

Al – O (Aluminum – Oxygen)

Phase diagram

After Wriedt [85 Wri] has reviewed the Al-O system Taylor et al. [92 Tay] using the “ionic liquid” model (Hillert et al. [85 Hil]) and the compound energy model (Hillert et al. [88 Hil]) have derived thermodynamic and phase diagram data for this system. The resulting phase diagram is shown in Fig. 1. The compound Al_2O_3 (corundum structure) melts congruently at 2337 K. Other modifications of this compound are stable at this temperature.

The solubility in liquid Al is reviewed thoroughly by [92 Tay]. Enlarged version of this part of phase diagram at the Al-rich and Al_2O_3 -rich area are given in Fig. 2 and Fig. 3, respectively.

Figures

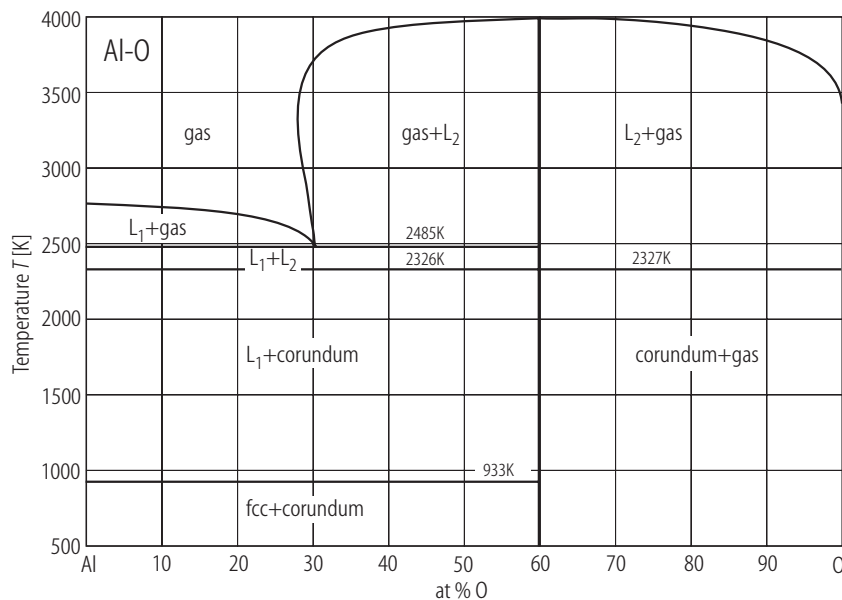


Fig. 1. Al–O. Phase diagram proposed by [92 Tay].

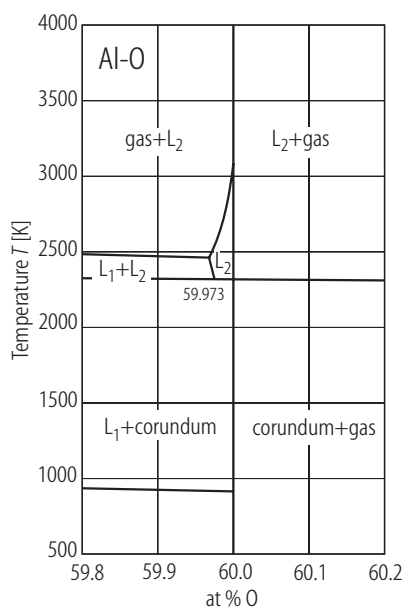
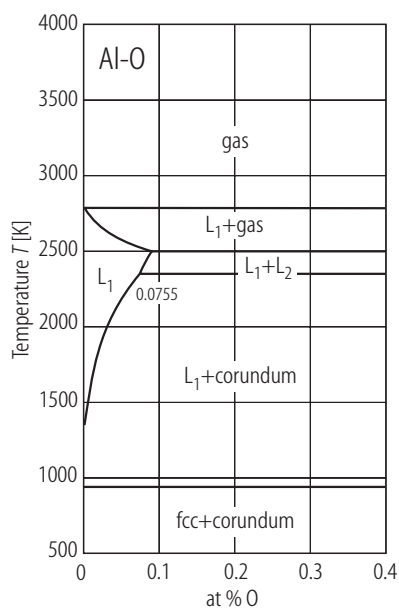


Fig. 2. Al-O. Enlarged version of the Al-rich part of the phase diagram [92 Tay].

Fig. 3. Al-O. Enlarged version of the Al_2O_3 -rich part of the phase diagram [92 Tay].

References

- [85 Hil] Hillert, M., Janson, B., Sundman, B., Ågren, J.: Metall. Trans. A **16A** (1985) 261
- [85 Wri] Wriedt, H.A.: Bull. Alloy Phase Diagrams **6** (1985) 548
- [88 Hil] Hillert, M., Janson, B., Sundman, B.: Z. Metallkde. **79** (1988) 81
- [92 Tay] Taylor, J.R., Dinsdale, A.T., Hillert, Selleby, M.: Calphad **16** (1992) 173