

## Thermodynamic properties of lead-scandium alloys enriched by fusible component

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### Abstract

In this paper, we studied thermodynamic properties of scandium in its liquid alloys with lead in the temperature range of 650-1040 K. Two modifications of the electromotive forces (EMF) method were used for measurements. The first (classical EMF method) included the potential determination during long time interval (about 1-2 h) for each temperature point. The second (chronopotentiometric method) allowed us to investigate the potential of galvanic elements within comparatively short time interval and, further, to carry out large number of measurements at different temperatures. The results of both methods are in good agreement. This fact allows us to merge EMF data to one linear dependence. Partial Gibbs energy of scandium in liquid two-phase alloy of the composition (L + Pb<sub>6</sub>Sc<sub>5</sub>) (where L is liquid solution of Sc in Pb) can be determined by the equation:  $\Delta G_{Sc} = - (90.93 \pm 2.1) + (6.7 \pm 2.3) \cdot 10^{-3} T$ , kJ/mol Sc.