

HOT LABORATORIES: VALIDATION FOR BURN-UP ANALYSES

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ABSTRACT

Demands on both commercial and experimental irradiations in the HFR are continuously increasing and this increases the need for dedicated simulation tools that predict the inventory of a material during and after an irradiation. These demands may vary from fast and reasonably accurate estimates, e.g. to answer a phone call of a potential client, to time consuming and extremely detailed analysis, e.g. for the irradiation of advanced fuels as part of a European contract.

NRG has over the years developed these dedicated inventory, or more popular, burnup tools. The code CRISSTA was developed for the fast and reasonably accurate simulations and comes with a user-friendly interface; the code OCTOPUS was developed for the extremely detailed analysis and is an expert code. The merits of both codes will be discussed together with illustrative examples of recent analyses.

An important aspect in developing and using the several burnup codes is the validation of their results with experimental data. Interestingly, only a very limited amount of experimental data is available that can be used for validation. This data and the validation results will be subject of discussion.