

ELECTROCONDUCTIVITY OF LIGHT METAL HYDRIDES UNDER STRONG MULTI-SHOCK COMPRESSION

A.M. Molodets, D.V.Shakhray, V.V. Avdonin, A.A.Golyshev

Institute of problems of chemical physics RAS, 142432 Chernogolovka

Multi-shock conductivity experiments were performed for hydrides MgH_2 , LiH , NaAlH_4 and TiH_2 up to 70 GPa. Hydrides MgH_2 , LiH , NaAlH_4 achieve the conductivity of $5\text{-}35 \text{ (Ohm cm)}^{-1}$ at multi-shock compression. The change of conductivity correlates with polymorphic and phase transitions of the high pressure phases.

Semiempirical free energy are constructed for lithium hydride and polymorphous modification magnesium hydride. Modelling of shock compression of these materials is performed with the account of phase transitions in shock waves. Features of the Hugoniot are revealed caused by phase transitions of hydrides at shock compression