Пример текста для письменного перевода, вариант 2 -- 2100 зн.

The ball milling / mechanical milling has shown a path to overcome this problem which relies on mechanical impact and friction to refine and alloy powder materials. Mechanical alloying can lead to several changes by the introduction of structural defects, phase change, and /or crystallinity. A heavily defected or amorphous structure possesses different hydriding characteristics from the crystalline counterpart. Usually, hydrogen atoms occupy similar interstitial sites in the amorphous structure to those in the crystalline structure, but the binding energy of the interstitial site varies, due to heavy and varied lattice distortion in the former. Zaluska et al. has investigated the improvement in the both morphology of the Mg powder and the surface activity for hydrogenation. Depending on the ball milling conditions, the shift of the onset of desorption temperature can be as large as 100C for MgH_2 and 40C for Mg2NiH4. It has been found that with the decrease in crystal grain size, the desorption energy decreases drastically, reducing the desorption temperature up to 200 °C. Another approach has been adopted in the form of milling under hydrogen atmosphere which provides a easy way to diffuse hydrogen into the material. The results indicated that the pulverization and deformation processes occurring during high energy ball milling play a major role in the hydriding reaction. So it is concluded that nano-structured materials can provide much better results for storing high content of hydrogen with fast kinetics. However, the preparation of such small particles by ball milling at large scale is a major challenge. Recent work has indicated an alternative method to prepare large amounts of nanometer-sized non-oxidized magnesium crystallites. The method is based on infiltration of nanoporous carbon with molten magnesium. The size of thus prepared Mg crystallites has been reported from 2-5 nm to less than 2 nm. Another alternative for ball milling to modify the microstructure of the material is Equal channel angular pressing technique.