This work reports a new route for preparing cubic BN (c-BN) nanocrystals under moderate conditions. Considering the instability of BN nanoparticles, we have investigated the structural transformation of BN nanoparticles in benzene. The results revealed that a great deal of hexagonal BN (h-BN) nanoparticles had been converted into c-BN or wurtzitic BN (w-BN) at 280 °C and 50 MPa. As the temperature was increased from 280 to 300 °C, h-BN nanoparticles gradually disappeared, and the content of both c-BN or w-BN increased. Similarly, increase of pressure or hot-pressing time showed the same effect. These results may open up an opportunity for synthesizing other superhard nanomaterials such as diamond and cubic carbon nitride under moderate conditions.

Key words: Boron Nitride Nanoparticles, Solvent Hot-pressing Route, Structural Transformation, Characterization