

316-030

PREPARATION OF ZIRCALOY 4 ELECTRODES FOR VAR FURNACE MELTING FROM SECONDARY SCRAPS

Mucsi, C.S.(1); Dos Reis, L.M.(1); Rossi, J.L.(1); Jesus, E.R.B.(1);

Instituto de Pesquisas Energéticas e Nucleares(1); Instituto de Pesquisas Energéticas e Nucleares(2);

Instituto de Pesquisas Energéticas e Nucleares(3); IPEN(4);

During the production of fuel rod parts for the Angra dos Reis nuclear reactors fuel elements, large amounts of secondary scraps are generated creating the need of dedicated large storing facilities. In an effort to reduce the volume of stored scraps a new process was devised to allow the feasibility of the scrap compacting and recycling via vacuum arc melting. The process comprises the washing of the scraps in order to remove the machining cutting fluid, quality control of the material by means of X-ray fluorescence, magnetic separation and pressing of clean scrap in square section electrodes. The produced electrodes are to be melted in a laboratory VAR furnace. Results indicate that the electrodes present adequate characteristics mechanical characteristics to be used in a specially modified VAR furnace, in a process to reduce volume and allow the reutilization of expensive Zircaloy 4 scraps.