

Synthesizing a Gel Polymer Electrolyte for Supercapacitors, Assembling a Supercapacitor Using a Coin Cell, and Measuring Gel Electrolyte Performance

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Materials

| Name | Company | Catalog Number | Comments |
|-----------------------------------------------------------|---------------|----------------|-------------------------------------------------------------------|
| 1 M LiPF ₆ in EC/DMC=1/1, v/v | Sigma aldrich | 746738 | Electrolyte for pvdf-hfp polymer based gel electrolyte |
| Activated carbon | Sigma aldrich | 902470 | Active material |
| Ag/AgCl electrode | BASi | RE-5B | Reference electrode |
| Carbon black | Sigma aldrich | 699632 | Conductive material |
| Diamino-poly (propylene oxide) (DPPO) | Sigma aldrich | 80506-64-5 | cross linking material for pvdf-hfp polymer based gel electrolyte |
| Diglycidyl ether of bisphenol-A (DEBA) | Sigma aldrich | 106100-55-4 | cross linking material for pvdf-hfp polymer based gel electrolyte |
| Dimethylformamide (DMF) | Samchun | D0551 | |
| Electrode pressing machine | Rotech | MP200 | |
| Extractor | WonA Tech | | Convert program (raw data to Excel) |
| Isopropanol(IPA) | Samchun | I0346 | Solvent to melt the binder |
| Phosphoric acid | Samchun | 00P4277 | |
| poly (ethylene glycol) diglycidyl ether (PEGDE) | Sigma aldrich | 475696 | cross linking material for pvdf-hfp polymer based gel electrolyte |
| Polytetrafluoroethylene(PTFE) | Sigma aldrich | 430935 | Binder |
| polyvinyl alcohol (PVA) | Sigma aldrich | 9002-89-5 | |
| Polyvinylidene fluoride-co-hexafluoropropylene (PVDF-HFP) | Sigma aldrich | 427160 | |
| Potentiostat | WonA Tech | Zive SP1 | |
| Pt electrode | BASi | MW-018122017 | Counter electrode |
| Smart management 6(SM6) | WonA Tech | | Program of setting sequence and measuring electrochemical result |
| Sulfuric acid | Samshun | S1423 | Electrolyte |

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|-------------------------|-----------|--------|-------------------------|
| Tensile testing machine | Nanotech | NA-50K | tensile testing machine |
| Zman | WonA Tech | | EIS program |