

**PERTURBATION FACTORS OF UNIAXIAL COMPRESSION TEST IN GLEEBLE 3800 SYSTEM**

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**Abstract**

The paper presents results of research concerning the impact of different values of friction coefficient on pressure during an uniaxial compression test. The study was conducted using a simulator of metallurgical processes Gleeble 3800 located at the Institute of Metal Forming and Safety Engineering in Czestochowa University of Technology. Cylindrical samples with dimensions of  $\varnothing 10 \times 12$  mm were upset at 1100 °C with a deformation of 15, 30, 45 and 60%. During the test such parameters like: temperature, strain, stress and pressure were recorded. In order to perform numerical simulations the flow curves obtained in the form of a table were loaded into the program Forge 2011. In the numerical simulation the coefficient of friction was varied in the range  $0.05 \div 0.4$  and friction factor in the range  $0.1 \div 0.8$ . The obtained results allowed to compare changes of barreling deformation of the sample and the pressure. The results allowed also to modify the plastometric curves and to continue the process of the numerical studies of real metal forming processes.

**Keywords:** Uniaxial compression test, plastometric curves of steel, physical and numerical simulations, system Gleeble 3800

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