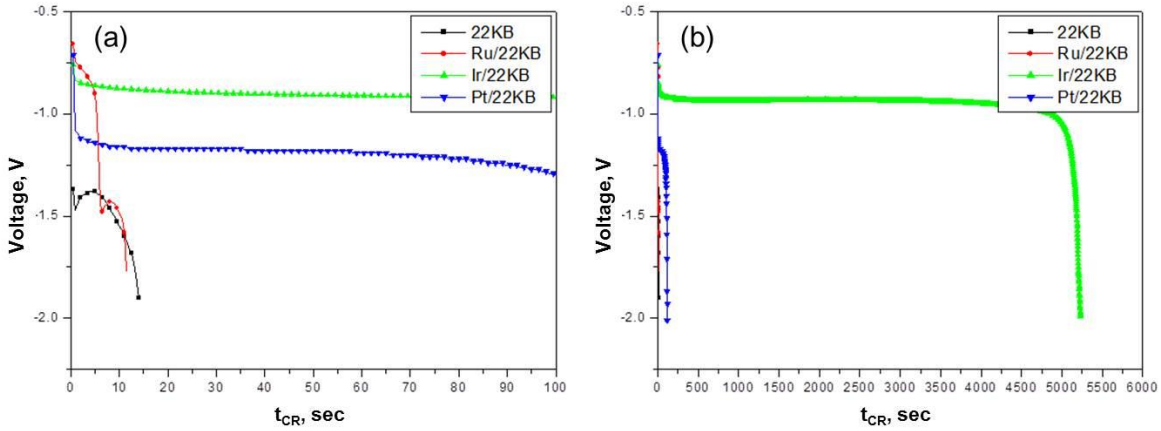

Figure S2. Voltage-time (V-t) plot of 22KB, Ru/22KB, Ir/22KB, and Pt/22KB anode MEAs (a) within 100 s during the cell reversal test, and (b) during the whole experimental period.

Table S1. N_2 adsorption BET surface areas and Raman spectroscopic parameters of the carbon black supports.

Carbon Support	Description	N_2 adsorption	Raman spectroscopy parameters			
		BET SA (m^2/g)	D/G ratio (Area)	D/G ratio (Intensity)	FWHM (D)	FWHM (G)
KB	Ketjen Black 300J purchased	850.2	1.31	0.93	108.1	76.9
10KB	heat treated KB at 1000 ℃ in-house	-	1.29	0.94	110.7	84
22KB	heat treated KB at 2200 ℃, in-house	168	0.52	0.5	44.2	42.1
28KB	heat treated KB at 2800 ℃, purchased	131.6	0.31	0.26	40.9	34.1