

## Thermodynamic Properties of Binary Gold-Rare Earth Compounds (Au-RE)

**Authors :** H. Krarchaa, A. Ferroudj

**Abstract :** This work presents the results of thermodynamic properties of intermetallic rare earth-gold compounds at different stoichiometric structures. It mentions the existence of the AuRE AuRE<sub>2</sub>, Au<sub>2</sub>RE, Au<sub>51</sub>RE<sub>14</sub>, Au<sub>6</sub>RE, Au<sub>3</sub>RE and Au<sub>4</sub>RE phases in the majority of Au-RE phase diagrams. It's observed that equiatomic composition is a common compound for all gold rare earth alloys and it has the highest melting temperature. Enthalpies of the formation of studied compounds are calculated based on a new reformulation of Miedema's model.

**Keywords :** rare earth element, enthalpy of formation, thermodynamic properties, macroscopic model

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