



>>Entry Name: Neodymium hydrides

Related CAS Registry Numbers(s): 81643-86-9

Molecular Formula: [HNd]

>>Variant: Neodymium hydride (NdH₂)

CAS Registry Number: 13863-22-4

Molecular Formula: H₂Nd

Molecular Weight: 146.256

Accurate Mass: 143.923369

Percentage Composition: H 1.38%; Nd 98.62%

Use/Importance: Catalyses hydrogenation of propene

Physical Description: Blue solid

Other Data: Phase transition at 862° from hexagonal struct. to bcc. $\Delta H_f -211.4 \text{ kJ mol}^{-1}$; $\Delta G_f -167.9 \text{ kJ mol}^{-1}$. Ferromagnetic <5.6K. $\mu_{\text{eff}} = 3.38\mu_B$

>>Variant: Neodymium hydride (NdH₃)

CAS Registry Number: 13864-04-5

Molecular Formula: H₃Nd

Molecular Weight: 147.264

Accurate Mass: 144.931194

Percentage Composition: H 2.05%; Nd 97.95%

Use/Importance: Catalyses Mg-H₂ reaction

Other Data: Samples obt. <350° have hexagonal struct., transforming irreversibly to fcc above 350°

References:

- Wallace, W.E., *Ber. Bunsen-Ges. Phys. Chem.*, 1972, **76**, 832, (*magnetism, NdH₂*)
Rodin, A.M. *et al.*, *Izv. Akad. Nauk SSSR, Neorg. Mater.*, 1972, 84, (*synth, NdH₃*)
Gaifutdinova, R.K. *et al.*, *Zh. Fiz. Khim.*, 1972, **46**, 2166, (*synth, NdH₃*)
Breganski, Z. *et al.*, *J. Less-Common Met.*, 1976, **49**, 42, (*thermodyn, NdH₂*)
Konenko, I.R. *et al.*, *Kinet. Katal.*, 1979, **20**, 900, (*use, NdH₂*)
Magee, C.B., *J. Less-Common Met.*, 1980, **72**, 273, (*struct, NdH₂*)
Weaver, J.H. *et al.*, *J. Less-Common Met.*, 1980, **74**, 207, (*pe, NdH₂*)
Carlin, R.L. *et al.*, *J. Appl. Phys.*, 1982, **53**, 2634, (*magnetism, NdH₂*)
Sen Gupta, R. *et al.*, *J. Phys. (Paris)*, 1984, **14**, 2549, (*electronic struct, NdH₃*)
Semenenko, K.N. *et al.*, *Azerb. Khim. Zh.*, 1985, 108; *CA*, **105**, 195772, (*use, NdH₃*)