

Influence of Conditions of Plastic Deformation and Thermal Treatment on the Structure and Properties of Infiltrated Material on the Base of Iron

Dyachkova L.N.

Powder Metallurgy Institute, 41 Platonov str., 220005 Minsk, Belarus, dyachkova@tut.by

Abstract

Influence of conditions of plastic deformation and thermal treatment (deformation at the temperature higher A_{c3} , austforming and deformation at the room temperature followed by the structure deformation during the hardening) on mechanical properties and structure morphology of infiltrated material on the base of iron is investigated. Determined is that the combination of the plastic deformation, being carried out at different temperatures, with following thermal treatment makes possible to increase the strength of infiltrated material, the level of strengthening depends on the degree of deformation. The most effective strengthening of infiltrated material is achieved during the austforming. Plastic deformation and thermal treatment result in the decomposition of the structure and in the formation of ordered substructure, in the formation of the texture and composition structure of the grain of iron base of the material.