

## Thermodynamic assessment of phase composition of Si-based binary and ternary Si-Al(B)-Ti alloys

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### Abstract

With the use of computational methods of chemical thermodynamics the thermodynamic properties of solid solutions of aluminum and boron in silicon and compound SiB<sub>3</sub> have been evaluated. As a result of calculation and analysis of phase equilibria in the systems Si-Al-Ti and Si-B-Ti in the temperature-concentration-traditional areas of existence of solid solution on the basis of silicon we substantiated thermodynamically the isolation of compounds Ti<sub>7</sub>Al<sub>5</sub>Si<sub>14</sub> and TiB<sub>2</sub>, respectively.