

FULLERITES UNDER SHOCK WAVES

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This review is focused on thermodynamic properties and physical-chemical transformations of C_{60} and C_{70} fullerites under high shock pressures. The results of micro-structural studies of samples recovered after stepwise shock compression of C_{60} (see review [1] et al.) and C_{70} [2, 3] fullerites; the results of measurements of shock compressibility and sound velocity behind shock-wave front of C_{60} fullerite [4] and shock compressibility of C_{70} fullerite performed with the use of pulsed-periodical source of synchrotron radiation [5]; the results of measurements of electrical conductivity of shocked C_{60} and C_{70} fullerites [6] are reviewed. Shock-induced phase transformations of fullerites under single- and multiple- shock-wave compression are analyzed in the view of semi-empiric equation-of-state calculations [7, 8]. The thermodynamic parameters of these transformations are compared to the parameters observed in the course of quasi-static compression of fullerites (see references [9-11]). The peculiarities of polymerization of fullerites under shock compression are discussed. The work was supported by RFBR (the project number 07-02-00625).

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