OPTIMAL TECHNOLOGICAL ROLLING PROCESSES CHOISE FOR IMPROVINGTHE MECHANICAL PROPERTIES OF X60 MICROALLOYED STEEL GRADE

Malek Lahreche, Samira. Tlili, D. BERDJANE, R. Benchouieb, G. Goldhahn

Abstract : Sider El-Hadjar is an integrated steelworks located at Annaba in Algeria which produces HSLA steels for welded pipes. In the present study, the main goal is to raise the mechanical properties and in the same time to reduce its variations. A co-operation research with TU BERGAKADEMIE Freiberg has been established in the aim to optimise the thermo-mechanical treatments in order to improve the mechanical properties of X60 steel grade for welded pipe. First, a data base of the main deformation parameters of X60 steel has been elaborated by different tests. Experiments using a pilot hot rolling mill allowed us to simulate in a pilot scale industrial operating process sequences. The results of rolling schedules performed on pilot mill, permitted to analyse the effect of deformation parameters on the kinetic evolution of grain size and evolution of mechanical properties of X60 steel grade. Finally, these results led to propose an appropriate technological rolling schedule for Sider El-Hadjar hot rolling plant.

Keywords : HSLA steels, X60 steel grade, mechanical properties, Rolling mill.