Error Analysis of the Oscillating Cup Method for Viscosity Measurements of Molten Salts

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The errors in viscosity measurements by the oscillating cup method were calculated as a function of the limit of accuracy imposed by the uncertainty in determining the constants of the oscillating system R, I, T_0, δ_0 and the limit of precision resulting from errors in determining the experimental parameters δ, T, h, ρ.

Thus, by evaluating the fractional error of each of the parameters and implicitly its distinct contribution to the total standard error, it was established that the "meniscus error" Δh, which is difficult to be controlled or avoided, represents the major source of imprecision of oscillating cup viscometers.

Key words: Viscosity; Molten Salts; Oscillating Cup Viscometer; Error Analysis.