1. Molar Volume Database of Nb-Alloys

PanNb2020_MV is a molar volume database for Nb-based alloys, which is compatible with the PanNb2020_TH thermodynamic database and suitable for the simulation of thermophysical properties of Nb-based alloys, such as density, thermal expansion, solidification shrinkage etc.

1.1 Components (13)

Al	Cr	Fe	Hf	Mo	Nb	Re	Si	Ta	Ti
V	W	Zr							

1.2 Phases

The current molar volume database covers all 131 phases assessed in the PanNb2020_TH database.

1.3 Database Validation

The simulated density changes vs. temperature of a series of Nb-based alloys are shown below to validate the current PanNb2020_MV database.

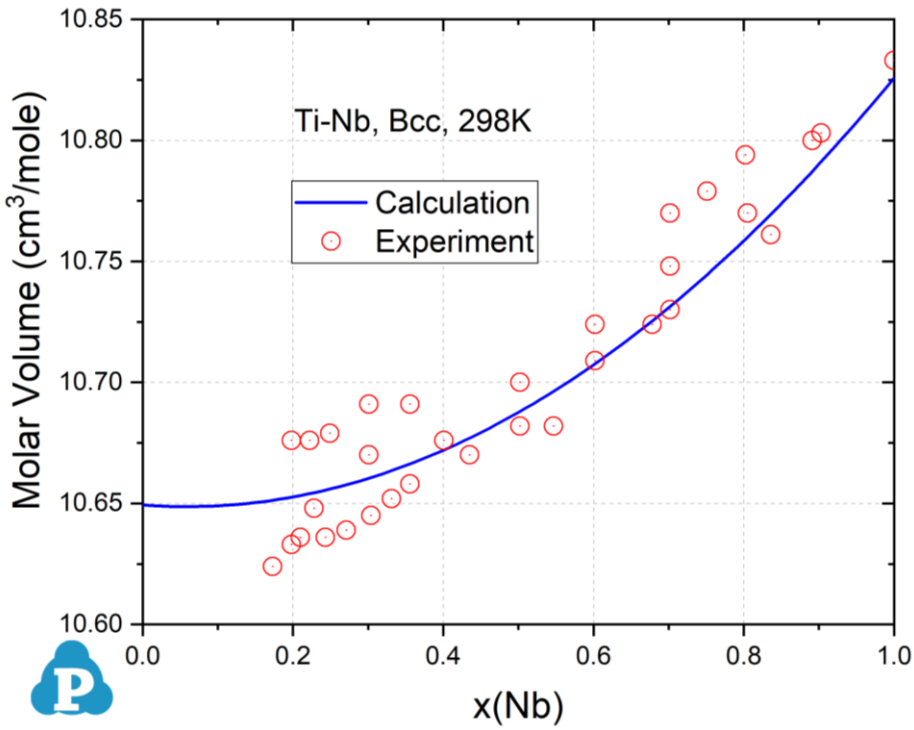

Figure 1.1: Molar volume of Nb-Ti Bcc binary alloys at 298K [1]

1.4 References

1. Yan, J.-Y. and G.B. Olson, *Molar volumes of bcc, hcp, and orthorhombic Ti-base solid solutions at room temperature.* Calphad, 2016. **52**: p. 152-158.