

# H-Ni (Hydrogen-Nickel)

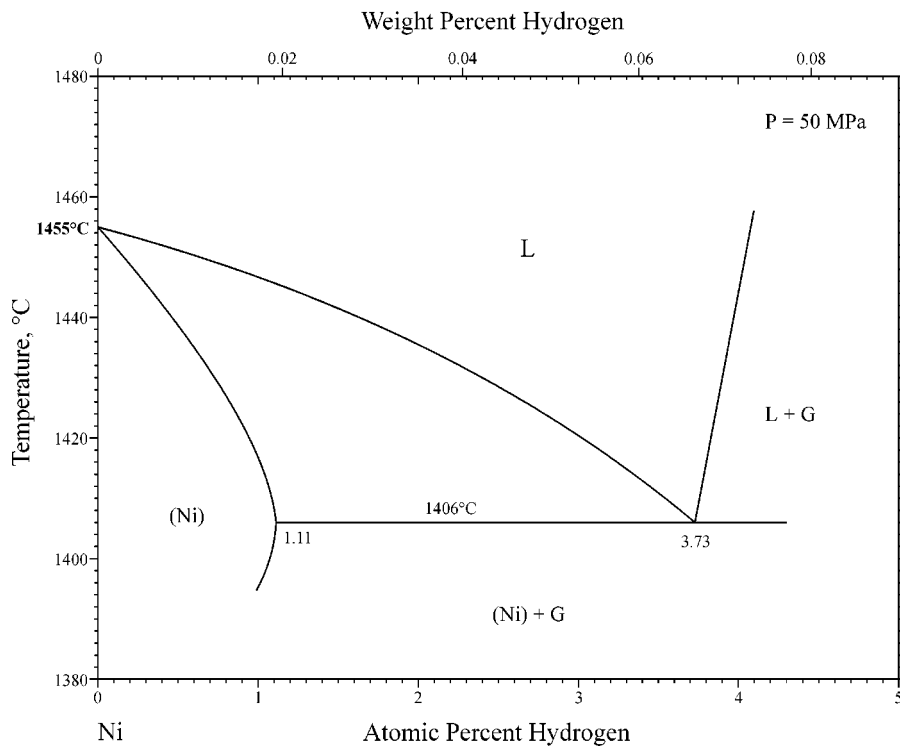
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The Ni-H system was evaluated by [1989Way]. The  $L \leftrightarrow (Ni) + H_2$  (gas) “eutectic” point at  $P = 50$  MPa was reported to exist at  $1406^\circ\text{C}$  and  $H/N = 0.036$ . However, this point was shown at  $1406^\circ\text{C}$  and  $0.036$  at.% H in a phase diagram converted to the atomic percent scale by [1991Way]. If this revised phase diagram is correct, the slope of (Ni) liquidus is unrealistically steep [1991Oka]. Therefore, [1989Way] must be correct. Figure 1 shows the Ni-H phase diagram modified accordingly.

The Ni-H phase diagram at 1 atm pressure was determined by [1999Zen] by thermodynamic modeling. The result is shown in Fig. 2.

## References

- 1989Way:** M.L. Wayman and G.C. Weatherly: *Bull. Alloy Phase Diagrams*, 1989, vol. 10 (5), pp. 569-80.  
**1991Way:** M.L. Wayman and G.C. Weatherly: in *Phase Diagrams of Binary Nickel Alloys*, P. Nash, ed., ASM International, Materials Park, OH, pp. 154-63.  
**1991Oka:** H. Okamoto and T.B. Massalski: *J. Phase Equilibria*, 1991, vol. 12 (2), pp. 148-68.  
**1999Zen:** K. Zeng, T. Klassen, W. Oelerich, and R. Bormann: *J. Alloys Compounds*, 1999, vol. 283 (1-2), pp. 151-61.



**Fig. 1** Partial Ni-H phase diagram at 50 MPa

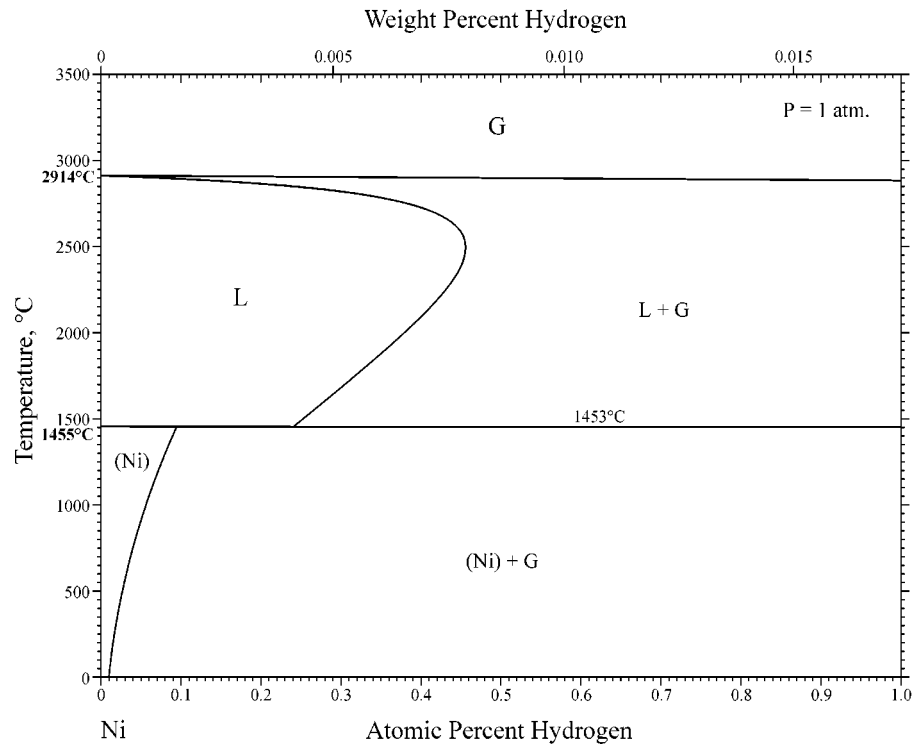


Fig. 2 Partial Ni-H phase diagram at 1 atm