

# THERMODYNAMIC PROPERTIES OF THE GRAY AND WHITE TIN

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Tin is commonly found in one of two allotropic forms: the stable phase at low temperature is alpha or gray tin which is a zero-gap semiconductor having the diamond structure; when the temperature is raised above  $T \sim 13$  °C, the crystal transforms into the beta-phase or white tin which is a body-centered tetragonal metal [1]. There is a lack of data for the enthalpy of alpha to beta phase transformation. And there is a wide spread in the available results which do not very well converges between themselves [2], [3]. In this work we calculate mechanical and thermodynamic properties: equilibrium lattice parameters, bulk modulus, entropy and enthalpy of transformation, Gibbs free energy.

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  2. Hultgren R., Desai P.D., Hawkins D.T., Gleiser M., Kelley K.K., Wagman D.D. // *American Society For Metals, Metals Park, Ohio.* 1973.
  3. Cohen E., van Eijk C. // *Phys. Chem.* 1899. V. 30. P. 601-622.