

Nb alloyed lean duplex stainless steel (LDSS) design using thermodynamic modelling



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"LOWER SOLUTION-TREATMENT TEMPERATURES COULD INHIBIT GRAIN

GROWTH IN LDSS" – Is Nb addition an answer for reduction of solution-treatment temperatures?

The design of a lean duplex steel alloy with Nb addition was performed with the aid of thermodynamic simulations using Thermo-Calc[®] software and TCFE7 database. Both equilibrium condition and Scheil-Gulliver non-equilibrium solidification were simulated, varying Nb content.







phases in the as-cast and/or solutiontreated microstructures, must be helped not only by equilibrium calculations, but also by the study of Scheil-Guliver non-









predicted

in both

Scheil and

equilibrium

simulations