

317-027

PROJECT AND CONSTRUCTION OF AN AUTOMATED CONTROL FOR A LABORATORY VAR FURNACE

Mucsi, C.S.(1); Nogueira, E.J.(1); Rossi, J.L.(1); Alencar, M.C.(1); Jesus, E.R.B.(1); De Andrade Amorin, T.C.(1);

Instituto de Pesquisas Energéticas e Nucleares(1); Instituto de Pesquisas Energéticas e Nucleares(2); Instituto de Pesquisas Energéticas e Nucleares(3); Instituto de Pesquisas Energéticas e Nucleares(4); IPEN(5); Instituto de Pesquisas Energéticas e Nucleares(6);

The quality of an alloy is intrinsically connected to the melting environment and the stability of the melting conditions. This is specially true when dealing with aerospace and nuclear oriented alloys. This work present the efforts in the development of an automated control system for the operation of a laboratory scale VAR (Vacuum Arc Remelting) furnace to be used in the melting of zirconium alloys. An automated control was devised using micro controllers to control electrode position to keep a constant electric arc length despite variations in the electrode consumption. The operation of the furnace was recorded by means of data acquisition system in order to analyse and keep track of the furnace parameters behaviour. Results show that the operation parameters were kept within the specified margins maintaining the furnace power well controlled.