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Crystal Transition of HNIW in Nitrate Acid

JIN Shao-hua[1], YANG Bo[1], LIU Jin-quan[1], LEI Xiang-dong[2], CHEN Shu-sen[1]

(1. *School of Material Science and Technology*, *Beijing Institute of Technology*, *Beijing* 100081, *China*;
2. *The* 31*nd Institute*, *CASIC Beijing*, *Beijing* 100074, *China*)

Abstract: Solubility of hexanitrohexaazaisowurzitane (HNIW) and its changes with temperature in three kinds of different concentrations of nitric acid were measured. The process of crystal transition from α, γ-HNIW to ε-HNIW in nitrate acid was studied. ε-HNIW with different crystal quality were obtained by changing concentration of HNO_3, temperature of adding crystal seeds, stirring rate. ε-HNIW is obtained in 90% nitric acid when the temperature of adding crystal seeds is in the range of 34 – 40 ℃. Its yield and purity is over 98%, 99% respectively, and acid number is below 2‰ (as HNO_3).

Key words: applied chemistry; hexanitrohexaazaisowurzitane (HNIW); crystal transition; distribution of granularity; solubility

读者·作者·编者

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