

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

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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 $2.5 \times 10^{19} \text{ n.cm}^{-2}$. In this paper, we present the detailed analyses of DBS results obtained on an unirradiated set of RPV model steels.