

Supplementary Material

A soluble-lead Redox Flow Battery with corrugated graphite sheet and reticulated vitreous carbon as positive and negative current collectors by A Banerjee *et al* (pp 163-170)

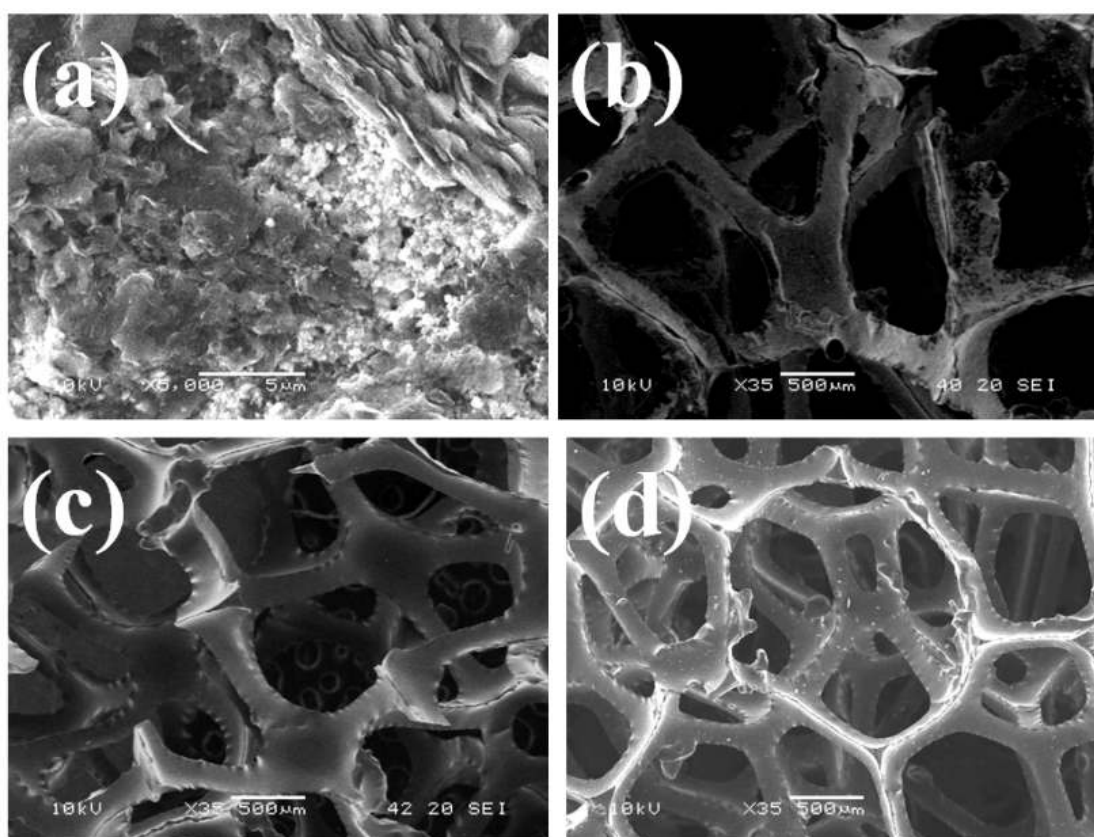


Figure S1. SEM images for bare substrates: (a) graphite sheet, (b) 20 ppi RVC, (c) 30 ppi RVC and (d) 45 ppi RVC.

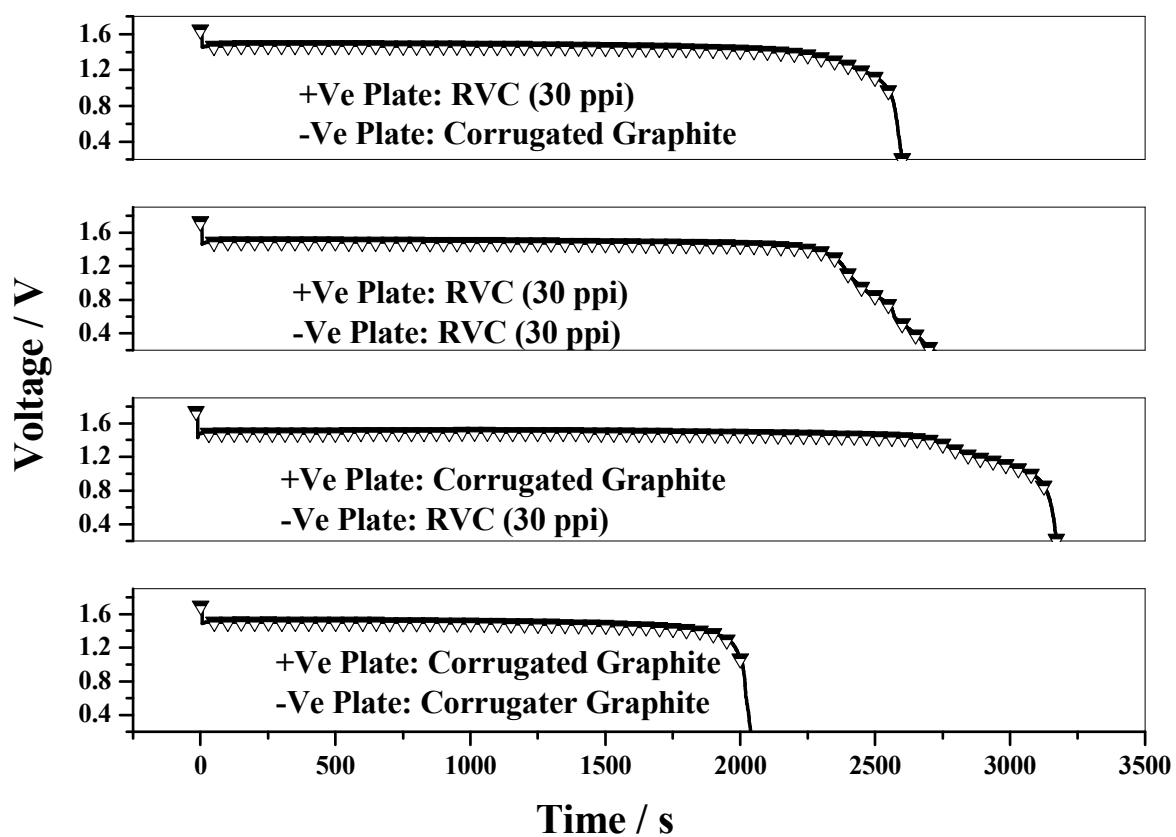


Figure S2. Discharge profiles for different cell configurations with corrugated graphite sheet and 30 ppi RVC used as positive and negative current collectors.

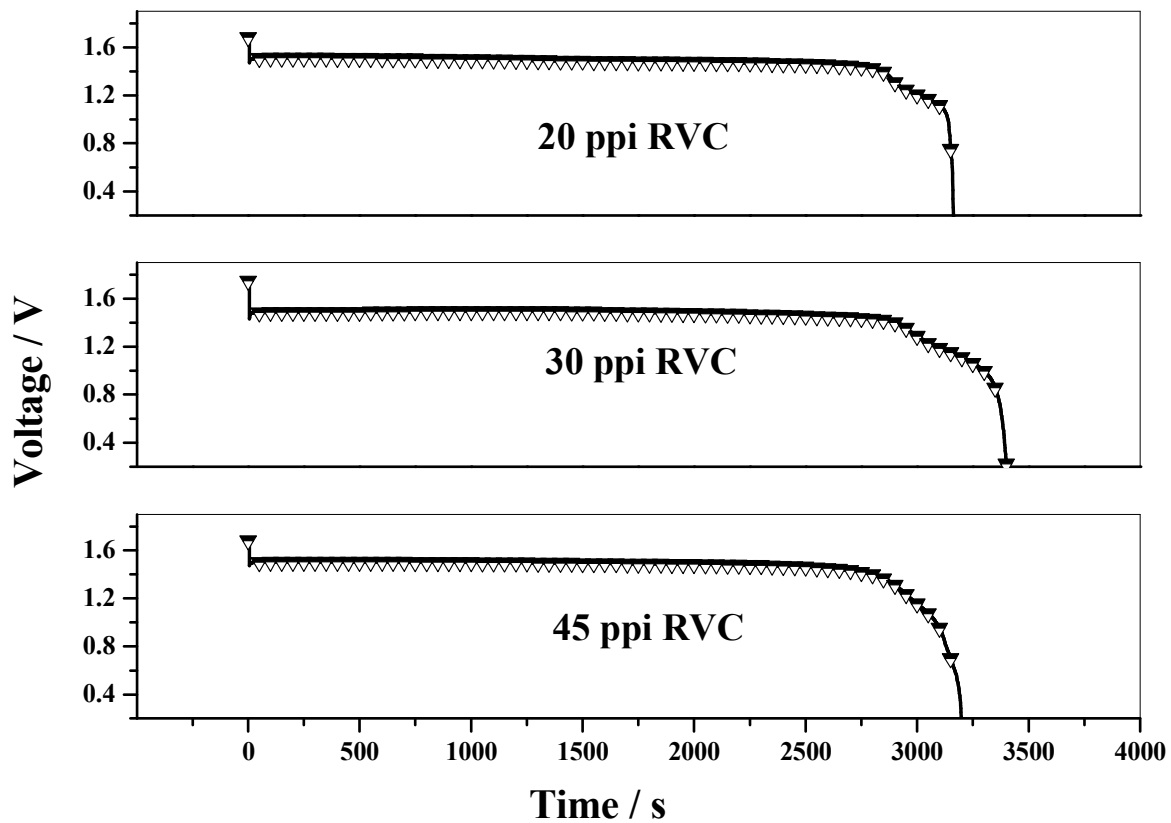


Figure S3. Discharge profiles for different cell configurations where corrugated graphite sheet assigned as positive current collector and RVC with 20, 30, 45 ppi assigned for negative current collector.

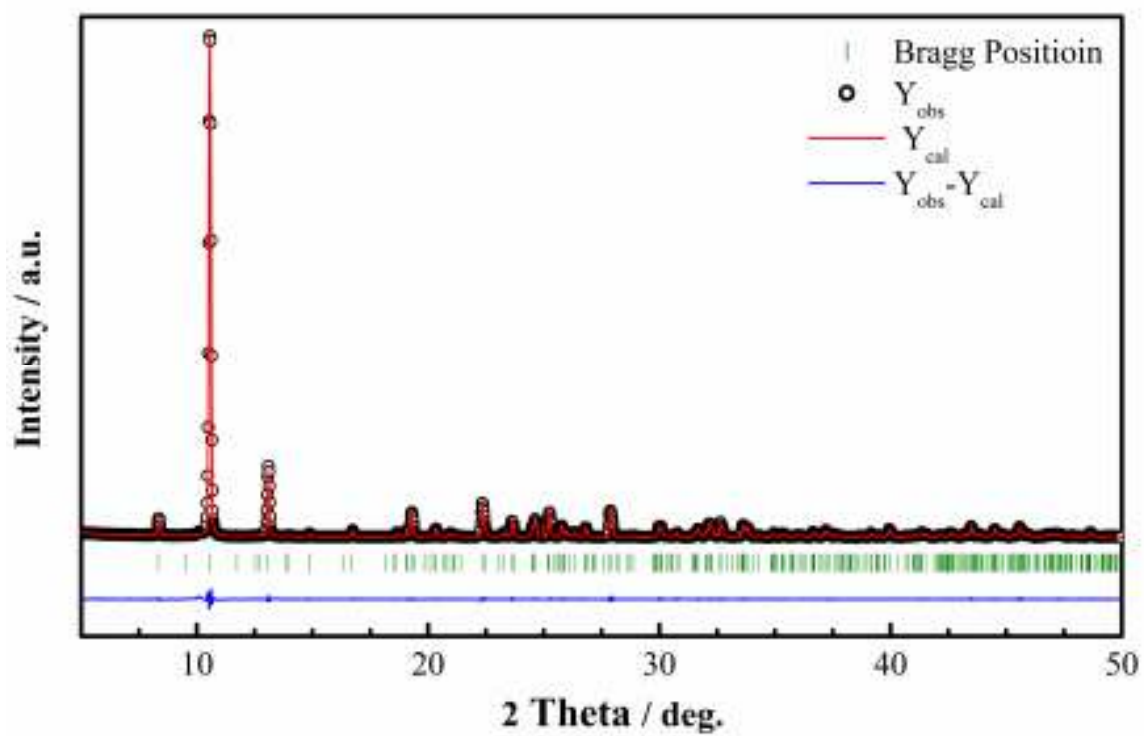


Figure S4. Fitted powder XRD profile for lead (II) methanesulfonic acid salt.

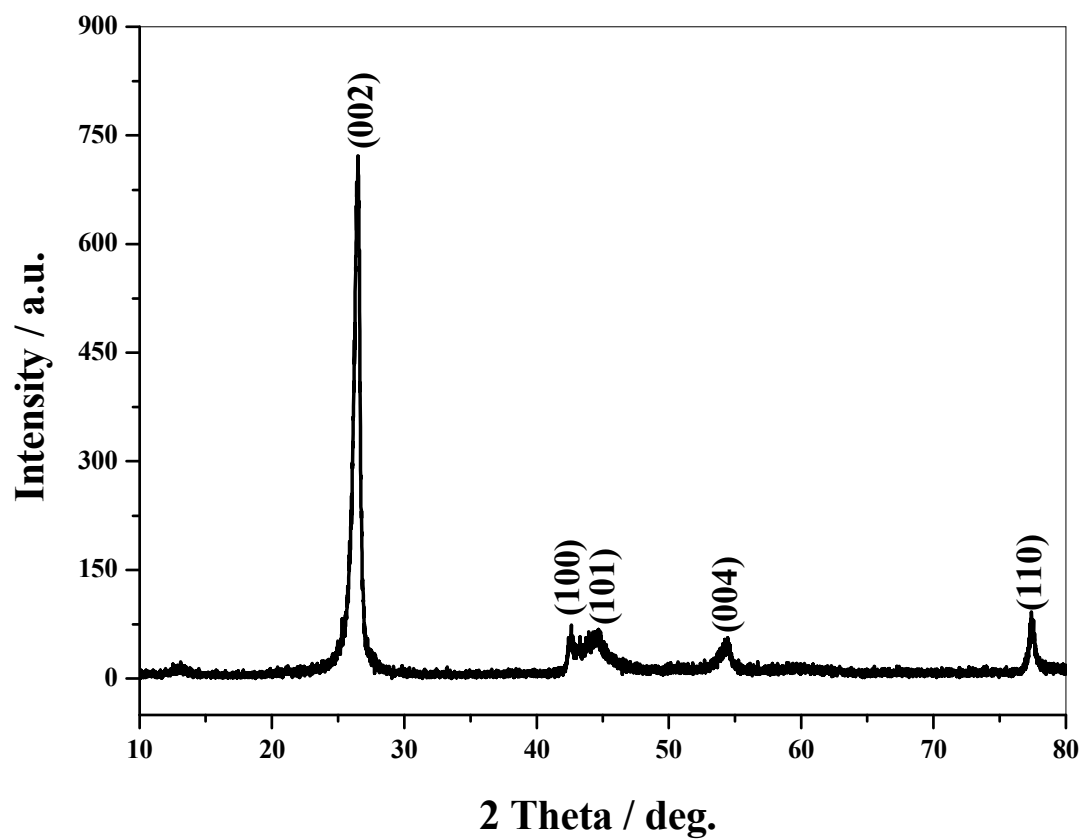


Figure S5. XRD pattern for bare graphite sheet substrate.

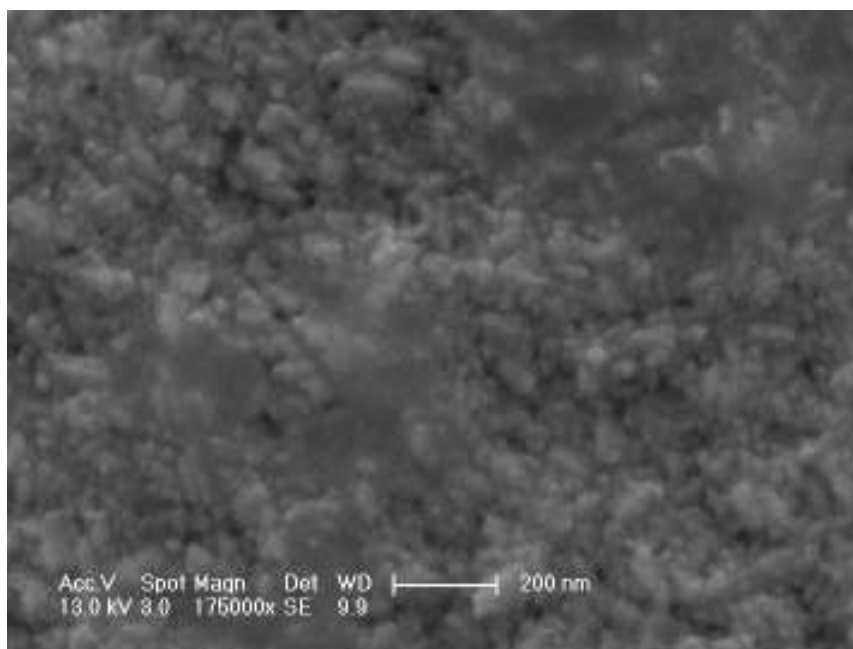


Figure S6. High resolution SEM image for electrodeposited lead dioxide.

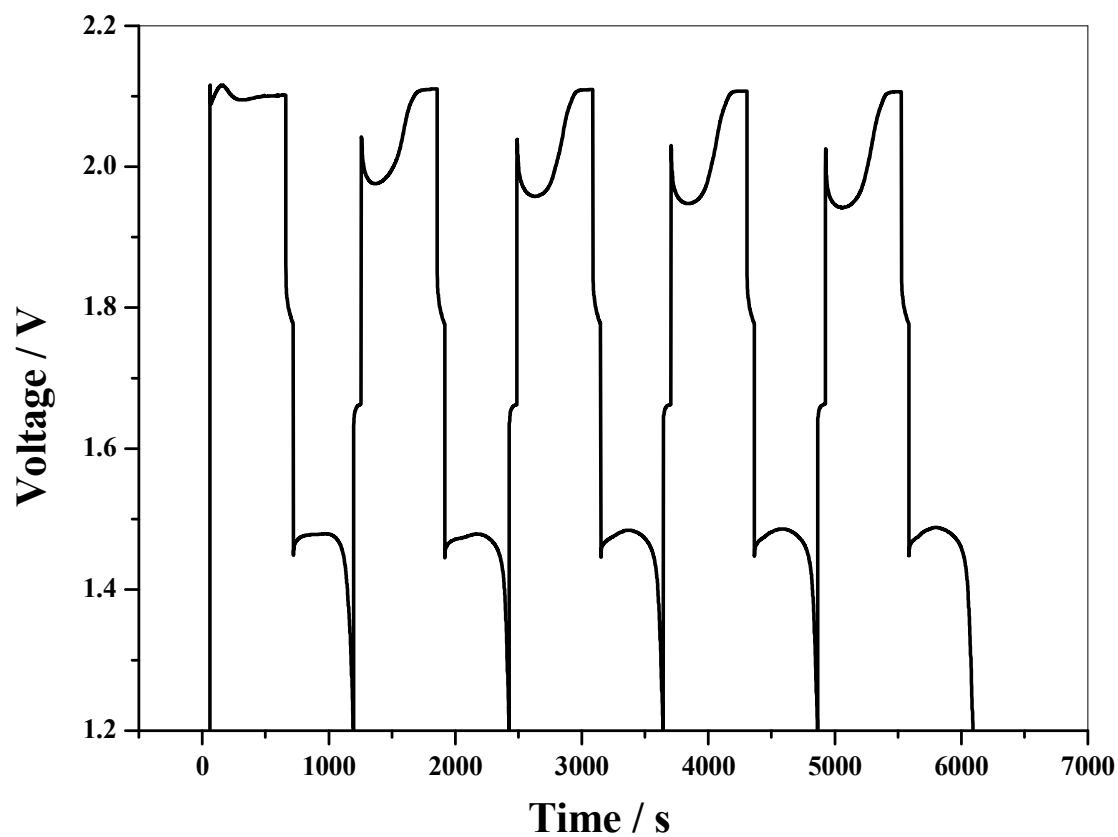


Figure S7. Charge–discharge profile for soluble-lead redox flow battery during cycling (first five cycles are shown).

Table S1. Crystal data of lead (II) methanesulfonate

Empirical formula	Pb ₂ (CH ₃ SO ₃) ₄ .2H ₂ O	
Formula weight	830.79	
Temperature	298(2) K	
Wavelength	0.71073 Å	
Crystal system	Triclinic	
Space group	<i>P</i> -1	
Unit cell dimensions	<i>a</i> = 8.8594(9) Å	<i>a</i> = 88.001(9)°.
	<i>b</i> = 9.8298(11) Å	<i>b</i> = 86.234(9)°.
	<i>c</i> = 10.6332(13) Å	<i>g</i> = 71.598(9)°.
Volume	876.66(17) Å ³	
<i>Z</i>	2	
Density (calculated)	3.147 Mg/m ³	
Absorption coefficient	19.720 mm ⁻¹	
F(000)	760	
Crystal size	0.02 x 0.01 x 0.01 mm ³	
Theta range for data collection	2.43 to 26.00°.	
Index ranges	-10 ≤ <i>h</i> ≤ 10, -12 ≤ <i>k</i> ≤ 12, -13 ≤ <i>l</i> ≤ 13	
Reflections collected	17307	
Independent reflections	3444 [R(int) = 0.0526]	
Completeness to theta = 26.00°	99.9 %	
Max. and min. transmission	0.8272 and 0.6938	
Refinement method	Full-matrix least-squares on F ²	
Data / restraints / parameters	3444 / 0 / 238	
Goodness-of-fit on F ²	0.976	
Final R indices [I > 2σ(I)]	R1 = 0.0253, wR2 = 0.0609	
R indices (all data)	R1 = 0.0307, wR2 = 0.0619	
Extinction coefficient	0.0072(2)	
Largest diff. peak and hole	1.745 and -1.366 e.Å ⁻³	