

عنوان مقاله:

PREDICTION OF TEMPERATURE DISTRIBUTION IN THE HOT TORSION TEST SPECIMEN

محل انتشار:

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خلاصه مقاله:

Hot torsion test (HTT) has extensively been used to analysis and physically model flow behavior and microstructure evolution of materials and alloys during hot deformation processes. In this test, the specimen geometry has a great influence in obtaining reliable test results. In this paper, the interaction of thermal-mechanical conditions and geometry of the HTT specimen was studied. The commercial finite element package ANSYS was utilized for prediction of temperature distribution during reheating treatment and a thermo-rigid viscoplastic FE code, THORAX.FOR, was used to predict thermo-mechanical parameters during the test for API-X70 micro alloyed steel. Simulation results show that no proper geometry and dimension selection result in non uniform temperature within specimen and predicted to have effects on the consequence assessment of material behavior during hot deformation. Recommendations on finding proper specimen geometry for reducing temperature gradient along the gauge part of specimen will be given to create homogeneous temperature as much as possible in order to avoid uncertainty in consequent results of HTT

کلمات کلیدی:

Temperature prediction, Hot torsion test, Simulation

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