RESEARCHES REGARDING THE INFLUENCE OF THE DEFORMATION DEGREE, HEATING AND END OF DEFORMATION TEMPERATURE OVER THE GRAIN SIZE AND THE MECHANICAL CHARACTERISTICS OF FERITIC STAINLESS STEEL WITH HIGH PURITY (C MAX 0.015%, MO 2-2.5%, S MAX 0.007%, TI MICROALLOYD)

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Abstract

The paper presents the research results made for the realization of feritic stainless steels with high purity, used in the food industry.

The action targets at replacing austenitic stainless steels, with 9-12% Ni (expensive and cancerous element) with high purity feritic stainless steels (Cr, Mo, stabilized with Ti or Nb), with corrosion characteristics in certain high exploitation environments and domains, elaborated on a CIV+RAV flux. In addition to the chemical elements covered by the experiment (C=0.009%, S=0.006%, H=2ppm, O=15ppm), special importance was given to the plastic deformation at heat process, for studying a number of technologic and structural characteristics with have a great influence over the mechanical and corrosion properties of feritic steels.

In order to determine the final technology for heat treatment and deformation, a number of processes have been approached, including the study of the deformation temperature (beginning and end) over grain size, the study of the relation between heating temperature, degree of deformation and grain size, the relation between feritic grain size and mechanical characteristics.

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