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Improving structure of chemical reactors to enhance the hydrolysis of magnesium hydride for hydrogen production

Abstract:

Hydrogen has attracted widely attention due to its high calorific value, good combustion performance, non-toxic, and green characteristics. MgH2 has obvious advantages in hydrogen storage due to its high hydrogen storage density, mild hydrolysis conditions, rich raw materials, etc. However, poor hydrolysis kinetics limits its broad application. A series of hydrolysis reactors were designed, including porous filter structure, tower structure, and highly dispersed structure, and can effectively improve the controllability and continuity during the hydrolysis process. These results can provide a theoretical basis for the application of magnesium hydride solid hydrogen storage material in hydrogen energy, further expand the application of traditional reactor and provides a new perspective and theory for the hydrogen controllable preparation in the upstream of hydrogen fuel cell industrial chain.

Biography

Hongyun Qin has completed his PhD (Chemical Engineering) from Tianjin University, China. He mainly conducts research on multiphase chemical reactors and chemical process intensification. He has published more than 20 papers in reputed journals and has applied for or granted more than 15 patents.