305-070 Work Hardening and Dislocation Arrangements in the High Temperature Plastically Deformed Stainless Steel

Luis Henrique Leme Louro
Monteiro, S. N. (1); Louro, L. H. L. (1); Candido, V. S. (1); Margem, F. M. (2)/(1) Military Institute of Engineering; (2) State of University of the Northern Rio de Janeiro

Austenitic stainless steels exhibit two distinct work hardening stages associated with high temperature plastic deformation. In the present work the development of the dislocation arrangements in the both stages was investigated by transmission electron microscopy. It was typically found that since the beginning of the first work hardening stage, a dislocation ell structure is formed with {100} orientations. This structure is consolidated at the transition point between stages after which dynamic recovery mechanisms became evident. The correlation between the dislocation arrangements and the work hardening behavior is discussed.