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| **WPPWIE Deliverables Status Report** | | | | | **Date:** | | | 01-Sep-2022 | | |
| **Subproject:** | SP B / Experiments on erosion, deposition and material migration | | | | **Deliverable ID** | | | PWIE-SP B.4.T-T002-D008 | | |
| **Deliverable owner:** | A. Hakola (VTT) | | | | **Deliverable due date** | | | 31-12-2022 | | |
| **WP Leader:**  **SP Coordinator:** | S. Brezinsek (FZJ)  A. Hakola (VTT) | | | |  | | |  | | |
| **Task title:** | SP B.4 Reference coatings for ITER and DEMO | | | | | | | | | |
| **Deliverable title:** | RBS, NRA, ERDA, LIBS, and SIMS characterization of selected Be and W reference samples (VTT) | | | | | | | | | |
| **Status:** |  | **Completed** |  | **Partially completed** | |  | **Delayed** | |  | **Cancelled** |
| Please write a short status report (max. ½ pages) here.  Please check the status of the deliverable(s) with a “x” in the row above.  If the deliverable(s) are delayed, please also indicate an estimated completion date in the report text.  If the deliverable(s) include machine time, please indicate the number of days that have been used for the deliverable(s) in the report text.  For reference, the specification of this task from the PMP is given below. | | | | | | | | | | |
| **Reference from PMP:** | | | | | | | | | | |
| The overall objective of the Task is to produce and characterize reference coatings and test components such that they could simulate the re-deposited layers observed in fusion devices and to investigate the role of different production parameters on their structure, composition, impurity contend, and erosion and retention characteristics. In addition, a separate activity will be production of marker layers for experiments under SP B if development work is needed in the production phase. Once recipes for depositing layers are in an advanced state, samples for experiments in SP A, SP C, SP E, and SP X can be produced upon request. | | | | | | | | | | |
| **Inputs required:**   * Table of requirements for the properties of reference samples - with SP A, SP C, SP D, SP E and SP X   Deposition systems available for WPPWIE | | | | | | | | | | |
| **Tasks to be performed:**   * Production and characterization of W reference coatings, multilayer structures, and proxies for re-deposited layers with varying composition, morphology, and grain structure (ENEA) * Production and characterization of Be reference coatings with varying composition, morphology, and grain structure (IAP) * Production and characterization of W reference coatings and proxies for re-deposited layers with varying composition, morphology, and grain structure (IAP) * Chemical and microstructural characterization of the produced Be and W reference layers (CEA) * Compositional and microstructural characterization of the produced W reference layers (CIEMAT) * Compositional characterization of the produced Be and W reference layers (IST) * Identifying fuel-retention properties as well as the surface state and composition of the produced Be and W reference layers (JSI) * Compositional characterization (broad-beam and µbeam) of the produced Be and W reference layers (RBI)   Identifying elemental composition at different depths throughout the produced Be and W reference layers (VTT) | | | | | | | | | | |
| **Deliverables:**   |  |  | | --- | --- | | **Deliverable ID:** | **Deliverable Title:** | | D001 | W-based coatings with pre-defined properties (incl. SEM, AFM, TDS characterization) produced for analyses and plasma experiments (ENEA) | | D002 | Be and W-based coatings with pre-defined properties (incl. SEM, XRD, GDOES, TDS characterization) produced for analyses and plasma experiments (IAP) | | D003 | Raman, SEM, and CLSM characterization of selected Be and W reference samples (CEA) | | D004 | SEM and SIMS characterization of selected W reference samples (CIEMAT) | | D005 | RBS and NRA characterization of selected Be and W reference samples (IST) | | D006 | TDS, XPS, XRD, and SEM characterization of selected Be and W reference samples (JSI) | | D007 | ERDA and PIXE characterization of selected Be and W reference samples (RBI) | | D008 | RBS, NRA, ERDA, LIBS, and SIMS characterization of selected Be and W reference samples (VTT) | | | | | | | | | | | |
| **Management Information**  **Human Resources (2022)**:   |  |  |  |  | | --- | --- | --- | --- | | **Deliverable Owner** | **Beneficiary** | **PM** | **Deliverable (Team)** | | M. Passoni | ENEA | 3 | D001 (G. Alberti, D. Dellasega, L. Laguardia, M. Passoni, M. Pedroni, A. Uccello, E. Vassallo) | | C. Porosnicu | IAP | 7 | D002 (F. Baiasu, B. Butoi, S. Cornel, P. Dinca, M. Gherendi, E. Grigore, S. Ion, C. Lungu, S. Parlog, O. Pompilian, C. Porosnicu, C. Ruset, Z. Valer) | | C. Pardanaud | CEA | 2 | D003 (R. Bisson, G. Giacometti, C. Martin, C. Pardanaud) | | D. Alegre | CIEMAT | 3 | D004 (D. Alegre, A. de Castro, F. Tabares, M. Gonzalez Viada) | | E. Alves | IST | 2 | D005 (E. Alves, N. Catarino, R. Mateus, R. Silva) | | V. Nemanic | JSI | 4 | D006 (V. Nemanic, M. Panjan, M. Zumer (TDS), J. Zavasnik (XPS, XRD)) | | I. Bogdanovic Radovic | RBI | 2 | D007 (I. Bogdanović Radović, S. Fazinić, Z. Siketić, T. Tadić) | | A. Hakola | VTT | 2 | D008 (A. Hakola, P. Jalkanen, J. Likonen, K. Mizohata, T. Vuoriheimo) | | **Total** |  | **25** |  |   **Machine Resources (2022):**   |  |  |  |  | | --- | --- | --- | --- | | **Device** | **Beneficiary** | **Days** | **Related Deliverable** | | Accelerator | IST | **3** | D005 | | Accelerator | RBI | 5 | D007 | | Accelerator | VTT | 1 | D008 | |  |  |  |  |   **Other resources:**   * Travel: Participation of members from UT in LIBS measurements of Be samples at VTT   **Collaborations:**   * IO and ITPA DivSOL   **Other information:**  Connected to TSVVs associated with WPPWIE | | | | | | | | | | |