Effect of Platinum Group Metal Doping in Magnesium Diboride Wires - DTU Orbit (08/11/2017)

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The effect of some platinum group metals(PGM = Rh, Pd, and Pt) on the microstructure and critical current density of Cu/Nb-sheathed MgB2 wires has been studied using Mg1-x PGMxB2 powders with low doping levels. It was found that Pt and Pd do not enter the MgB2 lattice and have only limited influence on Tc. In contrast, some Rh can be substituted and induces a decrease of Tc. Secondary phases are formed when the solubility limit is exceeded, but they have different morphologies depending on the dopant. For some of these PGM elements, flux pinning improvements have been observed at low fields. The results are discussed in comparison with previous investigations using other transition metals for doping on the Mg site.

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