CLAIMS

1. An aqueous electrolyte for a battery, comprising a water-based solvent having dissolved therein a mixture of a sodium-based salt and a trifluoromethanesulfonate-based salt, further comprising an organic polar solvent, wherein the organic polar solvent is a polar aprotic solvent.

2. The aqueous electrolyte of claim 1, wherein the water-based solvent has a pH below 6.

3. The aqueous electrolyte of claim 1 or claim 2, wherein the water-based solvent comprises rainwater.

4. The aqueous electrolyte of any one of claims 1 to 3, wherein a cation of the sodium-based salt comprises sodium and an anion of the sodium-based salt is selected from the group consisting of perchlorate, nitrate, chloride, acetate, sulfate, and a combination thereof.

5. The aqueous electrolyte of any one of claims 1 to 4, wherein the sodium-based salt is provided in a concentration of 0.1 mol/kg to 20 mol/kg.

6. The aqueous electrolyte of any one of claims 1 to 5, wherein the sodium-based salt comprises sodium perchlorate.

7. The aqueous electrolyte of claim 6, wherein the sodium perchlorate is provided in a concentration of 10 mol/kg to 20 mol/kg.

8. The aqueous electrolyte of any one of claims 1 to 7, wherein a cation of the trifluoromethanesulfonate-based salt comprises zinc and an anion of the trifluoromethanesulfonate-based salt comprises trifluoromethanesulfonate.

9. The aqueous electrolyte of any one of claims 1 to 8, wherein the trifluoromethanesulfonate-based salt is provided in a concentration of 0.1 mol/kg to 5 mol/kg.

10. The aqueous electrolyte of any one of claims 1 to 9, wherein the polar aprotic solvent has a dielectric constant of higher than 10.

11. The aqueous electrolyte of any one of claims 1 to 10, wherein the polar aprotic solvent has a dipole moment higher than 1.5 D.

12. The aqueous electrolyte of any one of claims 1 to 11, wherein the polar aprotic solvent is selected from the group consisting of acetone, acetonitrile, dimethylformamide, dimethylpropyleneurea, dimethyl sulfoxide, hexamethylphosphoric triamide, and a combination thereof.

13. The aqueous electrolyte of claim 12, wherein the polar aprotic solvent is dimethyl sulfoxide.

14. The aqueous electrolyte of any one of claims 1 to 13, wherein the sodium-based salt is provided in a concentration of above 10 mol/kg.

15. The aqueous electrolyte of any one of claims 1 to 14, wherein a volume ratio of the water-based solvent, having dissolved therein the mixture of the sodium-based salt and the trifluoromethanesulfonate-based salt, to the polar aprotic solvent is from 5:1 to 1:5.

16. The aqueous electrolyte of claim 15, wherein the volume ratio of the water-based solvent, having dissolved therein the mixture of the sodium-based salt and the trifluoromethanesulfonate-based salt, to the polar aprotic solvent is from 5:1 to 2:1.

17. The aqueous electrolyte of any one of claims 1 to 16, wherein the pH of the aqueous electrolyte is from 4 to 6.

18. A battery comprising an anode and a cathode, and an aqueous electrolyte ionically coupling the anode and the cathode, wherein the aqueous electrolyte comprises a water-based solvent, having dissolved therein a mixture of a sodium-based salt and a trifluoromethanesulfonate-based salt, further comprising an organic polar solvent, wherein the organic polar solvent is a polar aprotic solvent.

19. The battery of claim 18, wherein the battery is in a coin cell configuration.

20. The battery of claim 18, wherein the battery is in a pouch cell configuration.