Exercise 2.2-1

Properties of Johnson Complexes

Illustration

Discuss the equation for the concentration of vacancy - impurity atom complexes (Johnson complexes).

- Consider an impurity atom concentration of **1 %** and **1 ppm**, a vacancy formation enthalpy of **1 eV** (neglect the formation entropy) and several binding energies (including extremes).
- Discuss the concentration of Johnson complexes as a function of temperature and in relation to the concentration of the impurity atoms and the equilibrium concentration of vacancies.

Use approximations, order-of- magnitude considerations and reasonable numbers whenever possible.

Link to the <u>Solution</u>