Since the recent discovery of Akimitsu [1] of superconductivity in MgB$_2$ at 39 K, MB$_2$ materials (M = Transition Metal) with the same prototype structure as MgB$_2$ are considered as candidates for multiband superconductivity. This discovered motivated the investigation to search for superconductivity in similar systems. Binary diborides can crystallize in different structure types, although the great majority are those presenting the AlB$_2$-type structure (P6/mmm space group, number 191) [2]. Although many compounds of MB$_2$ can crystallize in the AlB$_2$ type structure, superconductivity in this class of material is relatively rare. For example, the ZrB$_2$ which crystallizes in the AlB$_2$ prototype structure, does not presents superconductivity. Recently we showed that small V doping at Zr site in ZrB$_2$ leads to superconductivity [4]. In this work, we present structural, micro structural, electrical and magnetic studies on Zr$_{1-x}$Nb$_x$B$_2$ with $0 \leq x \leq 0.5$. Polycrystalline samples of Zr$_{1-x}$Nb$_x$B$_2$ were prepared by arc-melting. The X-ray diffraction patterns were analyzed by Rietveld refinement, allowing the identification of single-phased compounds. The materials were characterized by Scanning Electronic Microscopy (SEM). The SEM micrographs with EDS analysis showed that the presents a uniform composition. Specific heat, magnetization and resistivity measurements confirmed that all prepared samples were superconducting.

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