

**Egorov M.S., Egorov A.M.**

**Formation of the Structure and Properties of Powder Materials with Ultrafine Nickel Oxide Additives Using the Additional Hot Machining**

**Abstract:** The most efficient methods for production of the new materials are the powder metallurgy methods based on hot deformation of powder and composite billets that ensures a minimum residual porosity. One of the fundamental processes in production of the hot-deformed powder steels is splicing the material of the particles on the existing and newly formed contact surfaces. The effect of adding the ultradispersed particles on splicing the powder materials during various types of moulding or volumetric deformation is also of particular interest. The research on formation of the structure and properties of the powder materials with ultradispersed additives remains a relevant objective in powder material engineering.