

Effect of Tritium Storage Vessel and Aluminum Secondary Container on Calorimeter Performance

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A calorimeter was integrated in KEPTL (KEPRI Tritium Laboratory) and the various performance tests were performed [1]. The inventory of the tritium delivered to the ITER tritium plant will be measured by calorimetry. Before the calorimetry the tritium transport vessel will be inserted in an aluminium secondary container for the tritium leak prevention. The heat capacity and geometry of measuring objects, however, can affect the performance of the calorimeter such as measuring time, sensitivity, etc.. For the investigation of these effects, two dummy beds simulating tritium decay heat and two aluminium secondary containers are designed and manufactured. One of the dummy beds has 10 electric heaters and the position of the heaters in the dummy bed can be vertically changeable. Both of the dummy beds can be evacuated to vacuum and the aluminium containers can be filled with helium for realizing the similar condition to the ITER tritium transport vessel. In this paper, effects of tritium transport vessel and aluminium secondary container on the calorimeter performance are introduced.