

SOLUBILITY OF CRYSTALLINE NEODYMIUM HYDROXIDE AND HYDROLYSIS OF THE TRIVALENT ND ION FROM 30° TO 290°C

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The solubility of crystalline neodymium hydroxide was measured at temperatures from 30° to 290°C at saturated water vapor pressure as a function of ionic strength. The solubility of neodymium hydroxide decreases strongly with increasing temperature and the solubility product is an inverse function of temperature. From 30° to 200°C, the hydrated neodymium ion predominates over a wide pH range. At low temperatures, hydrolysis proceeds from the simple Nd ion to neutral Nd(OH)₃ over a narrow pH range, and intermediate hydrolysis products are never predominant. At temperatures above 200°C, intermediate hydrolysis products do become predominant over certain pH ranges. Our experiments suggest that trivalent Nd ion is less hydrolyzed than previously thought.