

**Volume 15, Number 2, 2006**

**SHS Hydrogenation and following Dehydrogenation  
of Titanium Sponge**

V.I. Ratnikov, I.P. Borovinskaya and V.K. Prokudina

*Institute of Structural Macrokinetics and Materials Science, Russian Academy of  
Sciences (ISMAN)  
Chernogolovka, Moscow region, 142432 Russia*

**ABSTRACT**

In this work, some conditions for SHS-hydrogenation of titanium sponge were considered. This process allows one to obtain titanium hydride with high contents of hydrogen at the pilot-industrial scale. Design features of a special (non-standard) reactor patented in Russia for safe SHS-hydrogenation were given. The modes for disintegration of hydrogenated sponges and operation procedures for an installation for dehydrogenation of disintegrated sponge were considered. Chemical composition and size distribution of SHS titanium hydride and titanium powder produced by its dehydrogenation were presented.