

## **Towards QA specification of Li-Pb eutectic alloy as nuclear material. Qualification of commercial and R&D material ingots**

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Lead-lithium eutectic alloy should be qualified as nuclear material to be used as tritium breeding material in EU ITER HCLL Test Blanket Module (TBM). One of the main question that it is necessary to fix is the composition of the eutectic alloy closing controversy whether the eutectic point is in the range of 15.7 - 17 % Li. Furthermore the amount of impurities that would be acceptable for fusion technology applications for ITER and beyond.

This work was designed for developing an experimental procedure which will allow to characterize de Pb-Li alloys with the minimum accuracy for fusion technology point of view. The paper is focussed on three different characterization techniques, i.e., XRD Microscopy analysis, DSC experiments and ICP-MS analysis. The results obtained allow to perform a quality standard method for Li and traces element alloys presented in the eutectic Pb-Li alloy.

Two different material ingots have been characterized. First one in a commercial material (Stachow GmB) and another one a R&D material produced at IPUL, Latvia.

The proposed methodology and the experimental results obtained allows to measure the total amount of Li in the bulk alloy ingot and localized and determinate the segregation of Li (as Li in excess) generated in different parts of the ingot as a consequence of cooling thermal treatment.