**Thermal activation of magnesium hydride decomposition**

**Abstract**

In view of the perspective for the formation of hydrogen energy as the primary and uncontested, researchers around the world are actively renewed interests in metal hydrides. In recent decades, metal hydrides have become the solution of many important questions in science and technology, largely because of its ability to accumulate in large quantities and release hydrogen under certain conditions. One of the most promising hydrogen storage metal is magnesium, it is cheap and its hydride comprises up to 7.6% of the mass fraction of hydrogen. Magnesium hydride is a light and non-toxic powder, completely safe for humans and the environment. Besides, it is possible to synthesis MgH2 by direct hydrogenation of the magnesium particulate powder.

A significant drawback is the high temperature of decomposition of MgH2, so to produce hydrogen battery based on magnesium hydride it is necessary to find conditions that allow rapid release of hydrogen at lower temperatures. One way to reduce the temperature’s threshold of decomposition is a method of activation. This paper presents the results of investigations of thermal activation of the decomposition of magnesium hydride. This method is consist in that the analyzed hydride powder is placed in a vacuum chamber and heated to a temperature in a hydrogen atmosphere, maintained at this temperature until the start of pressure increase in the chamber due to the start of hydrogen desorption from MgH2 and is cooled. When the reheating to the similar temperature, the pattern begins allocation of hydrogen faster. Thus was obtained pressure H2 depending on the time, was found certain characteristics of the incubation process and built a qualitative model of activation of magnesium hydride decomposition.