

# Enthalpy of formation of N-U (nitrogen-uranium) system

## Thermodynamics

Katsura et al. [98Kat] have investigated thoroughly the formation of  $\alpha$ -U<sub>2</sub>N<sub>3+x</sub> starting from metallic U with a mixture of N<sub>2</sub> and H<sub>2</sub>. The reaction takes place even at 570 K.

In a thermodynamic study Nakagawa et al. [98Nak] have determined N<sub>2</sub> pressure-composition isotherms at temperatures between 670 K and 1170 K for the single phase  $\alpha$ -U<sub>2</sub>N<sub>3+x</sub>. From results obtained the authors calculated the partial molar free energy, enthalpy and entropy as a function of N<sub>2</sub> content.

The enthalpy of formation of UN has been estimated by Suzuki et al. [98Suz] on the basis of mass spectrometric experiments to be about  $\Delta H^S = -296 \text{ kJ mol}^{-1}$  (see also [75Ack]).

## Symbols and abbreviations

Short form	Full form
$\Delta H^S$	integral enthalpy of formation of a solid alloy

## References

- [75Ack] Ackermann, R.J., Rauh, E.G.: J. Chem. Thermodyn. **7** (1975) 211  
 [98Kat] Katsura, M., Nishimaki, K., Nakagawa, T., Takahashi, K.: J. Alloys Comp. **271–273** (1998) 662  
 [98Nak] Nakagawa, T., Nishimaki, K., Urabe, T., Katsura, M.: J. Alloys Comp. **271–273** (1998) 658  
 [98Suz] Suzuki, Y., Arai, Y.: J. Alloys Comp. **271–273** (1998) 577