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P2.161 Tritium Removal system for the Experimental Pilot Plant for D-T separation located at Rm. Valcea

Tuesday, 18 September 2018 11:00 (2 hours)

A pilot plant for tritium removal from tritiated water is in pre-operational stage at ICSI Ramnicu Valcea and is based on catalytic isotopic exchange (LPCE) between tritiated heavy water and hydrogen/deuterium followed by cryogenic distillation (CD) aiming to recover tritium. As any detritiation plant or tritium processing plant/laboratory, also the Expriemntal Pilot Plant for D-T separation (PESTD) from Rm. Valcea requires a tritium removal system (TRS) with the main aim to recover tritium from gases used during maintenance of the rigs prior to their discharge to environment. In the same time the TRS is continuously connected, during normal operation of the plant, to the tritiated water containing tanks within the plant for a pressure management inside, similar as for ITER-WDS. In the specific case of the PESTD, TRS was given a secondary active role and that is to operate in closed loop with the LPCE and CD, suppling the LPCE with a specific flow rate of tritiated water, at a specific T2 concentration by obtaining it from the product of the CD process. This secondary role has been given with the purpose of minimizing the on-site T2 inventory for various types of experiments with the plant.
This paper will present a general schematic of the processes involved and under implementation, together with some specifications of the equipment that make the systems.

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