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The Structural and Physical Properties of the Vacancy Ordered LiBC Phases BORA KALKAN, EBRU GUNGOR, ENGIN OZDAS, Advanced Materials Research Group, Physics Department, Hacettepe University, Beytepe, Ankara 06800, Turkey — The prediction of superconductivity on the hole doped Li_xBC system [1] has triggered to particular interest on the synthesis of non-stoichiometric LiBC compounds. However, isolation of a non-stoichiometric phase of the LiBC have not been succeed as a single phase, yet. All of the experimental studies exhibited non-superconductivity in the disordered Li_xBC phases. Contrary to the disordered Li_xBC phases synthesized in the literature [2], non-stoichiometric Li vacancy ordered phases were obtained in this work. Additionally, the structural analysis with Rietveld refinement in a series of samples identified the stages of the intercalation of Li between the BC layers. The effect of stoichiometry on the physical properties of ordered Li_xBC phase was investigated at low temperatures. [1] Rosner H.et al., PRL 88, 12, 2002. [2] Fogg A.M.et al.JACS,128, 10043, 2006.

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