What is claimed is:

1. An aqueous electrolyte solution for electrochemical device, comprising an ionic Gemini surfactant and a non-ionic surfactant, wherein the aqueous electrolyte solution has a viscosity of no more than 5.0 mPa/s and the aqueous electrolyte solution has an improved electrochemical stability window in comparison with that without the ionic Gemini surfactant and the non-ionic surfactant; wherein the ionic Gemini surfactant may be selected from ethylene bis (hexadecamidopropyl dimethyl ammonium bromide), sodium dilauroyl ethylenediamine dipropionate, ethylene bis[(Dodecyldimethyl) chloride/ammonium bromide], or octyl polyoxyethylene tetradecyl ammonium chloride; and wherein the non-ionic surfactant may be selected from tridecyl alcohol polyoxyethylene ether, tripentaerythritol, dodecyl phenyl polyoxyethylene(12) ether, or sorbitan monolaurate.
2. The aqueous electrolyte solution of claim 1, wherein the aqueous electrolyte solution has a conductivity of no less than 45 mS/cm.
3. The aqueous electrolyte solution of claim 1, wherein the ionic Gemini surfactant contains two or more ions in each molecule.
4. The aqueous electrolyte solution of claim 1, wherein the ionic Gemini surfactant is an anionic or cation surfactant.
5. The aqueous electrolyte solution of claim 1, wherein the non-ionic surfactant is ethoxylate, fatty acid ester of polyhydroxy compounds, fatty acid ester of glycerol, glycerol monostearate, glycerol monolaurate, fatty acid ester of sorbitol, alkyl polyglucoside or their derivatives.
6. The aqueous electrolyte solution of claim 1, wherein the ionic Gemini surfactant has a concentration of 0.001-0.1mol/L in said aqueous electrolyte solution.
7. The aqueous electrolyte solution claim 1, wherein the non-ionic surfactant has a concentration of 0.01-0.1mol/L in said aqueous electrolyte solution.
8. The aqueous electrolyte solution of claim 1, wherein the molar ratio of non-ionic surfactant to the ionic Gemini surfactant ranges from 10 to 100.
9. The aqueous electrolyte solution of claim 1, wherein the electrochemical device is an aqueous ionic battery.
10. An electrochemical device comprising an anode, a cathode and the aqueous electrolyte solution of claim 1 placed between the anode and cathode, wherein the ionic Gemini surfactant and non-ionic surfactant constructs an interface on the surface of the active material of the anode

and cathode, wherein the interface blocks direct contact between water molecules and the active material, by which electrolysis of water molecules is restricted or inhibited, and allows passage of ions in the electrolyte solution through the interface and electrochemical reaction with the active material.

11. The electrochemical device of claim 10, wherein the aqueous electrolyte solution has an electrochemical stability window of 2.6 – 2.7 V.
12. The electrochemical device of claim 10, wherein the electrochemical device has a specific capacity of higher than that without the ionic Gemini surfactant and non-ionic surfactant.
13. The electrochemical device of claim 11, wherein the specific capacity of electrochemical device is 10%-40% higher than that without the ionic Gemini surfactant and non-ionic surfactant at a rate ranging from 0.1C to 1.0C.
14. A method for preparing the aqueous electrolyte solution of claim 2, comprising:
    a. dissolving a predetermined amount of an ionic Gemini surfactant and a non-ionic surfactant in water at a controlled temperature by mechanical stirring or ultrasonic mixing, resulting in a surfactant solution; and
    b. adding one or more inorganic electrolyte salts into the surfactant solution, followed by adjusting pH value to 6.0 – 8.0, thereby obtaining the aqueous solution of claim 2 with a viscosity is no more than 5.0 mPa.S and a conductivity of no less than 45.0 mS/cm.
15. The method of claim 14, wherein the controlled temperature ranges from 25℃ and 50℃.
16. The method of claim 14, wherein said one or more inorganic electrolyte salts comprise a cation selected from the group consisting of lithium, sodium, potassium, zinc, calcium, and magnesium.
17. The method of claim 14, wherein said one or more inorganic electrolyte salts comprise an anion selected from the group consisting of chloride, sulfate, sulfonate, nitrate, sulfite, hypochlorite and phosphate.
18. The method of claim 16, wherein the cation has a concentration ranging from 0.01 mol/L to 5 mol/L in said aqueous electrolyte solution.