

Microstructural Properties of Unirradiated RPV Model Steels Revealed by Doppler Broadening Spectroscopy

Jarmila Degmová^{1, a)}, Vladimír Kršjak¹, Matej Zlatař², Martin Petriska¹, Stanislav Sojak¹, and Jana Šimeg Veterníková¹

¹*Institute of Nuclear and Physical Engineering, Faculty of Electrical Engineering and Information Technology, Slovak University of Technology, Ilkovičova 3, 812 19 Bratislava, Slovakia.*

²*Faculty of Chemical Engineering and Technology, University of Zagreb, Marulićev trg 19, 10 000 Zagreb, Republic of Croatia.*

^{a)} Corresponding author: jarmila.degmova@stuba.sk

Abstract. The so-called “RPV Model Steels”, represented by 12 ferritic steels with the parametric variation of alloying elements were developed at EC - JRC Petten (the Netherlands). Their composition was derived from compositions typical for WWER-1000 and PWR RPW materials. In order to understand the role and influence of certain alloying elements and impurities on the behavior of steels during operation of NPP, the set of RPV Model Steels was irradiated in the High Flux Reactor -LYRA irradiation facility (Petten, the Netherlands) up to a neutron fluence of about 2.5×10^{19} n.cm⁻². In this paper, we present the detailed analyses of DBS results obtained on an unirradiated set of RPV model steels.