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New Data on the Heat Capacity, Thermal Conductivity and Viscosity of the Li_2CO_3–Na_2CO_3–K_2CO_3 Molten Eutectic

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A project was started in Lisbon to measure thermal, chemical and thermophysical stability of a Li-Na-K-carbonate eutectic mixture. The salt was prepared from pure reagent precursors (Li_2CO_3, Na_2CO_3, K_2CO_3), and the mixing involved melting, solidification, and drying. Existing methods for their preparation (at room temperature, obtaining a solid composite of nanoparticles in the solid salt followed by melting at higher temperatures or temperatures above the melting point of base salt eutectic mixture) will be discussed. Thermal conductivity (transient hot-strip), viscosity (oscillating cup technique) melting points, and heat capacity (DSC) were the techniques chosen for the measurement. New data was obtained in the temperature range from the melting point (~400 °C) to 650 °C. Uncertainties achieved will be discussed.

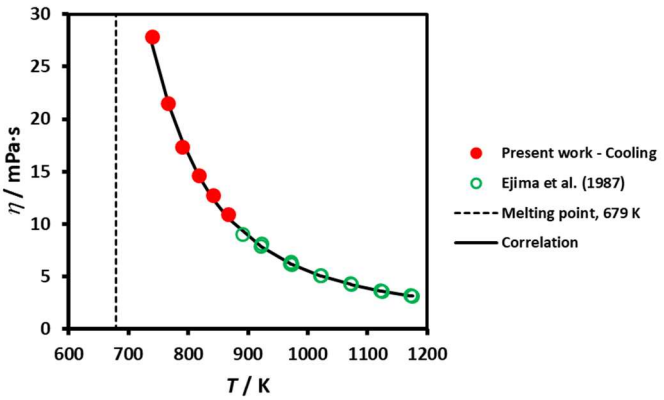


Figure 1. The viscosity of Li_2CO_3–Na_2CO_3–K_2CO_3 Molten Eutectic

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