Short Communication

The Electrolyte for a Liquid Metal Battery: Liquidus Temperature, Conductivity, and Density

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This study investigated the influence of the composition of the electrolyte used in Li-Pb,Sb liquid metal batteries on its liquidus temperature, conductivity, and density. On this basis, the appropriate electrolyte with a price advantage was selected. Moreover, the liquidus temperatures of electrolytes with different compositions used in Na-Pb,Sb liquid metal batteries were measured, and an electrolyte composition with a lower liquidus temperature was chosen. The density and conductivity results demonstrate that the selected electrolytes can meet the requirements of liquid metal batteries. The findings of this study provide data support for the selection of electrolytes for liquid metal batteries.

Keywords: Liquid metal battery, Li-Pb,Sb battery, Na-Pb,Sb battery, Liquidus temperature, Conductivity, Density

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