

TOPIC: I - Materials Technology
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Recent EU activities for IFMIF EVEDA in the framework of the Broader Approach

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In the framework of the negotiations for the definition of an ITER site the European Union and Japan agreed to develop a number of important projects of common interest for the rapid realisation of fusion energy. Between these projects the Engineering Validation and Engineering Design Activities (EVEDA) phase of the International Fusion Materials Irradiation Facility (IFMIF) was included.

The objective of the EVEDA phase of IFMIF is to perform reliability tests of key components and to produce a final design to be able to start IFMIF components manufacture as soon as the construction decision is taken. The activities to be developed in the EVEDA phase were discussed in 2003 and described in the IFMIF Conceptual Design Report.

In the present Transition Phase the IFMIF activities has been performed mainly by Europe and substantial progress has been achieved, e.g., in qualification of a replaceable backwall and of test modules, as well as in the characterisation of the neutron and deuteron induced activation inventories in various parts of IFMIF, including the development of an IFMIF-oriented European library for cross-section data. In addition alternatives have been studied for different IFMIF facilities, including a beam raster technique to provide a stable deuteron beam profile, and specifically a superconducting Drift Tube Linac for the Accelerator Facility. A special effort has been also made to compile available information in a systematic approach. Preliminary versions of the Safety Analysis Report, Materials Selection Guide, Materials Handbook, Remote Handling Handbook and Design Description Document for Test Facility were written or are under preparation.

Taking into account these results two further realisation scenarios for IFMIF, the “Aggressive European Proposal for combination of EVEDA and CODA” and the “Optimised EVEDA Schedule” were proposed and compared with the reference case. The last one has been accepted by the partners for further development in the future. Both have been developed with the main purpose of shorten the time until IFMIF full operation is achieved and to reduce the overall risks of the project.

In this presentation the main technical developments obtained in Europe during the last few years will be summarized. Based on this, the main technical issues to be solved during the EVEDA phase will be also reviewed in the framework of the present scenario for IFMIF.