

In this thesis the analysis of second phase particles influence on recovery and recrystallization processes in twin-roll cast sheets of AA 8011 aluminium alloy based on Al-Fe-Si is studied. The role of arrangement of impurity atoms and the type of thermomechanical treatment is investigated. Unbalanced crystallization of solid solution, which occurs during twin-roll casting, results in the creation of complicated structure of second phases, which isn't as a rule homogenously distributed in the volume. Therefore these materials exhibit poor mechanical properties in comparison with conventionally cast alloys. Important question the materials science deals with in the last years, is to find such a thermomechanical treatment, which results in balanced phase composition and optimal mechanical properties, comparable with properties of products produced by conventional methods. Such properties are especially high formability combined with sufficient strengths. To study physical properties of the alloy the resistometric measurement during linear heating, thermo-electric measurement and hardness measurement were used. Evolution of structure and microstructure in the alloy during heat treatment was studied by means of optical microscopy and transmission and scanning electron microscopy.